

APPENDIX A

Approved TOR

January 2013

**PROPOSED TERMS OF REFERENCE FOR
ENVIRONMENTAL ASSESSMENT OF THE
PROPOSED CAPITAL REGION RESOURCE
RECOVERY CENTRE**

VOLUME 1



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APPENDICES

APPENDIX A

Criteria for Comparative Evaluation of Alternative Sites

APPENDIX B

Alternative Haul Route and Leachate Treatment Assessment Criteria

APPENDIX C

EA/EPA Work Plans

C-1 North Russell Road Site Work Plans

C-2 Boundary Road Site Work Plans

ACRONYMS, UNITS AND GLOSSARY OF TERMS

Definition of Acronyms	
Acronym	Definition
CAZ	Contaminant Attenuation Zone
C&D	Construction & Demolition
CDD	Conceptual Design Document
CLI	Canada Lands Inventory
C of A	Certificate of Approval
CRRRC	Capital Region Resource Recovery Centre
D&O	Design and Operations (report)
EA	Environmental Assessment
EAA	<i>Environmental Assessment Act</i>
EAC-SC	Environmental Advisory Committee Sub-committee, Twp. of Russell
EASR	Environmental Assessment Study Report
ECA	Environmental Compliance Approval
EPA	<i>Environmental Protection Act</i>
GRT	Government Review Team
IC&I	Industrial, Commercial & Institutional
MNR	Ministry of Natural Resources
MOE	Ministry of the Environment
MSW	Municipal Solid Waste
O. Reg.	Ontario Regulation
OWRA	<i>Ontario Water Resources Act</i>
SD	Supporting Document
Taggart Miller	Taggart Miller Environmental Services
TOR	Terms of Reference
TSD	Technical Support Document
UCPR	United Counties of Prescott Russell
Definition of Units	
ha	hectare
km	kilometre
m	metre
m ³	cubic metres

Glossary of Terms	
Term	Definition
Approval	Permission granted by an authorized individual or organization for an undertaking to proceed.
Buffer area	That part of a landfill site that is not a waste fill area.
Certificate of Approval (Waste)	An approval issued by the Ministry of the Environment for the establishment and operation of a waste management site/facility. Now referred to as an Environmental Compliance Approval.
Design and operations (D&O) plan	A document required for obtaining an Environmental Compliance Approval, which describes in detail the function, elements or features of the landfill site/facility, and how a landfill site/facility would function including its monitoring and control/management systems.
Design capacity (Total Disposal Volume)	The maximum total volume of air space available for disposal of waste at a landfill site for a particular design (typically in m ³).
Diversion Facilities	Processing of incoming waste streams to recover or convert materials for subsequent use or re-use and thereby divert them from disposal.
Environment	As defined by the <i>Environmental Assessment Act</i> , environment means: <ul style="list-style-type: none"> (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 (ecosystem approach).
Environmental Compliance Approval	An approval issued by the Ministry of the Environment for the establishment and operation of a waste management site/facility.
Evaluation criteria	Evaluation criteria are considerations or factors taken into account in assessing the advantages and disadvantages of various alternatives being considered.
Haul route	Private and/or public roadway(s) used by vehicles transporting waste to and from a waste management facility, usually excluding a highway.
Indicators	Indicators are specific characteristics of the evaluation criteria that can be measured or determined in some way.
Landfill site	An approved site/facility used for the final disposal of waste.

Glossary of Terms	
Term	Definition
Leachate	Liquid that drains from solid waste in a landfill and which contains dissolved, suspended and/or microbial contaminants from the breakdown of this waste.
Natural Environment	The air, land and water, or any combination or part thereof, of the Province of Ontario.
Non-putrescible	Waste material not containing significant quantities of organic or other decomposable material.
Proponent	A person who: (a) carries out or proposes to carry out an undertaking, or (b) is the owner or person having charge, management or control of an undertaking per the <i>Environmental Assessment Act</i>
Service Area	The geographical area from which a waste management facility is permitted to receive waste materials for processing and/or disposal.
(the) Site	The property proposed for the CRRRC Project.
(the) undertaking	The proposed Capital Region Resource Recovery Centre as described in this Terms of Reference and the final environmental assessment documents.

1.0 INTRODUCTION

1.1 Purpose of the TOR

This document is the proposed Terms of Reference (TOR) for the environmental assessment (EA) of a new proposed integrated waste management facility - Capital Region Resource Recovery Centre (CRRRC) – to be located in the Capital Region of eastern Ontario. If approved, the CRRRC would provide facilities and capacity for recovery of resources and diversion of materials from disposal for wastes that are generated by the Industrial, Commercial and Institutional (IC&I) and Construction and Demolition (C&D) sectors in Ottawa and eastern Ontario. It would also provide landfill disposal capacity on the same Site for post-diversion residuals and materials that are not diverted. Taggart Miller Environmental Services (Taggart Miller) is the proponent for this undertaking.

This TOR is being submitted to the Ontario Minister of the Environment (the Minister) for approval under the Ontario *Environmental Assessment Act* (EAA). If approved, the TOR provides the framework for the EA studies that will follow.

1.2 Background

Taggart Miller is a joint venture formed to pursue, obtain approvals for and operate the proposed CRRRC. The partners are Taggart Investments Inc. and Miller Waste Systems Inc.

The Taggart group of companies is an Ottawa-based, Canadian family-owned business specializing in civil infrastructure construction with other operating companies providing general contracting/construction management services; are proponents of a wide range of housing developments from single family to high rise condominiums; and, the acquisition, development and management of industrial sites, commercial office and retail space and residential real estate. Taggart Investments Inc. is part of the Taggart group of companies, with interests in construction, engineering and property management.

Miller Waste Systems Inc. is also a family-owned Canadian company providing waste management services in Ontario, Manitoba and the Maritimes. Miller Waste Systems Inc. designs, builds and operates facilities to provide long term, economically viable waste management solutions (collection, recycling, diversion, transfer) for municipalities and private sector customers. Miller Waste Systems Inc. has recently secured collection contracts for a significant portion of Ottawa's residential waste and is interested in the opportunity to extend its services more broadly in the Capital Region and eastern Ontario. (Ottawa's residential waste is disposed at the City's Trail Road waste facility and would not go to the proposed CRRRC).

The Province of Ontario and the City of Ottawa have clearly stated objectives to significantly increase the diversion of IC&I and C&D waste materials from disposal. As discussed elsewhere in these TOR and in **Supporting Document #1**, current diversion rates are significantly below City and provincial targets. Taggart Miller believes it can significantly assist in achieving these objectives by developing and operating a new integrated waste management facility. The facility would primarily serve Ottawa and secondarily portions of eastern Ontario for waste materials generated by the IC&I and C&D sectors. The facility would provide increased materials resource recovery capacity for waste from these sectors. Since it is currently not (and may never be technically or economically) possible to divert all materials from disposal, there will be a need for residuals disposal. The proposed integrated waste management facility would help meet the current provincial and municipal diversion goals.

1.3 Location of Proposed CRRRC Facility

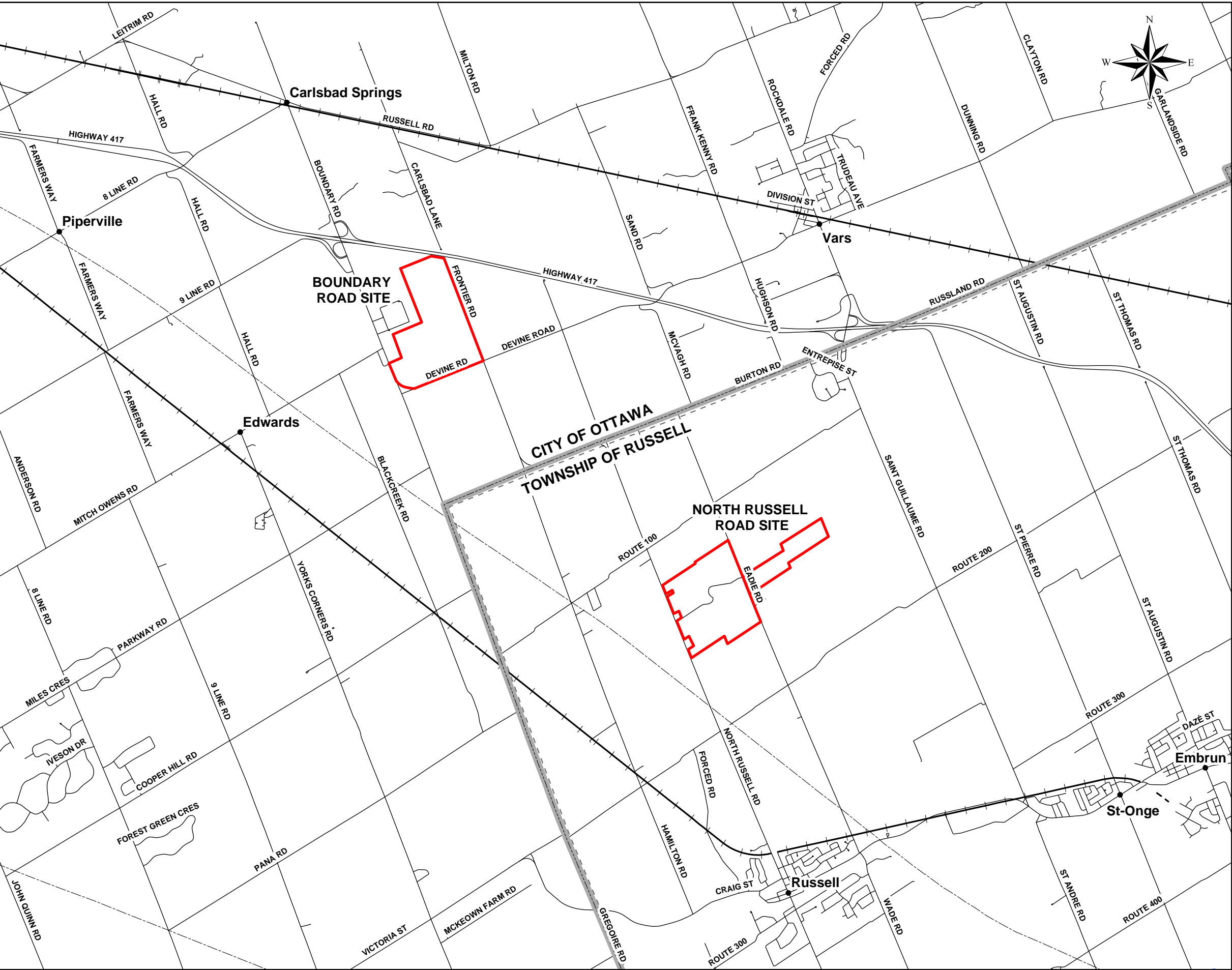
Taggart Miller has identified and secured two potential Sites for development of the proposed project. The locations of the two Alternative Sites are shown on **Figure 1-1**.

One Site - the North Russell Road Site - is located in the northwest part of the Township of Russell about three kilometres east of the boundary with the City of Ottawa, about five kilometres south of Provincial Highway 417 between the Boundary Road and Vars exits, and approximately three kilometres north of the Village of Russell boundary, and approximately four kilometres north of the centre of the Village. Taggart Miller owns, or has options to purchase, contiguous lands at this location totalling about 193 hectares (about 476 acres) on Part of Lots 18 and 19, Concessions III and IV, Township of Russell.

The second Site - the Boundary Road Site - is located in the east part of the City of Ottawa just southeast of the Highway 417/Boundary Road interchange. The property is located on the east side of Boundary Road, north of Devine Road and west of Frontier Road, and east of an existing industrial park. Taggart Miller has acquired about 175 hectares (430 acres) of land on Lots 23 to 25, Concession XI, Township of Cumberland.

If additional lands are acquired by Taggart Miller for development of the proposed project, they will be added to the defined Site and included in the Environmental Assessment.

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LEGEND

POPULATED PLACE NAME

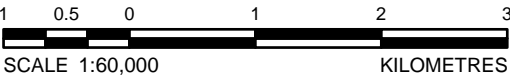
ROADWAY

RAIL

UTILITY

TOWNSHIP OF RUSSELL BOUNDARY

CITY OF OTTAWA BOUNDARY



REFERENCE


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PROJECT

TERMS OF REFERENCE FOR ENVIRONMENTAL ASSESSMENT OF THE CAPITAL REGION
RESOURCE RECOVERY CENTRE

TITLE

ALTERNATIVE SITE LOCATION PLAN



Golder Associates
Ottawa, Ontario

PROJECT No.	09-1125-1008-7000	SCALE	AS SHOWN	REV.	0
DESIGN	BGS	22 Feb. 08			
GIS	PJM	26 Jul. 2012			
CHECK	PLE	7 Sept. 2012			
REVIEW	PAS	7 Sept. 2012			

FIGURE 1-1

2.0 THE ENVIRONMENTAL ASSESSMENT PROCESS

This section describes the environmental assessment (EA) process applicable to the undertaking.

2.1 Ontario Environmental Assessment Act

Ontario Regulation (O. Reg.) 101/07 for Waste Management Projects, which was made under the EAA, states (in part) that some waste management projects, regardless of whether the proponent is public or private sector, are designated under the Act¹. According to Section 2 of O. Reg. 101/07, a new landfill is subject to an EA if it exceeds a total volume of more than 100,000 m³. The disposal component of the proposed CRRRC will exceed this threshold. Accordingly, the landfill component of Taggart Miller's undertaking is subject to an individual EA process. The diversion components of the proposal are subject only to the EPA and the OWRA. Taggart Miller have however elected to make the entire CRRRC (i.e., both the diversion and disposal components) subject to the EAA.

An EA under the EAA is a planning study that among other things assesses environmental effects and advantages and disadvantages of the 'undertaking'. The 'environment' is considered in broad terms that include the natural, social, cultural and economic aspects of the environment. In an individual EA, the first step in the process is to develop a proposed TOR for the EA studies. The TOR is submitted to the MOE for review. As noted above, once approved, the TOR becomes the framework under which the EA must be prepared.

On November 10, 2010, Taggart Miller initiated the EA process by publishing a Notice of Commencement of the EA in local newspapers, on Taggart Miller's EA website, and by mail to the Government Review Team (GRT), Aboriginal communities and other identified community stakeholders. A copy of the Notice of Commencement is contained in the Consultation Record (see **Volume 2** of this TOR submission).

2.2 Purpose and Organization of Terms of Reference

The TOR and its Appendices and Supporting Documents consist of three volumes; Volume 1 - Terms of Reference, and its appendices (this volume); Volume 2 - Consultation Record for the development of the TOR, and; Volume 3 – Supporting Document #1.

Volume 1 is organized into the following sections and appendices:

- **Section 1** provides an introduction to the TOR and background information.
- **Section 2** describes the environmental assessment process, presents the purpose and organization of the TOR, includes the submission statement (i.e., how the TOR is being submitted for approval), identifies the proponent, and discusses flexibility in the TOR.
- **Section 3** provides a statement of the purpose of the undertaking.
- **Section 4** provides a summary of the analysis of the opportunity for the undertaking (discussed in greater detail in **Volume 3 - Supporting Document #1**).
- **Section 5** provides a summary of the assessment of alternatives to the undertaking.

¹ Ministry of the Environment, 2007. Ontario Regulation 250/11 (Amending Ontario Regulation 101/07), Waste Management Projects. Made under the Ontario Environmental Assessment Act. Revised June 2011

- **Section 6** provides the conceptual description of the diversion facilities proposed to be constructed and operated at the proposed CRRRC.
- **Section 7** provides an overview of the existing conditions in the study areas that may be affected by the undertaking for each of the two alternative Sites.
- **Section 8** provides the proposed EA methodology.
- **Section 9** summarizes the consultation plan for developing this TOR and preparing the EA.
- **Section 10** discusses the proposed schedule for preparing the EA and other approval applications.
- **Section 11** describes other approvals that may be required.
- **Section 12** provides statements of commitments by the proponent to be completed during the EA.
- **Appendices** to the TOR consist of: Appendix A - Criteria for Comparative Evaluation of **the Alternative Sites**; Appendix B- Alternative Haul Route and Leachate Treatment Assessment Criteria, and; Appendix C - EA/EPA Work Plans for each of the Alternate Sites.

Volume 2 presents the record of the consultation process for the development of the TOR.

Volume 3 contains Supporting Document #1, which describes Taggart Miller's analysis of the opportunity and of the preferred approach for Taggart Miller to respond to this opportunity.

2.3 Identification of Proponent

Taggart Miller Environmental Services (Taggart Miller) is the proponent for the proposed undertaking. The contact for this undertaking is as follows:

Mr. Hubert Bourque
Project Manager/Directeur de projet
Taggart Miller Environmental Services
c/o 225 Metcalfe Street, Suite 708
Ottawa, Ontario K2P 1P9
Tel: 613-454-5580
Fax: 613-454-5581
Email: hjbouque@crrrc.ca

2.4 Terms of Reference Submission Statement (How the Environmental Assessment Will be Prepared)

These proposed TOR are submitted to the MOE for approval pursuant to subsections 6(1) and 6.1(3) of the EAA. As contemplated by subsection 6(2)(c) of the EAA, these proposed TOR set out in detail the requirements for the preparation of the environmental assessment. The environmental assessment of the proposed CRRRC will focus on identifying the preferred Site, the configuration of the preferred Site, impact assessment of the preferred Site development concept, and leachate treatment options. The analysis of the opportunity and the assessment of Alternatives To the undertaking are summarized in this TOR and in more detail in **Supporting Document #1**.

The rationale for the undertaking and an assessment of alternatives to the undertaking are contained in **Supporting Document #1** to these proposed TOR. The rationale for the undertaking is summarized in Section 4.0. The assessment of Alternatives To considered a number of options as summarized in Section 5.0 of the TOR and described in further detail in **Supporting Document #1**. Alternative 3 - establish diversion facilities on a Taggart Miller Site and manage residuals disposal by means of a new landfill on the same Site – was determined to be within the proponent's ability, experience and expertise to implement and to provide at an affordable, competitive cost to Taggart Miller and to IC&I and C&D sector customers, and was identified as the preferred alternative.

Once a preferred site and a preferred site development concept are identified in the initial steps of the EA, Taggart Miller will assess the potential impacts associated with all components of the proposed integrated diversion and disposal facility in the EA. In addition, an assessment of cumulative effects of the proposed project and of any existing or certain and probable planned projects in the area of the Site will be completed as part of the EA. While the application for EPA approval will only be submitted after EA approval, the supporting documentation package for the EA application will contain the information necessary to support an EPA application, such that the reviewers have detailed information on the proposed project at the time of considering the application for EA approval.

The environmental assessment will contain the following:

- (a) a description of the undertaking
- (b) a description of and a statement of the rationale for,
 - i. the undertaking, and
 - ii. the alternative methods of carrying out 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 upon or the effects that might reasonably be expected upon the environment, by the undertaking and the alternative methods of carrying out the undertaking in accordance with the provisions of these TOR;
- (d) an evaluation of the advantages and disadvantages to the environment of the undertaking and the alternative methods of carrying out the undertaking; and
- (e) a description of any consultation about the undertaking by the proponent and the results of the consultation.

2.5 Flexibility of Terms of Reference

While these TOR are intended to set out in detail the requirements for preparing the EA, this document does not and cannot present every detail of every aspect of the proposed EA. Furthermore, it is possible that, in carrying

out the EA contemplated in the proposed TOR, minor variations may be necessary or desirable. Such variations may include the following:

- Minor changes in methodology or an alteration in the level of details in the studies contemplated by these TOR. This may be in response to studies in the EA that show effects to be greater or less than previously anticipated or due to the content and quality of information available from data sources; and
- Modifications to the proposed public consultation program.

