GOLD FIELDS

Windfall Mining Project

Additional Information

Additional Information following the COMEX Public Hearings

Volume 1

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WINDFALL MINING GROUP INC.

WINDFALL MINING PROJECT – ENVIRONMENTAL IMPACT ASSESSMENT

ADDITIONAL INFORMATION FOLLOWING THE COMEX PUBLIC HEARINGS

EEYOU ISTCHEE BAIE-JAMES TERRITORY

FINAL VERSION

WSP REFERENCE: CA0023271.9538

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NOTICE TO THE READER

The purpose of this document is to provide additional information following the COMEX public hearings held on April 21 and 29, 2026, and to address the questions and comments from the Executive Committee (email received on May 14, 2026).

WSP Canada Inc. (WSP) was retained by Windfall Mining Group Inc. to respond to the questions. The MELCCFP's questions and comments are presented in full **in a box and in bold** to distinguish them easily from the text of the responses provided. A code and number are assigned to each question or comment (Q1, Q2, etc.) as well as to each response provided (Response 1, Response 2, etc.) to facilitate any follow-up.

All information provided at the time of submission is considered applicable unless superseded by an update.

The French version of this document constitutes the official version. In case of conflict of interpretation between the English and French versions, the French version prevails.

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Windfall Project Highlights

Additional encroachments outside the initial encroachment zone in the area of for the basins and ditches

Since submitting its response to the request for additional informations prior to the COMEX public hearings in January 2026, Windfall Mining Group Inc. (WMG) has continued to advance its engineering work (Map 1). This expansion required minor adjustments to the diversion basins and ditches to account for on-site conditions and logistical constraints related to construction operations.

Consequently, the map of proposed infrastructure, as well as the areas of permanent and temporary encroachment (Map 1) and their impacts on wetlands and aquatic environments (Map 2), have been updated. The simplified assessment of impacts on wetlands and aquatic environments has therefore been revised, as presented in the table below. Only 0.12 ha of additional permanent encroachment in wetlands and aquatic environments was added to the total encroachment, and 2.09 ha of additional potential indirect impacts on wetlands and aquatic environment were accounted for compared to the indirect impacts presented in Table RQC66 of the document Responses to Questions and Comments – 1st Series.

Updated simplified assessment of the project's impacts on wetlands and water environments

Impact	Environment	Area (ha)
Permanent encroachment	Water	1.48
	Wet	47.37
	Forest	77.85
	Non-forest (anthropogenic)	80.04
	Total	**206.75**
Temporary encroachment	Water	0.34
	Wet	1.80
	Forest	2.81
	Non-forest (anthropogenic)	0.23
	Total	**5.18**
Potential indirect impacts	Water	4.92
	Wet	11.18
	Forest	-
	Non-forest (anthropogenic)	-
	Total	**16.09**

Progress on the Wetland and Water Environment (MHH) Compensation Plan

In 2026, WMG will complete the steps required for the MHH compensation plan authorization process, namely the preparation of a work plan for conducting the Phase II Site Environmental Assessment (SEA) at the Certac abandoned mine site (in consultation with the Ministry of Natural Resources and Wildlife - MRNF), as well as the production of the construction plans and specifications required for the restoration of the wetland at the Osborne-Bell site. The planned activities are outlined below. It is planned to continue discussions with the Abitibi-Témiscamingue Regional Directorate of the MELCCFP following the completion of these activities.

Work Plan – Certac Site Phase II

To develop the work plan for conducting the Phase II Site Environmental Assessment (SEA), the following steps will be taken:

- Submission of a freedom of information request to obtain the Phase I SEA from the MRNF, as well as any other relevant government documents.
- Compilation of information received from government authorities and analysis of the MRNF's Phase I SEA.
- Preparation and drafting of the Phase II work plan (objectives, parameters, and approach).
- Preparation of a budget estimate for the work.

Plans and Specifications – Osborne-Bell Site

Engineering plans for the current and proposed construction conditions, as well as the construction specifications required for site restoration, will be prepared by a civil engineer. Coordination of this phase will be led by a senior biologist at WSP who is responsible for the wetland and aquatic compensation program.

Composantes du projet / *Project Components*

- Actuelle / *Current*
- Qui sera retirée / *To be removed*
- Fossé / *Ditch*
- Ponceau / *Culvert*
- Fossé qui sera retiré / *Ditch to be removed*
- Tour de télécommunication / *Telecommunication tour*

Infrastructures projetées / Planned Infrastructures

- Effluent final / *Final effluent*
- Infrastructure temporaire (phase de construction) / *Temporary infrastructure (construction phase)*
- Fossé de déviation / *Deviation ditch*
- Autre fossé / *Other ditch*
- Ponceau / *Culvert*
- Conduite vers l'effluent final / *Final effluent pipe*
- Berme / *Berm*
- Clôture / *Fence*

Catégories d'infrastructures projetées / *Categories of Planned Infrastructures*

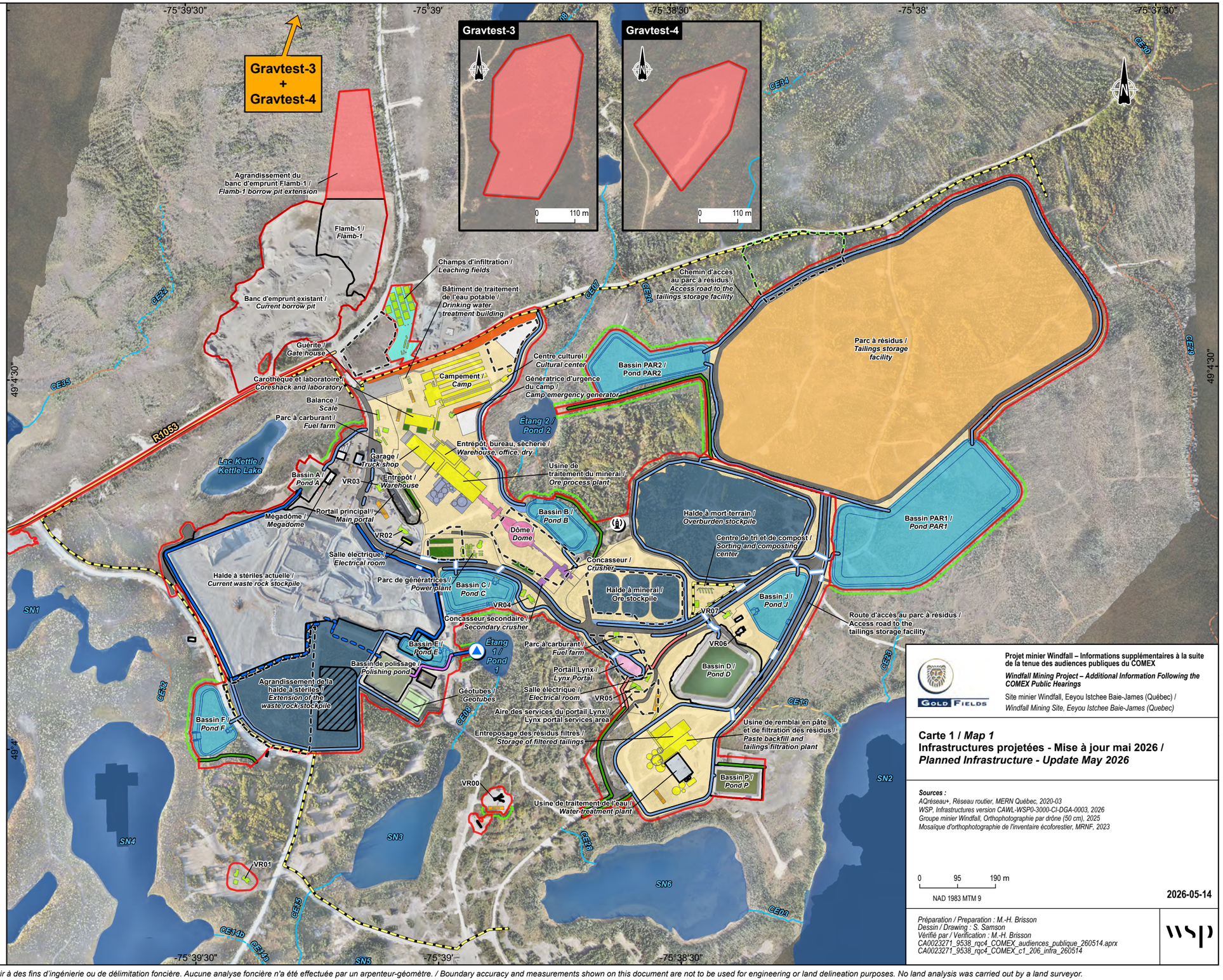
- Aire d'activité / *Activity area*
- Banc d'emprunt / *Borrow pit*
- Bassin / *Pond*
- Berme / *Berm*
- Géotube / *Geotube*
- Bâtiment / *Building*
- Champ d'infiltration / *Infiltration field*
- Concasseur / *Crusher*
- Dôme et composantes / *Dome and components*
- Entreposage / *Storage*
- Équipement / *Equipment*
- Confinement extérieur pour réservoirs / *Outdoor confinement for tanks*
- Fossé / *Ditch*
- Halde / *Stockpile*
- Parc à résidus / *Tailings storage facility*
- Portail Lynx / *Lynx portal*
- Réservoir de propane / *Propane reservoir*
- Route et chemins d'accès / *Road and access paths*
- Stationnement et accès / *Parking and access*
- Zone de dépôt de neige / *Snow deposit zone*

Réseau routier / *Road Network*

- Chemin d'accès principal / *Main access road*

Hydrographie / *Hydrography*

- Canal / *Channel*
- Cours d'eau intermittent / *Intermittent Watercourse*
- Cours d'eau intermittent partiellement souterrain / *Partially Underground Intermittent Watercourse*
- Cours d'eau intermittent souterrain / *Underground Intermittent Watercourse*
- Cours d'eau permanent / *Permanent Watercourse*
- Cours d'eau permanent partiellement souterrain / *Partially Underground Permanent Watercourse*
- Cours d'eau souterrain / *Underground Watercourse*
- Fossé de drainage / *Drainage ditch*
- Plan d'eau / *Waterbody*



Projet minier Windfall – Informations supplémentaires à la suite de la tenue des audiences publiques du COMEX

Windfall Mining Project – Additional Information Following the COMEX Public Hearings

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte 1 / *Map 1*
Infrastructures projetées - Mise à jour mai 2026 / *Planned Infrastructure - Update May 2026*

Sources :
AQréseau+, Réseau routier, MERN Québec, 2020-03
WSP, Infrastructures version CAWL-WSP0-3000-CI-DGA-0003, 2026
Groupe minier Windfall, Orthophotographie par drône (50 cm), 2025
Mosaïque d'orthophotographie de l'inventaire écoforestier, MRNF, 2023

0 95 190 m
NAD 1983 MTM 9

2026-05-14

Préparation / Preparation : M.-H. Brisson
Dessin / Drawing : S. Samson
Vérifié par / Verification : M.-H. Brisson
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Composantes du projet / *Project Components*

Empiètement / *Footprint*

- Permanent / *Permanent*
- Temporaire / *Temporary*

Rabattement de 1 m / *1 m reduction*

- Impact indirect

Catégories d'infrastructures projetées / *Categories of Planned Infrastructures*

- Bassin / *Pond*
- Halde / *Stockpile*

Milieux humides et hydriques affectés par le projet / *Wetlands and Hydrous Environment Affected by the Project*

