



Nemaska New Landfill Site  
Preliminary Information Statement

Prepared for:

Cree Nation of Nemaska

Prepared by:

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## NEMASKA NEW LANDFILL SITE – PRELIMINARY INFORMATION STATEMENT

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## Abbreviations

CDPNQ	Centre de données sur le patrimoine naturel du Québec
CNN	Cree Nation of Nemaska
COMEV	Environmental and Social Impact Evaluating Committee
ESIA	Environmental and socio-economic impacts assessment
JBNQA	James Bay and Northern Québec Agreement
MELCC	Ministère de l'Environnement et de la Lutte contre les changements climatiques
MFFP	Ministère de la Forêt, de la Faune et des Parcs
RRLIRM	Regulation Respecting the Landfilling and Incineration of Residual Materials



## Glossary

Category III land	Pursuant to the <i>James Bay and Northern Quebec Agreement</i> , lands where indigenous communities can pursue their hunting, fishing and trapping activities but only have exclusive rights on certain species.
Cover materials	Soil or other granular materials that are spread over compacted waste.
Diversion programs	Services that contribute to reducing the amount of waste ending up at the landfill, for example: recycling, composting or ecocentre services.
Drumlin	A low hill composed of compact glacial till, or other kinds of drift, and shaped by the flow of the ice.
Eeyou Istchee	The “People’s land”: traditional territory of the James Bay Cree which includes 11 Cree communities.
Monitoring well	A well (a cavity constructed in the soil) which provides access to underground water for collection of water samples and other tests.
Proponent	A company or other organization which intends to undertake a project, program or activity having potential environmental effects.
Trapline	Area where harvesting activities are by tradition carried on under the supervision of a tallyman.
Trench landfill	Landfill established within an excavated area.





## 1. PROJECT TITLE

Nemaska New Landfill Site.

## 2. PROPONENT

The proponent of this project is the **Cree Nation of Nemaska (CNN)**.

### **Cree Nation of Nemaska**

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Nemaska (Québec) J0Y 3B0  
Phone: 819 673-2512  
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Email : jhparadis@nemaska.ca

Person in charge of the project: Matthew Tanoush, Director of Land and Sustainable Development.

Québec Enterprise Number (NEQ): Not applicable.

## 3. CONSULTANT

**Stantec Consulting Ltd.** was mandated by the CNN to conduct preliminary studies and to prepare the environmental and social impact assessment (ESIA) of the project.

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## 4. PROJECT OBJECTIVES AND JUSTIFICATION

The objective of the project is to develop a new solid waste disposal site (a trench landfill) to serve the residents, institutions and businesses of Nemaska.

A Waste Management Master Plan Study for Nemaska was conducted in 2012 (Dessau, 2013) to determine the remaining lifespan of the existing landfill site and to identify and assess several options to reduce the quantity of waste disposed. Considering not improvement in the operation, the remaining lifespan of the existing landfill was estimated to be only a few years with an end-of-life forecasted in 2017-2018. Therefore, in 2017, a continuous trench landfill was built above the already filled areas to extend the landfill lifespan by 5 to 6 years. It was the short-term alternative to the development of a new landfill, allowing the landfilling



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services to be maintained while a new landfill site is being developed. The CNN also proceeded with the construction of an eco-centre which should be in operation in the next few months.