The modifications described above and similar modifications would be considered minor changes to the TOR that could be accommodated within the framework of these TOR without seeking approval for an amendment to these TOR. Taggart Miller would document and discuss any proposed minor modifications to the TOR in advance with the MOE.

3.0 PURPOSE OF THE PROPOSED UNDERTAKING

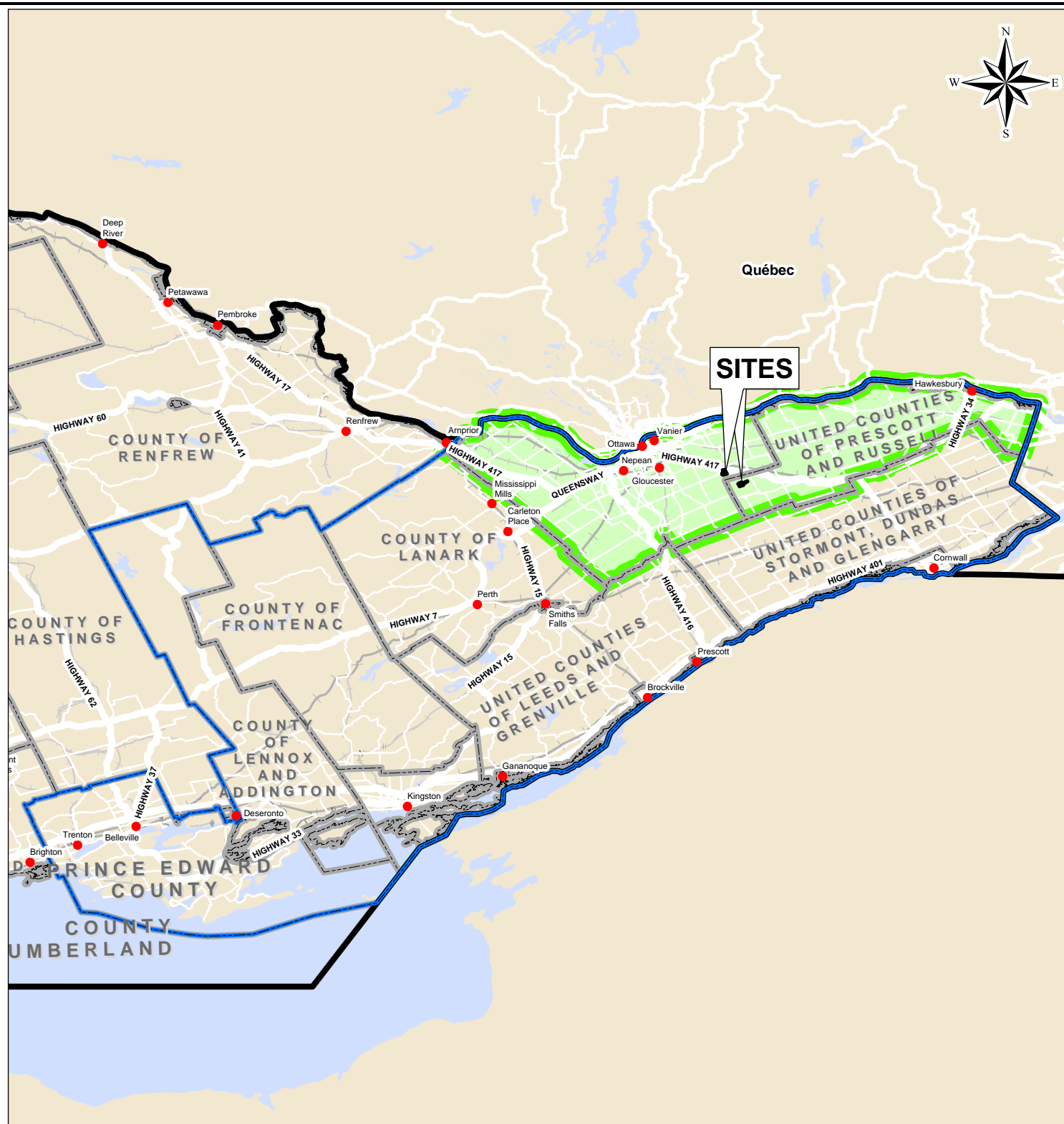
The purpose of the proposed undertaking is:

To provide facilities and capacity for recovery of resources and diversion of materials from disposal for wastes that are generated by the Industrial, Commercial and Institutional (IC&I) and Construction and Demolition (C&D) sectors in Ottawa and eastern Ontario. It would also provide landfill disposal capacity on the same site for post-diversion residuals and materials that are not diverted.

The proposed service area is shown on Figure 3-1 and consists of the City of Ottawa, and the Counties of Prescott-Russell; Stormont, Dundas and Glengarry; Lanark; Leeds & Grenville; Frontenac; Lennox and Addington; and, Prince Edward. It is anticipated that the CRRRC would receive waste primarily from the Capital region.

The purpose statement may be refined as necessary or appropriate during the EA.

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LEGEND

- PLACE NAME
- ▬ PROVINCIAL BOUNDARY
- ▬ UPPER TIER MUNICIPALITY
- ▬ PROPOSED SERVICE AREA
- ▬ EXPECTED PRIMARY SERVICE AREA

REFERENCE

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PROJECT

TERMS OF REFERENCE FOR ENVIRONMENTAL ASSESSMENT
OF THE CAPITAL REGION RESOURCE RECOVERY CENTRE

TITLE

PROPOSED SERVICE AREA



PROJECT No. 09-1125-1008			SCALE AS SHOWN	REV. 0
DESIGN	PLE	Aug. 2011		
GIS	JEM/BR	10 Jul. 2012		
CHECK	PLE	7 Sept. 2012		
REVIEW	PAS	7 Sept. 2012		

FIGURE 3-1

4.0 RATIONALE FOR AND DESCRIPTION OF THE UNDERTAKING

4.1 Overview

Taggart Miller undertook an analysis in order to understand whether there was an opportunity to provide waste management services focused on resource recovery of IC&I and C&D wastes in the Capital Region and eastern Ontario. The analysis is presented in **Supporting Document #1** to these TOR and is summarized below.

Taggart Miller's analysis considered current market conditions and how these conditions might affect the opportunity. The study looked at established provincial and municipal programs, goals and policies, and identified existing facilities. It also considered factors affecting current and likely future diversion rates for IC&I and C&D waste materials.

The Province has identified increased diversion from landfill of IC&I and C&D waste materials as a waste management priority². Taggart Miller found that province-wide progress in reducing the amount of waste going to disposal has stalled, primarily due to lack of progress in diverting IC&I and C&D waste materials that comprise about two thirds of the overall waste generation. In view of the large percentage of the total waste stream that is comprised of IC&I and C&D waste, and the present low rate of diversion being achieved of about 13 to 14 %, the IC&I and C&D sector represents the greatest opportunity for increasing overall waste diversion. The City of Ottawa has recognized that diversion of IC&I and C&D wastes is encumbered by the lack of affordable diversion services and facilities, and has indicated that waste recovery facilities and stable markets need to be established within a financially feasible distance of Ottawa.³ Current market conditions present an opportunity for the provision of additional waste management services for IC&I and C&D wastes in the Capital Region and eastern Ontario.

4.2 Opportunity Analysis

4.2.1 Identifying an Opportunity

There is a well established and clearly stated desire, expressed both by the Province of Ontario and the City of Ottawa, to significantly increase diversion of materials from disposal for the IC&I and C&D sector. Taggart Miller conducted an analysis to determine how it could respond to this business opportunity to provide waste management services in the Capital Region and eastern Ontario. In addition to residential and IC&I and C&D wastes, Taggart Miller also considered other waste materials that must be managed, such as contaminated and surplus soils that originate from land development and construction projects. Taggart Miller's analysis, including the supporting references, is presented in detail in Sections 1.0 and 2.0 of **Volume 3 – Supporting Document #1** and summarized in this section.

The provision of services and systems for collection and diversion of materials from residential sources and disposal of residuals is a municipal responsibility. However, the collection, diversion and disposal of IC&I and C&D materials is largely left to direct contract arrangements between the private sector generators and privately owned collection, diversion and disposal facilities. At this time, and in the absence of new provincial regulation, any decision by individual IC&I and C&D waste generators to divert their IC&I waste materials is mostly voluntary.

² Ministry of the Environment, 2008. EBR Registry Number: 010-4676. Web reference: <http://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTA0NjEy&statusId=MTU2Njg2&language=en>

³ Discussion Paper, *Phase 2 Reference Document, Ottawa's 30-Year Waste Plan*. June 2012.

Despite provincial policy statements on achieving 60% diversion of wastes from landfill, only limited progress has been made province-wide for the IC&I sector. The MOE proposed in 2008 that one of the key “building blocks” to achieving the long-term vision of “zero waste” would be an increase in the diversion of IC&I waste⁴. Similarly, the City of Ottawa has stated objectives to divert IC&I and C&D waste from landfilling, but these efforts too have met with limited success. The City can only exercise very limited control on or influence over the way IC&I and C&D waste materials are managed by the private sector. It is estimated that only about 12 to 14% of IC&I and C&D waste materials in the Capital Region and provincially are diverted from disposal. The private sector has not invested sufficiently in facilities in the Ottawa area (and the Province) to process recyclables from the IC&I / C&D sector to achieve the provincial and local diversion objectives. As a result, the majority of IC&I and C&D wastes still go to disposal. The majority of participants in the City of Ottawa’s current consultation process on a 30 year waste management plan feel it is important to find local waste management solutions. Taggart Miller believe there is a need and an opportunity for additional diversion infrastructure in the Capital Region for diversion of IC&I and C&D waste materials. The City has indicated recently that local businesses and institutions are encumbered in their waste diversion efforts by the lack of affordable diversion services.

*Based on the foregoing factors and analysis, as presented in detail in **Supporting Document #1**, Taggart Miller concluded that there is an opportunity to provide new environmentally safe waste management services for IC&I and C&D wastes in eastern Ontario.*

4.2.2 Quantifying the Opportunity

Taggart Miller then undertook an assessment to quantify and better understand the opportunity to provide these services to the IC&I and C&D sector. The assessment is presented in Section 3.0 of **Supporting Document #1**. A potential service area was identified, consisting of the City of Ottawa and a selected area of eastern Ontario. The existing known diversion and disposal facilities for IC&I and C&D waste materials were identified. The most up-to-date data available to Taggart Miller on waste generation and diversion within the potential service area was obtained and compiled, and future IC&I and C&D waste generation and materials requiring management by diversion and disposal were estimated. A well-established approach to estimate waste generation volume (for IC&I / C&D) as a direct function of population was used - future IC&I and C&D waste generation quantities were assumed to increase with increasing population. Statistics on current population were derived from published Statistics Canada sources (Statistics Canada, 2010) and City of Ottawa data (2010) and used to estimate future IC&I and C&D waste generation volumes.

The amount of IC&I and C&D waste required to be managed over time by a combination of increased diversion and disposal is the total waste generated minus the amount currently diverted. These values were extrapolated out 35 years in the future to quantify the need today and in the future. The planning period used was 2016 to 2046, corresponding to a 30 year planning period from the projected timing of commencing operations for the proposed CRRRC.

The known main diversion and recycling facilities currently available to the IC&I and C&D sector in the City of Ottawa and surrounding eastern Ontario area include:

- Tomlinson Environmental Services;

⁴ Ministry of the Environment, 2008. EBR Registry Number: 010-4676. Web reference: <http://www.ebr.gov.on.ca/ERS-WEB-External/displaynoticecontent.do?noticeId=MTA0NjEy&statusId=MTU2Njg2&language=en>

- Metro Waste Recycling Inc.;
- Tomlinson Environmental Services (former Goulbourn Sanitation); and
- Laflèche Environmental.

The proposed service area includes municipalities that are within a feasible and reasonable transportation distance of the site (e.g., about 200 km). Publicly owned possible disposal options in the anticipated primary service area that were considered include:

- City of Ottawa Trail Road Landfill; and
- City of Ottawa Springhill Landfill.

Plasco Energy Group, although a privately owned company, is currently seeking to develop a facility to manage a portion of the residential waste from the City of Ottawa.

Except for residuals from C&D processing at the Springhill Landfill, these facilities generally deal with disposal of residential waste, and therefore do not serve the IC&I and C&D waste generators that are the opportunity targeted by the CRRRC.

Privately-owned landfill disposal sites that presently service, or have the potential to service IC&I and C&D generated in eastern Ontario include:

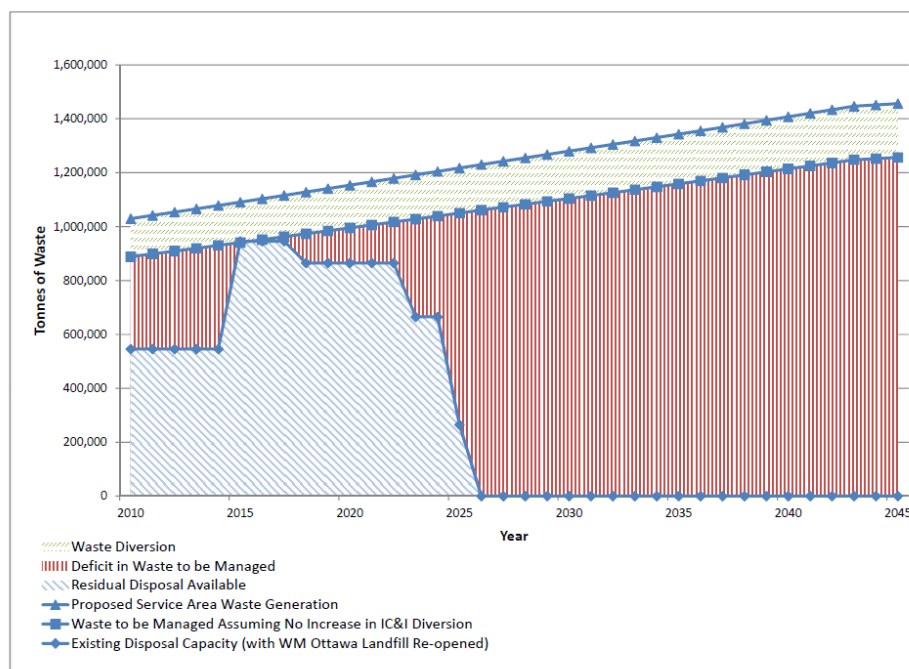
- Waste Management's Ottawa (Carp Road) Landfill (currently not receiving waste, EA process to re-open the landfill in progress);
- BFI Navan Landfill; and
- Laflèche Environmental.

The quantity of waste currently and projected to be generated from the IC&I and C&D sectors was estimated, together with the amount of waste that could actually be handled by the above-mentioned facilities. A generation rate of 833 kilograms of IC&I and C&D waste per capita per year for the City of Ottawa in 2010 was utilized. The IC&I and C&D waste generation rate outside the City of Ottawa but within the proposed service area was estimated to be 567 kg/capita in 2008. Each of these generation rates were increased throughout the 35 year assessment period by 1.2% based on the projected population increase. For this analysis, the current diversion rate of IC&I waste materials was held constant throughout the 35 year assessment period, as there is no reasonable basis to assume anything else at this point, absent investment in facilities like the proposed CRRRC. For the licensed disposal sites, assumptions were made on the annual amount of IC&I and C&D wastes they are likely to receive for disposal, and the period of time until their approved capacity is consumed was also estimated. The difference between the quantity of waste to be managed and the existing diversion rate and approved disposal capacity was considered both with and without the approval of re-opening the Waste Management Ottawa landfill.

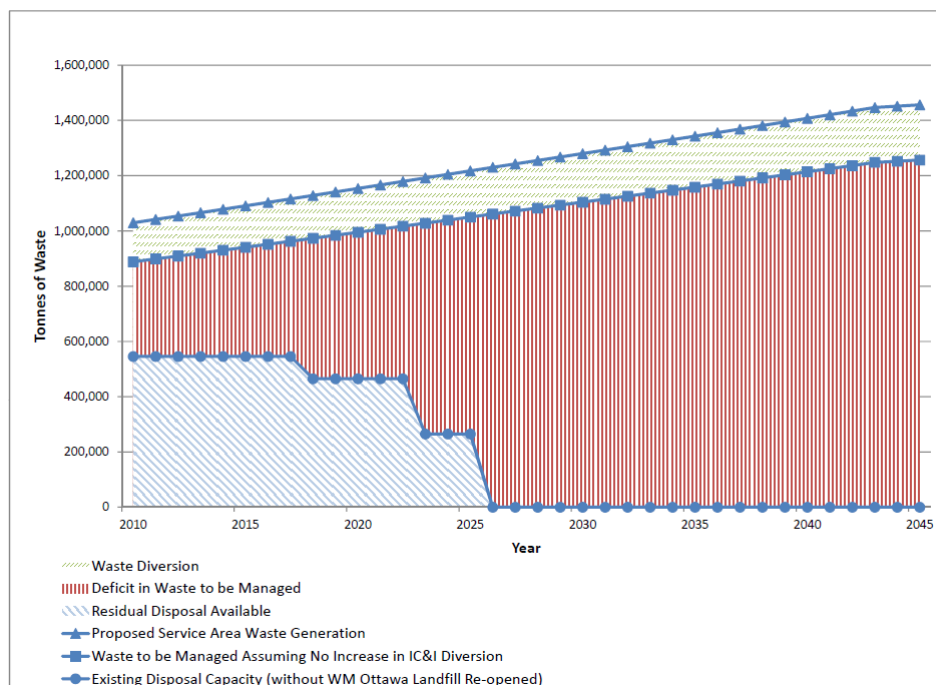
Based on the current diversion rates and the indicated population growth, the quantity of IC&I and C&D material requiring management over the analysis / planning period is approximately 1,000,000 tonnes per year using 2010 as the base year, increasing gradually to approximately 1,500,000 tonnes in 2046. If re-opening of the Waste Management Ottawa Landfill is approved, and assuming it commenced operations in 2015, this would improve the available waste management capacity by 400,000 tonnes of disposal per year. Combined the existing landfills (including a re-opened Waste Management Ottawa site) would be expected to satisfy a good

portion of the projected annual need for IC&I and C&D waste management through 2025 (although doing little to increase diversion from disposal). The effect of the Waste Management Ottawa Landfill not being approved to re-open would be to increase the waste-management deficit by 400,000 tonnes per year. It is acknowledged that the available waste disposal capacity in the Capital Region is larger than described above if the total approved annual disposal rate at the Laflèche site is considered; however, if this full annual capacity were to be actually utilized, the remaining approved operating life of this site would be correspondingly decreased and currently approved capacity would still be estimated to be depleted around 2025. After this time, which is relatively short in terms of waste management planning, an IC&I and C&D waste management deficit would remain as described below. See Figures 4.2-1 and 4.2-2 below.

*Figure 4.2-1: Proposed Service Area IC&I Waste Generation, Diversion and Existing Disposal
(with WM Ottawa Landfill Re-opened)*



*Figure 4.2-2: Proposed Service Area IC&I Waste Generation, Diversion and Existing Disposal
(without Re-opening of WM Ottawa Landfill)*



The analysis concluded that in the absence of increased diversion capacity/rates and/or additional approved disposal capacity, there could be a IC&I and C&D waste management capacity deficit in the proposed service area of anywhere from 350,000 tonnes per year to 1,250,000 tonnes per year in the period between 2015 and 2046. The current transfer of approximately 200,000 tonnes⁵ of Ottawa area IC&I waste for disposal elsewhere reflects the current diversion and disposal deficit in the proposed service area. It is believed that waste from the Capital Region is currently exported to privately owned facilities New York State, as well as in the Gatineau, Quebec area. The current deficit in availability of facilities to manage IC&I and C&D waste in the service area is also demonstrated by the transfer of waste from the Kingston and Belleville areas for disposal in New York State.