- Milieux humides affectés par le projet / *Wetland Affected by the Project*

Littoraux / *Littorals*

- Cours d'eau / *Watercourse*
- Milieu humide (LNHE) / *Wetland (NHWL)*

Rives / *Riverbanks*

- Rive 10 m / *10 m riverbank*

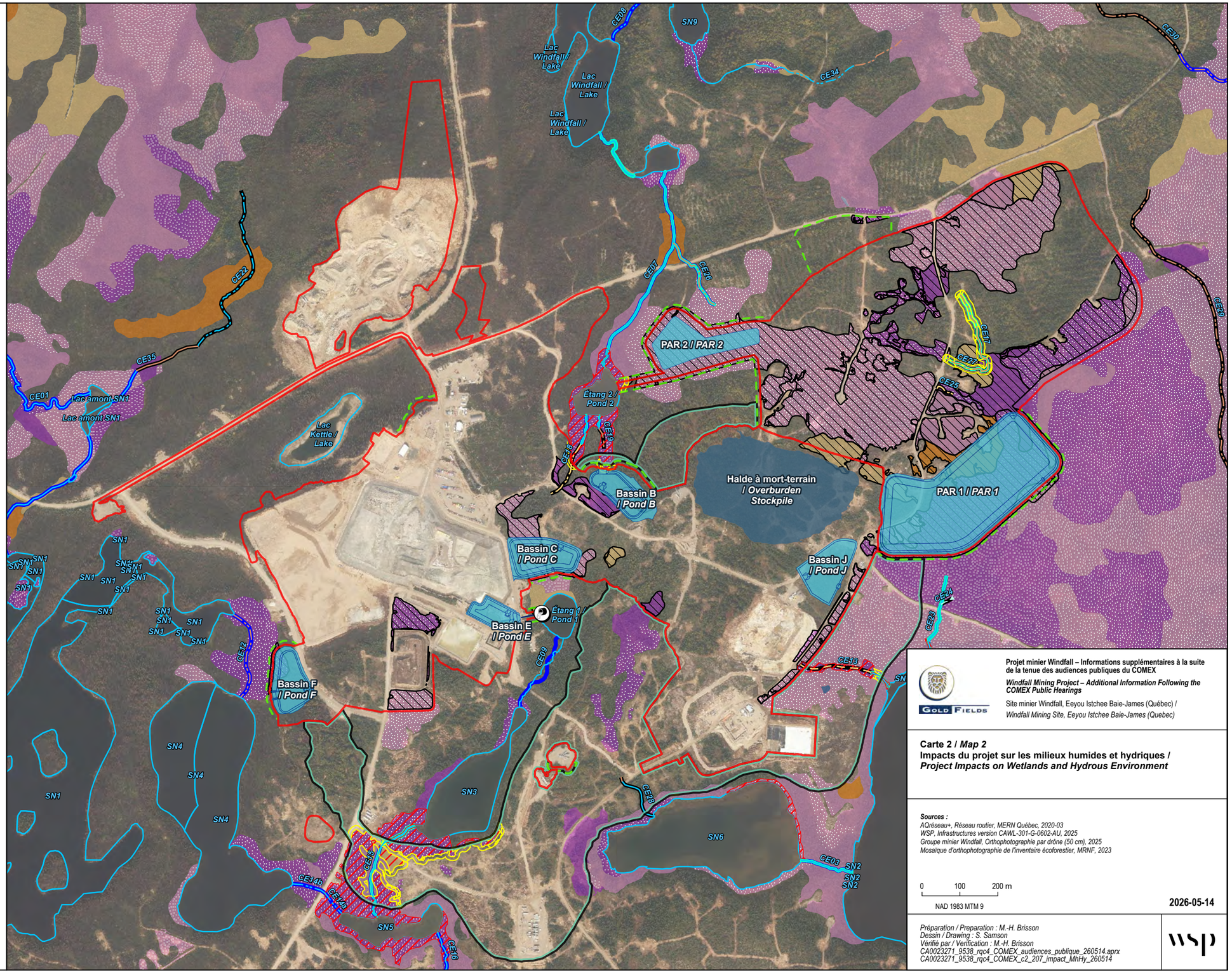
Composantes de l'écosystème / *Ecosystem Components*

Milieux humides et hydriques / *Wetlands and Hydrous Environment*

- Marais / *Marsh*
- Marécage arborescent / *Forested swamp*
- Marécage arbustif / *Shrubby swamp*
- Tourbière minérotrophe boisée / *Forested fen*
- Tourbière minérotrophe ouverte / *Open fen*
- Tourbière ombrotrophe boisée / *Forested bog*
- Tourbière ombrotrophe ouverte / *Open bog*
- Eau peu profonde / *Shallow water*
- Plan d'eau / *Waterbody*
- Canal / *Channel*
- Cours d'eau intermittent / *Intermittent Watercourse*
- Cours d'eau intermittent partiellement souterrain / *Partially Underground Intermittent Watercourse*
- Cours d'eau intermittent souterrain / *Underground Intermittent Watercourse*
- Cours d'eau permanent / *Permanent Watercourse*
- Cours d'eau permanent partiellement souterrain / *Partially Underground Permanent Watercourse*
- Cours d'eau souterrain / *Damaged Underground Watercourse*
- Fossé de drainage / *Drainage ditch*

Habitat du poisson / *Fish Habitat*

- Non / *No*
- Oui / *Yes*



Projet minier Windfall – Informations supplémentaires à la suite de la tenue des audiences publiques du COMEX

Windfall Mining Project – Additional Information Following the COMEX Public Hearings

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte 2 / *Map 2*

Impacts du projet sur les milieux humides et hydriques /
Project Impacts on Wetlands and Hydrous Environment

Sources :
AQréseau+, Réseau routier, MERN Québec, 2020-03
WSP, Infrastructures version CAWL-301-G-0602-AU, 2025
Groupe minier Windfall, Orthophotographie par drône (50 cm), 2025
Mosaïque d'orthophotographie de l'inventaire écoforestier, MRNF, 2023

0 100 200 m

NAD 1983 MTM 9

2026-05-14

Préparation / Preparation : M.-H. Brisson
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Revised Project Timeline

The timeline below has been revised in light of delays in the project's environmental assessment process compared to initial estimates. The major milestones remain unchanged; only the timeframes have been adjusted. Please note that these timeframes may be extended during the process, as some steps are beyond WMG's control. In any case, for project planning purposes, the following timeframes have been adopted.

Updated Project Schedule

Phase	Period
Inventories of the receiving environment	2018-2023
Submission of the feasibility study	Q1-2023
Submission of the environmental impact assessment	Q1-2023
Detailed engineering	Q1-2023 – Q3-2028
Environmental assessment process	Q2-2023 - Q1-2026
COMEX public hearings	Q2-2026
Issuance of COMEX authorization	Expected in Q2-2026
Obtaining permits/authorizations	Expected in Q2-2026
Start of construction	Expected in Q3-2026
Opening of the camp	Q1-2027
Commissioning of the concentrator	Q4-2028
End of construction	Q1-2029
Start of commercial production	Q2-2029
End of commercial production	Q4-2038
Mine reclamation	2039-2040
Post-closure follow-ups	2041-2050*

* Note: Once all water analysis tests are compliant and there are no more exceedances of criteria.

1 Recap of the COMEX Public Hearings

1.1 Presentations by WMG

During the public hearings held in Lebel-sur-Quévillon on April 21, 2026, and in Waswanipi on April 29, 2026, a general presentation of the Windfall project, including an interactive tour of the proposed site, was shown as an introduction. During the question-and-answer period, visual aids were used to support certain responses provided by WMG. These aids are compiled in Appendix 1 (April 21 session) and Appendix 2 (April 29 session), and are presented by topic in accordance with the order of the discussions.

During the session held on April 21 in Lebel-sur-Quévillon, representatives of the Anishnabe Nation of Lac Simonraised questions regarding, in particular, the use of chemicals for ore processing and water protection, specifically concerning the eskers. Other participants from Quévillon also addressed increased transportation, road safety, local participation, and economic benefits. Some of the responses provided by WMG were supported by the slides included in Appendix 1.

During the session held on April 29 in Waswanipi, members of the Waswanipi community and representatives of the Anishnabe Nation of Lac Simon raised various questions and concerns regarding the topics below. Some of WMG's responses were supported by the slides included in Appendix 2.

- Total project costs;
- Employability and local procurement;
- Workforce training;
- Location of the mine tailings pond and tailings management;
- Caribou presence;
- Monitoring of metals (mercury) in mine effluent;
- Management of waste materials at the site and the wildlife they attract;
- Cumulative impacts on the territory;
- Protection of surface and groundwater;
- Involvement of land users in biodiversity management and protection;
- Transportation and road safety management;
- Racism, harassment, and discrimination in the workplace;
- Preservation of Cree culture;
- Gold Fields' values.

1.2 Responses to the Brief Submitted by the Lac-Simon Community

WMG confirms that it has reviewed the brief submitted by the Lac-Simon community as part of the COMEX public hearings and wishes to emphasize that the issues and concerns raised are taken very seriously. In order to address them in a clear and structured manner, WMG has prepared a response, presented in Appendix 2 of present document.

2 Transportation

This section outlines the concerns and comments raised during the COMEX public hearings held on April 21st and 29th, as well as the results of consultations conducted with the communities of Lebel-sur-Quévillon and the Waswanipi Cree First Nation in recent years.

During the public hearings, certain concerns were raised by users of the area, particularly regarding the presence of dangerous curves, the need for improved signage, compliance with the speed limit by vehicles traveling on this road, and reduced visibility due to dust.

In this regard, similar concerns were raised during public consultations held in October 2025. In response to these comments, WMG developed several initiatives.

2.1 Transportation Management Plan

In addition to certain specific actions, WMG issued Revision 1 of the Transportation Management Plan (Appendix 3), the main adjustments of which are summarized below. Revision 1 incorporates the adjustments made since the original issuance in October 2024. The introduction has been enhanced to more directly reflect the concerns expressed during consultations (road safety, dust, curves on Route 6000, signage, emergency measures, carrier identification, and contractual obligations) and to reaffirm the objective of risk reduction as well as WMG's continued active oversight of the corridor throughout all phases of the project. From an operational standpoint, the update clarifies the method for accounting for shipments by distinguishing between categories of movements and introduces vehicle tracking using a radio system that specifies certain items included in or excluded from the count.

The "intermediate storage" strategy has been substantially revised through the addition of a consolidation and transit approach (consolidation center in the Montreal area and transit zone in Lebel-sur-Quévillon) designed to sequence departures and limit congestion on forest roads. Finally, new provisions govern the approval of carriers and the visible identification of vehicles, to ensure rapid traceability along the corridor and enhanced tracking capabilities in the event of an observation, complaint, or incident.

The sections on safety, communication, and incident management have also been strengthened. Road safety measures are more structured, notably through the prioritization of high-risk zones for the use of radar signs, the expansion of roadside checks, and the formalization of a progressive approach to addressing non-compliance.

Potential additions to the signage plan are specified, noting that all changes must be approved by the MRNF before they can be implemented. Several operational measures are detailed or added, including a targeted approach to dust and visibility management through "special zones," the management of curves and areas with reduced visibility on Route 6000, as well as specific provisions for the KM62 bridge, public access points/intersections, and road maintenance/surface stabilization.

The communication plan has been enhanced by specifying the information to be provided to carriers, contractors, and local users, and by incorporating the maintenance of a register of complaints and observations (date, time, location, identification, description, and follow-up). The emergency measures detail the scenarios applicable to the corridor and add validation and documentation requirements for any application of water, dust suppressants, or chemical treatments; they also specify the response chain in the event of a traffic accident, including the use of the vehicle monitoring system to detect sudden stops or immobilizations. Incident tracking is defined by a process for handling complaints, observations with corrective actions, and traceability.

2.2 Planned Initiatives

2.2.1 Forest Road Development

Road Conditions

Although the reduction in logging rights has led to a decrease in the use of forest roads 1000 (R1050), 5000 (R0853), and 6000 (R1053) by the forestry industry, it is clear that ongoing road maintenance is necessary due to the combined use by foresters, the Windfall project, and land users. WMG is currently in the planning phase to, as a first step, repair certain culverts that require maintenance or replacement. WMG will also conduct the statutory inspection of the bridge at KM62 by summer 2026 to verify its structural integrity. It should be noted that the last inspection was conducted in 2024 and that the results showed that the loads applied near the bridge are still within acceptable limits. In a second phase, raising the road to its original level may be considered if necessary.

Signage

Observations indicate that some existing road signs have been displaced as a result of winter snow removal operations and prolonged exposure to weather conditions. Signs that are tilted, turned, or faded are less effective. There are also a few missing signs in certain locations. The approach to the bridge is a critical point on the access road. Despite advance warning signs and recommended speed reductions, the lack of enhanced visual markers could limit visibility of the infrastructure, particularly at night, in fog, or during winter. To address this issue, a two-phase plan has been developed.

Phase 1 — Immediate Rehabilitation and Safety Improvements

This phase focuses on rapid corrective actions to reduce short-term risks on the access road. Planned interventions include rehabilitating existing signs by straightening, reorienting, or replacing tilted, damaged, or illegible signs. Missing signs will be replaced, and targeted additions will be made to ensure continuous and consistent signage along the forest road. Special attention will be given to the bridge approach, where the addition of specific signs and the installation of reflective strips and/or arrows will significantly improve visibility and understanding of the road environment. These measures aim to heighten awareness of the hazard and effectively guide users.

