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Ridge Landfill Expansion Environmental Assessment

SUPPORTING DOCUMENT 2:

Consideration of Alternatives to the Undertaking



Progressive
Waste Solutions



Supporting Documentation to the Ridge Landfill Expansion Terms of Reference

Consideration of Alternatives to the Undertaking

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1.0 Introduction and Background

Progressive Waste Solutions (PWS) is initiating an Environmental Assessment (EA) for the proposed expansion of the Ridge Landfill. This supporting document to the EA Terms of Reference presents the rationale for the alternatives proposed for consideration in the EA.

This supporting document includes an assessment of “Alternatives to” the Undertaking and recommends a preferred “Alternative to”. Southern Ontario (identified as central Ontario, southwestern Ontario and the Greater Toronto Area) is the study area for this assessment. Considering the preferred “Alternative to”, the document also identifies the types of alternative methods to be considered in the EA.

1.1 Previous Ridge Landfill Environmental Approval Processes

An EA for the expansion of the Ridge Landfill was completed in January, 1997 by Dillon Consulting Limited (Dillon). This EA identified need, considered “Alternatives to” the Undertaking, considered “alternative methods” of carrying out the undertaking and documented potential effects and mitigation associated with the preferred alternative.

The 1997 EA considered the following “Alternatives to”: do nothing, landfill, incineration, and increased waste diversion. It was determined that the preferred “Alternative to” was to pursue additional landfill capacity and investigate additional diversion activities.

Within the “alternative methods” step of the EA, consideration was given to the expansion of the Ridge Landfill as well as a new landfill site in another location. The study area for this work was southern Ontario. The assessment was carried out in two steps:

- a primary analysis considered whether an expansion of the Ridge Landfill would meet provincial guidelines and to see how it compared to other approved landfill sites within the study area; and
- a confirmatory siting analysis to determine whether there are any sites significantly better than the Ridge Landfill in the study area.

The primary analysis concluded that the Ridge Landfill Site met all regulatory requirements, Provincial policies and guidelines and that the site was similar to or better than other sites approved under the EA Act.

The confirmatory siting analysis involved a screening step to remove unsuitable lands, the identification of possible sites in the areas that remained, and a comparison of these potential sites to an expansion of the Ridge Landfill. It is noted that this work was based on the premise that only sites significantly better than the Ridge Landfill would be considered. As such, the criteria used in the confirmatory siting analysis were developed based on the characteristics of the Ridge Landfill Site to focus on sites that

would have a significant advantage over Ridge. The following summarizes the three confirmatory siting analysis steps and results:

- Screening – Screening criteria were developed to remove lands unsuitable for land filling such as specialty crop areas, existing communities, environmentally significant lands, etc.
- Site Identification - Siting criteria were applied to the remaining lands. Siting criteria focused on agriculture and this step looked for sites on lands that were not a priority agricultural resource, and were public lands or lands not designated for agricultural use. One site of sufficient size was identified – the Moore Township Site.
- Comparison of Sites – The Moore Township Site and the Ridge Land fill Expansion were compared using evaluation criteria developed for the following twelve factors: Agriculture, Aviation, Archaeology, Biology, Design and Operations, Economics, Geology/ Hydrogeology, Heritage, Land Use, Social, Surface Water and Transportation. The results of the evaluation confirmed that the Ridge Landfill expansion was equal to or significantly better than other locations in the Study Area.

The EA was submitted in January 1997 seeking EA approval for a Ridge Land fill Expansion to accommodate a total of 13.6 million tonnes of residual waste and 4.38 million tonnes of bio-remediated soil to be disposed over the 20-year site life. The EA was approved June 24, 1998.

In 2010, the Ridge Landfill underwent an environmental screening process to modify the daily/annual rate of fill. The former annual rate of fill was 899,000 tonnes and the former daily rate of fill was 4,391 tonnes. As a result of the screening level evaluation the Environmental Compliance Approval (ECA) (Number A021601) was amended on July 25, 2011¹ which increased the maximum quantity of waste that can be received daily to 6,661 tonnes and the maximum annual quantity to 1,300,000 tonnes.