*Based on the detailed assessment presented in Section 3.0 of **Supporting Document #1**, and summarized above, Taggart Miller concluded that there is a clear opportunity and need for IC&I and C&D waste management services in the Capital Region and eastern Ontario over the 2016-2046 planning period, and that it is in a good position to respond to this opportunity/need. Without the private sector taking the lead on investments in diversion and residuals disposal infrastructure of the sort envisaged by Taggart Miller with respect to this proposed integrated waste management facility, there is no reasonable prospect of meeting local or provincial diversion goals given the current waste management infrastructure in the proposed service area.*

An overview of the alternatives that Taggart Miller considered to respond to this opportunity are discussed in Section 5.0 of the TOR, together with the screening assessment conducted to decide on the alternative that Taggart Miller determined was preferred to pursue for the proposed CRRRC. Additional details on the Alternatives To screening assessment that Taggart Miller conducted are described in Section 4.0 of **Supporting Document #1**.

⁵ 2010 and 2011 Annual Reports for BFI Canada Inc. 2628 Glenfield Drive, Ottawa, Ontario, Certificate of Approval No. 7652-76KQN7.

5.0 ASSESSMENT OF ALTERNATIVES TO THE UNDERTAKING

After concluding that there was a clear opportunity and need for waste management services to the IC&I and C&D sector in eastern Ontario over the 2016-2046 planning period, Taggart Miller conducted an assessment to determine the best way to respond to this opportunity. In EA terms this is referred to as “Alternatives To” the proposed undertaking. The assessment of Alternatives To is contained in Section 4.0 of **Supporting Document #1** and summarized below.

In order to better meet the waste management needs of their business, the Taggart group of companies commenced a search for a suitable site for a waste management facility within the Capital Region prior to the announcement of this project in 2010. Identification of a potentially suitable property was judged to be one that would meet the following basic requirements:

- The property should be of sufficient size (at least 400 acres), and be relatively square/rectangular in shape;
- No obvious material land use constraints;
- The property should be fairly close to a major (400 series) highway to provide an access route, and should also be sited so that truck routes would allow a minimal amount of site-related traffic from having to travel through urban or village centres; and
- The property should be in reasonable proximity to the centre of waste generation in the Capital Region.

The parcel of land comprising the licensed Hanson Brick quarry, located east of North Russell Road between Routes 100 and 200 in the north portion of Russell Township, was identified as being well situated within the Capital Region, meeting the above noted criteria. When the property was available for sale (as a result of the former owners shutting their brick manufacturing operations in Ottawa), negotiations began and were successfully completed eighteen months later. Once the additional lands adjacent to the quarry parcel itself that would be required to create an optimum integrated waste management project site had been assembled, the Taggart group and Miller Waste Systems formed a joint venture to evaluate and pursue this business opportunity together.

Through various means of consultation commencing after announcement of the project in November 2010, members of the public in Russell Township expressed concerns about the merits of the proposed North Russell Road Site (“good project, wrong site” was the title of the initial homepage of the “Dump the Dump Now” group website). It was suggested that Taggart Miller should be considering a site closer to major transportation routes and with fewer immediate neighbours. It was also suggested that Taggart Miller should be looking for a site in the City of Ottawa given that the proposed facility would be primarily servicing businesses located in the City.

Taggart Miller was ultimately able to identify an alternative site with many of the characteristics that members of the public had suggested Taggart Miller should be considering. Through negotiations over a period of 12 months, that site was secured. The alternative Site is located on the east side of Boundary Road, north of Devine Road and west of Frontier Road. This property is within the City of Ottawa, close to the Highway 417/Boundary Road interchange, adjacent to an existing Industrial Park with few existing immediate neighbours. The Site is underlain by a thick deposit of silty clay soil. Of interest, the Site is within the area identified by the Regional Municipality of Ottawa-Carleton as the preferred location for a new regional landfill site in the late 1980’s, prior to the Region abandoning its waste management master plan study.

The locations of the North Russell Road Site and the Boundary Road Site are shown on **Figure 1-1**. Taggart Miller considers that both sites are suitable for the CRRRC project, and proposes to compare the characteristics of the two Sites in the first step of the EA study process to identify the preferred Site for the project.

As described previously, the primary objective of the project is to establish a long term business for recovery of resources from the IC&I and C&D sector and diversion of these IC&I and C&D waste materials from disposal. However, there will be process residuals as well as materials that are not diverted which will require disposal, particularly given the relatively undeveloped IC&I diversion market and the limitations of current diversion technology.

Taggart Miller identified a number of alternative ways to address the diversion and disposal opportunity, as follows:

Alternative 1 - Do-Nothing;

Alternative 2 - establish diversion facilities on a Taggart Miller Site and transfer residuals to other existing disposal sites in Ottawa, in eastern Ontario or in New York State;

Alternative 3 - establish diversion facilities on a Taggart Miller Site and manage residuals disposal by means of a new landfill on the same Site;

Alternative 4 - establish diversion facilities on one of the Taggart Miller Sites and manage residuals disposal by means of a landfill located off-Site at the other Taggart Miller Site; and

Alternative 5 - establish diversion facilities on one of the Taggart Miller Sites and manage residuals disposal by means of a thermal conversion facility on the same Site.

A screening assessment of the identified alternatives was conducted by considering the following questions:

- Does the alternative realistically address the identified opportunity?
- Is the alternative financially realistic and viable for Taggart Miller in terms of economic risks and benefits?, and
- Is the alternative within Taggart Miller's ability to implement?

Taggart Miller also considered if the alternatives were likely to be approvable (i.e., meet applicable environmental requirements, standards and policies); as all were judged as likely to be approvable, this screening criterion is not presented. In addition, Taggart Miller considered if the alternatives were likely to use proven technology. As all alternatives were judged to be likely to use proven technology; this screening criterion is also not presented.

The advantages and disadvantages of the alternatives were also considered.

The results of the screening assessment are presented in **Table 5-1** below.

Table 5-1: Feasibility Screening of Alternatives

Screening Questions	1 Do Nothing	2 Diversion on a Taggart Miller Site, residuals disposal at other existing sites in Ottawa, eastern Ontario or New York State	3 Diversion on a Taggart Miller Site, residuals disposal on the same Site	4 Diversion on a Taggart Miller Site, residuals disposal at a landfill on the other Taggart Miller Site	5 Diversion on a Taggart Miller Site; residuals disposal using thermal technologies on the same Site
Does the alternative realistically address the identified opportunity?	No	Yes	Yes	Yes	Yes
Is the alternative financially realistic and viable for Taggart Miller in terms of economic risks and benefits?	N/A	No. For an integrated waste management facility focused on IC&I waste diversion to be able to cost-effectively deliver these services to the market, and to justify the upfront investment in diversion facilities in a competitive environment against disposal only options and in the absence of established end markets for material, Taggart Miller has concluded it is essential to have the diversion and disposal components available on the same Site	Yes	No. For an integrated waste management facility focused on IC&I waste diversion to be able to cost-effectively deliver these services to the market, and to justify the upfront investment in diversion facilities in a competitive environment against disposal only options and in the absence of established end markets for material, Taggart Miller has concluded it is essential to have the diversion and disposal components available on the same Site	No. This would involve very large capital costs to construct. Without a guaranteed waste stream for a long period of operation, and with the need to rely on a landfill elsewhere to dispose of residuals and residues, Taggart Miller has concluded this is unaffordable and economically far too uncertain

Screening Questions	1 Do Nothing	2 Diversion on a Taggart Miller Site, residuals disposal at other existing sites in Ottawa, eastern Ontario or New York State	3 Diversion on a Taggart Miller Site, residuals disposal on the same Site	4 Diversion on a Taggart Miller Site, residuals disposal at a landfill on the other Taggart Miller Site	5 Diversion on a Taggart Miller Site; residuals disposal using thermal technologies on the same Site
Is the alternative within Taggart Miller's ability to implement?	N/A	Yes. Taggart Miller has the internal resources to operate a diversion business	Yes. Taggart Miller has the internal resources to operate both a diversion business and a landfill	Yes. Taggart Miller has the internal resources to operate both a diversion business and a landfill	No. This is not within Taggart Miller's core business competence

A summary of the identified advantages and disadvantages of the alternatives is presented below.

Alternative 1 - Do-Nothing: The Do Nothing alternative means not proceeding with a project to provide diversion of IC&I and C&D materials from disposal, which does nothing to provide the facilities required to assist Ottawa or the secondary service area in achieving the goal of increased IC&I and C&D diversion.

Advantages: None.

Disadvantages: This does not address the opportunity/need, nor does it satisfy Taggart Miller's desire to pursue this business opportunity.

Conclusion: This alternative was not given further consideration.

Alternative 2 - Establish diversion facilities on a Taggart Miller Site and transfer residuals to other disposal sites in Ottawa, in eastern Ontario or in New York State.

Advantages: This alternative would achieve the objective of establishing IC&I and C&D diversion facilities.

Disadvantages: There would be a reliance on other facilities at other locations owned by third parties to manage the disposal of residuals. Many of these facilities have limitations such as:

- Within the City of Ottawa, the BFI Navan landfill is only licensed to accept non-putrescible wastes and therefore would not be able to accept some of the residuals remaining after diversion. The City's Trail Waste Facility is intended to satisfy the City's long term needs for residential waste disposal, i.e., not for disposal of post-diversion IC&I and C&D residuals. The Springhill landfill has a limited remaining approved capacity and corresponding operating life at its current rate of capacity consumption, and its service area is limited to the former Osgoode Township and for residuals from the C&D recycling facility on the site. Waste Management's Ottawa Landfill has reached capacity and is

closed to receipt of waste pending the completion of an approvals process to re-open; as such, the availability of disposal capacity at this site is uncertain at this time. Further, the expansion capacity currently being sought is for only 10 years, whereas the planning period being used by Taggart Miller is 30 years to 2046;

- The Laflèche facility in North Stormont Township is appropriately licensed to be able to accept materials for disposal and was considered; however if it operates at or near its approved annual capacity it will have exhausted its approved capacity around 2017. Even at approximately half its annual capacity the landfill will have exhausted its approved capacity around 2025, potentially leaving Taggart Miller without disposal capacity for 20 years of its 30 year planning period; and
- For transfer of residuals for disposal in landfill sites in New York State, it would be necessary to use a transfer facility for haulage either to the disposal location or to the existing privately owned transfer station in the east part of Ottawa. Reliance on disposal in the United States, access to which would depend on continued unconstrained cross-border transport, adds another level of complexity and risk.

Taggart Miller also noted that having the diversion and disposal components on the same Site minimizes the environmental footprint of the overall facility, as well as the transportation impacts (including the potential for traffic related accidents) of taking non-diverted materials from the Taggart Miller diversion facility Site to an off-site disposal location. Moreover and fundamentally, Taggart Miller are proposing an innovative waste diversion facility to serve a generator market, and produce recovered materials for end markets, that largely do not currently exist. To justify the investment and be able to provide cost-effective services to the marketplace, Taggart Miller believe it is essential to have the disposal component for residuals and materials that are not diverted on the same Site.

Conclusion: Use of off-site disposal options does not provide a reliable long term solution, nor was it judged to be sufficiently operationally or economically viable to justify the diversion facility investments by Taggart Miller.

Alternative 3 - Establish diversion facilities on a Taggart Miller Site and dispose of residuals and non-diverted material by landfill on the same Site.

Advantages: This alternative is entirely within Taggart Miller's control. It enables Taggart Miller to confidently make the significant investment in innovative diversion facilities in a competitive marketplace in the absence of established end markets for recovered materials and products.

Having both the diversion and disposal components on the same Site minimizes the environmental footprint of the overall facility, as well as the transportation impacts (including the potential for traffic related accidents) of taking non-diverted materials from the Site to an off-site disposal location.

Disadvantages: None identified.

Conclusion: This alternative provides a reliable and cost-effective long-term solution to justify the diversion facility investment by Taggart Miller.

Alternative 4 - Establish diversion facilities on one of the Taggart Miller Sites and manage residuals disposal by means of a landfill on the other Taggart Miller Site.

Advantages: This alternative would achieve the objective of establishing IC&I and C&D diversion facilities.

Disadvantages: As noted above, to justify the investment and be able to provide cost-effective services to the marketplace, Taggart Miller believe it is essential to have the disposal component for residuals and non-diverted waste available on the same Site.

Putting the diversion components of the facility on one Taggart Miller Site and the disposal component on the other one would also more or less double the environmental footprint of the facility for no apparent advantage. In addition, there would be increased transportation impacts associated with movement of residuals and non-diverted material from one Site to the other.

Conclusion: This alternative has no apparent advantages over Alternative 3 and a number of disadvantages.

Alternative 5 - Establish diversion facilities on one of the Taggart Miller Sites and manage residuals disposal by means of a thermal conversion facility on the same Site.

Advantages: Having both the diversion and disposal components on the same Site minimizes the environmental footprint of the overall facility, as well as the transportation impacts (including the potential for traffic related accidents) of taking non-diverted materials to an off-Site disposal location. It also puts the diversion and disposal components under Taggart Miller's control, which Taggart Miller believes is essential to justify the investment in diversion facilities.

Disadvantages: Thermal conversion technology alternatives typically involve very large capital costs to construct.

To be economically viable, thermal technologies require a long term (20 year plus) guaranteed waste supply contract (typically with a large municipality or municipalities responsible for managing the waste generated by their residents); this is not achievable for the IC&I and C&D sector where waste management arrangements are made individually and directly between the private sector customers and the privately owned diversion and disposal facilities under short term contracts.

Such thermal technologies, without a guaranteed waste stream (such as a long-term municipal collection and disposal contract) for a long period of operation, are in Taggart Miller's conclusion unaffordable and economically far too uncertain.

Moreover, Taggart Miller does not have the technical or business experience to operate a thermal destruction plant.

Conclusion: Taggart Miller concluded that this alternative is beyond their capacity to implement, and is not economical or competitive for the IC&I / C&D waste stream.

Based on the results of this assessment, Taggart Miller concluded that Alternative 3 - establish diversion facilities on a Taggart Miller Site and manage residuals disposal by means of a landfill on the same Site - was the only reasonable and economically feasible alternative for Taggart Miller to pursue.

5.1 Conceptual Description of the Undertaking

The proposed undertaking comprises the establishment of a new and innovative integrated waste management facility located on the Site identified as preferred for the project. The primary focus of the proposed CRRRC is diversion of IC&I and C&D waste materials from disposal through recycling and other processes. Wastes and process residuals that are not diverted will be disposed in a landfill on the Site.

It is envisaged that the facility would receive solid non-hazardous materials from the IC&I and C&D sectors originating primarily from within the Capital Region and secondarily from seven counties in eastern Ontario.

The diversion rate that can be achieved over time at the proposed integrated waste management facility will depend on many factors, including the types of waste received at the site, the amount of source separation, the markets for recovered materials, and the ability and need to provide a cost competitive waste management solution for IC&I and C&D customers. Government regulations can and likely will drive development in the IC&I and C&D diversion marketplace. Based on experience and the types of diversion facilities proposed to be constructed at the proposed CRRRC (as described in Section 6.0 of the proposed TOR), it is Taggart Miller's view that under the current regulatory structure, and by taking advantage of preferential rates for the production of renewable energy from anaerobic digestion, it should be possible over time to achieve 30 to 40% diversion of the incoming IC&I and C&D waste stream. Quality and composition of incoming materials will be important determinants of ultimate diversion rates, as will development of end markets for recovered material. Additional government regulations could significantly enhance this diversion rate.

Taggart Miller will assume for the purposes of the EA that the proposed CRRRC will accept waste at a rate of approximately 1,000 to 1,500 tonnes per day. Assuming a facility that is open 300 days per year, this is equivalent to annual waste receipts of the order of 300,000 to 450,000 tonnes per year. Using the possible diversion rate of 30 to 40 % of the incoming material from disposal, a typical waste density (0.8 tonnes/m^3), and a 4:1 waste to cover ratio, the corresponding landfill air space requirement to support the diversion facilities for a 30 year operating period ranges from about 8 to 14 million m^3 . For the purposes of the EA, Taggart Miller has assumed the landfill airspace requirement is likely to be in the 8 to 12 million m^3 range. EA impact studies will be carried out on the landfill airspace for which EA approval is ultimately sought. The airspace will be defined by the preferred Site development concept. This will enable the diversion facilities to operate for a sufficient period of time without being prematurely limited by the availability of on-site residuals disposal.

The actual rate of landfill airspace consumption would depend on the annual tonnage received and the amount that can be diverted over time by the on-site facilities. It is contemplated that the disposal cells would be developed progressively in stages as required, with approvals required from MOE under conditions in the EPA Environmental Compliance Approval on a stage by stage basis.

Additional information on the proposed diversion facility components of the proposed CRRRC is provided in the next section of these proposed TOR.

6.0 CONCEPTUAL DESCRIPTION OF PROPOSED CRRRC DIVERSION FACILITIES

The initial stages of the proposed IC&I and C&D diversion components at the CRRRC site will be developed as part of the initial site development, together with the first cell(s) of the disposal component and other infrastructure required to operate the new integrated waste management facility. Both the diversion and disposal components will be implemented at a scale appropriate for the level of business that might reasonably be expected during the initial period of site operation. The facilities will be scalable and their capacity will be increased over time in order to respond efficiently to changing market conditions and to any new government regulations mandating increased IC&I diversion.

There is currently limited source separation of IC&I and C&D waste materials in Ottawa and, as such, much of the IC&I and C&D materials are mixed (one exception, compared to other materials, is greater source separation of corrugated cardboard). This is an important factor in deciding on the types of diversion facilities that are appropriate and in the way they are designed, as well as in considering what diversion can be realistically and practically achieved in the early years of the CRRRC.

One of the key factors in successfully and effectively operating a diversion business is the development of relatively local markets where possible for the recovered materials. Taggart Miller is presently doing this in the other areas in which they operate diversion facilities, and expect to do the same in the Ottawa / eastern Ontario area.

Another important factor in the amount of material that can be diverted is the quality of the recovered material itself, which is typically improved by reducing mixing with other waste materials. As part of providing waste diversion and residuals disposal services, Taggart Miller propose to work with their IC&I and C&D customers, e.g., through ongoing education and provision of appropriate collection receptacles as end markets develop, to increase source separation of materials that are targeted for diversion, thereby enabling more cost efficient diversion of higher quality materials and achieving an overall increase in the potential diversion rate.

In addition to IC&I and C&D wastes, other materials must be managed, such as contaminated and surplus soils that originate from land development and construction projects. Contaminated soils that are classified as non-hazardous (in eastern Ontario, contaminated soils are most frequently impacted by petroleum hydrocarbons or metals) are typically taken to landfill sites. There is also a facility in eastern Ontario (Laflèche-Leblanc) that is licensed to treat contaminated soils for subsequent re-use. Ontario regulations as they apply to site redevelopment projects mean that soils that are surplus to the site needs often cannot be taken to other sites, and as such, licensed landfills are the recipients of these surplus soils. In the Ottawa area alone, it is estimated that the quantities requiring management amount to several hundred thousand cubic metres per year (City of Ottawa, 2007b). Treated soils could be used at the CRRRC for daily cover at the landfill component or for other purposes such as berming, on-site construction, on-site roads, site grading, etc., where appropriate, or provided to off-Site users as appropriate.