Phase 2 — Proposals for Structural Improvements to the MRNF

The second phase is part of a medium- and long-term approach and aims to consolidate the improvements through structural actions, in collaboration with the Ministry of Forests and Natural Resources (MRNF). This phase will involve developing and submitting a formal proposal to improve signage and road safety on the forest road. It will include an analysis of high-risk areas, the need for additional signage, and opportunities to optimize speed management. The proposal may also incorporate permanent measures, such as signage standards adapted to high-traffic forest roads, the installation of standardized reflective devices, and a coordinated approach to speed management for certain more sensitive sections. This approach will promote a sustainable vision of road safety, aligned with ministerial responsibilities and best practices in prevention.

Sharp Curves

As part of the construction phase planning, an internal assessment of the sharp curves on Route 6000 was conducted. It should be noted that the concerns expressed by users during the COMEX sessions primarily concern Route 6000 and the section of Chemin de la Traverse. It should also be noted that WMG has repeatedly requested meetings with users of the W25A family to jointly identify locations deemed problematic. This request was deferred until after the hearings, and a meeting with the W25A family is expected to take place after the goose hunting season.

Although this assessment is not yet complete, certain findings already point to potential improvements that will allow to enhance the safety of users traveling through this corridor.

KM103-104

Visibility related to the road geometry could be improved in this area. At first glance, one option would be to widen the field of view by further clearing vegetation—either through additional tree removal or brush clearing—to improve sight lines. Photo 1 shows the curve.

Photo 1 Curve on Route 6000 at KM103-104

KM107,5, 108, 108,5 and 109

Vegetation limits visibility for road users. Targeted tree clearing is proposed to improve sightlines and safety. Photo 2 shows the various vantage points.

Photo 2 Viewpoints at KM 107, 108, and 109

Additional measures and corrective actions will be identified following consultation. In the short term, the repair of existing signage, the addition of targeted signage, and certain other measures will significantly improve safety in this corridor.

2.2.2 Speed control

In addition to the various measures already included in the initial transportation plan (speed camera signs, random enforcement operations, and enhanced signage), the latest update in the appendix briefly outlines a radio-based traffic monitoring and management system for the project's forest road corridor.

This new system will allow safety teams stationed at the Route 1000 entry point and at the site gate to track users in real time, simply by updating the radio equipment currently used by WMG. Specifically, this system involves adding a module to the Motorola transceivers currently in use by WMG. Installation of these modules will begin in June 2026 and be completed by December 2026. Additional receivers will be added over time to geolocate vehicles. The objective remains the same: to monitor road traffic associated with the Windfall project.

The data generated by this system will include speed, position, sudden stops, and prolonged stops. The security team will receive a real-time alert for each of the situations described. Road safety will be greatly improved, as in addition to speed, the system will notify the security department of any situations associated with an accident or breakdown. It should also be noted that it will be possible to distinguish between vehicles traveling to the Windfall site and other road users. This capability will allow us to determine, when responding to users who report dangerous behavior on the road, whether the incident is currently related to Windfall.

One-time suppliers and visitors heading to the Windfall site will be asked to stop at the entrance to Route 1000, where they will be provided with a compatible radio transmitter. All regular suppliers must be equipped with a radio transmitter compatible with this system. Penalties are already in place for violators, but the addition of this tool will enable the full enforcement of these penalties, which can include a ban from the site. This system will be rolled out gradually by December 2026.

2.2.3 Dust Management

Dust generated by vehicles in the summer can pose a visibility challenge, especially at sunrise and sunset; it can also be a nuisance in certain areas used by the public. As part of the analysis of the sharp curves described earlier, the installation of dust suppressors in some of these curves could be considered, provided this can be done in accordance with current environmental regulations. It should also be noted that the procedure for accessing forest roads requires maintaining a safe distance between vehicles precisely to ensure visibility during dusty conditions.

Finally, a user has set up a campsite along Route 6000 in the past year. Various measures will be analyzed and discussed during the meeting. These measures could include a proposal for additional signage to the MRNF, targeted applications of dust suppressant, and/or vegetation cover.

2.3 Information Sessions since 2024

A public information session on traffic management and road safety was held on October 28, 2025, in Lebel-sur-Quévillon. The minutes and presentation from this meeting are provided in Appendix 4. The same presentation was given in English the following day, October 29, 2025, at the Waswanipi Community Center. About a dozen people attended, and several questions, comments, and concerns were raised.

In addition, a consultation meeting was held on December 3, 2025, with Tallyman W25A and his son, so that they could identify the most problematic sections of Route 6000, in particular. Finally, during the last collaboration committee meeting of 2025 between the Lebel-sur-Quévillon municipal council and the Eeyou Istchee James Bay Regional Government, held on December 10, WMG presented a summary of the October public sessions. On this occasion, current and upcoming safety measures were explained, and the public feedback gathered to date was shared.

WMG considers the safety of all road users a priority; it is in this spirit that the concerns of local residents heard during the information sessions and the COMEX meeting are taken very seriously. The main feedback is summarized in Table 2-1 below.

Table 2-1 Key Feedback and Meetings Regarding the Transportation Management Plan

Stakeholders met with	Date of the information session	Key feedback
Residents of Lebel-sur-Quévillon	October 28, 2025	– The installation of a guardhouse could raise questions from road users who are not directly involved in the project. – The transportation and housing arrangements for workers must be clearly communicated to the residents of Lebel-sur-Quévillon to avoid any confusion. – Road clearing is viewed positively by users.

Stakeholders met with	Date of the information session	Key feedback
Members of the Waswanipi community	October 29, 2025	**Main concerns** – Poor road conditions causing damage to vehicles. – Speeding and tailgating by heavy trucks. – Bridge near Routes 3000 and 6000 not suitable for heavy truck traffic. **Suggestions** – Install more signage and speed displays to control speed. – Add lighting and signage before sensitive infrastructure, such as bridges. – Improve communication regarding road closures. – Encourage reporting of unsafe driving behavior.
W25A Trap Master	December 3, 2025	– **Road safety**: concerns regarding excessive speed, sharp curves, and accident risks on Routes 5000 and 6000. – **Infrastructure condition**: deteriorating pavement, narrowing of the road, need for alignment corrections and improved signage, particularly near bridges. – **Dust and Nuisances**: Dust issues associated with increased truck traffic, particularly during the summer. – **Traffic management**: implementation of access control measures, adjustments to speed limits, and enhanced signage to improve user safety.
Lebel-sur-Quévillon City Council	December 10, 2025	No comments were made by those present.

WMG also commits to continuing its outreach and consultation efforts with users of Routes 1000, 5000, and 6000 regarding this issue, which is considered a priority.

3 Continuation and Strengthening of Inclusion Initiatives

During public hearings held within the Waswanipi Cree First Nation community, participants spoke out to raise allegations of racism against Cree employees working at the Windfall project site. WMG wishes to express that it hears these concerns and takes them very seriously. While we cannot comment on the specifics of individual cases, it is important to reiterate the measures already in place and the additional steps that will be taken as part of the project.

Windfall operates in a highly diverse work environment, which is a source of great pride. Alongside employees from Cree, Anishinaabeg, and Innu communities, WMG also employs workers from many international backgrounds. It is imperative that this diversity be fostered within a climate of respect, inclusion, and safety for all. WMG further reaffirms its zero-tolerance policy toward any form of racism, discrimination, harassment, or incivility in the workplace.

In addition to the Cree people directly employed by WMG, a significant portion of the Indigenous workforce on-site also comes from Cree joint ventures and contractors working on the Windfall project. As of the fourth quarter of 2025, the site had 15 Indigenous employees directly employed by WMG, as well as 79 Indigenous workers employed by contractors and partners working on the site.

WMG recognizes that creating a truly respectful and inclusive workplace requires ongoing effort and the continuous evolution of organizational practices. Many of the mechanisms and initiatives currently in place have been developed gradually over the past few years and continue to be refined to address on-the-ground realities and the needs expressed by workers.

Furthermore, several measures currently being rolled out had already been initiated prior to the public hearings. The concerns raised during these hearings, however, have reinforced WMG's commitment to accelerating certain initiatives and continuing its efforts to tangibly improve the experience of Cree workers on the site.

Measures Already in Place

Training and Awareness

To support its commitment to a respectful, inclusive, and safe workplace, WMG has implemented several prevention, awareness, and support measures for workers at the Windfall site, including WMG employees as well as employees of contractors and joint ventures operating on the site.

All employees and contractors must complete mandatory training on workplace harassment upon arrival at the site. For WMG employees, this training must also be renewed annually. Currently, workers from contracting companies complete this training upon hiring and during their onboarding at the site.

Mandatory training on respect in the workplace is currently being rolled out to WMG employees to promote inclusive, respectful, and safe behavior in the workplace.

The “La Saison des peuples” training, offered in collaboration with UQAT, also helps to strengthen WMG workers’ understanding of Indigenous realities and cultures.

Initiatives and Prevention

Various initiatives are continuously implemented to foster a respectful and inclusive work environment for all workers on-site. These include activities to prevent psychosocial risks, annual meetings with contractors to reiterate expectations regarding respect and conduct, as well as activities to raise awareness and celebrate Cree culture, particularly on National Indigenous Peoples Day. Cultural spaces and language and cultural learning initiatives are also encouraged on-site.

Organizational surveys are also conducted among all workers on-site, including WMG employees and employees of contracting companies. These surveys enable WMG to identify opportunities for continuous improvement.

Reporting Mechanisms and Support

WMG provides all workers on-site with several accessible and confidential reporting mechanisms. Workers can reach out to human resources, supervisors, the medical clinic, or the peer support teams on-site. This support team consists of 26 members from both WMG and the contracting companies working on-site.

Formal tools are also available to all workers, including an online reporting form and regular organizational surveys on engagement, organizational culture, and psychosocial risks.

Policies and Oversight

WMG’s internal policies, including Policy RH-PLT-015 on workplace harassment, Policy RH-PLT-013 on human rights, and the Windfall site rules, apply to all workers on-site, including employees of contractor companies.

Upon arrival at the site, workers must complete an orientation training and review these policies. Compliance with these requirements is tracked using WMG’s internal systems to confirm that the required training and acknowledgments have been completed.

Grievance Management and Investigations

Every report or complaint is handled rigorously. Investigations are conducted diligently and impartially, typically by specialized external firms. When a situation involves Cree employees, WMG engages accredited Indigenous firms to ensure a culturally appropriate and equitable approach.

The investigation process also applies when a complaint involves an employee of a contracting company. In these situations, WMG’s human resources teams collaborate with those of the contractor in question to ensure appropriate and coordinated follow-up. Although some workers are not directly employed by WMG, the incidents occur on the Windfall project site, and WMG considers it its responsibility to follow up on situations brought to its attention.

Measures Currently Being Implemented

WMG is currently working to implement and enhance several initiatives that were already in development prior to the public hearings.

A new training session on Indigenous issues, lasting approximately 30 minutes, will soon be incorporated into the mandatory worker orientation program.

WMG is also working on rolling out a second phase of its workplace respect training so that it can be offered to regular contractors on-site. This second phase will be rolled out once all WMG employees have completed the training. In the longer term, the goal is for this training to be repeated on a regular basis, several times a year, by both WMG employees and workers from partner companies.

An independent and confidential reporting hotline will also be launched shortly to provide workers with an additional means of reporting incidents safely and confidentially. A structured grievance management mechanism for workers and land users will also be implemented to ensure transparent handling, rigorous follow-up, and ongoing communication with those involved.

Finally, WMG will soon hire a Cree human resources advisor. This resource will help strengthen support for Cree employees, assist teams with cultural and relational issues, and promote better communication between workers, the community, and the organization.

Additional Measures Considered Following the Public Hearings

In light of the testimony heard during the public hearings, WMG recognizes the importance of continuing and strengthening its efforts. The organization wishes to go further and is currently working to implement additional measures aimed at tangibly improving the experience of Cree workers and preventing all forms of discrimination. An audit was conducted at another mining company operating in Cree territory. The objective was to assess how the measures being considered by WMG compared to those implemented by this other company. It turns out that the measures currently in place at the site, those currently being implemented, and those proposed below are comparable.

Among the proposed measures, WMG plans to incorporate criteria related to racism, harassment, and workplace respect into contractor evaluations, on par with health and safety criteria. This approach will, in particular, provide a better understanding of companies' track records regarding complaints or incidents related to racism or harassment, as well as the corrective measures implemented when such situations arise. WMG thus aims to ensure that its partners and contractors share the same standards regarding respect, inclusion, and psychological safety in the workplace.