¹ The ECA has since been amended (issued on March 15, 2012) to manage contaminated soil, grinding of wood, etc.

2.0 Consideration of “Alternatives To”

Waste management EA processes typically consider “Alternatives to” the Undertaking or functionally different ways of managing waste. The Ministry of the Environment and Climate Change (MOECC) Code of Practice for Preparing and Reviewing Environmental Assessment Terms of Reference (2014), recognizes that private companies may not be able to implement some alternative ways of managing waste and provides guidance on focusing a Terms of Reference. Two steps were undertaken to determine the range of disposal related alternatives to be considered.

Step 1: Defining “Alternatives to”

Since PWS’s core waste management services are collection, waste diversion/processing, transfer stations and landfill disposal, the “Alternatives to” assessment included waste processing and landfill related alternatives. Each of the alternatives is describe in Section 3.0 of this document.

Step 2: Screening

As outlined in the Code of Practice, proponents may conduct an initial screening of alternatives before the Terms of Reference stage to determine the reasonable range of alternatives to be considered in the EA. The Code of Practice offers the following questions to determine whether alternatives addressed the need/opportunity, were technically feasible, approvable and economically viable:

- Does the alternative provide a viable solution to address the need/opportunity for waste management capacity?
- Is the alternative technically feasible?
- Can the alternative be implemented within the defined study area (i.e., southern Ontario)?
- Is the alternative consistent with planning objectives and provincial government priority initiatives (e.g., emphasis on diversion of waste products)?
- Is the alternative able to meet the purpose of the EA Act? Is it capable of being approved?
- Is the alternative practical, financially realistic and economically viable so that PWS Canada Inc. can continue to provide cost effective services to its customers once the current capacity of the site has been reached?
- Can the alternative be developed to minimize environmental impacts and avoid sensitive features?

Only those alternatives that achieved a positive response after the application of these criteria were judged to be reasonable and practicable for PWS to pursue.

3.0 Defining the “Alternatives To”

For the purposes of this assessment, the following “Alternatives to” were considered:

1. Do-Nothing;
2. Close the Ridge Landfill and construct a new landfill at a different site;
3. Expand the existing Ridge Landfill; and
4. Expand the existing Ridge Landfill with resource recovery.

Increasing diversion is often considered as an alternative to disposal. While the recent *Waste-Free Ontario Act, 2016* identifies a provincial desire for increased diversion it still recognizes that disposal will be required for the foreseeable future. PWS does not have any regulatory authority over diversion; however, they do actively encourage diversion through ongoing interaction with their customers, including:

- active promotion of at-source segregation;
- regular customer audits to identify diversion opportunities;
- recovery of recyclables through material recovery facilities within the PWS waste management network;
- segregation of waste at PWS transfer stations to remove recyclable materials from disposal; and
- audits of small loads at the Ridge Landfill to identify opportunities for diversion from disposal.

The ongoing diversion efforts of PWS are included in each of the “Alternatives to” described below.

3.1 Alternative 1 - Do Nothing

This alternative involves continuing landfill operations until capacity is reached without any changes to modify the existing footprint or to increase the quantity of waste disposed. The “Do-Nothing” alternative would mean that the Ridge Landfill will reach capacity by approximately 2022 and will no longer be able to provide waste disposal capacity in southern Ontario generally and for the current customers of PWS in particular.

Waste disposal is a key service element of an integrated waste management services business such as PWS. To exit the waste disposal business at the Ridge Landfill would place PWS at a significant competitive disadvantage in the southern Ontario marketplace and would lead to an erosion of the value and quality of the company’s services in Ontario.

The PWS customer base includes the Municipality of Chatham-Kent and contingency capacity for surrounding counties of Essex, Lambton, Middlesex and Elgin. Closure of the Ridge Landfill would lead to

local job losses and the loss of the significant local economic benefits which result from the operation of the facility.