Taggart Miller proposes the following diversion facilities/operations for the CRRRC at this time:

- Material Recovery Facility (MRF);
- C&D Recycling;
- Organics Processing;
- Hydrocarbon contaminated soil treatment;
- Surplus soil management;
- Drop off for separated materials or for separation of materials; and
- Leaf and yard materials composting (if there is enough material available)

Each of these proposed diversion components are conceptually described below.

The Material Recovery Facility (MRF) will process and recover IC&I materials, and be designed to handle both mixed materials and source separated loads. The MRF operation will take place within a building, and basically consists of dumping from the haulage vehicles onto a tipping floor and then placing the materials onto equipment that uses a combination of both automated and manual sorting processes to separate out and recover designated materials according to their composition (plastic, metal, glass, paper, cardboard), with the remainder going to disposal.

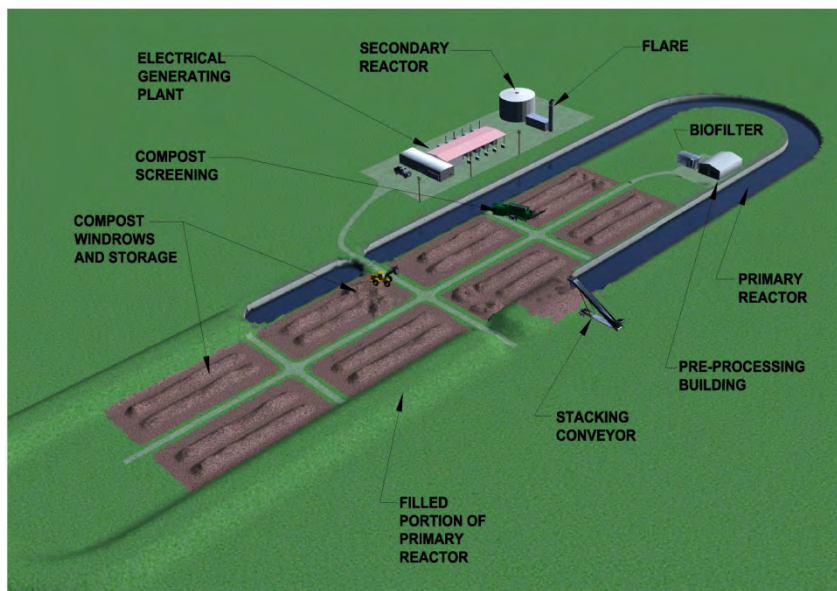


C&D Recycling will be carried out to recover waste materials received from construction and demolition projects, which are typically received at the site in roll off bins. Incoming loads would be segregated initially according to their main material components (mostly concrete, mostly wood (clean or dirty), mostly asphalt, etc.), which can then be further sorted for appropriate processing. The C&D recycling plant is typically an outdoor operation, although some components can be enclosed or partially enclosed. For example, metal is recovered directly; wood is often chipped or shredded for composting or made into mulch; asphalt is ground for re-use; and concrete is crushed. Materials that cannot be recovered will go to disposal.



An Organics Processing Facility will be constructed to remove the organics component from those portions of the IC&I waste stream that contain a sufficient amount of organics. Taggart Miller are currently proposing the implementation of a unique anaerobic digestion process that takes place within a covered facility, and is specifically designed to process the organics contained either within the highly variable mixed IC&I waste stream or source separated organics. The facility components and process train would consist of:

- A building within which the organic materials are initially stored and pre-processed until there is adequate quantity for processing; the building would be kept under negative pressure and exhausted through a bio-filter for odour control and storage times would be minimal;



- The primary reactor would have a liner to contain and capture the liquor generated by the organics processing. The organic material would be blended with a bulking agent and then placed in the lined cell; both air injection and gas collection piping would be installed within the material and the material then covered to form a sealed system that is kept under negative pressure. The cell would be completed with vegetated cover; the treatment process will take several hundred days to complete, resulting in a much higher level of stabilization and conversion of many potentially odorous compounds to a stable, non-odorous form;
- The collected liquor would be conveyed to a secondary reactor and converted to methane and carbon dioxide. The spent liquor would then be recirculated through the primary reactor. Decomposition of the organics will also generate methane gas. The gas will initially be sent to an on-Site flare. When in sufficient quantity, it would be sent to an electrical generation plant where the electricity may be used on-Site or connected to the grid if possible. If the gas is insufficient in quantity or for other reasons, it would continue to be sent to an on-site flare; and
- Once the organics decomposition is complete, the section of the primary reactor will be converted to aerobic operation to stabilize the treated material before it is removed and placed in an outdoor windrow composting area to undergo further treatment. The stabilized organics are screened to remove bulking agent and plastics, then could be used off-Site in agriculture as fertilizer or, if it contains unacceptable constituents, used on-Site for landfill cover or disposed.
- Once the organics decomposition is complete, the section of the primary reactor will be converted to aerobic operation to stabilize the treated material before it is removed and placed in an outdoor windrow

composting area to undergo further treatment. The stabilized organics are screened to remove bulking agent and plastics, then could be used off-Site in agriculture as fertilizer or, if it contains unacceptable constituents, used on-Site for landfill cover or disposed.

- If the proposed anaerobic digestion process described above is not initially approved by the MOE at commercial scale, Taggart Miller are willing to proceed with the above technology at a demonstration scale prior to proceeding with a full scale facility. If for whatever reason this technology is not approved by MOE, Taggart Miller will propose and utilize one or more other organics processing technologies that will meet all environmental requirements for approval by the MOE. If it becomes necessary to change the organics processing technology from that assessed in the EA, an amending procedure will be provided in the EA.

Decomposition of organic material within a landfill increases the strength of collected leachate requiring treatment, and results in the generation of landfill gas and potential odour releases. Organics processing prior to landfilling of residuals as proposed at the CRRRC will result in a more stabilized residual material and be beneficial in minimizing the potential environmental impact of the landfill.

Treatment of hydrocarbon contaminated soils. The CRRRC would treat these soils using a straightforward bio-treatment approach within lined and covered treatment cells; these cells could be located and constructed on various parts of the site over time. It is expected that the majority of the treated soils would be re-used on site.

The management of surplus uncontaminated soils or rock received from construction projects would involve stockpiling of these materials for re-use as daily cover for the waste or for other on-Site uses.

A typical grade-separated drop off facility to facilitate separation of recoverable materials from that requiring disposal would be provided. In addition, provision would be made for the acceptance of source separated leaf and yard waste materials, i.e., from landscaping and property maintenance contractors, which could either be co-processed with the organics in the anaerobic digestion process or in the open windrow composting operation.

The positioning of these diversion components within the overall CRRRC site development plan will be integrated with the disposal component and other Site works during the EA. Additional diversion components may be added to the CRRRC over time, as technology and/or the end markets develop.

7.0 EXISTING ENVIRONMENTAL CONDITIONS

The various aspects of the environment described in relation to existing conditions are: atmosphere, geology and hydrogeology, surface water, biology, cultural and heritage resources, land use and socio-economic, agriculture, and traffic. This section presents an overview of existing environmental conditions for each of the North Russell Road Site and the Boundary Road Site.

7.1 North Russell Road Site

■ Atmosphere Environment

The air quality in the Site vicinity is typical of air quality of rural eastern Ontario. Agricultural activities on the Site and in the Site-vicinity, as well as road traffic, contribute to baseline air quality/odour levels and occurrences, and noise levels. During operations, quarry activities on the Site also contributed to the background air (i.e., dust) and noise levels in the Site- vicinity. Site specific air, odour and noise information is limited and more detailed studies of background levels will be conducted during the environmental assessment if this Site is determined to be the preferred Site.

■ Geology and Hydrogeology Environment

The Site lies within a flat lying clay landscape with little topographic relief, interrupted by ridges of glacial till and/or bedrock. The Site is located within an extensive north-south trending deposit of glacial till soil, which typically consists of sandy silt to silty sand, with gravel, a trace of clay and variable cobble and boulder content. The till cover over the bedrock is relatively thin, likely varying from about zero metres to four metres, and below much of the site is underlain by shale bedrock of the Queenston Formation. Regionally, the till feature protrudes up through, and is surrounded by, an extensive deposit of marine silty clay. The thickness of the clay generally increases with distance from the till ridge feature, to about 30 metres thick; the clay is generally underlain by a basal gravelly till deposit followed by bedrock.

The results of studies completed by the Geological Survey of Canada indicates that there is a continuous, narrow, north-south oriented esker (coarse gravel) feature, extending about 40 kilometres from near the Ottawa River in the north to between Winchester and Chesterville in the south. In the northern portion of the esker and in the portion south of about Morewood, the esker is often exposed at surface and in some locations has been developed as sand and gravel pits. In the central portion, the esker is buried beneath a thick deposit of silty clay and rests on top of the bedrock surface. The studies report that in the area between about Limoges and south of Russell/Embrun, the esker core is an approximately 200 metre wide zone, located just over 4 kilometres east of Eadie Road (at the intersection of Route 200 and St. Pierre Road) and trending slightly northeast, buried within a 25 to 30 metre thick deposit of silty clay soil. This esker is an important source of existing and potential groundwater supply, currently supplying water to a number of communities, (i.e., Vars, Limoges, Winchester and Chesterville). The majority of recharge to the esker is thought to occur from direct precipitation on areas where the granular esker materials are exposed, although some recharge may also occur via the basal till unit.

In terms of the bedrock geology, the area of the property is shown as underlain by Queenston shale, which is the youngest formation of sedimentary rock in eastern Ontario. Queenston shale is a red, laminated to thickly bedded calcareous siltstone and shale. The property is located near the middle of a band of shale, which on published bedrock geology maps is shown as extending about 4 km west-east by 15 km north-

south. Based on preliminary site investigation work carried out by Taggart Miller, it has been found that about half way across the portion of the Site east of Eadie Road the soil thickness starts to increase, the shale is absent and the bedrock is limestone, i.e., the shale band is not as extensive in the eastward direction as interpreted on published mapping. The contacts between bedrock formations are typically caused by a series of near-vertical faults, which caused down-throwing of adjacent blocks of bedrock. To the south, the uppermost bedrock is limestone, while to the southwest and north it is Carlsbad formation layered shale and limestone.

In terms of regional hydrogeology, the groundwater flow direction in the bedrock and basal till is generally east to northeast. Based on preliminary investigations at the Site, groundwater flow on the Site is generally towards the east/northeast, with a local component of westerly shallow flow indicated in the western most portion of the Site.

Water supply to homes and farms in the rural area within which the Site is located relies on individual wells. Published information for the general area suggests that most wells obtain their groundwater from zones within the shale and limestone. Where the bedrock is overlain by the clay deposit, wells often obtain their water from a permeable zone at the soil to bedrock contact. In general, water quality gets poorer with depth, associated with the age of the water. Well depths vary considerably due to the changes in geological setting. The majority of the development within the villages of Russell and Embrun connected to a municipal water supply from the City of Ottawa in 2010, although some locations remain on individual wells.

■ **Surface Water Environment**

The Site lies within the Castor River watershed, which is managed by South Nation Conservation (SNC). Drainage in the area is mainly by a network of agricultural ditches, municipal drains and small creeks. The Fournier Municipal Drain runs through and along the north side and through the east portion of the Concession IV part of the Site. On-Site there are three lower lying areas where intermittent watercourses originate on the property and provide the current drainage. There is also standing water present within the existing quarry and there is no drainage outlet to the quarry. The local drainage networks in the area eventually flow south to the Castor River, located about 4.5 kilometres south of the Site. The Castor River enters the South Nation River about 20 kilometres downstream of Russell, which in turn eventually discharges to the Ottawa River. The Castor River is a relatively small river with quite low flows during the summer period and at other times of year.

■ **Biology Environment** (terrestrial and aquatic ecosystems)

The Site contains a mosaic of agricultural croplands and pasture, interspersed with cultural meadows (e.g. fallow fields) treed and shrubby hedgerows, scattered small woodlots and low-lying swamp areas. Based on the findings of preliminary field surveys carried out by the proponent during their assessment of project feasibility, the plant communities on the site are primarily those that are typical of an agricultural landscape and are common in the Ottawa area. A good proportion of the plants found on the Site are early succession 'waste' area species. The habitats and species observed on the Site during preliminary field surveys are typical of agricultural landscapes in the region. Assessments of potential significant or sensitive species, including Species At Risk, will be required as part of the EA studies, with reference to the current SAR species list and following the protocols agreed to with the MNR.

On-site watercourses were identified as the three depressed areas that contain intermittent watercourses, and the Fournier Municipal Drain on the east side of Eadie Road. The Fournier Drain also only flows intermittently, with its main flow during the year coming from the discharge of water from the quarry when it is being pumped. During preliminary field surveys, no fish were observed in any of these watercourses. The water contained in the existing quarry, when it is recharging after permitted pumping that has been conducted annually for many years as part of quarry operations, does not constitute aquatic habitat.

■ **Land Use and Socio-economic Environment** (current and planned future land uses)

The Site is located within the Township of Russell, which is a municipality within the United Counties of Prescott-Russell. The Township has a significant rural agricultural community and some rural residential development, with local commercial and institutional development within the Villages of Russell and Embrun. Russell and Embrun are located approximately 3 km south and 6 km southeast, respectively, of the closest limits of the Site. There has and continues to be growth through residential development, with the concentration being within the Villages and some in the rural areas mainly along existing rural road frontages; a large number of these residents are employed within the nearby City of Ottawa. The Township does not have significant industrial or commercial development, other than a partially developed industrial business park to the northeast of the Site. It is located at the southwest corner of the Highway 417/Vars Interchange (exit 88). It is envisaged that future development will be focused within the Villages; expansion of the boundaries of the Villages of Russell and Embrun on Rural designated lands has been suggested to provide additional lands for local development and for recreational/community use areas. There are no Rural designated lands between the Villages and the Site; that land is designated as protected Agriculture.

The existing land use in the area of the Site is primarily agricultural with accessory residential units. There are a limited number of rural residential uses on small lots. There are about 30 residences within 500 metres of the proposed CRRRC property boundaries; there are also some farm related uses.

There is a 43 rural lot subdivision (Stanley Crescent) located along Route 100 about 1 km to the west/northwest of the west boundary of the site. A cemetery is located on the west side of North Russell Road opposite the west end of the site. A 107 hectare portion of the overall 193 hectare site is licensed under the Aggregate Resources Act for shale extraction.

Land use for the area is subject to the United Counties of Prescott-Russell Official Plan. The portion of the site licensed for quarry operations is designated as Aggregate Extraction; the remainder of the site is designated as Agricultural Resource. The surrounding lands are also designated as Agricultural Resource.

From a visual perspective, the Site is situated on a local rise in what is otherwise fairly flat terrain. Much of the area has been historically cleared for agricultural purposes, with some natural features remaining in the form of local woodlots and treed fence lines.

■ **Agriculture Environment**

The majority of the land area in the study area is agricultural croplands and pasture, interspersed with cultural meadows (e.g., fallow fields), treed and shrubby hedgerows, scattered small woodlots and some low lying poorly drained areas. The County Official Plan identifies the western portion of the site as having a Class 1 agricultural capability, and the eastern portion as Class 2; this is based on the Canada Land Inventory (CLI) for Soils mapping. Based on a Site-specific preliminary assessment of agricultural soil capability, there

appears to be a discrepancy between the findings of this assessment and the CLI. Based on the Site work, only a small area is indicated to be Class 3 and the remainder is considered to be Class 4.

At present, the on-site lands are not cultivated except for a few fields in the south part of the property. The remainder are used for a variety of uses including pasture/hay, forested areas, and the shale quarry. Based on preliminary on-Site work, the presence of agricultural improvements such as tile drainage in the fields is not apparent.

■ **Cultural and Heritage Resources Environment**

There are no registered heritage buildings or archaeological sites in the Site-vicinity or within a three km radius. Based on preliminary work and guidance provided by the Ministry of Tourism, Culture and Sports, due to the presence of wet low lying lands in the Site-Vicinity, the lands are categorized as having a moderate potential for pre-contact archaeological resources. There is historical data that indicates that the properties were used for agriculture as early as the beginning of the nineteenth century.

■ **Traffic Environment**

Traffic is comprised of infrastructure and traffic conditions. The closest major provincial highway to the Site/study area is provincial Highway 417, located approximately 5 km north of the Site. Highway 417 interchanges are located at Boundary Road (exit 96) and Vars/St. Guillaume Road (exit 88), some 9 km northwest and 5 km northeast, respectively, of the Site. Based on the proposed service area for the proposed CRRRC, it is expected that the majority of site-related traffic would use the Vars and/or the Boundary Road exits should the North Russell Road Site be preferred. The road network between the interchanges and the site consists of rural collector and rural arterial roads owned by the City of Ottawa or the Township of Russell.

On the west side of the site is North Russell Road, a two lane rural road that runs north-south from Burton Road to the Village of Russell approximately 3 km to the south of the south boundary of the site. Eadie Road, a secondary rural road, divides the western and eastern portions of the site lands. Access between the Village of Russell and Highway 417 utilizes both Boundary Road and North Russell Road. Access between the Village of Embrun and Highway 417 mainly utilizes St. Guillaume Road.

There are no airport facilities in the Site-vicinity that could potentially be affected by the proposed undertaking.

Shale Extraction: Historically, a portion of the Site was used for the extraction of shale for brick making. If the North Russell Road is identified as preferred for the project, the former use of the Site for shale extraction will be considered in the EA when describing the existing environment. The central and eastern parts of the Site property were formerly owned by Hanson Brick, and consist of a quarry licensed under the Aggregate Resources Act for shale extraction. The existing quarry has operated for about a century; approximately 1 million cubic metres of shale has been extracted over this period, such that the existing quarry covers an area of about 15 hectares to a depth of about 8 to 11 metres below ground surface. Published information estimates that the majority (about 93%) of the Queenston Formation shale resources in Ontario are located in the Niagara

escarpment area of southern Ontario, with the shale in Russell Township representing about 7%⁶. The reserve in the licensed quarry on the Site is reported to represent less than 1% of the reserve in Ontario. The extracted shale is used for the manufacture of bricks. In Ontario, brick manufacturing is predominantly carried out at two major facilities in southern Ontario by Hanson Canada Brick and Brampton Brick; these are located close to the much larger Queenston shale deposit/quarries and close to the major market for manufactured brick, the two key economic factors in this industry. Prior to Taggart Miller purchasing the Site, it was owned and operated by Hanson Brick, which also operated a brick manufacturing facility on Highway 31 at Rideau Road in south Ottawa. In 2006, Hanson Brick decided to discontinue quarry operations and brick manufacturing in the Ottawa area and consolidate their Ontario operations at their southern Ontario facility because it was no longer economically viable to continue in eastern Ontario. In addition to being farther from a major market, the chemical-physical properties of the Queenston shale in Russell Township are less favourable than those of the Formation in southern Ontario, making the manufacture of brick more expensive due to the need for additional physical processing and an additive to plasticize the shale.

7.2 Boundary Road Site

■ Atmosphere Environment

The air quality in the Site vicinity is typical of air quality in rural eastern Ontario. The baseline air quality, noise and odours are primarily the result of a combination of the adjacent Highway 417 and Boundary Road traffic, the activities in the industrial park immediately to the west, and agricultural operations located in the area of the site. Site specific air, noise and odour information is limited and more detailed studies of existing background levels will be conducted during the environmental assessment if this Site is determined to be the preferred Site.