Furthermore, WMG intends to implement a monitoring mechanism to track the completion rate of mandatory training, with a particular focus on employees who have not completed them. This monitoring will enable targeted follow-ups to ensure that all required training is completed within appropriate timeframes.

WMG also recognizes that policies and mechanisms must be accompanied by concrete actions on the ground and a daily commitment from managers and supervisors, who play an essential role in creating a respectful, inclusive, and safe workplace. With this in mind, WMG aims to provide greater support to supervisors and operational teams to strengthen practices of positive leadership, kindness, and inclusion within work teams.

In addition, WMG intends to establish an intercultural advisory committee comprising Cree employees, human resources representatives, site operations representatives, the Cree liaison, and, where appropriate, specialized external representatives. This committee's mandate would be to identify issues encountered on the ground, propose concrete solutions, monitor trends and concerns raised by workers, and review certain incidents in an anonymized manner to identify opportunities for continuous improvement. This initiative aims to foster open and ongoing dialogue between workers and the organization, while providing a structured space to address concerns proactively rather than solely during crisis situations.

WMG fully recognizes the importance of the concerns expressed during the public hearings and reaffirms that they are taken very seriously. The testimonies heard serve as a reminder of the importance of maintaining sustained efforts to ensure a respectful, inclusive, and safe workplace for all workers at the Windfall site.

Recognizing that creating an inclusive work culture relies on constant commitment and continuous improvement of organizational practices, WMG remains determined to continue implementing concrete and transformative actions. The organization intends to continue working in collaboration with workers, Cree communities, its partners, and its contractors to evolve its practices in a sustainable, transparent, and responsible manner.

4 Tailings Storage Facility (TSF)

During the public consultations conducted by COMEX as part of the project, stakeholders expressed specific concerns regarding the selection of Site 8F for the tailings storage facility, particularly regarding the reasons for favoring this alternative over other options considered, including Site 7F. These questions focused in particular on the environmental, social, and operational considerations that guided the decision. This document aims to address these concerns in a transparent and structured manner by presenting a comparative analysis of the alternatives, the criteria used, and the factors that led to the conclusion that Site 8F is the most appropriate option from an integrated perspective of sustainable development and responsible impact management.

4.1 Analysis of Alternatives and Justification for the Choice of the Location and the TSF

QC 1 and 2

The proponent must present a comparative analysis of the various site options studied, including their respective advantages and disadvantages, transportation arrangements, and explain the reasons why the alternatives were rejected in favor of the selected site. The proponent must provide a more detailed justification for why Alternative 7F, which received a high score, was not selected.

The proponent must explain in detail the reasons leading to the final choice of the tailings storage facility location (Option 8F), specifying the criteria used and how it determined their weighting among technical, environmental, social, and economic aspects.

The developer must also submit all documents, analyses, and presentations used during the public hearings regarding this choice, as well as any additional analyses conducted subsequently, if applicable.

Responses 1 and 2:

The evaluation of the site options for the mine tailings facility and the Windfall project was conducted in April 2022 by an independent consultant in accordance with *the Guide to the Evaluation of Alternatives for Mine Waste Storage* (Environment Canada, 2016), in order to identify the most appropriate choice from environmental, technical, economic, and socio-economic perspectives. The tailings pond site selection study, the results of which were presented in the environmental impact assessment (EIA, Chapter 2 and Appendix 1-8 of Addendum 1), was conducted using a rigorous and structured approach consistent with recognized best practices for evaluating mine waste management alternatives. This approach is based on a multi-criteria analysis process that integrates environmental, social, technical, and economic dimensions, and is part of an iterative process involving the preselection of alternatives, their detailed characterization, and a comparison based on a structured decision-making framework. The primary objective of this approach is to identify an optimized solution that minimizes the project's overall impacts while ensuring its long-term technical and operational viability. This approach is also consistent with regulatory guidelines that require clear demonstration that the selected alternative is the best available option with regard to environmental issues, particularly concerning the protection of aquatic environments and fish habitats.

In this context, several potential sites were identified within the study area and then subjected to a progressive selection process. This approach first made it possible to eliminate alternatives presenting major constraints, particularly the presence of sensitive aquatic environments, land-use zones, or incompatible infrastructure. The selected alternatives were then subjected to an in-depth analysis to evaluate their relative performance based on a set of indicators covering impacts on the biophysical environment, interactions with land uses, technical requirements associated with design and operation, as well as economic and operational implications. This approach aims to ensure that the final decision is not based on a single criterion, but on an integrated assessment of the benefits and constraints of each option, with a view to sustainable development and responsible resource management.

Following this analysis, Alternative 8F emerged as the preferred solution due to its ability to optimally meet the project's objectives and regulatory requirements. Option 7F ranked second. The following paragraphs outline the main differences between the two alternatives, excluding non-distinguishing factors.

First and foremost, the 8F site avoids any encroachment on fish habitat. This characteristic is a decisive advantage, given that applicable regulatory frameworks impose particularly strict requirements when a project involves the use of a body of water likely to harbor fish.

Furthermore, the analysis highlights that the location of Site 8F facilitates optimal integration of the mining complex's infrastructure, particularly due to its proximity to the ore processing and tailings filtration facilities. This configuration minimizes transport distances, resulting in reduced greenhouse gas emissions, energy consumption, and logistical requirements.

The configuration of Site 8F also offers significant advantages in terms of water management, enabling integrated and centralized management of contact water and limiting the amount of mine effluent and the necessary treatment infrastructure.

Conversely, Alternative 7F presents several significant constraints. In particular, it involves a high potential for encroachment on a watercourse that may serve as fish habitat, representing a major environmental and regulatory challenge. Furthermore, the area required to locate the tailings pond would be insufficient if it became necessary to reduce its size to completely avoid encroachment into fish habitat. It should be noted that Alternative 7P could not be evaluated because the necessary area was not available within the analysis radius.

Option 7F is also distinguished by increased complexity in terms of water management, requiring several distinct systems. This is a significant factor that cannot be overlooked, as it entails the need for two mine effluents and two water treatment plants, thus two different sub-watersheds that would be affected by the presence of a mine effluent. Alternatively, a long-distance pipeline network to transport mine water to the main site would be required, with the additional risks that such facilities entail.

Finally, the transportation constraints associated with Alternative 7F are significant and constitute one of the main issues highlighted during public consultations. Concerns expressed by stakeholders focused notably on potential impacts related to transportation, particularly regarding road safety, coexistence with other land users, and the intensity of traffic associated with the proposed mining operations. The proposed mining scenario for Site 7F would indeed result in high traffic volume, estimated at approximately 85 trucks over a 12-hour period—an average of one truck every eight minutes for a round trip. Such traffic intensity poses a significant safety challenge, particularly in a context where these trips could take place on infrastructure shared with the public. In the absence of a fully dedicated road, the possibility of heavy mining trucks crossing paths with civilian users constitutes a critical risk, both in terms of safety and social acceptability.

To address these constraints, implementing Scenario 7F would have required major changes to the road network, either through the construction of a new road dedicated to the transport of mine tailings or through a significant widening of the existing Route 6000. These options would have entailed a notable increase in the project's footprint, additional impacts on the territory, and significant infrastructure costs. Furthermore, the proximity of Hydro-Québec's 735-kV power transmission line constitutes an additional physical constraint limiting the area available for the tailings facility, thereby reducing planning flexibility and exacerbating the logistical challenges of Scenario 7F.

These factors also explain why transportation was identified as a major issue during the consultations and led to the development of an amended transportation management plan aimed at addressing the concerns raised by stakeholders. Nevertheless, even with the implementation of mitigation measures, the inherent constraints associated with Scenario 7F regarding transportation, safety, and infrastructure remain significant. In comparison, the location of Site 8F near the facilities significantly limits transportation needs, thereby reducing associated risks, disruptions for local residents, and the project's overall impacts. As such, transportation issues are a key factor in the comparative analysis and contribute significantly to the preference for Alternative 8F.

In summary, the application of the multi-criteria approach demonstrates that Site 8F is the most advantageous alternative, allowing for the minimization of environmental impacts, the optimization of operations, and effective compliance with regulatory requirements.

Furthermore, to demonstrate the notable differences even more clearly, a summary table (table 4-1) of the main differences is presented below. This table does not include all the variables from the multi-criteria analysis but rather highlights the key differences between the two options.

In conclusion, the comparative analysis of the tailings storage facility location alternatives consistently demonstrates that Site 8F is the most balanced and effective option in terms of the environmental, technical, and operational criteria considered. Although certain concerns were raised during the consultations, particularly regarding specific issues such as transportation and social acceptability, these were fully incorporated into the analysis and led to the identification of appropriate mitigation measures. However, it is clear that the constraints associated with the other alternatives, particularly those related to impacts on aquatic environments, the complexity of water management, and fundamental logistical challenges, present a higher level of risk and impact that is difficult to mitigate. In this context, the selection of Site 8F is part of a rigorous, transparent process that adheres to best practices, aimed at minimizing the project's overall impacts and ensuring its long-term viability from a sustainable development perspective.

The slides presented at the public hearings that summarize the site selection study are provided in Appendix 1 of this document.

Table 4-1 Comparative multi-criteria matrix for options 7F and 8F

Criterion	Alternative 8F	Option 7F	Comparative Analysis
Impacts on aquatic environments and fish habitat	Favorable	Unfavorable	8F avoids aquatic environments 7F involves encroachment
Land use	Favorable	Moderate	8F without encroachment 7F presents some conflicts due to the presence of a nearby power line
Social acceptability	Moderate to unfavorable	Moderate to favorable	8F raises concerns 7F is better perceived
Site footprint and fragmentation	Very favorable	Unfavorable	8F compact 7F scattered
Water management	Very favorable	Unfavorable	8F integrated 7F complex (2 effluents)
Transportation and traffic	Very favorable	Unfavorable	8F limited traffic 7F ~85 trucks/12h
GHG emissions	Very favorable	Moderate	8F proximity → fewer emissions from transporting mine tailings
Technical complexity	Favorable	Moderate to unfavorable	8F simple 7F more complex

4.2 History of Consultations and Discussions Regarding the TSF with Local Stakeholders

QC 3

The proponent must provide reports, minutes, or summaries of consultations held with land users, including tallymen, as well as any documentation detailing the preferences and concerns expressed regarding the location of the tailings storage facility.

Response 3:

Start of community consultations and identification of issues (initial project phases)

As part of the Windfall project's development, WMG undertook, from the earliest phases of the project, a structured consultation process with the Waswanipi community to document land uses and identify sensitive factors to be considered in the planning of mining infrastructure, including the tailings facility, as presented in Table 4-2 and Appendix 5 below.

These initial discussions enabled WMG to better understand land-use patterns, traditional practices associated with the areas under study, and general concerns regarding environmental protection and the preservation of traditional practices. During these discussions, the leadership of the Waswanipi Cree First Nation (WCFN) recommended that WMG conduct targeted consultations directly with the master tallymans who may be affected by the project.

In August 2020, WMG initiated targeted consultations with the two tallymen of the traplines directly affected by the areas under study for the tailings storage facility (W25A and W25B). These efforts notably involved:

- representatives of the family of the tallyman for trapline W25A, namely the Cooper family;
- representatives of the family of the tallyman for trapline W25B, namely the Icebound family.