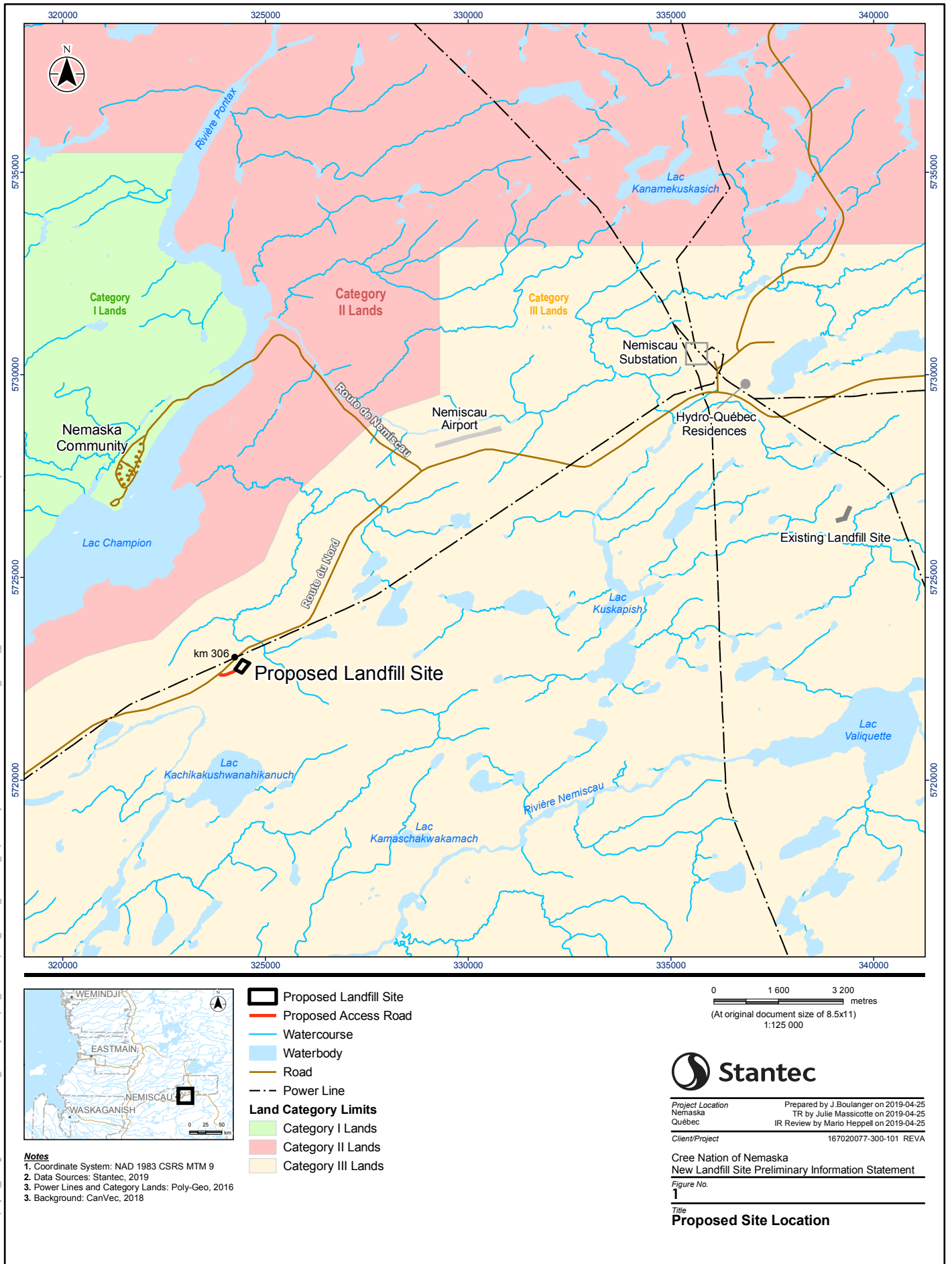
In anticipation of the upcoming definitive end-of-life of the existing landfill, the CNN undertook a site identification and selection process. Nine (9) sites were identified and assessed according to established selection criteria which included: distance from the community, distance from watercourses and waterbodies, depth of bedrock and groundwater, type of soil and local topography. Out of the nine potential locations, three sites (sites 4, 7 and 8) were selected for further analysis (Stantec, 2018). Then, following fields visits, geotechnical and geomorphological fieldwork, and acquisition of new information, Site 4 was retained as the potential new landfill site.

The proposed new landfill site, upon its construction, will replace the existing landfill site which will be closed and restored.