■ Geology and Hydrogeology Environment

The Boundary Road Site lies within a flat lying clay landscape with little topographic relief, interrupted by ridges of glacial till and/or bedrock. The Site and surrounding areas are underlain by an extensive and thick deposit of silty clay soil of marine origin. The upper 1 to 2 m zone consists of a discontinuous surface sand layer overlying weathered silty clay; this is underlain by the remainder of the silty clay deposit to a total depth of about 30 to 35 m in the area of the Site. The clay deposit is in turn underlain by about 1.5 to 5 m of a basal gravelly glacial till, followed by bedrock.

From previous geotechnical investigations in the area of the Site, it is known that below the upper weathered zone of the deposit the clay has a soft consistency to a depth of about 10 m, below which its shear strength gradually increases with depth and becomes stiff. The silty clay is a high plasticity soil with high natural water content, typical of the deposit in this area.

Published mapping by the Geological Survey of Canada shows that the bedrock beneath the majority of the site consists of interbedded shale and limestone of the Carlsbad formation; the total thickness of this bedrock unit is reported to be in the range of about 115 to 150m.

6 Guillet, G.R. and Joyce, I.H., 1987. The Clay and Shale Industries of Ontario. Report Prepared for the Ministry of Natural Resources.

In the absence of effective drainage in this flat lying terrain, the groundwater level in this fine grained soil is at, near or above the ground surface throughout much of the year. In view of its low permeability characteristic, there is anticipated to be limited horizontal or vertical groundwater flow in the silty clay deposit; groundwater movement in the silty clay deposit would be very locally influenced adjacent to ditches or other watercourses. The silty clay deposit is known to be an aquitard, which would not allow recharge of the basal till and bedrock. Groundwater flow occurs in the basal till and bedrock; the direction of regional groundwater flow in these zones is indicated to be towards the northeast.

Water supply to residences, farms and industrial properties in the area of the Site utilizes individual wells. Drilled wells in this area are able to obtain their water supply from the basal till / bedrock contact zone or from within the upper part of the bedrock. The yield of water from this zone is usually adequate in quantity for domestic use, with well yields reported to typically range from 15 to 25 litres/minute, and up to 45 to 65 litres/minute in certain wells. In the immediate vicinity of the Site, the few wells registered in the MOE Water Well Information System are completed in the basal till/bedrock contact zone and are indicated to yield enough water for domestic use. However, the groundwater quality in the vicinity of the Site is reported as salty, sulphurous or mineralized; the presence of methane gas in the groundwater is also reported. Because of this naturally poor water quality at depth, shallow dug wells are typically used to provide a water supply from the upper sand layer and weathered clay zone; some residents use bottled water for consumption because of concerns about bacterial contamination in the dug wells. These natural groundwater quality problems are known to exist as far as 3 or 4 km to the north of the Site to the area of Carlsbad Springs and also to the west. In the mid 1990s the City of Ottawa extended the municipal water supply to Carlsbad Springs for this reason. Further to the southwest and southeast, drilled wells completed in the basal till are reported in the MOE well records as providing fresh groundwater quality.

■ Surface Water Environment

The Site drains northward into the Bear Brook Subwatershed, which is managed by South Nation Conservation. Drains that cross the Site, consisting of old farm field drainage that has not been maintained and a Municipal Drain, flow to the east and pass beneath Highway 417 and discharge to Shaw's Creek just to the west of Vars; Shaw's Creek flows northward about 5 km and enters Bear Brook, which flows east about 30 km to eventually enter the South Nation River. There are also roadside ditches along Devine and Frontier Roads that also drain eastward. At present, drainage on the Site is not well established and the land is poorly drained.

There are two municipal drains on or in the immediate area of the Site. The Simpson Municipal Drain is oriented west to east and is located about two-thirds of the way north along the north-south dimension of the property; this provides the drainage outlet for the most of the northern part of the Site as well as the Industrial Park to the west and a section of Boundary Road. To the north of Highway 417 is the Regimbald Municipal Drain, which receives runoff from the very northern portion of the Site and enters the Simpson Drain just after it crosses beneath Highway 417. An old farm ditch that crosses the southern part of the Site also makes its way eastward and enters Shaw's Creek at the confluence with the Simpson Drain. These two Drains are classified as intermittent flow meaning they do not provide high quality aquatic habitat.

■ **Biology Environment** (terrestrial and aquatic ecosystems)

Based on published information and preliminary field surveys carried out by the proponent, the Site consists of a mosaic of immature forest re-establishing on land previously used for farming, and deciduous thickets. There is also an area of naturalized white spruce plantation. In the northwest corner is a woodlot dominated by immature white birch, with agricultural crop fields in much of the remainder of the northern portion of the Site. Assessments of potential significant or sensitive species, including Species At Risk, will be required as part of the EA studies should the Boundary Road Site be preferred, following the protocols agreed to with the MNR. The Simpson Municipal Drain provides drainage for a large part of the Site; elsewhere, former agricultural drainage ditches are heavily vegetated with thickets and are functioning poorly, resulting in wet conditions across much of the Site.

■ **Land Use and Socio-economic Environment** (current and planned future land uses)

The Site is located within the east end of the City of Ottawa, which is a major urban center. The portion of the City within which the Site is located is characterized by a provincial highway corridor, a partially developed rural industrial park, and a combination of general rural and agricultural uses. The closest developed area is the Village of Edwards about 2 km to the west; separated from the Site by the Highway 417 corridor are the Village of Vars about 5.5 km to the east and the Village of Carlsbad Springs about 3 km to the north. A 43 rural lot subdivision is located within the Township of Russell along Route 100 about 4 km to the south of the Site. A golf course is located north of the Site across the Highway 417 corridor.

The land use and zoning to the west of the Site fronting on Boundary Road is Rural Heavy Industrial (RH), as is a limited portion of the Site. The Site itself is otherwise zoned General Rural, as is the land to the south and west. Lands to the east are mainly zoned Agricultural Resource and are used for this purpose. There are 4 known residences within 500 metres of the proposed CRRRC site boundaries.

From a visual perspective, the Site is situated in flat terrain, and is generally well screened from Boundary Road by trees.

■ **Agriculture Environment**

The majority of the Site was historically cleared for farming, however those efforts were not pursued and the Site has been allowed to re-vegetate. The high water table associated with poor drainage presents a significant constraint to agricultural use. Only the very northern part of the Site is now used for row crops. The Site lands are zoned General Rural or Rural Industrial, so they are not included in Agricultural zoning. There appears to be a discrepancy between the published soils mapping, the Canada Land Inventory (CLI) agricultural classification rating system and the CLI capability mapping. The soils mapping shows the northern part of the Site as underlain by St. Thomas sandy loam (ST6) and the south portion by Manotick fine sand (M6), both level land with poor drainage. The CLI rating system classifies the ST6 unit as Class 5FW' (low Fertility, poor Drainage) agricultural capability, and the M6 unit as Class 4FW', i.e., indicating the capability for agriculture across the Site as Class 4 or lower. However, the CLI mapping shows the southern part of the Site as being classified as Class 3W, i.e. Class 3 agricultural capability. Lands to the east, southeast and south are used for agricultural purposes, either crops to the east or livestock some distance to the southeast.

■ Cultural and Heritage Resources Environment

Based on preliminary work, there are no registered archaeological sites on the Site or within a three kilometre radius. Due to the flat topography and poorly drained soils, guidance provided by the Ministry of Tourism, Culture and Sports and regional assessment carried out by the City of Ottawa, the majority of the Site is indicated to have low archaeological potential. The north end of the Site is interpreted to have possibly contained an abandoned arm of Bear Brook Creek, and so is considered to have moderate potential for pre-contact archaeological resources.

■ Traffic Environment

Traffic is comprised of infrastructure and traffic conditions. The closest major provincial highway to the Site/study area is provincial Highway 417, located along the north boundary of the Site. The closest Highway 417 interchange is just northwest of the Site at Boundary Road (exit 96), with the Vars/St. Guillaume Road (exit 88) some 6 km to the east. Based on the proposed service area for the proposed CRRRC, it is expected that the most of site-related traffic would use the Boundary Road exit. The road network between this interchange and the Site consists of two arterial roads, Boundary Road and Devine Road (Regional Road 8) owned by the City of Ottawa. Boundary Road provides one of the two main routes from Highway 417 southward to the Village of Russell, as well as to Edwards located to the west along Mitch Owens Road.

There are no airport facilities in the Site-vicinity that could potentially be affected by the proposed undertaking.

8.0 ENVIRONMENTAL ASSESSMENT METHODOLOGY

This section of the TOR provides an overview of the proposed approach to the environmental assessment (EA) of the proposed Capital Region Resource Recovery Centre (CRRRC), as well as the related EPA/OWRA work. The CRRRC, if approved, would provide facilities and capacity for recovery of resources and diversion of material from disposal generated by the industrial, commercial and institutional (IC&I) and construction and demolition (C&D) sectors primarily in Ottawa and secondarily a portion of eastern Ontario, for management and utilization of surplus and contaminated soils, as well as landfill disposal capacity for material that is not diverted.

A flow chart illustrating the EA/EPA process to be followed for the CRRRC project is provided on **Figure 8-1**.

Work plans for the individual environmental components/technical disciplines to be used to better define baseline conditions and for the assessment of impacts/effects from the preferred Site development concept for both of the Sites accompany this document in **Appendix C**. Work plans have been included for both Sites as the preferred Site has not yet been identified.

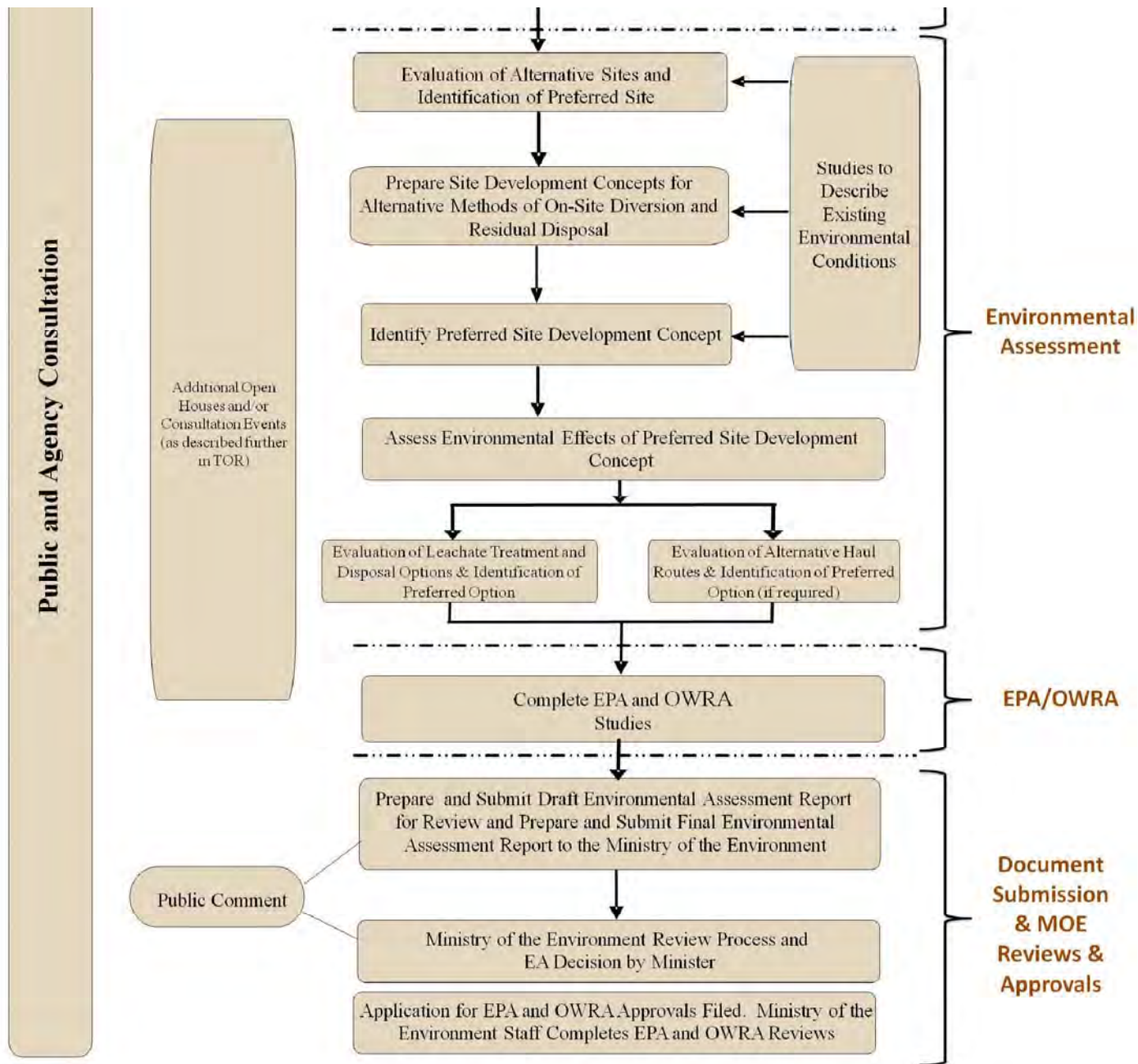
During preparation of the TOR, comments were solicited from the public and the GRT on the draft work plans for the North Russell Road Site, as well as on the draft EA methodology. This was done before the alternative Boundary Road Site was included for consideration in the EA. Comments received on these draft documents were considered as applicable in revising the proposed EA methodology, in preparing the proposed work plans for the Boundary Road Site, and in revisions to the work plans for the North Russell Road Site.

The contemplated activities to complete the EPA evaluation and documentation preparation (as well as that required under the *Ontario Water Resources Act* (OWRA)), are also outlined in this section. While the EPA application for the CRRRC will only be submitted after an EA approval is received, the information necessary to support the EPA application will accompany the EA application.

8.1 Comparative Evaluation of Alternative Sites and Identification of Preferred Site

As noted above, two properties that are owned or have been optioned by Taggart Miller have been identified for the proposed CRRRC (the Alternative Sites). The location of the Alternative Sites is shown on **Figure 1-1**. The Alternative Sites are described below:

- **North Russell Road Site** - located in the northwest part of the Township of Russell about three kilometres east of the boundary with the City of Ottawa, and about five kilometres south of Provincial Highway 417 between the Boundary Road and Vars exits. The property consists of about 193 hectares (476 acres) of contiguous lands on Part of Lots 18 and 19, Concessions III and IV, Township of Russell; and
- **Boundary Road Site** - located in the east part of the City of Ottawa, in the former Township of Cumberland and just southeast of the Highway 417/Boundary Road interchange. The property is on the east side of Boundary Road, east of an existing industrial park, north of Devine Road and west of Frontier Road and totals about 175 hectares (430 acres) of land on Lots 23 to 25, Concession 11, Township of Cumberland.



SCALE	NA
DATE	Sept. 2012
DESIGN	M.F.
CADD	P.J.M./B.R.
CHECK	P.L.E.
REVIEW	P.A.S.

TITLE

EA / EPA PROCESS FLOW CHART

FILE No. 0911251008-9000-TOR_Chart_10Jul12.dwg

PROJECT No. P.L.E. REV. 0

TERMS OF REFERENCE FOR ENVIRONMENTAL ASSESSMENT OF THE CAPITAL REGION RESOURCE RECOVERY CENTRE

FIGURE **8-1**

The first step in the EA process will be the identification of the preferred Site for the proposed diversion facilities and landfill that comprise the CRRRC. This will be done based on a comparison of information about each of the two Alternative Sites available from published information and from preliminary investigations/assessments on or in the vicinity of each of the Sites. The Alternative Sites will be compared using the components, criteria, indicators and data sources presented in **Appendix A** to the TOR. The comparative evaluation would take into account as appropriate the relative importance or ranking of the different site evaluation environmental components as established by the public consultation process, (i.e., although all are relevant, certain criteria may be considered more important than others).

The components cover the broad range of environment to be considered under the EAA. The components and criteria proposed for use in the evaluation of the Alternative Sites are as follows:

Component	Assessment Criteria
Atmosphere	Which site is preferred regarding potential effects due to air quality and noise?
Geology, Hydrogeology & Geotechnical	Which site is preferred for protection of groundwater?
Surface Water	Which site is preferred for protection of surface water quality?
Biology	Which site is preferred for protection of terrestrial and aquatic biological systems?
Land Use & Socio-economic	Which site is more compatible with current and proposed planned future land uses in the Site-vicinity?
	Which site is preferred for the protection of mineral aggregate resources?
Culture & Heritage Resources	Which site is preferred for the protection of archaeological and heritage resources, and cultural heritage landscapes?
Agriculture	Which site is preferred regarding potential for effects on agriculture?
Design and Operations	Which site is preferred regarding the anticipated amount of engineering required to assure MOE groundwater quality criteria are met at the property boundary?
Traffic	Which site is preferred regarding potential effects from Site-related truck traffic?

Based on the public input received during the TOR consultation process, as documented in **Volume 2 – Consultation Record** and summarized in Section 9.4, the following grouping of components is proposed in terms of relative importance for the comparative evaluation of the Alternative Sites:

- Most Important: Geology, Hydrogeology & Geotechnical; Atmospheric; Land Use & Socio-economic; Traffic;
- Important: Surface Water; Agriculture; Biology; Design & Operations; and
- Less Important: Culture & Heritage Resources

The assessment will also include a listing of the relative advantages and disadvantages of each Alternative Site. The outcome of this step will be the identification of the preferred Site for the undertaking. The EA and EPA studies and impact assessment will be undertaken for the preferred Site, following the methodology described in the following sections and in **Appendix C**. Subject to the results of the process described in Sections 8.1.1 and 8.3.3 below, the other Site will be dropped from further consideration.

8.1.1 Additional Considerations if North Russell Road Site Identified as the Preferred Site for the CRRRC

It is recognized that it can be considered challenging to characterize and adequately monitor all potential contaminant pathways in the subsurface in fractured bedrock due to the complex fracture networks that can exist. Practicable contingency measures can also be challenging to implement in a fractured bedrock environment. **If the North Russell Road site is identified as otherwise preferred**, the following initial work is proposed:

- The geology, hydrogeology & geotechnical work plan to describe the regional setting and determine the Site-specific geological and hydrogeological characteristics would be completed ahead of all other work. The key objective of this part of the assessment will be to demonstrate that the proposed CRRRC landfill is capable of satisfying the requirements of O.Reg. 232/98 in terms of groundwater protection, monitoring and contingency planning on the North Russell Road site. Consultation with the appropriate MOE/GRT technical reviewers on the planning and details of the technical work plans would be carried out prior to commencing the work.

The purpose of this assessment is to obtain the support of the MOE from a groundwater protection perspective to proceed with the EA on the North Russell Road Site. If concurrence is not obtained, then Taggart Miller would eliminate the North Russell Road Site from further consideration and proceed with the EA and EPA assessments on the Boundary Road Site as described in Section 8.2. No further site selection process would be undertaken as the Boundary Road Site would be the only remaining site.

8.2 EA and EPA Assessments of the Preferred Site for the CRRRC

8.2.1 Overall Approach

Taggart Miller is proposing that the EA/EPA/OWRA assessment of the preferred Site identified by the process described in Section 8.1 take place in three phases. The proposed phases and work consists of the following tasks:

Phase 1: EA

- Task 1: Complete Assessment of Existing Environment;
- Task 2: Identify Preferred Site Development Concept;
- Task 3: Assess Environmental Effects of Preferred Site Development Concept;
- Task 4: Assessment of Alternative Haul Routes and Identify Preferred Route;
- Task 5: Evaluate Leachate Management Options and Identify Preferred Option; and,
- Task 6: Cumulative Impact Assessment.