As part of these consultations, WMG organized several working meetings with the families concerned to document land uses in detail and to incorporate traditional knowledge into the project analyses (Table 4-2). Maps of the territory were presented during the meetings to allow users to identify the areas associated with:

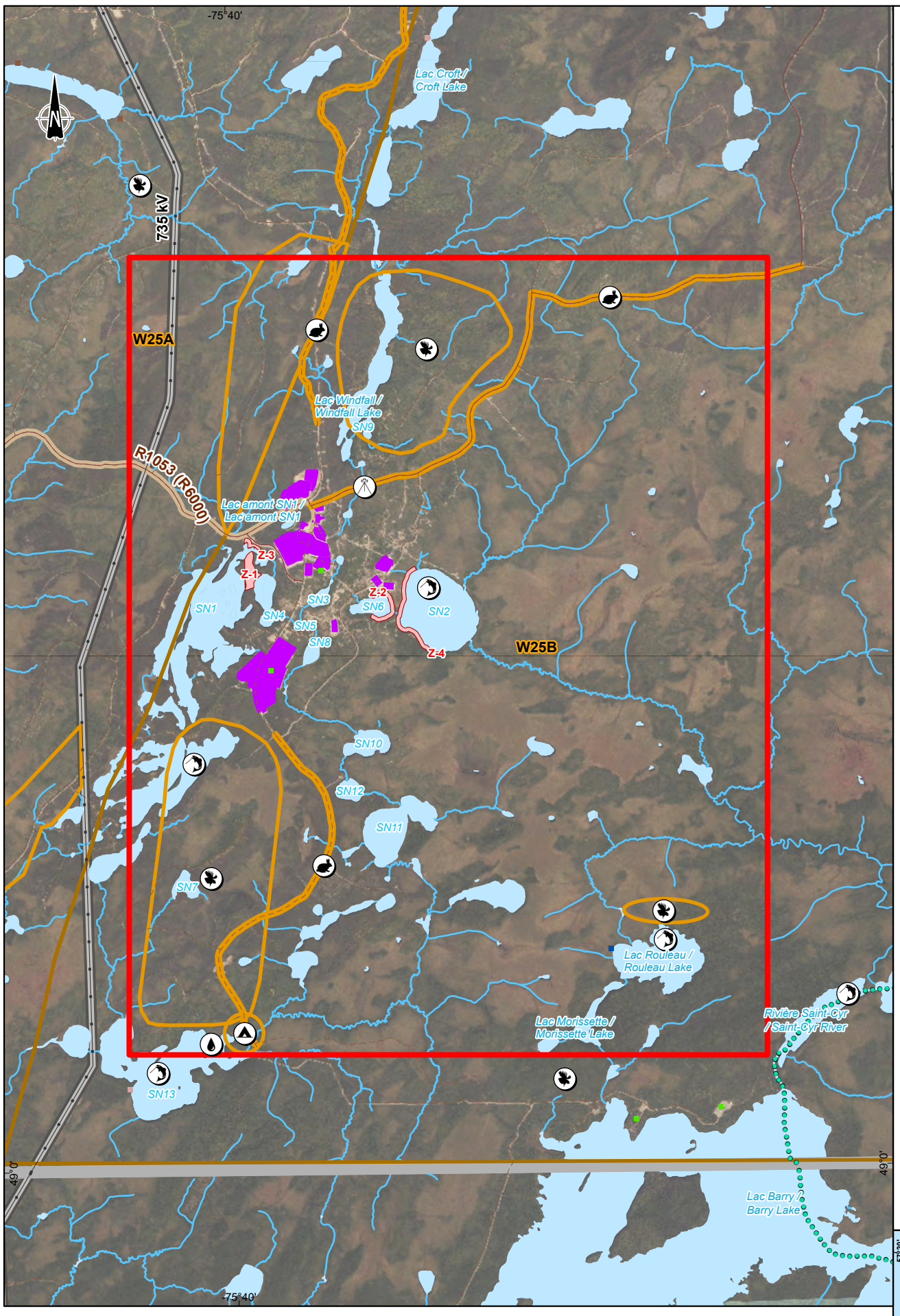
- hunting;
- fishing;
- travel within the territory;
- trapping activities;
- family occupation and cultural uses;
- sensitive areas to be avoided in infrastructure planning.

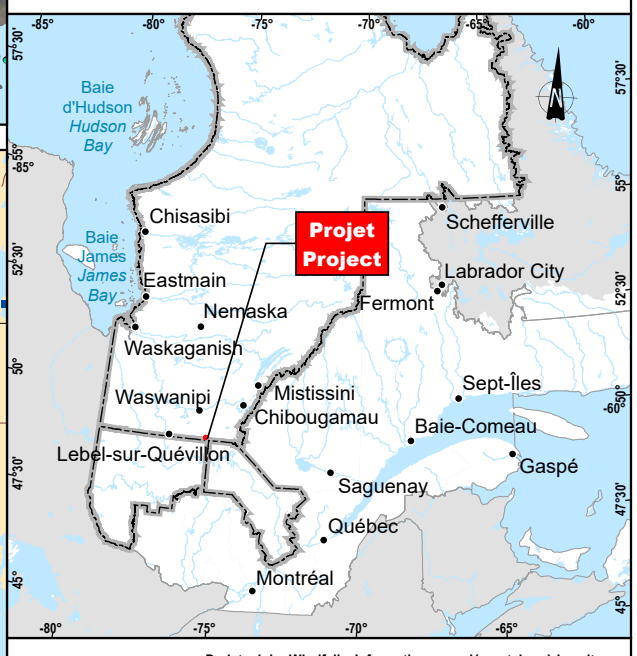
Land users identified several key features, including the main camp of the W25B tallyman, certain refuge sites, trapping areas, and travel routes used for traditional activities. The consultations also helped document other aspects related to land use, notably the water sources used, certain areas associated with the harvesting of medicinal plants, and various natural resources distributed across the territory. Le rayon de 10 km centré sur le site Windfall a été présenté et la première carte d'utilisation du territoire du secteur a été colligée à partir des informations recueillies (Map 3 - the map presents the land use finalized and validated by users W25A and W25B in 2023).

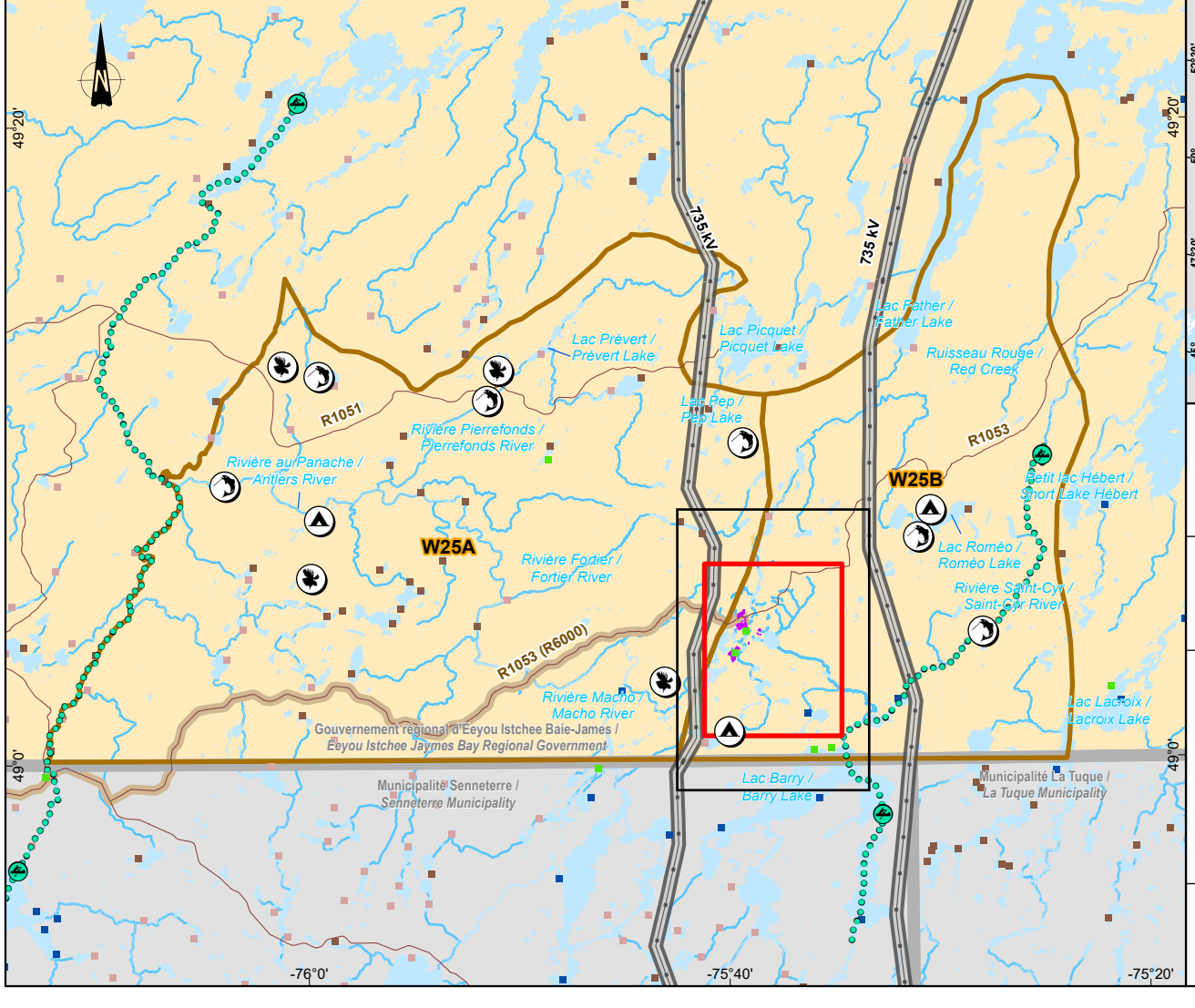
In addition to these targeted consultation activities for the tailings pond site selection study, the Windfall Environmental Monitoring Committee (WEMC) also facilitated an ongoing, structured, and documented dialogue with the W25B tallyman and his family, representatives of the CFNW (leadership, natural resources department, and mining coordinator), as well as members of WMG.

This approach enabled WMG to gather precise information on sensitive areas and to progressively integrate local knowledge into the technical, environmental, and social analyses associated with the selection of the tailings storage facility. Certain information requiring further validation was also subject to follow-up and additional discussions with the families concerned.

The meetings held as part of the WEMC also provided an opportunity to present the various components of the project, including the operation of the tailings storage facility, the technologies planned for mining waste management, and the proposed environmental management measures. The stakeholders were therefore able to ask questions, consult their networks, and return with additional comments as the project progressed.







Limite administrative / *Administration Boundary*

Municipalité ou territoire équivalent (TE) / *Municipality or Equivalent Territory (ET)*

Terres de catégorie (CJBNQ) / *Category Lands (JBNQA)*

Terre de catégorie III / *Category III lands*

Projet / Project

Zone d'étude locale du milieu humain / *Social environment local study area*

Infrastructure actuelle / *Current infrastructure*

Infrastructure projetée / *Planned infrastructure*

Infrastructures connexes / *Related Infrastructures*

Ligne de transport d'énergie électrique / *Electric power transmission line*

Accès et déplacement des utilisateurs / *Access and travel paths for users*

Route régionale / *Regional road*

Route forestière / *Logging road*

Route d'accès / *Access road*

Hydrographie / *Hydrography*

Cours d'eau / *Watercourse*

Étendue d'eau / *Waterbody*

Utilisation traditionnelle du territoire par les Cris / *Cree land use*

Campement cri / *Cree Camp*

Caméra de suivi de la faune (initiative crie) / *Wildlife tracking camera (Cree Initiative)*

Zone d'habitat de l'orignal / *Moose habitat area*

Zone de pêche / *Fishing area*

Zone d'habitat du lièvre / *Hare habitat area*

Source d'eau pour usage domestique / *Water source for domestic use*

Zone valorisée pour la faune (la délimitation de ces zones est approximative pour fins de confidentialité) / *Wildlife valued area (the delimitation of these areas is approximate for confidentiality purposes)*

Terrain de trappage cri / *Cree trapline*

Archéologie / *Archeology*

Zone de potentiel archéologique identifiée en 2022 / *Area of archaeological potential identified in 2022*

Baux de villégiature / *Leisure leases*

Fins d'abri sommaire en forêt / *Temporary forest shelter*

Fins d'hébergement dans une pourvoirie sans droits exclusifs / *For lodging at an outfitter without exclusive rights*

Fins de villégiature / *For leisure purposes*

Autres fins / *Other purposes*

Sentiers / *Trails*

Canotable / *Canoe*

Projet minier Windfall – Informations supplémentaires à la suite de la tenue des audiences publiques du COMEX

Windfall Mining Project – Additional Information Following the COMEX Public Hearings

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte 3 / *Map 3*
Zone d'étude locale du milieu humain - Utilisation du territoire / *Social Environment Local Study Area - Land Use*

Sources :

AQréseau+, Réseau routier, MERN Québec, 2020-03
WSP, Infrastructures version CAWL-WSP0-3000-CI-DGA-0003, 2026
Groupe minier Windfall, Orthophotographie par drône (50 cm), 2025
Mosaïque d'orthophotographie de l'inventaire écoforestier, MRNF, 2023

0 95 190 m

NAD 1983 MTM 9
NAD 1983 Québec Lambert

2026-05-14

Préparation / Preparation : M.-H. Brisson
Dessin / Drawing : S. Samson
Vérifié par / Verification : M.-H. Brisson
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Incorporation of Concerns into Project Analyses

The consultations conducted by WMG identified several concerns expressed by the tallymen and the families involved regarding the various options for the tailings pond's location and the project's associated infrastructure.

The main issues raised included:

- the protection of water bodies and aquatic habitats;
- potential impacts on air and water quality;
- potential health effects;
- potential impacts on wildlife;
- access to the territory and travel safety;
- the preservation of traditional uses and way of life.