3.2 **Alternative 2 - Close Ridge Landfill and Construct a New Landfill**

This alternative involves closing the Ridge Landfill when it reaches capacity and opening a new land fill at a different location. To meet the need for southern Ontario land fill capacity and the needs of the same or a similar customer base as PWS has now, a new site would need to be located in southern Ontario.

The new site would be an engineered landfill that includes a liner, leachate management system and a landfill gas management system. It would need to be a size that could accommodate 1.3 million tonnes annually (the current approved fill rate for Ridge Landfill). While PWS is capable of establishing a new landfill, this alternative was eliminated for the following reasons:

- PWS searched for other landfill siting opportunities in southern Ontario in a previous EA for the Ridge Landfill completed in the late 1990s. Since landfill siting is based on environmental conditions that would not have changed since the 1990s, the conclusions of the EA are still valid that no new site was significantly more advantageous than the Ridge Landfill.
- PWS does not own or know of any other property in southern Ontario that it would consider suitable for a new landfill. Also, as a private company, PWS does not have the power of expropriation to secure ownership of land that it might be identify for this purpose.
- A new landfill would require the same level of engineering as would be required to expand the Ridge Landfill. A new landfill would also have similar potential for environmental and socio-economic effects as the Ridge Landfill.
- It is unlikely that any new site could service the local municipal customers as well as an expanded Ridge Landfill. The landfill is favourably located for generators in southern Ontario.
- The development of a new landfill would not be aligned with the goals of the Draft Strategy for a Waste-Free Ontario.

This alternative would involve the same closure activities associated with the Do-Nothing alternative resulting in the requirement for PWS to maintain and monitor two separate sites over the long term.

3.3 **Alternative 3 - Expand the Existing Landfill**

The current Ridge Landfill has been in operation since 1966. Over this time, PWS has established a relationship with the neighbours of the Ridge Landfill. This alternative involves maintaining the Ridge Landfill and adding capacity through expansion. Expanding the land fill could include a lateral expansion, increasing the height of the Old Landfill and/or mining the Old Landfill or any combination of these alternative site development methods. Depending on the configuration of the expansion, the expanded fill area could range from approximately 40 to 90 ha.

The expansion would be contained on property owned by PWS and the required infrastructure for the expanded landfill is already in place or can be put in place cost effectively. There is an excellent management and operations team already in place at the Ridge Landfill.

PWS believes it can mitigate any reasonable concerns of its neighbours as they relate to future operations at the Ridge Landfill within the successful expansion of its disposal capacity. PWS has demonstrated over an extended period of time an ability to manage and mitigate any environmental issues at the site and to be a good neighbour. Monitoring of site performance after 50 years of operations demonstrates acceptable environmental performance by the landfill.

3.4 **Alternative 4 - Expand the Existing Landfill with Resource Recovery**

This alternative involves laterally expanding the current landfill and/or increasing the height of the Old Landfill and/or mining the Old Landfill as described in Alternative 3. In addition, this alternative includes the recovery of additional resources through enhanced diversion opportunities identified as being technically feasible and economically viable for PWS.

An expanded public drop-off area at the Ridge Landfill to divert additional recyclable materials including household hazardous, electronic wastes and other recyclable materials that may be designated by the Province will be included in the assessment. Additional waste diversion opportunities will be identified by the Waste-Free Ontario Act and that are technically feasible and economically viable for PWS.

This alternative would have similar benefits and potential for effects on neighbours of the Ridge Landfill and the environment as Alternative 3. Should additional resource recovery occur at the Ridge Landfill there is the potential for additional traffic to the site and associated nuisance effects as well as potential nuisance effects from on-site processing activities (e.g., noise, dust, odour).

4.0 Screening of “Alternatives To”

4.1 Screening Criteria

To determine the “Alternatives to” to be included in the EA, the following screening criteria were applied. As noted in Section 2 of this document, these screening criteria are suggested in the MOECC Code of Practice.