Phase 2: EPA & OWRA

- Task 7: Complete EPA/OWRA Level Assessments for the Proposed CRRRC. (EPA and OWRA formal applications will only be submitted following EA approval)

Phase 3: Documentation and Submission

- Task 8: Finalize and Submit EAA/EPA/OWRA Documentation.

8.2.2 Environmental Components

The environmental components proposed for use in the assessment of environmental impacts of the preferred Site are as follows:

- Atmosphere;
- Geology, Hydrogeology & Geotechnical;
- Surface Water;
- Biology;
- Land Use & Socio-economic;
- Cultural & Heritage Resources;
- Agriculture;
- Design and Operations; and
- Traffic.

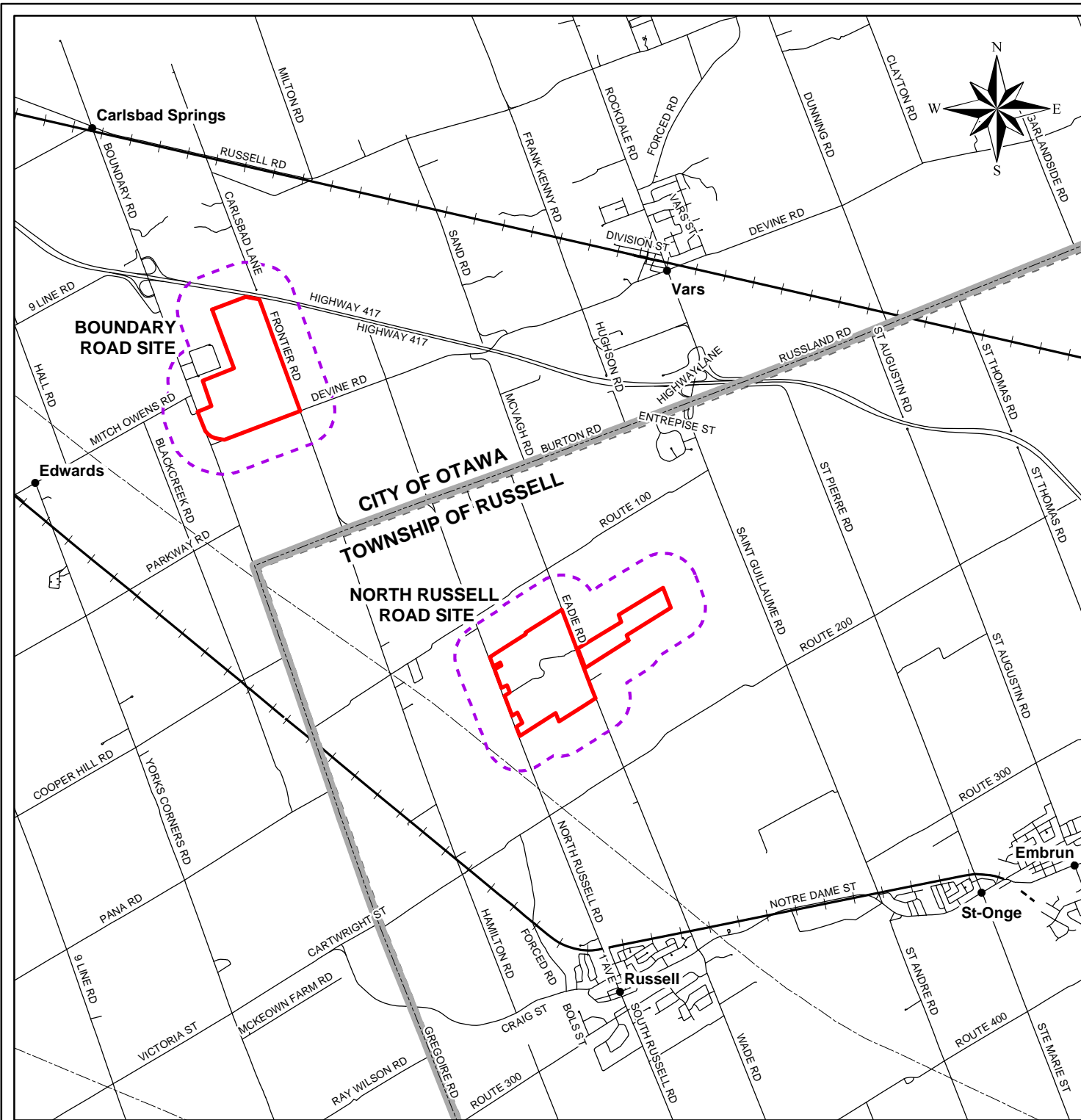
8.2.3 Study Areas

Data for the site-specific components of the EA has been and will be collected and analyzed for three study areas, as follows:

- Site – the lands secured by Taggart Miller for the proposed Capital Region Resource Recovery Centre at the preferred site (“the Site”);
- Site-vicinity – the lands in the vicinity of the Site (generally within 500 m of the Site boundaries, but may be enlarged as determined appropriate for specific environmental components⁷); and
- Haul Routes – the main haul/access route(s) to the Site from Highway 417.

A 500 metre Site-vicinity study area around each of the Sites is shown on **Figure 8.2.3-1**.

⁷ For example, for the surface water component, the Site-vicinity study area would be enlarged to the sub-watershed boundaries.



LEGEND

- POPULATED PLACE NAME
- RAIL
- ROADWAY
- UTILITY
- - - TOWNSHIP OF RUSSELL BOUNDARY
- - - SITE-VICINITY (500m)
- CITY OF OTTAWA BOUNDARY

1 0.5 0 1 2 3
SCALE 1:80,000 KILOMETRES

NOTE

APPROPRIATE STUDY AREA BOUNDARIES WILL BE DETERMINED FOR EACH ENVIRONMENTAL COMPONENT DURING THE EA.

REFERENCE

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PROJECT TERMS OF REFERENCE FOR ENVIRONMENTAL ASSESSMENT OF THE CAPITAL REGION RESOURCE RECOVERY CENTRE

TITLE

STUDY AREA MAP



PROJECT	DESIGN	FILE	DATE	SCALE AS SHOWN	REV
09-1125-1008-9000	BR	BR	31 Oct. 2012		0.0
	CHECK	PLE	30 Nov. 2012		
	REVIEW	PAS	30 Nov. 2012		

FIGURE 8.2.3-1

8.3 Scope of Work Plan for Phase 1

Phase 1 consists of six tasks (described below) that will assess the broad environmental effects of the Site that has been selected as preferred.

8.3.1 Task 1: Complete Assessment of Existing Environment

An initial overview of existing environmental conditions on each of the alternative Sites is provided in Section 7.0 of the TOR.

The existing environment that could potentially be affected by the project will be further described by the study team with regard to the proposed Study Areas for each of the proposed components listed in section 8.2.2. The project team will collect information and/or conduct studies (desktop and field) to describe the components and sub-components following the methodology described in the individual work plans provided in **Appendix C**.

8.3.2 Task 2: Identify Preferred Site Development Concept

Alternative site development concepts are different ways that the CRRRC project, i.e., diversion facilities, residual disposal landfill cells and other project components, can be implemented on the preferred Site. The potential layouts for the disposal component of the CRRRC are constrained by a number of physical factors that include the need to accommodate the land areas required for the diversion facilities and other Site operational requirements. The disposal facility will require sufficient airspace in order that capacity is available for residuals for the 30 year planning period used by Taggart Miller in considering the CRRRC. The residual disposal cells will also have to satisfy the requirements of Ontario Regulation 232/98 Landfill Standards.

Alternative Site development concepts will be prepared for the preferred Site once sufficient information on existing baseline environmental conditions has been obtained from published information sources, Site investigation, technical analysis and consultation/meetings with various agencies as described in the detailed work plans in **Appendix C**.

The site-specific considerations and constraints are generally expected to include the following:

- Adequate buffers between facility components and the property boundaries;
- Geometry and geotechnical considerations, i.e., maximum height of disposal cell, side slopes and top slopes of the disposal cell, both below grade and above grade, expected settlements of the subgrade soils under the applied load of the landfilled material;
- The geological conditions in order to establish an appropriate base level/elevation for diversion and/or disposal components;
- Consideration of the volume of excavated material to be managed on the Site; and
- Proximity to and types of neighbouring land uses.

The application of these considerations and constraints on the preferred Site will provide the land area within which the components of the CRRRC project can be laid out.

Based on Taggart Miller's current understanding of the conditions on and adjacent to each of the Alternative Sites, it is expected that at least two alternative Site development concepts will be presented for public consultation.

Each of the alternative Site development concepts methods will be described at a sufficient level of detail (i.e., conceptual designs) in terms of design and operational characteristics so that the individual environmental

components that could potentially be affected can be identified. This will include a site plan and cross-sections, and an appropriate level of detail on the various project components. Public, Aboriginal community and MOE input will be sought on the alternative site development concepts and in particular on the basis for preferring one concept over another. Subject to input received on the concepts and other considerations, it is envisioned that the primary criterion used to determine the preferred Site development concept will be land use compatibility with neighbouring properties.

The outcome of this step will be the identification of the preferred Site development concept.

As the detailed impact assessments for the preferred Site development concept (Task 3) are completed, it may be necessary to modify or refine certain aspects of the preferred Site development concept. It is expected that any such modifications and refinements will be relatively small adjustments or refinements.

8.3.3 Task 3: Assess Environmental Effects of Preferred Site Development Concept

Using the methodology described for the preferred Site in the work plans in Appendix C, the project team members will assess the effects of the preferred Site development concept (i.e., the combined effects of the diversion facilities, the residuals disposal landfill and associated activities, including in-design mitigation measures) on the environment. This impact assessment will be done for each component of the environment, within the appropriate study areas, using existing environmental conditions (Task 1) and the conceptual design for the preferred Site development concept including in-design mitigation (Task 2). The assessments will generally be done at an EPA level of detail, in order to support both EA and EPA review and approvals purposes by the regulatory agencies.

Assessment of future environmental conditions associated with the preferred Site development concept will be provided by each discipline following the methodology provided in the work plans. If the assessment indicates that any additional mitigation measures are required to achieve site compliance with Provincial standards, they will be developed and the assessment repeated incorporating these measures. The project team will update and revise the conceptual design to include any additional mitigation measures. The final conceptual design will be documented in the EA/EPA Study Report, and the remaining “net effects” will be documented.

In relation to the Boundary Road Site, the Mer Bleue is recognized as an internationally significant wetland, a Class One provincially significant wetland and an Area of Natural and Scientific Interest. If the Boundary Road Site is identified as the preferred Site for the project, an assessment of the potential effects of the project on the Mer Bleue (located 3.5 kilometres to the northwest) will be provided in the EA.

If during the detailed impact assessment of the preferred Site development concept, it is determined that the preferred concept design is unlikely to receive subsequent approval under the EPA or OWRA due to unacceptable net effects (i.e., no further refinement of mitigation is possible) or is not feasible due to technical reasons, then it would be eliminated from further consideration at that time and the second preferred Site development concept would be subjected to the detailed impact assessment. If none of the Site development concepts on the preferred Site are found to be approvable/feasible, then Taggart Miller would reconsider the use of the other Site for the proposed CRRRC.

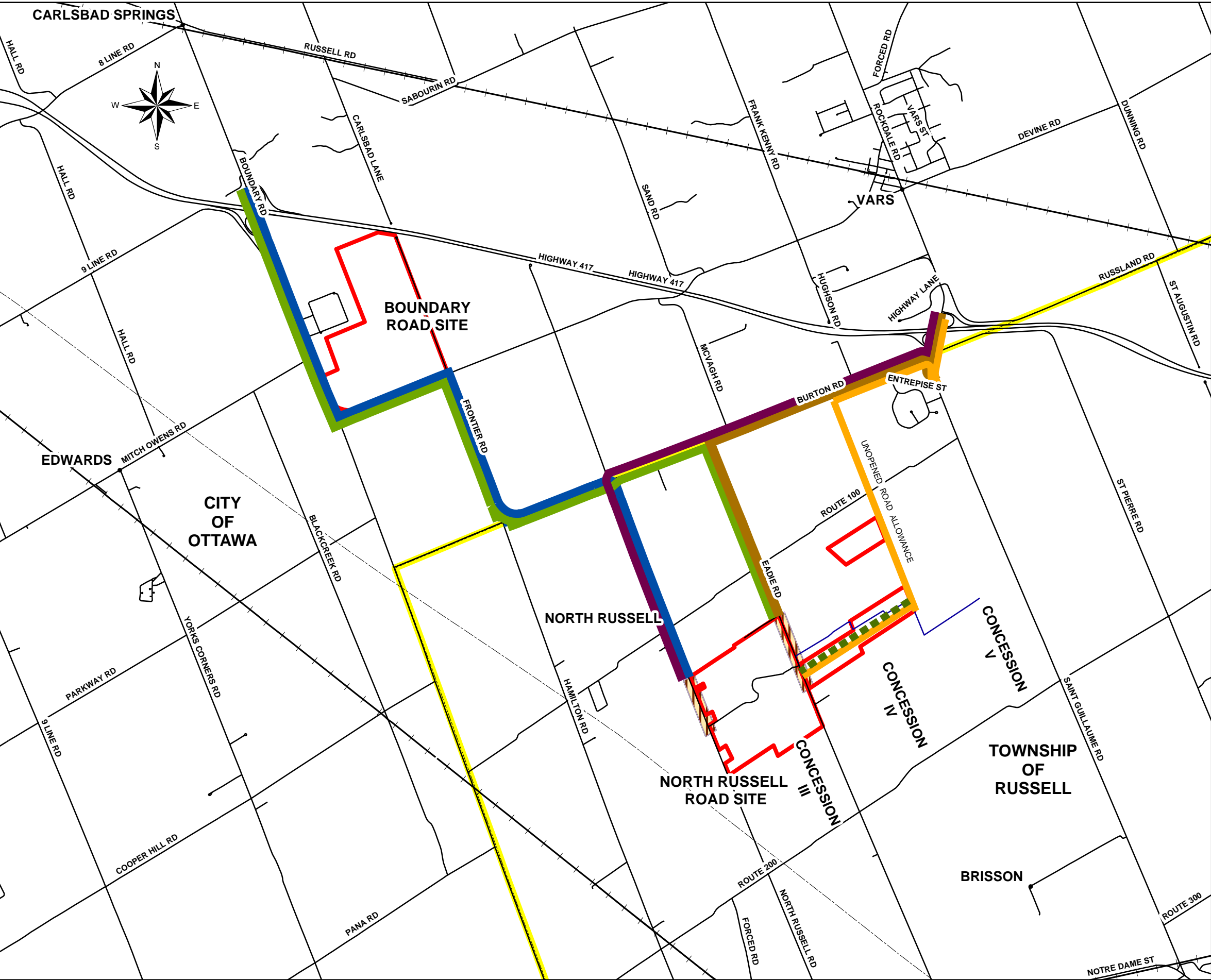
8.3.4 Task 4: Assessment of Alternative Haul Routes and Identify Preferred Route

8.3.4.1 Boundary Road Site Haul Route

The Boundary Road Site is located on the north side of Devine Road. Devine Road is a City of Ottawa two lane rural arterial road, an extension of Mitch Owens Road (Ottawa Road 8) to the west and its east limit terminating of the east side of Vars. Boundary Road (Ottawa Road 41) is also a two lane arterial road. Frontier Road, along the eastern boundary of the property, is described as a two lane rural collector road, although the dead end portion north of Devine Road would serve mainly only to access the Site.

It is anticipated that almost all Site-related traffic for this Site would be from the north from Highway 417 via the Boundary Road interchange. A small percentage of traffic might also access this Site from the west via Mitch Owens Road. It is anticipated that the Site access would either be off Frontier Road or Boundary Road. The position of the Boundary Road Site relative to the haul route from Highway 417 is shown on **Figure 8.3.4-1**.

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LEGEND

- ROADWAY
- RAILWAY
- UTILITY LINE
- CITY OF OTTAWA BOUNDARY
- LIMITS OF OWNED OR OPTIONED PROPERTY
- POTENTIAL LOCATION OF SITE ACCESS

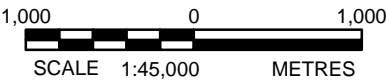
ALTERNATIVE HAUL ROUTE / ACCESS LOCATION


NORTH RUSSELL ROAD SITE

- 1) BOUNDARY ROAD EXIT TO NORTH RUSSELL ROAD ACCESS
- 2) BOUNDARY ROAD EXIT TO EADIE ROAD ACCESS
- 3) VARS EXIT TO NORTH RUSSELL ROAD ACCESS
- 4) VARS EXIT TO EADIE ROAD ACCESS
- 5) VARS EXIT TO UNOPENED ROAD ALLOWANCE
- INTERNAL HAUL ROAD

REFERENCE

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COORDINATE SYSTEM: MTM ZONE 9



PROJECT			
TERMS OF REFERENCE FOR ENVIRONMENTAL ASSESSMENT OF THE CAPITAL REGION RESOURCE RECOVERY CENTRE			
TITLE			
PROPOSED ALTERNATIVE HAUL ROUTES / SITE ACCESS LOCATIONS			
		PROJECT No. 09-1125-1008	SCALE AS SHOWN
DESIGN	PLE	Aug. 2011	FIGURE
GIS	PJMBR	11 Jul. 2012	8.3.4-1
CHECK	PLE	7 Sept. 2012	
REVIEW	PAS	7 Sept. 2012	

8.3.4.2 North Russell Road Site Haul Route Alternatives

The Site in Russell Township is located on Concession III between North Russell Road on the west and Eadie Road on the east; the other portion of the Site is located on Concession IV on the east side of Eadie Road, with frontage along Eadie Road.

North Russell Road is a two lane rural road providing a link between the Village of Russell and Highway 417; Eadie Road is a two lane secondary rural road. It is anticipated that the haul route for most Site-related traffic would be from Highway 417 to the north, using either the exit at Boundary Road (exit 96) and/or Vars/St. Guillaume Road (exit 88). The travel distance using existing roads from the Highway 417/Boundary Road interchange to Burton Road and then to the Site via North Russell Road is about 8.5 kilometres, while from the Highway 417/Vars interchange to the Site via Eadie Road is about 5 kilometres. A third alternative haul route approach to accessing the Site would be by constructing a new road south off Burton Road along the unopened road allowance between Concessions IV and V to access the east end of the portion of the Site located east of Eadie Road; an on-Site road would then be built across this portion of the Site and cross Eadie Road to access the CRRRC development. The travel distance via this route from the Highway 417/Vars interchange to the east end of this land is about 4 kilometres.

The portions of the road network north of and including Burton Road are under the jurisdiction of the City of Ottawa; the remainder belong to the Township of Russell. The alternative haul routes that will be evaluated for the North Russell Road Site, should it be the preferred Site, are as follows and as illustrated on **Figure 8.3.4-1**:

- Alternative 1 – Boundary Road exit to North Russell Road access;
- Alternative 2 – Boundary Road exit to Eadie Road access;
- Alternative 3 – Vars exit to North Russell Road access;
- Alternative 4 – Vars exit to Eadie Road access; and
- Alternative 5 – Vars exit to Unopened Road Allowance access.