The concerns expressed during the meetings were continuously documented and regularly followed up on by WMG teams, as shown in Table 4-2. The meeting minutes show that the issues raised by land users were documented by WMG, particularly regarding waste management, water treatment, potential environmental risks, and the proposed control and mitigation measures. In response to the concerns expressed, WMG notably:

- provided detailed technical explanations regarding the proposed infrastructure and environmental control measures;
- conducted additional follow-ups and validations regarding certain situations reported by local residents;
- incorporated the comments received into the environmental and comparative analyses, including, among other things, those related to the location of the mine effluent;
- considered certain design adjustments to maintain safe access to the territory and limit the impact on traditional uses, such as the development of an access road to Lake SN2.

The information gathered during the consultations made it possible, in particular, to:

- identify certain sensitive areas to be avoided;
- assess the potential impacts of the various options under consideration;
- adapt certain design scenarios;
- guide comparative assessments of the proposed sites;
- incorporate knowledge derived from traditional knowledge into environmental studies and site selection analyses.

This entire approach demonstrates that the consultations conducted by WMG were part of an evolving, iterative, and collaborative process, in which the concerns expressed by local stakeholders were actively taken into account throughout the project's development. Furthermore, the W25A family indicated that no additional follow-up meetings were required in relation with the TSF.

Table 4-2 Summary of consultations and discussions in which the tailings pond was discussed

Date	Type of Meeting	Key Participants	Purpose of the Meeting	Main Topics Discussed
August 25, 2020	WEMC	Tallyman W25B and family Deputy Chief CFNW CFNW Director of Natural Resources CFNW Mining Coordinator	Identification of Land Uses in W25B	Mapping of Land Use
August 25, 2020	Special Consultation Meeting on the Tailings Pond	Tallyman W25A Deputy Chief, CFNW CFNW Director of Natural Resources CFNW Mining Coordinator	Cree Land Use and Associated Infrastructure in Trapping Area W25A	Mapping of Land Use
Oct. 27, 2020	WEMC	W25B Tallyman and family CFNW Mining Coordinator	Deepening knowledge of land use	Traditional activities, sensitive areas
Nov. 25, 2020	WEMC	Tallyman W25B and family CFNW Mining Coordinator	Discussion of construction site options	PAR Location
March 10, 2021	WEMC	Tallyman W25B and family CFNW Mining Coordinator	Explanation of how the project works	How the PAR works
April 27, 2021	WEMC	Tallyman W25B and family CFNW Mining Coordinator	Impact Discussion	Water, wildlife, tailings
June 30, 2021	WEMC	Tallyman W25B and family CFNW Director of Natural Resources CFNW Mining Coordinator	Tracking Concerns	Land access, impacts
Oct. 21, 2021	WEMC	Tallyman W25B and spouse, Waswanipi Mining Coordinator	Presentation on tailings	Tailings management
Nov. 23, 2021	WEMC	Tallyman W25B and family CFNW Mining Coordinator	Monitoring and Transparency	Infrastructure Location
Feb. 16, 2022	WEMC	W25B Tallyman and Family Deputy Chief CFNW CFNW Mining Coordinator	Environmental Update	Infrastructure and Impacts
Sept. 29, 2022	WEMC	W25B Tallyman and Family CFNW Mining Coordinator	Design adjustment	Preliminary Infrastructure Plan
Oct. 24, 2022	Interview on land use in W25B (Icebound family), by WSP	W25B Tallyman and family	Discussions on the impacts of the mining project on their territory and traditional activities	Specific identification of the family's concerns

Date	Type of Meeting	Key Participants	Purpose of the Meeting	Main Topics Discussed
Oct. 26, 2022	Interview on land use W25A, by WSP	Tallyman W25A	Discussions regarding the impacts of the mining project on their territory and traditional activities	Specific identification of the family's concerns
Oct. 26, 2022	Interview on land use in W25B (Grant family), by WSP	Grant family member who uses the territory W25B	Discussions regarding the impacts of the mining project on their territory and traditional activities	Detailed identification of the family's concerns
Jan. 25, 2023	WEMC	Tallyman W25B and family CFNW Mining Coordinator	Follow-up on concerns	Environmental and Social Issues
Jan. 30, 2023	Open House	Citizens of Waswanipi	Public Information and Consultation	Project presentation and Q&A session
Feb. 22, 2023	WEMC	Tallyman W25B and family CFNW Mining Coordinator	Presentation of results	Site Selection Analysis
March 23, 2023	WEMC	W25B Tallyman and Family CFNW Mining Coordinator	Continuation of Discussions	Project impacts, concerns
March 20, 2024	WEMC	Tallyman W25B and family CFNW Mining Coordinator	Follow-up and update	Project progress and concerns
May 14, 2024	Official Meeting (Leadership)	CFNW Chief CFNW Mining Coordinator	Presentation of the EIS and site selection	Presentation on site selection, selected technology, monitoring, and restoration methods
May 14, 2024	Public Information Session	Community members	Public information and consultation	Presentation on site selection, the chosen technology, monitoring, and restoration methods
Feb. 2, 2026	Information session for W25B tallymans	Representative of the Grant family CFNW Mining Coordinator	Information	Site Selection Analysis, Technology, Impacts, and
Feb. 20, 2026	Additional information and follow-up on the Feb. 2 meeting (email)	Representative of the Grant family CFNW Mining Coordinator	Information	Answers to questions raised by the family during the February 2, 2026, meeting
April 29, 2026	COMEX Public Hearings	Citizens of Waswanipi	Information and Public Consultation	Project presentation and responses to questions and concerns

Selection of Site 8F and Continued Dialogue (2023 to Present)

As part of the work to select the tailings pond site, WMG presented and analyzed various location options with local stakeholders and affected families. These discussions aimed to validate the information gathered during previous consultations, better understand the concerns expressed, and incorporate the issues raised into the decision-making process.

The consultations and technical, environmental, and comparative analyses conducted by WMG contributed to the evaluation of the various options considered for the tailings facility's location. The concerns expressed by local stakeholders helped inform discussions regarding the protection of water bodies, traditional land uses, access to the affected areas, and the potential impacts associated with the different options studied.

Following this consultation and evaluation process, Site 8F was selected as the location for the tailings storage facility. This choice is based in particular on its ability to reduce environmental risks, particularly regarding water management, while incorporating the environmental, technical, and social considerations identified during the consultations.

Following the selection of Site 8F and its presentation to land users, certain concerns and resistance from some users were expressed during discussions with the affected families. Although none of the families consulted indicated that they regularly engage in traditional activities in the selected area, concerns regarding the project's potential impacts, land use, and environmental protection were nevertheless raised.

Furthermore, the consultation process continued in a concrete and structured manner through meetings held in Waswanipi in May 2024, with both community leadership and community members. These meetings allowed WMG to present the tailings pond plan in detail, including the filtered tailings technology selected and the multi-criteria analysis process that led to the selection of Site 8F.

During these discussions, WMG specifically demonstrated how the constraints and concerns identified by the tallymen and land users had been incorporated into the site pre-selection process, including the exclusion of certain areas from the earliest stages of the analysis.

The discussions also provided an opportunity to transparently address several concerns raised by land users, particularly regarding the proximity of certain infrastructure to water bodies, potential impacts on fishing activities, and access to the territory. Specific concerns regarding the proximity of certain fishing sites used by trap masters were discussed, as were certain issues surrounding the location of water management and treatment infrastructure.

These meetings also demonstrated WMG's commitment to maintaining an approach of active listening, transparency, and ongoing communication with the community. The team took the time to explain the technical aspects of the project, including waste management technologies, the operation of the proposed infrastructure, and the criteria guiding the comparative site analysis. Participants were able to ask questions directly to WMG representatives, and several follow-up commitments were made regarding certain issues raised and requests for additional information.

Finally, these discussions served to reiterate the importance WMG places on the consultation process and on incorporating the concerns expressed into the decision-making process. The May 2024 meetings thus demonstrate the continuity of an open, transparent, and evolving dialogue with the land users and the Waswanipi community. In this context, WMG continued consultations efforts and discussions with the land users to gather feedback from the affected families, document the concerns expressed, and maintain an ongoing dialogue throughout the project's development.

The consultation process was not limited to the site selection phase. Discussions with affected families and land users continue as part of the project's implementation and associated environmental monitoring. WMG thus maintains an approach of ongoing dialogue aimed at addressing expressed concerns and, when necessary, adjusting certain measures related to land access, facility use, and the project's environmental monitoring.

It should also be noted that in April 2023, WMG invited the family associated with the W25B trap line to visit the Éléonore mine site, with Dhilmar's approval. This visit, originally scheduled for June 2023, was intended to allow for an observation of an active filtered tailings pond as well as ongoing reclamation activities. However, the forest fires that occurred during the summer of 2023 led to the cancellation of this visit. In 2024, WMG reiterated its interest in organizing such a trip, but the invitation was declined by the family.

It is also worth noting that in 2024 and 2025, as part of the monthly meetings held with the Icebound family, information sessions on mine tailings management were proposed (see Table 4-3). These invitations were systematically declined. More specifically, during the monthly meeting held on May 24, 2024, the Icebound family stated emphatically that they no longer wished to be contacted for information on mine tailings management. It is also important to note that no representative from the W25B trapline participated in the public information session on mine tailings held on May 14, 2024.

However, meetings with the affected users continued to take place until February 2026 to ensure ongoing dialogue and the maintenance of a respectful coexistence approach with the territory's users.

Table 4-3 Summary of consultations and discussions with land users

Date	Type of meeting	Key participants	Background
March 30, 2024	WEMC	Tallyman W25B and family Director of Natural Resources, PCNW	Proposal rejected by the W25B family regarding the organization of a visit to the Éléonore mine to tour a filtered tailings pond and observe ongoing restoration efforts.
May 24, 2024	WEMC	Tallyman W25B and family CFNW Mining Coordinator	WMG again offered the family a personalized information session on mine tailings management. The family firmly declined the offer. WMG respected the family's wishes and ceased soliciting their participation regarding the tailings pond.
November 8, 2024	Email – Invitation to a meeting	Tallyman W25B and family CFNW Mining Coordinator	Monthly meeting and information session on changes to the tailings pond. No response to the request for a meeting. WMG respected the family's wishes and ceased seeking their participation regarding the tailings pond.
January 22, 2026	Email – Urgent Request for Coordination	CFNW Mining Coordinator	Organization of three separate meetings (including tailings management).
February 24, 2026	Email – Follow-up regarding informational meeting	Waswanipi Mining Coordinator and W25B Family	Information meeting on tailings management (possibly virtual).

Evolution of the W25B trapline Governance and Adaptation of Consultations

During the consultations, the governance of the W25B line underwent a significant evolution. Historically, the *tallymanship* of the W25B trapping territory was held by the Grant family. However, several years before GWM arrived in the territory, following a family tragedy within the Grant family, the *Cree Tallymans Association* temporarily entrusted the *tallymanship* of the W25B line to the Icebound family. During this period, consultations and discussions conducted by GWM regarding this trapping territory were therefore carried out with representatives of the Icebound family, as they were responsible for decisions regarding the use of the territory.

Starting in 2024, the Grant family resumed active participation in discussions regarding the management and use of the W25B line. In response to this development, the *Cree Tallymans Association* established a *co-tallymanship* arrangement involving both the Icebound and Grant families. Since this transition, WMG has conducted consultations and meetings regarding the tailings pond with the participation of both families to ensure adequate representation of the affected land users.

4.3 Consideration of community concerns

QC 4

The proponent must demonstrate how the concerns of the Waswanipi community were taken into account in the site selection process, providing concrete examples of modifications or adjustments made to the project. The proponent must also specify the mechanisms put in place to ensure that these concerns are continuously taken into account in subsequent stages, as well as the additional measures envisaged to improve dialogue and strengthen the bond of trust with the community.

Following the COMEX public hearings, it was also raised that the views of tallymen and land users were not adequately considered in the site selection. The proponent must therefore address these concerns by specifying the actions already implemented to remedy them and the additional measures planned to improve its consultation practices and foster a lasting relationship of trust with the Waswanipi community.

Response 4:

Although the multi-criteria analysis highlights certain social acceptability issues associated with Alternative 8F, particularly due to concerns expressed regarding its location and the perception of impacts, these factors were explicitly considered in the decision-making process. The analysis demonstrates, however, that these concerns must be put into perspective with the nature and extent of the impacts associated with the other alternatives, particularly in environmental and regulatory terms.