- Does the alternative provide a viable solution to address the need/opportunity for waste management capacity?
- Is the alternative technically feasible?
- Can the alternative be implemented within the defined study area (i.e., southern Ontario)?
- Is the alternative consistent with planning objectives and provincial government priority initiatives (e.g., emphasis on diversion of waste products)?
- Is the alternative able to meet the purpose of the EA Act? Is it capable of being approved?
- Is the alternative practical, financially realistic and economically viable such that PWS can continue to provide cost effective services to its customers once the current capacity of the site has been reached?
- Can the alternative be developed to minimize environmental impacts and avoid sensitive features?

4.2 Screening of “Alternatives To”

Table 1 assesses the four (4) alternatives based on the above noted screening criteria. It was determined that any alternative that had a “no” response to any one of the screening questions would not be considered in the EA.

Table 1: APPLICATION OF THE “ALTERNATIVES TO” SCREENING CRITERIA

Screening Criteria	Alternative 1 - Do-Nothing	Alternative 2 – Close the Ridge Landfill and Open a New Landfill	Alternative 3 – Expand the Ridge Landfill	Alternative 4 – Expand the Ridge Landfill with Resource Recovery
Does the alternative provide a viable solution to address the need/opportunity for waste disposal and diversion capacity?	No – This alternative does not provide the required new disposal or diversion capacity identified as needed in southern Ontario.	No – Based on the work completed in 1997, there are limited, if any, locations more suitable for a landfill than Ridge. Thus, this alternative does not provide the required new disposal or diversion capacity identified as needed in southern Ontario.	No – While this alternative provides the required new disposal capacity identified as needed it does not provide additional diversion.	Yes – This alternative provides the required new disposal and diversion capacity identified as needed in southern Ontario.
Is the alternative technically feasible?	Yes – All alternatives are technically feasible.	Yes – All alternatives are technically feasible.	Yes – All alternatives are technically feasible.	Yes – All alternatives are technically feasible.
Can the alternative be implemented within the defined study area (i.e., southern Ontario)?	Yes – A closure of the existing Ridge Landfill can be implemented.	No – PWS does not own or is aware of any other property in the study area where it could develop a new landfill facility. Previous EA work on the Ridge Landfill completed in 1997 looked for a site comparable or better than the Ridge Landfill within southern Ontario. Ridge Landfill Site was considered equal to or significantly better than other locations in the Study Area. It is reasonable to assume that a similar conclusion would be reached today.	Yes - An expansion of the existing landfill can be implemented in the defined study area of southern Ontario. The expansion would occur on lands already owned by PWS.	Yes - An expansion of the existing landfill with resource recovery can be implemented in the defined study area of southern Ontario. The expansion and potential resource recovery activities would occur on lands already owned by PWS.
Is the alternative consistent with planning objectives and provincial government priority initiatives (e.g., emphasis on diversion of waste products by the Province of Ontario)?	No – Finding solutions to disposal capacity within our province is favourable over export to the USA (and reliance on US facilities). This alternative does not provide needed additional capacity in southern Ontario. It also does not provide opportunities to increase diversion which is a provincial focus.	No – This alternative is focused on disposal only and does not include opportunities to increase diversion which is a provincial focus.	No – This alternative is focused on disposal only and does not include opportunities to increase diversion which is a provincial focus.	Yes – This alternative supports regional management of residual waste and provides additional opportunities to increase diversion addressing the provincial waste diversion focus.
Is the alternative able to meet the purpose of the EA Act? Is it capable of being approved?	Yes – Landfill closure is not subject to the EAA. Approval of a closure plan will be required.	Yes – New landfill sites obtain EA approval. There have been no EA approvals granted for new sites since 1999 and since a property on which to develop a new landfill is not available to PWS in the study area an EA cannot be undertaken	Yes – Landfill expansions can receive EA approval.	Yes – Landfill expansions with resource recovery can receive EA approval.
Is the alternative practical, financially realistic and economically viable such that PWS can continue to provide cost effective services to its customers once the current capacity of the site has been reached?	No – This alternative is not practical or economically viable for PWS: PWS would not be able to offer cost effective waste management and disposal services to its customer base without a disposal facility to replace the Ridge Landfill.	No – This alternative is not practical or economically viable for PWS to pursue. A new landfill alternative would have high capital costs and would require a change in operation to accommodate a new location. It would also require PWS to maintain two sites. As noted, a new site that is significantly better than Ridge was not found in 1997 as part of the EA work undertaken at that time. PWS does not own or is aware of any property in the study area that would be preferable to its current Ridge Landfill site.	Yes – This alternative is practical, financially realistic and economically viable as it allows PWS to maintain its current operation in southern Ontario. PWS owns all of the property needed to undertake a landfill expansion.	Yes – This alternative is practical, financially realistic and economically viable as it allows PWS to maintain its current operation in southern Ontario. PWS owns all of the property needed to undertake a landfill expansion.

