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CONSULTING

WASTE CONNECTIONS OF CANADA (WASTE
CONNECTIONS)

Visual Impact Assessment and Landscape Architecture (Final)

Ridge Landfill Expansion EA

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1.0 Project and Work Plan Overview

This Visual Assessment work plan has been prepared to support the environmental assessment (EA) for the Ridge Landfill expansion and is based on the commitments made in the final amended Terms of Reference (ToR) for the EA that was approved by the Ministry of the Environment and Climate Change (MOECC) in May of 2018.

Waste Connections of Canada (Waste Connections) is proposing an expansion of the Ridge Landfill in order to continue to provide long-term residual disposal capacity for the company's large IC&I customer base and as a regional and inter-regional waste management facility to serve the projected increase in population and economic growth in southern and central Ontario.

The Ridge Landfill has been in operation since 1966 and was previously expanded in 1999. Waste Connections owns 340 hectares (ha) of land at the Ridge Landfill. The existing Landfill Site Area, which is permitted by an ECA from the MOECC for waste management and environmental work purposes, is 262 ha. The area within which waste disposal is permitted, called the Waste Fill Area, is 131 ha or half of the Landfill Site Area. As of December 2017, it is estimated that the existing Waste Fill Area at the Ridge Landfill site will provide waste disposal capacity until approximately 2021 at the current fill rate.

The current approved capacity for the Ridge Landfill is 21 million cubic metres (m³). The site is approved to accept a maximum of 1,300,000 tonnes of waste per year (the MOECC approved annual waste disposal rate). The EA does not propose to increase the maximum annual fill rate (this would remain as-is); however, Waste Connections is seeking the EA to increase the life of the facility for a 20 year planning period, from 2022-2041.

The waste being landfilled is approximately 98% IC&I waste and 2% residential waste. As part of the EA approval, Waste Connections would agree to reduce their IC&I service area from all of Ontario to just southern and central Ontario, and their residential service area from Chatham-Kent and the neighbouring counties of Essex, Lambton, Middlesex and Elgin, to only the Municipality of Chatham-Kent.

This visual impact assessment work plan outlines the tasks to undertake an impact assessment once the preferred alternative method is determined. The following paragraphs provide a brief summary of the scope of the visual impact assessment work, including protocols and/or standards to be adhered to while work is undertaken.

2.0 Visual Impact Assessment Work Plan

The scope of the Visual Assessment will include a careful review of background conditions and data collection in the field, followed by an examination of potential impacts for the preferred landfill alternative. The criteria and indicators that will be applied for the purpose of the assessment will include:

- Landscape character units
- Visual absorption capacity
- Visual Quality
- Proximity
- Magnitude of visibility; and
- Visual sensitivity.

The visibility of the waste fill area and ancillary building will be assessed from a three kilometers (3 km) radius, specifically public roads including Middle Line, Erieau Road, Charing Cross Road, Drury Line and the Talbot Trail. GIS referenced photography will be undertaken from the locations where the fill area is expected to be visible. The visual impact is expected to be the most noticeable within 500 m in locations where berms and roadside hedgerows are not present.

In addition to the waste fill area, other facilities associated with managing the disposal process that are also visible, including the trucking entrance and truck queuing zone and support buildings, will also be assessed.

The work plan will include selecting five (5) locations (GIS referenced) that best represent the impacts from a range of vantage points. Three (3) before and after (photo-realistic) conditions photos will be prepared to illustrate the pre-expansion and post expansion conditions.

Mitigation measures including berms, planting and seeding will be overlain on the Preferred Site Plan to document how landscape screening can reduce the visibility of the facility. The Conceptual Mitigation Measures Plan will focus on localized impacts (within 500m), in locations where they are most impactful.

A summary of additional commitments for the Visual assessment is provided below.

Commitment	Reference to applicable section in EA or supporting document
The EA will determine the potential for negative impacts from the proposed expansion including potential impacts such as litter and visual impacts. To minimize these impacts, mitigation will be proposed which could include planting vegetation on berms.	Visual impact assessment work plan Section 3.0. This will also be incorporated into the EA (Section TBD).
Native species and/or beneficial plantings will be considered as part of landscape planning for the Mitigation Measures	Visual impact assessment work plan Section 3.0. This will also be incorporated into the EA (Section TBD).
The results of previously used strategies to reduce off-site visual impact of the landfill will be considered as part of the EA.	Visual impact assessment work plan Section 3.0. This will also be incorporated into the EA (Section TBD)

3.0 Scope of Work

3.1 Description

As part of the environmental assessment of a preferred alternative, consideration of the proposed landfill expansion's visual impact on the surrounding landscape must be studied. The visual impact assessment will be undertaken in several stages:

1. Initiate Visual Assessment Task
2. Data Collection
3. Visual Impact Assessment of the Preferred Alternative
4. Development of Mitigation Measures Plan
5. Report and Recommendations

In addition to the evaluation of the potential visual impacts on the surrounding landscape, a recommendation of mitigation measures will be developed in order to limit the negative impacts of expanding the landfill site. A conceptual Mitigation Measures Plan for the site will be created to minimize where possible the site's overall visual impact and better integrate it into the surrounding landscape.

3.2 Study Area

For the purpose of the Visual Scope of Work, the study area has been defined as follows:

- Off-Site Study Area (“off-site”) – this will address localized impacts (within 500 m from the landfill property) as well as the change in visibility within a 3 km radius of the site. The visual impact is the greatest within 500 m of the site specifically in locations where berms and hedgerows are not present.

This study area is based on best practices for conducting visual impact assessments and will be refined as needed based on feedback obtained during consultation activities.