Indeed, Alternative 7F, although it may present more favorable social acceptability, involves a high potential for direct impacts on a watercourse likely to harbor fish , which constitutes a major environmental issue and a significant regulatory risk factor. Such impacts are inherently more restrictive, as they require in-depth justifications, more complex permitting processes, and the implementation of significant compensatory measures, the effectiveness and acceptability of which are not guaranteed.

Conversely, the social acceptability issues identified for Alternative 8F primarily stem from concerns that can be mitigated through design, monitoring, communication, and stakeholder engagement measures. While these issues are important and must be taken into account, they do not present the same degree of irreversibility or the same level of constraint as the direct impacts on aquatic environments associated with Alternative 7F.

Furthermore, Alternative 8F's overall performance in terms of reducing the project's footprint, lowering greenhouse gas emissions, simplifying water management, and limiting cumulative impacts is a key factor in assessing the project's public interest. These benefits help reduce long-term impacts on the region and its users, which is a central element of overall social acceptability throughout the project's entire life cycle.

Among the concerns raised regarding Alternative 8F is the potential for indirect effects that the presence of the tailings pond could have on the water quality of Lake SN2. Following initial consultations conducted in 2020 as part of the site selection study, this lake was identified as a location used for fishing. It should be noted, however, that the W25B family's use of this lake for fishing is relatively recent, as it was identified by the family during inventory activities conducted in collaboration with the WMG team as part of the environmental impact study. Furthermore, WMG has already committed to maintaining access to Lake SN2 via a new access road.

An important clarification concerns the location of the mine effluent. Following an analysis of various location options, WMG made a significant adjustment to the project design in the fall of 2022 to address the concerns raised, particularly by the W25B family. Initially, the plan was to discharge the mine effluent into Lake SN2 rather than into Pond 1, which is now the chosen solution. Given the importance the Icebound family places on the use of Lake SN2, particularly for fishing activities, WMG chose to prioritize an option that avoids directly impacting this body of water. This decision entailed significant adjustments to the project planning, particularly regarding the characterization of the receiving environment. In fact, the surface water quality data initially collected for Lake SN2 and its downstream water bodies were no longer directly applicable, which required a new comprehensive data collection campaign downstream of the final location of the mine effluent. This adjustment also caused a delay in the progress of the COMEX's review of the file.

WMG considers that this modification demonstrates its commitment to concretely integrating the concerns expressed by stakeholders into the design of its infrastructure. This approach is part of a process of continuous project improvement, aimed at reconciling technical and regulatory requirements with the expectations of the local community.

Thus, while social acceptability is an important criterion in the analysis, it cannot be considered in isolation and must be evaluated in conjunction with the other dimensions of the project. The integrated analysis demonstrates that the significant environmental, technical, and operational benefits associated with Alternative 8F offset the identified acceptability challenges and help make it the most balanced option and the one most aligned with the principles of sustainable development and responsible resource management.

Furthermore, WMG recognizes that addressing community concerns is not limited to the initial design stages but is an ongoing process throughout the project's development. To this end, several mechanisms have been put in place to ensure that the concerns of the Waswanipi community and land users are consistently taken into account. These include holding regular meetings with the community and tallyman leaders, involving land users in discussions regarding environmental monitoring and biodiversity programs, and proactively incorporating feedback into the evolution of the project's mitigation measures and management plans.

With a view to continuous improvement, WMG also plans to strengthen these mechanisms by continuing the dialogue with the community throughout the subsequent phases of the project, notably by adapting communication approaches, enhancing consultation tools, and implementing mechanisms that promote greater participation by local representatives in decisions related to environmental and social management. These measures aim to foster a lasting relationship of trust, based on listening, transparency, and the concrete integration of expressed concerns.

4.4 Detailed Monitoring Program for the Integrity of Lake SN2

QC 5

The proponent must justify the choice of the tailings pond's location near a lake, given the concerns that have been raised. The proponent must also specify the mitigation measures and environmental monitoring programs planned to ensure the protection of aquatic environments.

Finally, given that the proponent states that the nature of the tailings differs from that of traditional mine tailings (filtered tailings rather than slurry), it must specify how this information has been and will be communicated in a clear, accessible, and transparent manner to the Waswanipi community.

Response 5:

The selection of the location of the tailings storage facility is presented in Section 4.1, while the consideration of concerns is addressed in Sections 4.2 and 4.3. The nature of the tailings and the communications related to the technology are further detailed in Section 4.2.

A comprehensive monitoring program for Lake SN2 has been developed to document and ensure its integrity.

During the construction phase, the monitoring program provides for studies on sentinel fish species—walleye and northern pike—using individual morphometric parameters and measurements, provided the reference area is maintained in Lake SN2. It also includes parameters related to benthic communities, including the identification of taxonomic groups, water depth, flow type, current velocity, water transparency and physicochemistry, forest cover, bank composition, the presence of supporting infrastructure, and the type and condition of the substrate. The program also includes the installation and monitoring of occupancy of artificial bat roosts near Lake SN2 and the SN2-T1 watercourse, as well as the monitoring of water physicochemical parameters, namely temperature, dissolved oxygen concentration, conductivity, and pH.

During the operational phase, the monitoring program includes monitoring of flow rates and water levels between spring and fall, as well as monitoring of ambient air near the lake, including instruments to measure airborne particulate matter levels and dust jars to quantify deposition. It also provides for the monitoring of various surface water parameters, including temperature, conductivity, pH, and dissolved oxygen, as well as microbiology, basic physicochemistry, and nutrients, anions, cations, and trace metals, along with total organic carbon content and sediment grain size distribution. If the reference area is maintained in Lake SN2, studies on sentinel fish species—namely walleye and northern pike—will be conducted using individual morphometric parameters and measurements. The program also includes parameters related to benthic communities, the installation and monitoring of occupancy of artificial bat roosts near Lake SN2 and the SN2-T1 watercourse, monitoring of groundwater quality near Lake SN2 to validate water integrity and ensure that any potential seepage from mining operations is contained, as well as monitoring of water physicochemical parameters, namely temperature, dissolved oxygen concentration, conductivity, and pH.

The nature of the tailings and the integrity of the tailings pond will be monitored through two specific components of the monitoring and surveillance program: geochemical monitoring of ore, waste rock, and tailings (3.1) and monitoring of water management structures in the tailings storage areas (3.3). Geochemical monitoring is a multi-year characterization program designed to determine the characteristics of acid rock drainage/metal leaching (ARD/ML) as well as the inherent geological variability of the ore and mine rock. The objective of the AGD monitoring and management plan to be implemented during mining operations is to confirm that the materials generated throughout the mine's life cycle are consistent with the results obtained during the initial characterization. Monitoring of water management structures and accumulation areas will be conducted through visual inspections and instrumentation. Its purpose is to detect any phenomena that could compromise the structural and functional integrity of the monitored structures. The objective is to detect early warning signs of these phenomena before they become uncontrollable. The inspection will also serve to confirm the presence of airborne dust at the tailings pond. It will guide the implementation of additional measures when deemed necessary, such as water sprinkling. The following Section 5 (Monitoring and Follow-up Program) details how these monitoring activities will be carried out. A dust management plan has also been developed for the project.

Information on mine tailings management will be disclosed transparently in the annual monitoring and follow-up report. This will include, in particular, the annual volume of all tailings produced, their breakdown by management method, and the area covered by the tailings facility. This information makes it possible to assess the environmental footprint of operations and the performance of tailings management. Finally, the report will also include the annual inspection report on the physical stability of the mine tailings storage areas and associated structures, as well as the recommended corrective measures and their status.

Any concerns or questions from the Waswanipi community and/or the W25B tallyman may be addressed through the mechanisms established under the ERA agreement signed with the CFNW and the Cree Nation Government.

In addition, in the event of an urgent inquiry, residents of the region can contact WMG representatives directly to address their concerns. Direct communication channels are always open.

Finally, the grievance management mechanism, which will be implemented in June 2026, will allow any user in the region to file a complaint, raise a concern, or submit a comment regarding the management of mine tailings. Every submission entered into the complaint registry will be followed up on and receive an appropriate response.

5 Surveillance and Monitoring Program

Since the preliminary surveillance and monitoring program was officially submitted in July 2025 (WSP, 2025), improvements have been made to the groundwater quality monitoring program. At the request of the MELCCFP, a monitoring well in the surface deposits and a monitoring well in bedrock were added to the northeast of the tailings pond. Monitoring wells in the surface deposits and filter points have also been added in the wetlands located near basins B and PAR2. Additional filter points are planned halfway between well 25-PO-06 and basin PAR1, as well as directly at well 25-PO-05. Monitoring using the filter tips will focus solely on water levels.

Furthermore, as the project timeline has been modified, the schedule has been updated. Consequently, the final monitoring and follow-up program for the Windfall project is included in Appendix 5 of this document. This document has also been translated and is now available in English.

APPENDIX

1

PRESENTATIONS MADE AT COMEX PUBLIC HEARINGS

Documents partagés en réponse aux questions

Lebel-sur-Quévillon – 21 avril, 2026

Audiences publiques du COMEX

Gold Fields - Présentation d'introduction pour les audiences publiques du COMEX

Projet Windfall

Présenté par Andréanne Boisvert, VP Environnement et relations communautaires

Énoncé prospectif

Le présent communiqué contient des énoncés prospectifs. Tous les énoncés autres que des faits historiques inclus dans ce communiqué peuvent être considérés comme prospectifs. Les énoncés prospectifs peuvent être identifiés par l'utilisation de termes tels que « viser », « anticiper », « prévoir », « s'attendre à », « pourrait », « devrait », « croire », « cible », « estimer », « projeter » et d'autres termes similaires.

Ces énoncés prospectifs, incluant notamment ceux relatifs à la stratégie commerciale future de Gold Fields, à ses activités de développement (y compris les autorisations et le développement du projet Windfall), à ses initiatives, à ses perspectives d'affaires, à sa situation financière, ainsi qu'à ses prévisions de production et d'exploitation, reposent sur les meilleures estimations de la direction générale de Gold Fields. Ils comportent un certain nombre de risques et d'incertitudes pouvant entraîner des écarts significatifs entre les résultats réels et ceux prévus dans les énoncés prospectifs. Par leur nature, ces énoncés prospectifs comportent des risques et des incertitudes, car ils se rapportent à des événements et circonstances futurs. Ils doivent être considérés en tenant compte de divers facteurs importants, notamment ceux énoncés dans le rapport annuel intégré 2023 de Gold Fields déposé auprès de la Bourse de Johannesburg, ainsi que dans le rapport annuel sur Formulaire 20-F déposé auprès de la Securities and Exchange Commission (SEC) des États-Unis le 27 mars 2025 (numéro de dossier SEC : 001-31318).

Les lecteurs sont invités à ne pas accorder une confiance excessive à ces énoncés. Ces énoncés prospectifs ne sont valables qu'à la date de leur publication. Gold Fields n'assume aucune obligation de mettre à jour ou de réviser publiquement ces énoncés prospectifs pour refléter des événements ou circonstances survenus après la date de ce communiqué ou pour tenir compte de la survenance d'événements imprévus. Ces énoncés prospectifs n'ont pas été examinés ni vérifiés par les auditeurs externes de la Société.

Plan de la présentation

1. Gold Fields : qui nous sommes
2. Projet Windfall : des premières explorations à aujourd'hui
3. Infrastructures actuelles
4. L'avenir de Windfall

Gold Fields

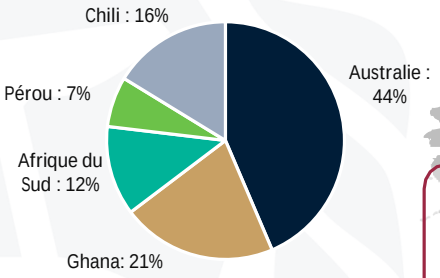
Qui nous sommes

SS1

Un producteur d'or à l'échelle mondiale

Faits saillants 2025

FY 2025 contribution à la prod. tot.