### 5. PROJECT LOCATION

The project is located in Eeyou Istchee territory, within the Cree Nation of Nemaska territory, on Category III lands. The proposed new landfill site is situated southeast from the community, approximately 17 km by road, near km 306 of the Route du Nord (see Figure 1). The site is located at the geographic coordinates: latitude 51,640546 and longitude -76,216502 (centre point).







## 6. PROJECT DESCRIPTION AND ALTERNATIVES UNDER STUDY

The project consists of the construction and operation of a new trench landfill site, designed and operated in accordance with the Québec Environment Quality Act and with the *Regulation respecting the landfilling and incineration of residual materials* (RRLIRM). The project also includes the construction and operation of an access road connecting the new site, potentially at its southwestern end, to the Route du Nord (see Figure 1).

Though the design of the project is not final, the current scenarios under study allow disposal for a period extending between 35 and 45 years. The landfill lifespan estimate takes into account growing waste generation rates. The CNN population 30-year growth forecast indicates that roughly 130,000 m<sup>3</sup> of residual materials (including 10% of cover materials) will have to be disposed within the new landfill.

The proposed site is approximately 850 m long and 240 m wide. The depth of bedrock or groundwater at the site is more than 5 m, and the available land area is 215,000 m<sup>2</sup> which is sufficient to develop a 4-m to 6-m deep trench including a buffer zone (Stantec, 2018). A four-metre trench depth would provide enough landfilling capacity for more than 30 years, while a six-metre trench depth would increase by 30% the landfill lifespan, as illustrated in Table 1.

**Table 1 Estimated Lifespan of the Proposed Site**

Trench Depth	4 m	6 m
Usable area (m <sup>2</sup> )	45,000 m <sup>2</sup>	45,000 m <sup>2</sup>
Capacity	160,000 m <sup>3</sup>	225,000 m <sup>3</sup>
Minimum lifespan	35 years	45 years

## 7. MAIN ENVIRONMENTAL AND HUMAN CONSTRAINTS

### 7.1 PHYSICAL ENVIRONMENT

The proposed site is located on a drumlin forming a broad ridge that rises approximately 20 m above the surrounding land, away from flood prone areas. The site is generally flat and the terrain slopes gently towards the northeast and the southwest, resulting in a 4 to 5 m difference in elevation. Sparse boulders are present on the site however, they don't represent a major constraint to the project development. The site is very well drained.



A preliminary hydrogeological study was conducted as part of the new landfill site selection study (Stantec, 2018). According to this study, the subsurface profile at the proposed site consists of a thin layer of topsoil over a silty sand or sand and silt layer with traces of some gravel. Cobbles and boulders were also encountered at various depths in the boreholes within the sand layers.

A permanent watercourse was observed southeast from the proposed site, and two other watercourses (status to be determined) were observed to the northeast and southwest of the site, but all of them are located more than 150 m from the proposed site.

## 7.2 NATURAL ENVIRONMENT

Tree cover is sparse at the centre of the site and denser on the northwest and southeast limits (Poly-Geo, 2017). Several mature jack pines are present. According to the *Centre de données sur le patrimoine naturel du Québec* (CDPNQ), no occurrences of floristic or wildlife species with special status were reported within a radius of 8 km of the proposed site (CDPNQ 2019a and 2019b). Since the proposed site complies with the regulatory distance from watercourse and no construction works are planned near water, it does not represent a major constraint to the development of the project. Distance from watercourses will also be considered in the access road layout design.

The CDPNQ indicates that the project area used to be frequented by migratory caribou between 2005 and 2011 and by woodland caribou in 2005-2006 (from 2004 through 2008, according to Nemaska representatives), so there is a possibility that these species frequent the area again in the future. The presence of sensitive bird species and bat species were also recorded in the project area (CDPNQ 2019b).

## 7.3 HUMAN ENVIRONMENT

The proposed site is located on trapline R16 which is already hosting various CNN and Hydro-Québec infrastructure. Preliminary land and resource use information shared by the tallyman of trapline R16 and by Nemaska Band Council representatives indicates that the project area is not located in commonly used hunting or fishing areas, nor in proximity to cultural or archaeological sites (Stantec, 2018). The closest cultural site is the elders' camp located approximately 8 km southwest from the site.