8.3.4.3 Assessment Methodology

The haul route assessment will be conducted as summarized below:

- Describe the existing road network along the alternative haul routes from the applicable Highway 417 interchange(s) to the Site (number and type of intersections, number and direction of turns, existing road width, existing road condition and drainage, existing pavement structure on Devine, Frontier, North Russell and Eadie Roads (using available information or if necessary by drilling investigation));
- Establish potential Site access locations applicable to each Site, i.e., from Frontier Road or Boundary Road for the Boundary Road Site; from each of North Russell and Eadie Roads for the North Russell Road Site;
- Describe the land use along each of the alternative haul routes to each Site, i.e., existing land use, number of properties, number of residences and businesses, including agricultural activities;
- Establish the existing traffic patterns and road/intersection performance along each of the alternative haul routes that use existing roads;

- Predict the expected volume and distribution of Site-related traffic and assess its effect on each of the alternative haul routes, e.g., required road and intersection improvements and/or new construction, additional safety measures, number of residences, agricultural entrances and use of roads by farm equipment; and
- For the North Russell Road Site, compare the results of the assessment and select the preferred haul route using the indicators provided in **Appendix B** titled Alternative Haul Route and Leachate Treatment Assessment Criteria. The potential impacts associated with Site-related traffic and any required mitigation measures would be identified for the preferred haul route once confirmed as described below.

For the Boundary Road Site, as there is only one primary haul route to the Site (off Highway 417 at the Boundary Road exit), the results of this assessment will focus only on potential traffic impacts associated with Site-related traffic, and identify any required mitigation measures associated with traffic.

For the North Russell Road Site, the results of this comparative assessment will identify the preferred haul route and site access location from Highway 417 to this Site. Any material constraints to its implementation will also be assessed. If for some reason it is found to not be possible to implement what has otherwise been identified as the preferred haul route/Site access, then it would be dropped from further consideration and a similar constraint analysis carried out of the second (and then, if necessary, the third, etc.) preferred haul route/Site access. This process would result in final identification of the preferred Site haul route/access location for the North Russell Road Site, as well as any required mitigation measures associated with traffic.

8.3.5 Task 5: Evaluate Leachate Management Options and Identify Preferred Option

The provision of leachate treatment is a key component of the organics processing and disposal components of the proposed CRRRC. Based on existing leachate management and treatment being provided at other disposal sites and the current regulatory approvals requirements, it is expected to be possible to construct an on-Site leachate treatment plant, which will achieve a high quality effluent to allow discharge into the local surface water system. It is proposed to use this on-Site treatment approach as a basis for comparison with any other alternatives available to Taggart Miller. A detailed plan for evaluation of leachate treatment alternatives will be developed, following the general methodology below:

- Screen potential on-site leachate treatment technologies; outcome will be a short list of potential technologies;
- Select a preferred on-Site treatment option based on demonstrated performance and cost-effectiveness;
- Identify potential off-Site leachate receiver/treatment alternatives (i.e., discharge to existing or upgraded off-Site treatment facilities with or without on-Site treatment or pre-treatment; combination with sewage treatment);
- Determine off-Site leachate receiver/treatment alternatives available to Taggart Miller;
- Describe potential alternatives to convey leachate to available off-Site leachate treatment alternatives, (i.e., trucking, pipeline); outcome will be short list of conveyance alternatives;
- Develop leachate management system options; and
- If a viable off-site leachate management option(s) is identified, a comparison of the alternative leachate management options will be carried out using the evaluation criteria provided in **Appendix B** to the TOR.

Contingency and emergency measures will also be considered. The preferred leachate management alternative will be identified.

The results of the evaluations will be described in the EA portion of the EA/EPA documentation. The results will be carried forward to serve as the basis for the level of design that is appropriate for EPA and OWRA approvals. It is possible that all matters necessary to confirm potential off-Site alternatives will not be in place at this stage in the EA. As such, it may be necessary to subsequently amend the identified preferred leachate management alternative; an amending procedure related to the leachate management option will be provided in the EA.

8.3.6 Task 6: Cumulative Impact Assessment

The assessment of cumulative effects has not historically been a component of provincial EAs, however Taggart Miller are proposing to complete this type of assessment for the proposed CRRRC project. The net effects of the proposed CRRRC project, as determined by the analysis conducted in Task 3, will be combined with the predicted effects of other existing and identified certain and probable projects in the area of the Site, where the effects would overlap. The evaluation would consider potential effects on the various components of the environment used in Task 3 to determine if there are any unacceptable predicted cumulative impacts, as measured against applicable regulatory standards. The study area for the cumulative impact assessment of the undertaking will be determined based on the potential for CRRRC project effects to interact with those of other projects, as determined by the impact assessment studies for the proposed CRRRC.

8.4 Scope of Work Plan for Phase 2

8.4.1 Task 7: Complete EPA Level Activities for the Proposed CRRRC

The Phase 1 – EA studies will have identified the preferred site development alternative and assessed its predicted effects on the environment. The assessments in Phase 1 will be carried out to the level of detail appropriate for the submission of applications under the EPA and OWRA. The EA documents, together with the EPA/OWRA supporting documentation will be submitted as a single package (contained in several individual volumes) to the MOE. Applications for EPA/OWRA approval will be submitted once EA approval is received. The submitted materials are intended to meet the requirements of all of the MOE approval processes for the proposed undertaking (overall Site development, residuals disposal component, diversion components and ancillary operational features). Depending on the EA conditions of approval or comments received on the EA, it may be necessary to supplement the EPA/OWRA documentation previously submitted; this would be done in the form of addenda or, if required, resubmission of modified EPA/OWRA reports.

The completed applications for EPA approval for the facility will be supported by three documents as follows:

- Hydrogeology Study Report;
- Design and Operations Report; and
- Financial Assurance Report.

The Hydrogeology Study Report will be prepared as part of the EA study, and also serve as one of the supporting documents for EPA approval. Its purpose is to describe the existing geological, hydrogeological, hydrological and geotechnical conditions, and the detailed prediction of impacts associated with the preferred Site development alternative for the CRRRC. Groundwater and surface water monitoring programs will be presented along with contingency plans and a trigger mechanism for implementing them.

The **Design and Operations (D&O) Report** supports the Sections 9 and 27 EPA and OWRA Section 53 applications and will include the following assessments/designs and component reports:

- Stormwater Management;
- Leachate Management;
- Acoustic Assessment;
- Air Quality and Odour Assessment; and
- Site D&O.

Stormwater Management

The stormwater management design for the facility will require OWRA approval. The EA studies will present the overall approach to stormwater management for the Site and the required size of the stormwater management ponds based on modelling results and conceptual level designs. In Task 7, the stormwater management system design will be refined based on the phasing and final grading plans for the overall Site development. Design drawings, suitable for OWRA approval, will be prepared. The final alignment, sizing and conveyance capacity of drainage ditches will also be assessed. Consultation with the local Conservation Authority may be required to obtain their input and any approvals associated with construction of the stormwater management ponds and other drainage works.

Leachate Management

The evaluation of leachate management alternatives (Task 5) will identify the preferred approach (subject to any unresolved matters concerning potential off-Site alternatives as described above), which in turn will define the content of the leachate management report. This could range from on-Site treatment for discharge to the local surface water environment, to on-site pre-treatment for conveyance for additional treatment and discharge elsewhere, to conveyance for treatment elsewhere (possibly combined with municipal sewage). An OWRA approval may be required for leachate treatment and disposal, and a leachate management report will be prepared as an appendix to the D&O report, and in support of an application for OWRA approval (if necessary).

Acoustic Assessment

A noise analysis will be conducted for on-Site stationary sources in the EA studies and will include any proposed noise mitigation measures to meet the noise level limit for landfill operations in accordance with the MOE Noise Guideline for Landfills, October 1998. For EPA approval, this information, as well as any additional modelling work (if necessary), will be documented in accordance with the specific MOE requirements for an Acoustic Assessment Report for all stationary noise sources on the Site. The details of the quantitative noise assessment will be provided in an appendix to the D&O report, and summarized within the text of the D&O report. An appropriate noise monitoring program will also be prepared. The Acoustic Assessment Report will be used in support of an application for an EPA Approval (Air and Noise).

Air Quality and Odour Assessment

The air quality and odour assessment will be carried out to an EPA level of detail as part of the EA studies, and reported in a technical document in support of the Environmental Study Report. For EPA approval, this

assessment will be documented in accordance with the MOE requirements for an Emission Summary and Dispersion Modelling (ESDM) report; the ESDM report will be used to support the application for an EPA Approval (Air and Noise). Prior to conducting the work, consultation with MOE will have been carried out to agree on the dispersion modelling approach and input parameters. Preparation of the ESDM report requires a compilation of all proposed sources of emissions, preparing emission estimates from these sources and comparison with MOE Standards and Guidelines for maximum allowable air quality concentrations at off-site receivers. Operational plans to control air emissions, i.e., dust and odours, will be provided, together with an appropriate monitoring program, in an appendix to the D&O report, and summarized within the D&O report.

Design and Operations

The Phase 1 – EA studies contain conceptual designs for the overall Site development and components, including the residuals disposal landfill. In this task, EPA level designs will be prepared for the proposed undertaking to address such topics as base grades, final contours, waste capacity, materials balance, Site access, entrance, on-site roads, visual and noise screening, fencing, signage, landfill development phasing and schedule, excavated material management, operating conditions, staffing, procedures, waste placement, buffers, leachate containment and collection and management and landfill gas management. Site monitoring programs, trigger mechanisms and contingency measures will be provided. Some of the requirements for these matters are described in Ont. Reg. 232/98.

The remaining document to be prepared is a **Financial Assurance Report**. The report presents the assumptions and financial calculations to establish a financial reserve for Site closure and post-closure care and contingency measures. The approach will be consistent with the MOE requirements.

8.5 Scope of Work Plan for Phase 3

Phase 3 is related to submission of the EA application and documentation package.

8.5.1 Task 8: Finalize and Submit EAA/EPA/OWRA Documentation & Applications

As noted above, the EA study report along with the information necessary to support subsequent EPA/OWRA applications (hydrogeology report, design & operations report, and financial assurance report), will be submitted as a single package to the MOE. It is noted that the financial assurance report is only a component of the EPA application requirements and not part of the EA application or approval. Details of the submission requirements will be finalized through consultation with MOE Approvals Branch. It is anticipated that this combined submission will meet the requirements of all of the MOE approval processes for the proposed undertaking, with the understanding that the formal EPA/OWRA applications can only be submitted once the EA is approved. The documentation will be submitted for EA approval. On receipt of EA approval, the EPA/OWRA applications will be submitted. Following receipt of EA approval and depending on comments received during the EA and/or EA conditions of approval, it may be necessary to supplement the EPA/OWRA documentation previously submitted; the modifications would take the form of addenda or, only if required, resubmission of modified reports.

It is anticipated that the documentation will be submitted in several volumes. The EA study will be presented in an EA/EPA Study Report. Key information and findings from the individual disciplines will be submitted as appendices to the EA/EPA Study Report. There will be a separate volume for the Consultation Record. The Hydrogeology, Design and Operations and Financial Assurance will be provided as separate volumes for ease of their subsequent use as supporting documents for the EPA and OWRA applications.

9.0 CONSULTATION

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 TOR. Section 6(3) of the *Environmental Assessment Act* also requires a proponent to describe this consultation and its results.

Taggart Miller conducted a consultation program during the development of these proposed TOR that included three Open House sessions; workshops; presentations to various groups; meetings with individual property owners adjacent to the Sites and others with a potential interest in the project; tours of various existing Miller Waste Systems’ diversion facilities; interaction with the Township of Russell’s CRRRC Sub-committee of the Environmental Advisory Committee and their retained consultant, meetings with the Carlsbad Springs Community Association, and with the Vars Community Association, and; a project website www.crrrc.ca.

Consultation related to the development of the TOR is documented in the **Volume 2 – Consultation Record** provided with this TOR submission and summarized below in Section 9.1. The main issues and concerns raised by the stakeholders are also provided in the **Consultation Record** and summarized in tables that present the concern and the method in which it has been considered in the preparation of the TOR. The most commonly received comments are summarized in Section 9.2.

The proposed Consultation Plan to be conducted for the EA is presented in Section 9.3.

9.1 Summary of Consultation Activities during Development of the TOR

A summary of the main consultation activities carried out during preparation of these TOR is provided below; complete information on these activities is provided in **Volume 2 – Consultation Record**. For each activity the public, Aboriginal communities and/or the GRT were invited to participate as noted below, as described in detail in **Volume 2 – Consultation Record** and as described in Section 9.1.1 of this report.

Open House #1

Open House (OH) #1 occurred on November 25, 2010 and was organized to discuss the proposed project and the North Russell Road Site and the Terms of Reference and Environmental Assessment processes. The Open House welcomed the public from 2:00 pm until 9:00 pm at the Russell Arena in the Village of Russell. An information centre format was used where members of the public were invited to review information panels and ask questions of the consulting team and company representatives. Approximately 600 members of the public attended OH #1.

When attendees arrived at the Open House, they were asked to sign in, and were given a comment sheet asking general questions about the proposed integrated waste management facility. A total of 137 comment sheets were completed at the Open House and deposited in the comment box. An additional 17 comment sheets were received following the Open House by mail and email and are included in the final report for a total of 154 completed comment sheets.

Each comment sheet had five questions as follows:

- 1) Are you aware that about 200,000 to 250,000 tonnes of commercial waste is currently being shipped per year over the border to the US from the Ottawa area? Do you think this is an issue, and do you think local solutions should be found for that waste stream?

- 2) The province's objective is to divert 60% of commercial waste from disposal; however there are currently virtually no facilities in the Capital Region to process and recover materials and divert commercial waste from disposal. Do you think this is an issue?
- 3) The open house materials presented today list a number of alternatives to the possible CRRRC facility that have been considered. Are there other alternatives that Taggart and Miller should consider and if so why?
- 4) Do you think the preferred alternative identified by Taggart Miller of combining the recycling and disposal facilities on one Site makes sense? If not, why not?, and
- 5) What are your key concerns, if any, about the possible CRRRC facility?

In addition, attendees received a questionnaire asking if they would be interested in participating in future workshops or tours of existing Miller waste facilities. A total of 99 attendees provided a response; 54 indicated an interest in the workshops and 45 indicated an interest in tours.

Attendees also received a list of possible evaluation criteria and were asked to consider their relative importance and identify any criteria that might be missing.

The complete Open House #1 report is provided in **Volume 2 – Consultation Record**.

Groundwater Workshops

At Open House #1, held on November 25, 2010, all 600 attendees were given a registration form asking if they would like to participate in a workshop. In addition to the forms at the Open House, forms were also available on the study website at crrrc.ca. Emails were sent to all those who indicated an interest in attending. Follow up emails and individual phone calls were also undertaken to encourage attendance.

The workshops were held on April 9, 2011 to assist residents and interested individuals to learn more about groundwater issues as they relate to an integrated waste management facility at the North Russell Road site. The workshop was held in the Village of Russell at St. Mary's Anglican Church on Castor Street.

Two workshops were organized, one in the morning and one in the afternoon. The workshops were identical in presentation content and were organized to accommodate two groups of participants. Attendance at the morning session was 16; attendance at the afternoon session was 13.

The presentation was prepared and presented by staff from Golder Associates Ltd. Each attendee was given a hard copy of the presentation and an evaluation sheet.

Golder Associates Ltd. presented the workshop material and attendees were able to ask questions throughout the session. The morning session was from 9:00 a.m. until 12:30 p.m., and the afternoon session from 2:00 p.m. until 5:30 p.m. At the start of each session, attendees were asked to offer what they hoped to learn by attending the workshop. The presentation material, workshop evaluation sheet and comments received are provided in **Volume 2 – Consultation Record**.

Tours of Miller Diversion Facilities

45 of the survey responses from Open House #1 indicated interest in participating in tours of other Miller facilities located in the Greater Toronto Area. A tour was organized for April 30, 2011. All of the community members who indicated an interest in the tour were sent invitations to the April 30, 2011 event. On April 30, approximately 10 people participated in the tour. In addition to the 10 people who participated in the formal tour, several others from the community have toured Miller facilities in the Greater Toronto Area individually when in the area of these facilities.

On June 8, 2011 Taggart Miller placed advertisements in the Russell Township and area weekly papers *La Nouvelle* and *The Villager* to solicit interest in another tour. No calls or e-mails were received regarding interest in these tours. Taggart Miller continues to be available to provide tours to interested members of the community as and when required.

Meetings with MOE Technical Reviewers

Taggart Miller's consultants met with the MOE technical reviewers in Kingston, Ontario on two separate occasions: October 11, 2011 and July 11, 2012. Reviewers from EAAB in Toronto and District staff joined the meetings via teleconference. The purpose of these meetings was to provide background information on the proposed CRRRC and the existing environmental conditions

The MOE were able to ask questions about the proposed project and how the approvals process was being followed, and provided suggestions on how the TOR should be developed.

Release of Draft Key Documents for GRT and Public Comment

In January 2012, Taggart Miller prepared and provided for comment the following draft documents:

- A description of the waste diversion components proposed for the CRRRC project;
- Draft assessment criteria to be used to evaluate alternative approaches to haul route/site access location, site development and leachate treatment;
- Draft methodology to be followed in conducting the Environmental Assessment; and
- The proposed work plans for the North Russell Road Site for each of the environmental components to be studied during the Environmental Assessment.

The GRT members who received the draft key documents were as follows:

- | | |
|---|---------------------------------------|
| ■ Ministry of the Environment | ■ Ministry of Natural Resources |
| ■ Ministry of Culture | ■ Ministry of Transportation |
| ■ Ministry of Agriculture, Food & Rural Affairs | ■ Ontario Provincial Police |
| ■ Ministries of Citizenship and Immigration,
Tourism and Culture, and Health Promotion | ■ South Nation Conservation Authority |

The documents were posted on the EA website in January 2012 and an e-mail was sent to 266 members of the community directing them to the website on January 24, 2012. In addition, the draft key documents were mailed

to 8 members of the community who are not confirmed to be on the e-mail list and/or who do not have internet service.

No comments on the draft documents were received from the Township of Russell or the local community. GRT comments on the draft documents were received from various sections of the Ministry of Environment, from the Ministry of Tourism, Culture and Sport – Culture Services Unit, and from the Ontario Ministry of Agriculture, Food and Rural Affairs.

Open House #2

Open House (OH) #2, Sessions 1 and 2, were held on June 20 and 25, 2012. The purpose of the Open Houses was to again provide an overview of the proposed CRRRC project and its components, to present the second alternative site- the Boundary Road site- to be considered for the CRRRC, and to describe the proposed EA methodology and an overview of the contents of the TOR. Taggart Miller organized two identical sessions of Open House #2; session 1 held in the Russell Arena and session 2 in the City of Ottawa at Rendez-vous des aînés francophones d'Ottawa. Both Open House sessions welcomed the public from 3:00 pm until 9:00 pm. An information centre format was used where members of the public were invited to review information panels and ask questions of the consulting team and company representatives. Three comment sheets were provided requesting ranking and feedback on proposed criteria for comparative evaluation of the two sites, interest in Miller facility tours and general feedback. Attendees could complete the forms at the Open House or send them back via regular mail or email. Attendance at session 1 was estimated at 190, and 226 at session 2.

At session 1, a total of 16 comment sheets were completed at the Open House, 7 tour questionnaires and 20 criteria sheets. At session 2, a total of 91 comment sheets were completed at the Open House, 56 tour questionnaires and 96 criteria sheets. A total of 7 attendees expressed interest in a tour of existing Miller facilities.

The complete Open House #2 report is provided in **Volume 2 – Consultation Record**.

9.1.1 Aboriginal Communities Consultation

It is recognized that Aboriginal communities have specific interests and rights in regards to consultation on projects that might potentially affect them. Consultation with Aboriginal communities may provide insight into the potential effects on Aboriginal communities including the potential effects on use of lands for traditional purposes. It is also recognized that Aboriginal communities may have specific and differing needs in regards to how they would like to be consulted. To address these interests, Taggart Miller will continue to inform Aboriginal communities about the proposed undertaking and invite their participation in the EA process.

