APPENDIX F

MOE Meetings and Calls

Appendix F-1

Summary of Call; Alternative Site Development Concepts

MEMORANDUM

TO Ministry of the Environment **DATE** June 25, 2013

CC Nigel Guilford, Miller Waste; Jeff Parkes, The Taggart Group; Doug Thomson, McCarthy Tetrault

FROM Trish Edmond and Paul Smolkin
Golder Associates Ltd. **PROJECT No.** 12-1125-0045

SUMMARY OF THE JUNE 19, 2013 CALL WITH THE MINISTRY OF THE ENVIRONMENT TO DISCUSS ALTERNATIVE SITE DEVELOPMENT CONCEPTS FOR THE CRRRC

Call Purpose

To review alternative site development concepts prepared for the CRRRC and obtain Ministry of the Environment (MOE) feedback on them, as per the approved, amended Terms of Reference (TOR)

Attendance

Trish Edmond and Paul Smolkin (Golder Associates Ltd.)

Jason Ryan and Dale Gable (MOE, Environmental Assessment and Approvals Branch)

Peter Taylor, Gillian Dagg-Foster, Ruth Orwin, Frank Crossley and Victor Castro (MOE, Eastern Region Technical Support)

Sandra Ausma (MOE, Sudbury District Office)

Steve Burns and Tara MacDonald (MOE, Ottawa District Office)

Discussion

General Background

Golder Associates Ltd. (Golder) provided a general overview of the project, as several of the participants on the call did not have previous experience with this project. The Capital Region Resource Recovery Centre (CRRRC) is a proposed waste management facility and the proponent is Taggart Miller Environmental Services (Taggart Miller). The Notice of Commencement of the TOR occurred in November 2010. The project is to manage industrial, commercial and institutional (I,C&I) and construction and demolition (C&D) waste from a service area of Eastern Ontario. The project is for an integrated waste management facility, the components of which are described further below.

The TOR was approved in December 2012. As this is a greenfield site the Environmental Assessment (EA) impact work will be completed to an Environmental Protection Act (EPA) level of detail. Taggart Miller had two proposed locations for the project. The first step in the EA was to complete some preliminary existing conditions work and complete a comparative assessment of the two sites as per the TOR. The assessment work was completed in January and February of 2013 and the identified preferred site was presented and described to the public at two open houses held in late February 2013. The preferred site is known as the Boundary Road Site and is located within the City of Ottawa. Following determination of the preferred site, the project team has worked on completing existing conditions studies and developing alternative site development concepts for the Boundary Road Site.

The alternative site development concepts were presented to the public at an open house held on June 5, 2013. Also presented were some preliminary results related to the geology, hydrogeology & geotechnical; socio-economic (visual) and traffic disciplines.

One component of the existing conditions that directly impacts the site design concepts is the geology of the Boundary Road Site. The geology consists of a variable thickness of surficial silty sand, or stiff weathered clay, typically up to about 1.5 m thick, overlying a thick deposit of about 30 m of clay to silty clay, followed by glacial till and Carlsbad Formation bedrock. One continuous layer was identified within the silty clay deposit beneath the Site consisting of sandy silt to silty sand with a trace of clay (known as the silty layer). The top of the continuous layer was found at a depth of about 4.5 to 5 m below ground, and the layer had a thickness ranging from 130 to 600 mm (average about 350 mm).

Alternative Site Development Concepts

In advance of the call three handouts had been circulated electronically to the MOE: the alternative site comparison summary part, the two alternative site development concepts and a plan with two cross sections. These are also attached to this summary for reference.

Golder reviewed the characteristics of the general property and surrounding area using one of the alternative site development concepts as a reference. Note that since the time of the TOR approval an additional piece of land has been added to the property. It is located near the northwest corner of the site and offers a site entrance closer to where Highway 417 exits onto Boundary Road. The Boundary Road site is very flat. The zoning of the Boundary Road Site is General Rural and Rural Heavy Industrial. There are limited residential land uses and no institutional uses within 1,000 m of the Boundary Road Site. The proposal is to receive 450,000 tonnes of waste per year with anticipated 40 to 55% diversion commencing at the beginning of operations. The airspace volume of a landfill to support 450,000 tonnes per year, the anticipated diversion and a 30 year operating period is about 9.5 to 10.5 million cubic metres.

The CRRRC will include a Material Recovery Facility (MRF), C&D recycling building, contaminated soil processing, organics processing (in a pre-processing building and cells), a leachate treatment facility, and a landfill for waste which cannot be otherwise diverted.

The site geology will limit the actual design of the landfill component at the site. For either alternative site development concept, the landfill component will be approximately 1.5 to 2 metres below ground surface with a constructed perimeter berm, have 14H:1V side slopes with the top deck being 20H:1V and have a maximum waste thickness of 20 to 25 metres. The site geology also has implications on buildings with larger buildings requiring piles while smaller buildings will be on footings.

Alternative A site development concept was reviewed. Essentially all buildings are located on the north part of the site, with the landfill occupying the south part of the site. The plan shows the location for on-site leachate treatment, although this will be assessed and it is possible that there could be off-site treatment at the City of Ottawa sewage treatment plant with, or without pre-treatment. This is true of either development concept.