Screening Criteria	Alternative 1 - Do-Nothing	Alternative 2 – Close the Ridge Landfill and Open a New Landfill	Alternative 3 – Expand the Ridge Landfill	Alternative 4 – Expand the Ridge Landfill with Resource Recovery
Can the alternative be developed to minimize environmental impacts and avoid sensitive features?	Yes – Closing the Ridge Landfill Site is anticipated to have minimal negative effects on the natural or socio-cultural environment. The site would require a closure plan and long term monitoring.	Yes – A new landfill site could be developed to minimize environmental effects, but would result in two landfill sites in the study area instead of just one at the Ridge.	Yes – The expansion of the Ridge Landfill could be developed to minimize environmental effects.	Yes – The expansion of the Ridge Landfill could be developed to minimize environmental effects.

5.0 “Alternatives to” Conclusions

The following summarizes the conclusion of the assessment of “alternatives to”:

Alternative 1 - Do-Nothing was screened out from further consideration – This alternative does not provide the additional capacity to meet the continued need for waste disposal capacity in southern Ontario and does not result in any increase in diversion therefore it will not enable PWS to continue to provide waste disposal services to its customers.

Alternative 2 – Close the Ridge Landfill and Construct a New Landfill was screened out from further consideration – PWS does not own or is not aware of any other property on which it could develop a new landfill in southern Ontario. Furthermore, based on work completed as part of the approved 1997 EA for a Ridge Landfill Expansion, if a new landfill site was found in southern Ontario, it would not likely be significantly better than the existing Ridge Landfill Site. This alternative would create an additional landfill site for PWS to operate and maintain over the long term.

Alternative 3 – Expand the Ridge Landfill was screened out from further consideration – This alternative effectively manages residual waste, however this addresses only part of the waste management needs in southern Ontario. This alternative limits PWS’s flexibility to expand its business to manage the potential waste diversions needs.

Alternative 4 – Expand the Ridge Landfill with resource recovery is identified as the preferred alternative and will be further considered in the Environmental Assessment – This alternative is the only one that met all the screening criteria. It represents a viable approach to providing additional disposal capacity to assist Ontario and PWS to meet the disposal needs for waste generators in southern Ontario. It will also provide PWS the flexibility to respond to potential waste diversion opportunities.

Hence, Alternative 4 is the preferred alternative as it supports disposal of residual waste, and waste diversion from disposal. Implementation of this alternative will provide continued residual waste disposal capacity in southern Ontario for an additional 20 years. This alternative is practical, financially realistic and economically viable and enables PWS to meet the demands of its current customer base and to consider further waste diversion opportunities.

6.0 Consideration of Alternative Methods

To obtain approval under the EA Act for an expansion of a land fill site there must be consideration given to a reasonable range of alternative methods for carrying out the proposed undertaking. Developing and evaluating alternative methods for expanding the existing landfill with resource recovery will be a focus of the EA. PWS is proposing to evaluate the following alternative methods:

- Site Development Alternatives – this will include consideration of different ways to expand the landfill capacity such as lateral expansion and/or increasing the height of the Old Land fill and/or mining the Old Landfill.
- Resource Recovery System Alternatives – this will include consideration of different resource recovery system alternatives to provide additional waste diversion capacity for PWS customers in southern Ontario.