A list of potentially affected Aboriginal communities was identified in consultation with the MOE, Ontario Ministry of Aboriginal Affairs and Northern Development Canada, and Indian and Northern Affairs Canada (AANDC) during the development of the TOR. The Aboriginal communities will be consulted on how they would like to be involved in the EA process.

The following Aboriginal communities have been contacted, with additional detail provided in **Volume 2 – Consultation Record**:

- Métis Nation of Ontario;
- Ottawa Métis Nation Council;
- Algonquins of Ontario Consultation Office;
- Algonquins of Pikwakanagan First Nation; and
- Mohawks of Akwesasne.

Potential communication tools include meetings or presentations at Open Houses in Aboriginal communities, smaller discussion groups with interested persons by phone and/or in-person on specific topics, Site tours, copies of information and email correspondence.

Each of the communities identified have been sent the Notice of Commencement; information explaining the EA process, including TOR development, and the proposed project; notice of the inclusion of the Boundary Road Site, and; notification of the upcoming Open Houses. Up until the notification of the second Site, only the Algonquins of Ontario Consultation Office have requested to be maintained on the consultation list and to receive copies of archaeological assessments as soon as they are available. No other response had been received.

9.2 Summary of Key Stakeholder Feedback during Development of the TOR

As noted previously the consultation program provided numerous opportunities for the public and interested persons to provide input and comment during the EA. Detailed information on the input received is provided in **Volume 2 – Consultation Record**, together with the way in which Taggart Miller has incorporated the input into the preparation of the TOR. Following is a summary of input received, as well as the most common comments, issues and concerns raised by the public:

Open House #1

At Open House #1, the public were asked to rank the environmental components and the associated draft sub-components as shown below in terms of their relative importance (although all are important, certain components may be considered more important than others). The results of the environmental component ranking are provided in Table 9-1 below.

Table 9-1: Results of Open House #1 Environmental Component Ranking of Importance

Environmental Component	Sub-components	Ranking		
		Very Important	Important	Less Important
1) Atmospheric Environment	Air quality	145	1	0
	Odour	142	6	0
	Noise	123	17	3
2) Geology & Hydrogeology	Groundwater quality and groundwater flow	146	0	0
3) Surface Water Resources	Surface water quantity and surface water quality	135	10	1

Environmental Component	Sub-components	Ranking		
		Very Important	Important	Less Important
4) Biology	Terrestrial ecosystems and aquatic ecosystems	115	21	4
5) Cultural & Archaeology Heritage Resources	Cultural landscape, built heritage and archaeological resources	66	57	15
6) Transportation	Effects from truck transportation along access roads	125	18	4
7) Land Use	Effects on current and planned future land uses	111	23	7
8) Agriculture	Effects on agricultural land and agricultural operations	122	18	6
9) Socio-economic	Effects on cost of service to customers	54	33	48
	Employment and economics	45	38	54
	Visual aesthetics	76	50	15
10) Aboriginal	Potential effects on aboriginal communities	44	31	49
11) Site Design & Operations	Site design and operational characteristics	76	36	24

At Open House #1, Taggart Miller also asked the public if there were additional environment components or considerations that should be included in the EA. The headings of the constructive comments which were received are listed below, from most common to least common. The term “common issue” has been used when 10 or more comments were received, “less common” when 5 to 9 comments received, and “occasional” when less than 5 comments received.

- **Geology, Hydrogeology & Geotechnical** – A common issue raised on the Open House #1 environmental component ranking sheets related to protection of groundwater resources in the Site-vicinity or beyond the Site-vicinity. Under the same heading were issues regarding bedrock faults in or around the North Russell Road Site, the potential movement of faults and the potential widening of fractures as a result of historical blasting at the North Russell Road Site.
- **Biology** – A common issue raised on the Open House #1 environmental component ranking sheets related to protection of the natural environment, including the protection of the water in the quarry at the North Russell Road Site.
- **Property Value Protection** – A less common issue raised on the Open House #1 ranking sheets related to property value protection and the desire to have the details that would normally be related to a formal plan.

- **Land Use & Socio-economic** – A less common issue raised on Open House #1 ranking sheets related to protection of the community and its social identity. Under the same heading, issues regarding the zoning of the North Russell Road Site were identified, and issues related to negative effects on nearby agricultural operations.
- **Location** – An issue occasionally raised on Open House #1 ranking sheets was the North Russell Road Site location. Of the comments received on the ranking sheets, the community members identified that the Site was unsuitable and many suggested that another more suitable Site should be found.
- **Traffic** – An issue occasionally raised on Open House #1 ranking sheets related to traffic associated with the CRRRC project.
- **Long Term Safety and Responsibility** – An issue occasionally raised on Open House #1 ranking sheets related to who would be responsible for the Site in the future and who would ensure the Site's safety in the future.
- **Atmosphere** – An issue occasionally raised on Open House #1 ranking sheets related to protection of air quality, odours, noise, and occasionally blasting.
- **Human Health** – An issue occasionally raised on Open House #1 ranking sheets related to protection of human health.
- **Agriculture** – An issue occasionally raised on Open House #1 ranking sheets related to the existing agricultural land located at the North Russell Road Site.

At Open House #1, in response to the question “What are your key concerns, if any, about the possible CRRRC facility?”, the headings of key concerns identified by the public are summarized below, from most common to least common. The Geology, Hydrogeology & Geotechnical heading was two times more common than the next most common heading of Atmosphere. A description of the key concerns identified, if not already described above, is provided with the list below. In this list, the term “common issue” has been used when 50 or more responses were received, “less common” when 15 to 50 responses received, and “occasional” when less than 15 responses provided.

- **Geology, Hydrogeology & Geotechnical** – A common issue.
- **Atmospheric** – A common issue.
- **Traffic** – A common issue.
- **Property values** – A less common issue.
- **Land Use/Socio-economic** – A less common issue.
- **Biology** – A less common issue.
- **Location** – A less common issue.
- **Road maintenance** – An issue occasionally raised on Open House #1 general comment sheets related to excess wear and tear on the roads as a result of traffic from the proposed site. In addition, the financial responsibility for road maintenance was questioned.

- **Agriculture** – An occasional issue.
- **Human Health** – An occasional issue.
- **Surface Water** – An issue occasionally raised on Open House #1 general comment sheets related to the protection of surface water resources, including aquatic habitat.
- **Design and Operations** – An issue occasionally raised on Open House #1 general comment sheets related to the design of engineered systems including liners and leachate collection systems. Specifically, issues about longevity were identified.
- **Long Term Safety and Responsibility** – An occasional issue.
- **Loss of Tax Revenue** – An issue occasionally raised on Open House #1 general comment sheets related to the loss in tax revenue since the North Russell Road site would not be used for residential development and/or based on concerns would stifle development in the Township.
- **Toxic Waste / Hazardous Waste** – An issue occasionally raised on Open House #1 general comment sheets relate to the receipt of toxic and/or hazardous waste.
- **Vermin** – An issue occasionally raised on Open House #1 general comment sheets related to the potential for the proposed site to attract vermin.
- **Archaeology/Cultural Heritage** – An issue occasionally raised on Open House #1 general comment sheets related to the potential destruction of archaeological or cultural heritage significance.
- **Communication/Consultation** – An issue occasionally raised on Open House #1 general comment sheets related to how and what type of consultation events had occurred, how and what type of consultation events would occur, location of events and how much notice was required for events.
- **The Question of the Need for this Project** – An issue occasionally raised on Open House #1 general comment sheets related to the need for diversion facilities and more importantly landfills in eastern Ontario.
- **Fire** – An issue occasionally raised on Open House #1 general comment sheets related to the possibility of landfill fires.

Open House #2

At the Open House #2 sessions, the public were asked to rank the environmental components proposed for comparative evaluation of the alternative Sites in terms of their relative importance (although all are important, certain components may be considered more important than others). The results of the environmental component ranking are provided in Table 9-2 below:

**Table 9-2: Results of Open House #2,
Session 2 Alternative Site Evaluation Component Ranking of Importance**

#	Component	Very Important	Important	Less Important
1)	Atmospheric Environment	18	0	0
2)	Geology & Hydrogeology	19	0	0
3)	Surface Water Resources	16	2	0
4)	Biology (terrestrial and aquatic)	13	1	1
5)	Land Use & Socio-economic	16	0	1
6)	Cultural & Archaeology Heritage Resources	13	3	1
7)	Agriculture	14	3	0
8)	Site Design & Operation	12	3	2
9)	Traffic	14	2	2

At Open House #2, Taggart Miller asked if there were any additional environment components or considerations. The headings of the constructive comments which were received at Open House #2, Session 2 are listed below, from most common to least common. The term “common issue” has been used when 7 or more responses were received, “less common” when 4 to 6 responses received, and “occasional” when less than 4 responses were received.

- **Location** – A common issue, related to the suitability of the Boundary Road Site.
- **Geology, Hydrogeology & Geotechnical** – A common issue.
- **Agriculture** – A less common issue.
- **Atmospheric** – A less common issue.
- **Land Use & Socio-economic** – A less common issue.
- **Biology** – An occasional issue.
- **Property values** – An occasional issue.
- **Traffic** – An occasional issue.
- **Surface Water** – An occasional issue.
- **Communication/Consultation** – An occasional issue.
- **Vermin** – An occasional issue.

Comments Received Outside Consultation Events

Comments and questions were received from interested persons by Taggart Miller outside of consultation events through a variety of means, including by mail and e-mail correspondence. The following is a general summary of the most commonly received comments provided in the order of most common to least common. A description of the comment identified, if not already done so above, is provided with this list. The term “common issue” has been used when 10 or more comments were received, “less common” when 5 to 10 responses received, and “occasional” when less than 5 were received.

- **Geology, Hydrogeology & Geotechnical** – A common issue.
- **Traffic** – A common issue.
- **Location** – A common issue; community members identified that the North Russell Road Site was unsuitable and many suggested that another more suitable Site should be found.
- **Atmosphere** – A common issue.
- **Communication/Consultation** – A common issue.
- **Property Value Protection** – A common issue.
- **Land Use & Socio-economic** – A common issue.
- **Design and Operation** – A common issue.
- **The question of the need for this project** – A common issue.
- **Biology** – A common issue.
- **Agriculture** – A less common issue.
- **Surface Water** - A less common issue.
- **Human Health** – A less common issue.
- **Landfill Fires** – An occasional issue.

Shale Resource – An issue occasionally raised during the development of the TOR related to the protection of the shale aggregate resource at the North Russell Road Site.

9.2.1 Feedback from Aboriginal Communities

At the time of the notice of the second alternative Site, all Aboriginal communities contacted requested to remain informed about this proposed project and the process.

9.3 Proposed Consultation Program for EA

Following approval of the TOR and during preparation of the EA, a consultation program will be continued for the public, Aboriginal communities, government agencies and other interested parties in the EA process. Input will be solicited through a number of consultation activities as proposed below. In addition to the consultation activities described below, consultation specific to Aboriginal communities will also be carried out. These

additional activities are described in Section 9.3. The results of the consultation program conducted by Taggart Miller during preparation of the EA will be presented in the EA Study Report.

In early 2011 the Township of Russell established an Environmental Advisory Committee Sub-committee (EAC-SC), whose mandate is to interact with Taggart Miller, to review and comment on the environmental aspects of the proposed CRRRC project and on documents prepared by Taggart Miller, to provide recommendations to Township Council for their consideration, and to liaise with key stakeholders in the EA process. If the North Russell Road Site is identified as preferred, Taggart Miller will continue to interact with the EAC-SC. Input will also be sought from local political representatives.

If the Boundary Road Site is identified as the preferred site for the CRRRC, Taggart Miller will continue to interact with local community associations, such as the Carlsbad Springs Community Association and Vars Community Association. Input will also be sought from political representatives from the area.

The proposed consultation activities for the EA are as follows:

- All public consultation sessions undertaken will be hosted in both English and French, and additional workshops on technical issues, where an interest from the public is expressed, will be conducted in English and French;
- **Open House #3** will present, to both communities where the two sites being considered are located, a more detailed description of the proposed CRRRC diversion and landfill components, the results of the comparative evaluation of the alternative sites and the rationale for identification of the preferred Site for the CRRRC project;
- **Open House #4** will present the results of the studies to define the existing environmental conditions to that point in the study and the alternative Site development concepts to be considered on the preferred Site;
- **Open House #5** will present the assessment of environmental effects associated with the preferred Site development concept together with proposed mitigation measures, monitoring and contingency measures; the results of the alternative haul routes/Site access assessment, the results of the leachate treatment assessment, the results of the cumulative impact assessment, an outline of the proposed EA/EPA documentation package, and an overview of the proposed schedule for submissions and the Ministry decision making process. Participants at this Open House will be informed of the plans regarding distribution of the draft EA for review;
- **Open House #6** will be held during the GRT and public review period for the draft EA. An overview of the draft EA will be provided and the venue will provide an opportunity for public feedback.
- **Meetings** with smaller groups such as the Township of Russell EAC-SC, and the Carlsbad Springs and Vars Community Association executives will be held as necessary or appropriate to enable discussions of issues in greater detail than is possible in the Open House format. The meetings may consist of an informal presentation and discussion of results and questions/answers, or simply meetings to discuss particular topics, such as community benefits programs or initiatives;
- **Special Workshops or Technical Sessions** will be held to discuss specific topics for an invited group in more detail. These sessions will include workshops on technical matters such as groundwater, noise, atmosphere, etc. At this point, it is contemplated that one or more workshops will be held on groundwater.

The need for additional workshops on other technical matters will be based on interest expressed by the public; and

- **Project Website** (www.crrrc.ca) to inform the public on the EA process and public consultation activities and solicit comments from the public. Taggart Miller will provide draft materials at key EA milestones on the project website.
- **Circulation of Draft EA** for public comment prior to finalization and submission to the MOE. The draft main EA document (excluding the technical appendices) will be made available in both French and English, as will the final main EA document. There will be a seven week review period provided for the draft EA.

9.3.1 Aboriginal Communities

Following approval of the TOR, Taggart Miller will contact the identified Aboriginal communities and invite discussions on the work plans and EA process to ensure that Aboriginal community concerns and input are received and incorporated. These concerns and inputs would be identified in the EA, and any measures required to be developed and implemented to mitigate these issues would be incorporated into the proposed undertaking and described in the EASR.

10.0 ENVIRONMENTAL ASSESSMENT SCHEDULE

EA timelines are dependent on the Minister's decision on the TOR. A decision on the approval of the TOR is anticipated by late 2012. Taggart Miller will endeavour to complete the draft EA in 2013.

As noted previously, the EA and the information necessary for support of subsequent EPA/OWRA applications are being submitted as a single package. It is assumed that the EA and supporting technical documents will be reviewed as a single package by the regulatory agencies, public, Aboriginal communities and other stakeholders. Following review, if it is necessary to supplement the EA documentation previously submitted; the supplementary information would take the form of addenda.

The issuance of EA approval is the first step in the approvals project for this project. Following receipt of EA approval and depending on comments received during the EA and/or EA conditions of approval, the EPA/OWRA applications will be submitted. It may be necessary to supplement the EPA/OWRA documentation previously submitted; the modifications would take the form of addenda or, only if required, resubmission of modified reports.

11.0 OTHER APPROVALS

A number of approvals will be required in addition to the EA approval required under the Ontario Environmental Assessment Act. Approvals will also be required under the Environmental Protection Act and Ontario Water Resources Act. As noted above, the documentation for EA approval and the documentation to support EPA/OWRA applications are being submitted jointly in one submission. The EPA/OWRA applications will be formally submitted after EA approval.

Other approvals will or may be required under the statutory requirements described below. The other approvals required, and the details of those approvals will depend on which of the North Russell Road site or Boundary Road site is identified as the preferred site for the proposed CRRRC. Other approval requirements, including information related to those approvals, will be provided in greater detail in the EA.

Planning Act, Official Plan, and Zoning By-Law Amendments – The implementation of the CRRRC on either Site will require approvals under the *Planning Act* for construction and operation of the proposed diversion and other waste management facilities. *Planning Act* approvals would be sought after EA approval is received for the project; it is anticipated that this application would share many of the same studies used to support the EA/EPA applications.

Aggregate Resources Act (ARA) – If the North Russell Road site is the preferred site for the project, it is anticipated that an approval under the *ARA* will be required to amend the currently approved rehabilitation plan for the existing licensed quarry on the property, in order that the rehabilitation is compatible with the proposed CRRRC site development plan. This application for license amendment would be made after the required planning approvals are in place.

Conservation Authority Approvals – Both Sites are located within the jurisdiction of the South Nation Conservation Authority, which is responsible for issuing permits for any construction in or alteration of water courses under *The Conservation Authorities Act* O.Reg. 170/06. It is anticipated at this time that approval from South Nation Conservation may be required to implement the site development plan due to the required drainage alterations.

Drainage Act – Both Sites contain municipal drains. It may be desirable to optimize the site development to alter and/or shift the location of a municipal drain, which would require approval under the provincial *Drainage Act*.

Federal approvals – It is not currently anticipated that any federal approvals will be required, however the process will allow for any such approvals that are required.

12.0 COMMITMENTS AND MONITORING STRATEGY

12.1 Commitments

The environmental assessment (and more specifically, the EA Study Report) will include a comprehensive list of commitments made by Taggart Miller during the EA process (including these TOR):

- a) Although the approval of waste management projects in Ontario requires the proponent to demonstrate that the project can be designed, operated and monitored in accordance with Ontario regulations such that potential off-Site impacts are controlled to acceptable levels and standards, compensation plans have become common for both privately owned and publically owned waste management facilities. Although there are various compensation measures that can be considered, Property Value Protection (PVP) has been a component of many such plans.

For the proposed CRRRC project, Taggart Miller is proposing to provide PVP to property owners within a certain distance from the property and to engage the community to develop the details of the plan during the EA process. The basic premise is that if the owner of a property wishes to sell, they are entitled to receive fair value for their property as if the waste management facility was not present. If there is a reduction in property value from its otherwise fair market value, the difference will be made up by Taggart Miller. In this way, the value of the property is protected.

There may also be other components of an overall community benefits plan to be determined through discussion with the local community during the EA process;

- b) Taggart Miller commit to provide facilities and capacity for recovery of resources and diversion of materials from disposal for wastes that are generated by the IC&I and C&D sectors upon opening of the CRRRC. Both the diversion and disposal components will be implemented at a scale appropriate for the level of business that might reasonably be expected during the initial period of site operation. The facilities will be scalable and their capacity will be increased over time in order to respond efficiently to changing market conditions and to any new government regulations mandating increased IC&I diversion;
- c) Taggart Miller will carry out a cumulative effects assessment as a component of the EA; and
- d) The draft EA will be made available for public review and comment before the final EA is submitted. A 30 day comment period is contemplated.

12.2 Compliance and Effects Monitoring

Mitigation measures are designed to avoid or reduce potential adverse effects from the undertaking. Taggart-Miller commits to developing a conceptual monitoring framework during the preparation of the EA. The monitoring framework will consider all phases of the proposed undertaking. The monitoring will include:

- Compliance monitoring; and
- Effects monitoring.

It is anticipated that the detailed effects monitoring requirements for the project will ultimately be determined through the conditions of EPA/OWRA approval. Compliance monitoring is an assessment of whether an undertaking has been constructed, implemented and/or operated in accordance with the commitments made

during the preparation of the EA and the conditions of the EAA. Compliance monitoring and contingency measures will be designed to detect and immediately respond to potential problems and unanticipated effects. Effects monitoring will involve activities designed to determine and verify the anticipated effects of the undertaking.