As it is located approximately 5 km from the community boundaries, the proposed site does not interfere with any current or future land use plans. At a regional level, the Eeyou Istchee James Bay Regional Government zoning by-law provides no special requirements within zone 51-06-R, where the proposed site is situated (Stantec, 2018).

The Route du Nord is owned by Hydro-Québec and managed by the Société de développement de la Baie-James (SDBJ). The site is at least 65 metres east from the road, which is considered acceptable by Hydro-Québec and SDBJ. The ministère des Transports (MTQ) does not have any specific requirements (Stantec 2018).

The proposed site is bounded to the north by a powerline right-of-way, located at least 50 m from it (see Figure 1), which is considered adequate for Hydro-Québec.



The proposed location of the new landfill site is 6.8 km away from the Nemiscau airport and was validated with Nemiscau airport authorities who estimated that it should not have impacts on the airport operations.

### 8. PRIMARY IMPACTS ANTICIPATED

Potential impacts of the project on the physical, biological and human environments will be thoroughly assessed during the ESIA process. Based on a preliminary review of available information and on Stantec's experience with similar projects, the construction, operation and closure of the project might have impacts on:

- Slope stability and soil erosion;
- Surface and groundwater quality;
- Soil quality;
- Air quality;
- Vegetation;
- Terrestrial wildlife;
- Land and resource use;
- Water resources;
- Infrastructure and equipment;
- Visual environment.

### 9. PUBLIC INFORMATION AND CONSULTATION PROCESSES

Information and consultation of the main stakeholders related to the project are ongoing since the site selection process started in 2016 (Stantec, 2018), and will continue at each phase of the project. These stakeholders include the tallyman of the potentially impacted trapline, Band Council representatives, Nemiscau airport authorities and Hydro-Québec.

Public information and consultation activities will be organized during the ESIA process, when most of the technical and environmental studies required for the project will be completed and detailed information about the project and its potential impacts will be available. Additionally, the tallyman of the potentially impacted trapline and other land users of the project area will be invited to participate in a project-specific land and resource use study. The information gathered during information and consultation activities and through the land and resource use study will document the ESIA report and be used in the project design and planning.



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Engagement activities will begin after the approval of the project in order to inform and involve the public regarding the construction, operation and closure of the existing and proposed landfill sites. Engagement activities will also seek feedback from the community on the new infrastructure and waste management services in general.

### 10. PROJECT SCHEDULE

The preliminary project schedule is presented in Table 2:

**Table 2 Preliminary Project Schedule**

<b>Project Item</b>	<b>Schedule</b>
Land Survey	November 2018
Preliminary Information Statement submitted to the Environmental and Social Impact Evaluating Committee (COMEY)	May 2019
Environmental and Social Impact Assessment Study	May – Oct. 2019
Preliminary Plans and Specifications	May – Oct. 2019
Analysis by Environmental and Social Impact Review Committee (COMEX)	Nov. 2019 – Nov. 2020
Preparation and analysis of the Request for a Certificate of Authorization	Nov. 2020 – March 2021
Final Plans and Specifications and Tender Documents	Dec. 2020. – April 2021
Call for Proposals	April. 2021
Land Clearing Permit	June 2021
Construction (General and Trenches 1 and 2)	July – Sept. 2021
Beginning of the Operations and Training	October 2021
Closure of the Existing Landfill	2022–2023

### 11. RELATED PROJECTS

The CNN developed an Ecocentre in Nemaska which official opening is planned for 2019. Additionally, the CNN is planning on implementing diversion programs to limit the amount of waste buried at the landfill. A composting pilot project will be launched in the coming months.





## 12. REFERENCES

- Centre de données sur le patrimoine naturel du Québec (CDPNQ-Flora). 2019a. Personal communication. Benoit Larouche, Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC). April 8, 2019.
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