Alternative B site development concept was reviewed. Essentially the MRF and C&D recycling facilities are located to the north, near the site access. All other buildings and processing are located in the southwest part of the property adjacent to Boundary Road. This leaves the eastern side of the site for landfilling in two areas split by the Simpson Drain, which runs through the site from west to east.

Cross sections of the landfill component for both alternative site design concepts were briefly discussed. Some visual assessment work for these two site development concepts has been completed and was presented at the June 5, 2013 open house. Three viewpoints were developed and the proposed alternative site development concepts are only visible from Devine Road looking west toward the Boundary Road Site.

For the actual design of the containment system, Golder is proposing a site specific design. Golder is proposing to cut off the surficial sand and weathered clay using a liner on the side of the landfill or a cut-off wall. Modelling will determine if it is necessary to also isolate the continuous silty layer located at 4.5 to 5 metres below ground surface. If required, a cut-off wall can be extended to this depth. Modelling work to demonstrate compliance with groundwater regulations and requirements is not yet complete but at this time a liner along the base of the landfill is not proposed.

Comments and Questions:

Liner Several comments and questions regarding the liner were received from MOE and there was some concern that a bottom liner may be required to cut-off the continuous silty layer pathway. The initial suggestion not to use a bottom liner is not a cost saving measure, but based on Golder's experience in similar conditions in Eastern Ontario, it will not likely be necessary. Modelling will be conducted to support this. Further, the construction of a bottom liner in these geological conditions will present some challenges.

Buffer The direction of groundwater flow is to the east and northeast. For both site development concept Alternatives A and B, the landfill footprint is within 120 metres of the eastern property boundary. The question was raised whether this buffer would be sufficient, considering no bottom liner. Golder discussed that the groundwater flow velocity at the site is very low, centimetres per year, even in the surficial sand unit and the continuous silty layer. Nevertheless there is some by the MOE regarding the adequacy of the width of the eastern buffer.

Stormwater Management Neither alternative site development concept shows stormwater management ponds or ditching. Golder has completed some conceptual work on stormwater management but will develop this further and show information on the plans once the preferred site development concept is determined.

O. Reg. 419 A reminder that landfills now fall under O. Reg. 419 for monitoring requirements.

Overall Impression of Alternative Site Development Concepts MOE would like to see this summary document before providing further thoughts. Generally no opinion was expressed. Eastern Region says that a landfill further away from the eastern property boundary would be preferable and that this is easier to accomplish with Alternative A than Alternative B. Also, in terms of phasing of the landfill, consideration could be given to initially filling an area more westerly, away from the eastern area of the proposed footprint.

Attachments: Design Comment Sheet
Cross Section

Appendix F-2

Summary of Call; Groundwater Impact Assessment

Edmond, Trish

From: Edmond, Trish
Sent: September 24, 2013 9:53 PM
To: Zappone, Lorna (ENE) (Lorna.Zappone@ontario.ca)
Cc: 'frank.crossley@ontario.ca'; 'kyle.stephenson@ontario.ca'; Farnel, Megan
Subject: CRRRC Groundwater Impact Assessment

Hello Lorna,

As discussed this email outlines the conference call held on September 12, 2013 between the MOE Kingston office and Golder Associates Ltd. The attendees on the call included:

- Frank Crossley, MOE
- Kyle Stephenson, MOE
- Trish Edmond, Golder Associates Ltd.; and,
- Megan Farnel, Golder Associates Ltd.

The phone call was arranged to discuss the groundwater impact assessment for the Environmental Assessment for the Capital Region Resource Recovery Centre (CRRRC) in Ottawa, Ontario (site). Golder Associates Ltd. wanted feedback from the MOE related to the parameters that would be used for the contaminant transport modeling in groundwater at the site. The call's duration was approximately ½ hour.

During the call Trish Edmond gave an overview of the project and where it stands in the approvals process. Megan Farnel then described the existing geology and hydrogeology and discussed the groundwater impact assessment that is going to be completed and described the parameters that Golder is proposing to use for the assessment. Due to the naturally poor groundwater quality at the site some parameters that are listed in the MOE's Landfill Standards and are typically used for contaminant transport modeling have concentrations in groundwater at the site greater than the Ontario Drinking Water Quality Standards (ODWQS). The parameters listed in the Landfill Standards with concentrations naturally exceeding the ODWQS at the site include chloride. Golder wanted the MOE's thoughts on removing this parameter from the contaminant transport modeling but adding in boron as a replacement. Boron is a parameter that is observed in leachate from landfills that accept similar waste to what is proposed at the CRRRC (industrial, commercial and institutional (IC&I) as well as construction and demolition (C&D) waste).

Frank Crossley indicated that he agreed with the addition of boron as it is a good tracer for IC&I waste but thought that chloride should be included to avoid criticism. Although compliance cannot be demonstrated using chloride since it naturally exceeds the ODWQS in groundwater at the site, expected concentrations of chloride from the landfill should still be provided and then qualified.

To be conservative, Golder will use the Landfill Standard source concentrations even though the concentrations in the waste proposed for the CRRRC will likely be less.

Golder will start the groundwater impact assessment using the natural clay as a liner and if the contaminant transport modeling indicates that there may be a problem then another liner system will be considered. Golder will stay in touch with the MOE as any new concerns arise.

If you have any concerns with this summary of the conference call please do not hesitate to get in touch with me.

Thank you,
Trish

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