3.3 Sources of Data

In order to perform the visual impact assessment, reliable and available data relating to the existing and proposed landfill conditions as well as the surrounding landscape must be collected. Civil 3D models of the existing and proposed landfill site configuration will be required to show landfill shape, size and height, while GIS shapefiles containing, at minimum, data relating to topographic (DEM is acceptable – minimum of 10m resolution), woodlot, roads, and water features of the surrounding area. Other sources of data including reference materials for methodologies for evaluating the contextual landscape be applied. The primary source of data will include on-site photography, field investigations, and visibility mapping.

3.4 Impact Assessment

The landscape visual impact assessment is largely based on qualitative concepts which are considered in combination with one another to determine the relative impact of a proposed landscape intervention. The process considers both the intervention itself, in this case the expansion of the Ridge Landfill, and the landscape within which it sits. It is important not only to identify the impact of the intervention on receptor points based on its proximity and magnitude, but also to consider the greater landscape’s relative sensitivity, character and ability to absorb the impact. The following table summarizes some of the considerations which will form the basis of the visual assessment for this study.

Consideration	Definition	Assessment
Landscape Character Units	A zone or area within a landscape that has a common or distinctive visual quality; reflects a combination of landform and geology, vegetation, hydrological systems, land use and human settlement.	Determine the landscape character zones based on landscape features and attributes, land uses, and natural conditions identified in the visual quality assessment.
Visual Absorption Capacity	A calculation of the ability of a landscape to absorb physical development without resulting in a significant change in visual character or reduction in scenic quality.	Determined by comparing the identified landscape character units and their visual quality against the nature of the proposed intervention.
Visual Quality	An evaluation of the relative aesthetic quality and visual preference of a given landscape or landscape character unit. Qualities contributing to visual preference may include varied topography, natural diversity, the presence of water, the presence of significant cultural features, etc.	Visual preference is validated by consulting directly with local residents/visitors/special interest groups to develop an understanding of local community perceptions, values and preferences that hold importance to those who live in the vicinity of the intervention. Ranking of visual quality shall be based on the categories of high, medium, or low and will be determined based on a combination of best practices, professional knowledge of the evaluator and local input.
Proximity	The distance from which an intervention is from an impacted receptor point.	Determine the distance of receptor sites from the intervention can mean the difference between a new feature in the landscape being an intrusion vs. being accepted as a background feature of the overall view. Generally speaking, the farther the distance the lesser the impact.
Magnitude of Visibility	The measure of the extent to which an intervention may be seen from the surrounding area, from selected viewpoints or sensitive use areas.	Determine the overall size and scale of the intervention that is visible from sensitive receptor points.
Visual Sensitivity	The consideration of the combined evaluation criteria of the landscape character, visual absorption capacity, visual quality, proximity, and magnitude of visibility.	Determined by comparing all other criteria evaluated in this assessment. The visual sensitivity of particular areas shall be ranked based on categories of high, medium, or low.

4.0 Work Plan

1. Initiate Visual Assessment Task

- Confirm details of proposed landfill development preferred alternative
- Confirm study area
- Prepare final schedule for field work and deliverables

2. Data Collection & Analysis

- Review available background information
- Collection of digital base information
- On-site physical data collection (must be completed when trees are in leafless condition)
- Confirm baseline visual conditions
- Identify changes from 1997 EA
- Confirm current visual impact assessment evaluation criteria

3. Visual Impact Assessment of Preferred Alternative

- Confirm current baseline visibility mapping up to 3km out from landfill extents to illustrate the visibility of the existing landfill
- Prepare visibility mapping up to 3km out from landfill extents to illustrate the visibility of the proposed landfill
- Prepare visibility mapping up to 3km out from landfill extents in order to compare the level of increased visibility associated with landfill expansion
- Identify areas of concern and new visual impact – select five (5) locations within 500m that best represent the overall impacts from all vantage points around the site
- Confirm visibility mapping results on-site
- Identify potential mitigation measures
- Prepare visualization renderings – to illustrate potential visual impacts from areas of concern and mitigation measures
 - Prepare one set of visualizations from each of the three (3) identified viewpoints of concern that illustrate the pre expansion vs. post expansion conditions
 - Prepare one set of visualizations from each of the three (3) identified potential mitigation viewpoints that illustrate the pre mitigation vs. post mitigation conditions
 - Prepare one set of technical cross-sections to show the level of visibility from each of the three (3) identified viewpoint and illustrate the effectiveness of various mitigation measures

4. Development of Mitigation Measures Plan

- Use the Site Plan for the Preferred Alternative develop a preliminary Mitigation Measures concept plan including berms, planting, seeding and protecting (where feasible) existing roadside vegetation.
- Consider the use of native vegetation and ecologically beneficial plantings for the screening landscapes.
- Identify measures to screen truck queuing and support buildings where feasible.
- Receive comments from the client and other technical teams for input to refine the concept plan.
- Finalize Mitigation Measures Plan

5. Report and Recommendations

Prepare Visual Impact Assessment and Mitigation Measures Report including:

- Visual impact assessment comparing the existing condition with the preferred alternative;
- Summary of the contextual landscape character and magnitude of the proposed change in condition
- Location of sensitive receptors within 500m radius that represent the nature of the impacts
- Provide three (3) visualizations for viewpoints of concern that illustrate the pre expansion vs. post expansion conditions.
- Provide three (3) renderings that illustrate the pre mitigation vs. post mitigation conditions.
- Provide one set of technical cross-from each of the three (3) identified viewpoint and illustrate the effectiveness of proposed mitigation measures.
- Provide a draft final report for client review.
- Finalize Visual Impact Assessment and Mitigation Measures Report.