Groupe Gold Fields
Mines: 8
Projets: 1
Pays: 6
Production: 2 438koz

Canada
Projet: Windfall
Exploration:Vior, Bonterra Resources,Onyx Gold

Ghana
Mines : Damang* and Tarkwa
Production : 515koz (Au)

Australie
Mines: Gruyère, Granny Smith, St Ives et Agnew
Production: 1 063koz
Exploration: Great Southern Mining, Killi Resources, Gold Copper Resources, Hamelin Gold, Lilly Creek, Galloway, Greenvale

Pérou
Mine : Cerro Corona
Production : 167koz (Au eq)
Exploration: Chakana Copper

Chili
Mine: Salares Norte
Production: 397koz (Au eq)
Exploration: Torq Resources, Tesoro

Afrique du Sud
Mine: South Deep
Production: 297koz

Projets d'exploration
- GFI 100%
- Participation au capital
- Coentreprise par acquisition progressive

**La mine de Damang n'est plus une propriété de Gold Fields en date du 18 avril 2026.*

SS1 Mettre à jour les chiffres pour 2025

Sara Simoneau; 2026-02-06T16:35:43.240

Nos valeurs

Créer une valeur durable au-delà de l'exploitation minière

Sécurité

Si nous ne pouvons pas exploiter en toute sécurité, nous n'exploitons pas.

Respect

Nous accordons à toutes les parties prenantes un traitement fondé sur la bienveillance, la dignité et l'équité.

Responsabilité

Nous assumons pleinement la responsabilité de notre impact sur nos employés, nos relations, la sécurité et l'environnement.

Collaboration

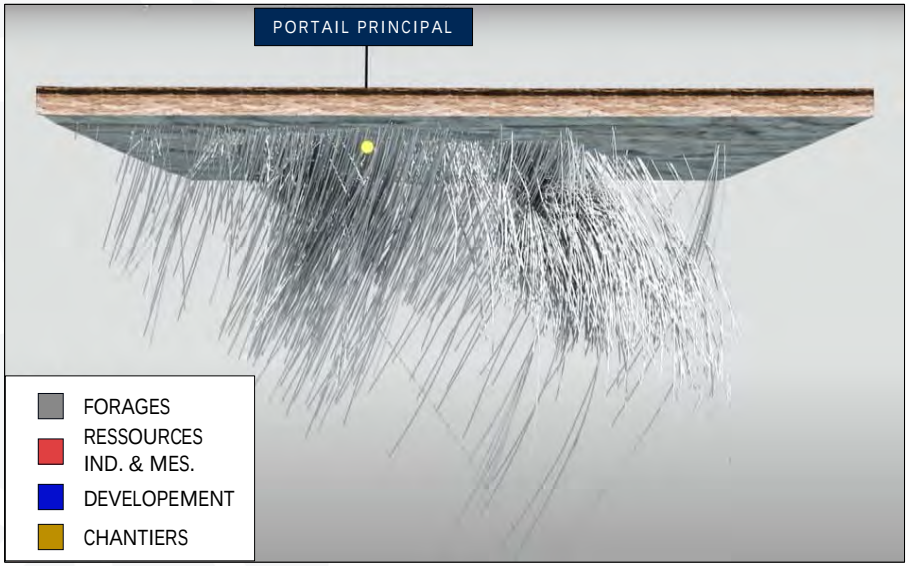
Nous travaillons en équipe à l'échelle mondiale pour réussir ensemble.

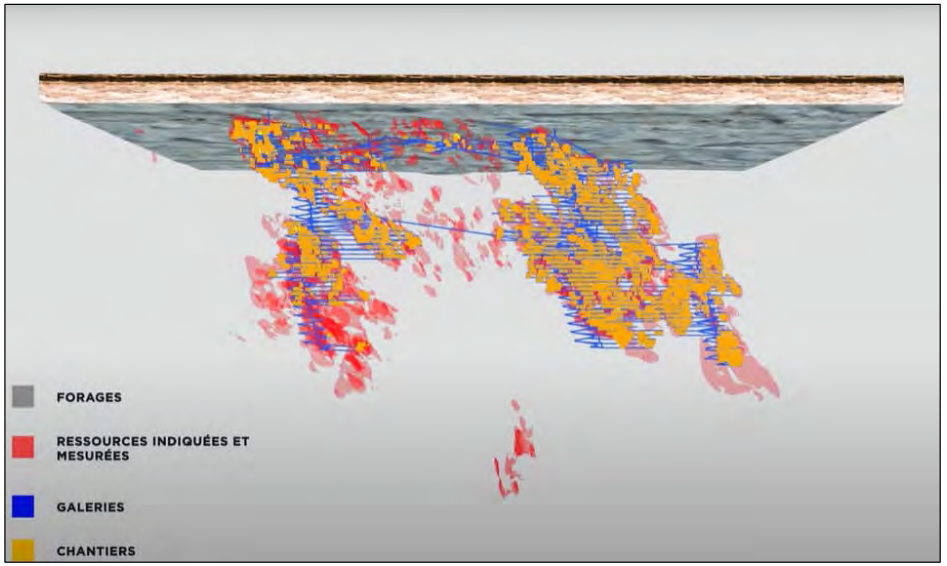
Projet Windfall

Des premières explorations à aujourd’hui

Localisation du projet

Activités d'exploration à Windfall





- Programmes de forage de surface significatifs avec 2 millions de mètres complétés sur l'ensemble du dépôt.
- Rampe d'exploration d'une profondeur actuelle de 680m verticale qui permet l'accès à la zone Lynx.

Estimation des ressources minérales complétée en 2022 :

- 4,1 Moz Au en mesurées et indiquées @ 11,4g/t Au
- 3,3 Moz Au inférées @ 8,4 g/t Au

Étude de faisabilité 2022

Faits saillants

10 ans
Durée de vie de la mine

3 400 t/j
Production journalière

306 000 oz Au
Production d'or annuelle moyenne (1 600$ us/oz Au)

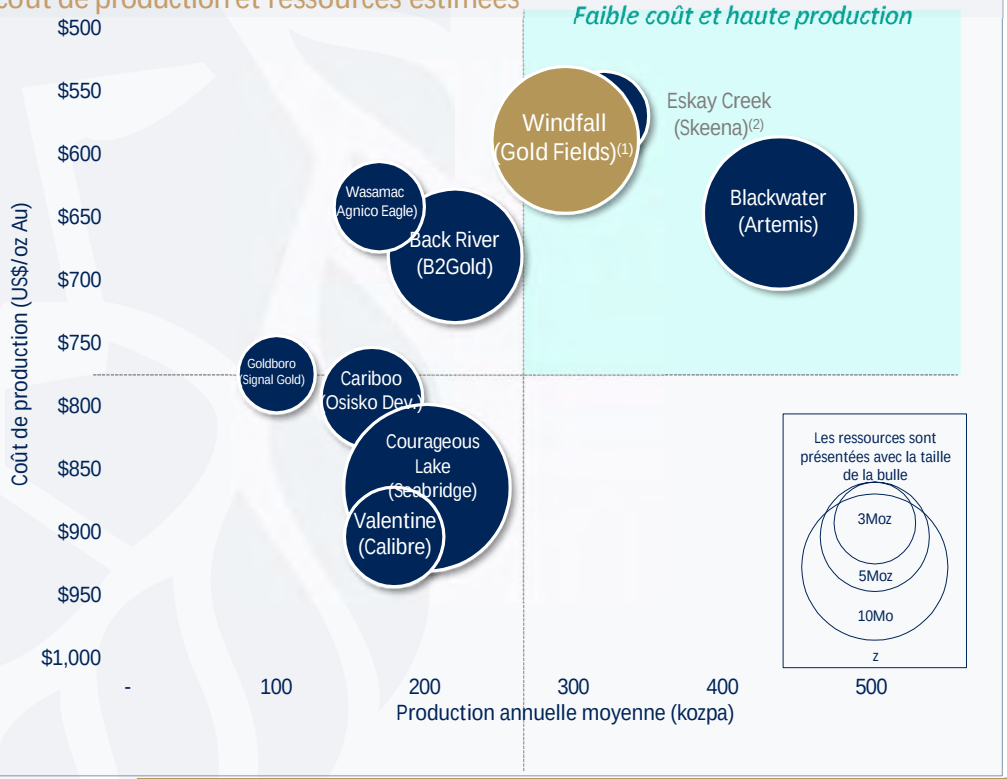
8,1 g/t Au
Teneur moyenne

1 100
travailleurs requis au site pendant la construction

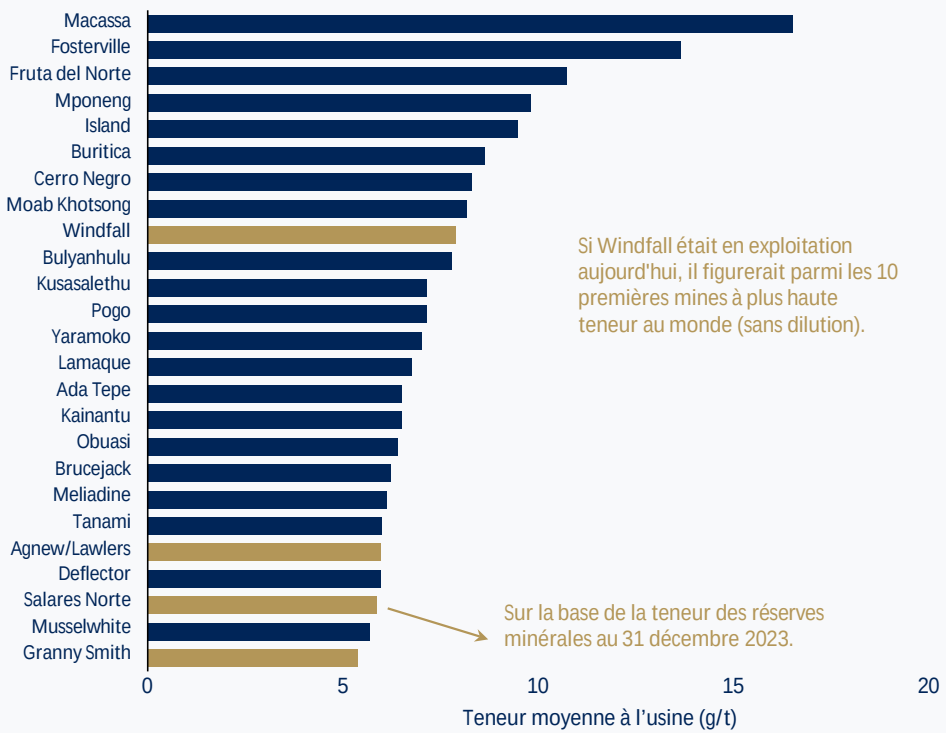
600 lits
au campement des travailleurs

Windfall, un projet d'envergure et de haute teneur

Sélection de projets en développement en Amérique du Nord : production, coût de production et ressources estimées



Top 25 mondial des mines d'or par teneur (100kozpa+)



Si Windfall était en exploitation aujourd'hui, il figurerait parmi les 10 premières mines à plus haute teneur au monde (sans dilution).

Sur la base de la teneur des réserves minérales au 31 décembre 2023.

Actif de développement unique en Amérique du Nord, parmi les dépôts les plus riches à l'échelle mondiale

Étapes clés du projet Winfall

Prix d'excellence en développemet durable de l'AEMQ

Une reconnaissance significative pour le projet Windfall

- Le projet Windfall a reçu le Prix d'excellence en développement durable lors du Gala Reconnaissance 2025 organisé par l'AEMQ.
- Cette reconnaissance témoigne de notre engagement à intégrer le développement durable dans chaque aspect de nos activités, en collaboration avec nos communautés d'accueil de Lebel-sur-Quévillon et de Waswanipi.
- Notre programme novateur en biodiversité, la transition énergétique réussie menée avec la Première Nation crie de Waswanipi, ainsi qu'une gouvernance fondée sur la transparence et l'inclusion ont contribué à l'obtention de ce prix.

Infrastructures actuelles

Infrastructures actuelles

Zone de campement

Le campement situé au sud du site peut accueillir 300 personnes et comprend:

- Des unités de dortoirs et bureaux administratifs
- Une infirmerie, cuisine et salle à manger
- Un centre de tri des matières résiduelles
- Trois puits d'eau potable et champs d'infiltration pour les eaux usées
- Plusieurs réservoirs de carburant
- Un hélipad
- Divers conteneurs et dômes pour l'entreposage de l'équipement

Infrastructures actuelles

Secteur d'exploration avancée

- Portail Principal
- Haldes à stériles et à mort-terrain avec bassins de collecte de l'eau
- Dômes, bâtiments de support et zones d'entreposage
- Usine de traitement de l'eau

L’avenir de Windfall

Visite Virtuelle Windfall

Windfall visite guidée FR

Processus d'autorisation environnementale

Windfall est assujetti à la procédure d'évaluation environnementale en milieu nordique

- Renseignements préliminaires obtenus en 2017 et mis à jour par le COMEV en 2022
- Dépôt de l'ÉIE et du plan de restauration en mars 2023
- Première série de questions répondues en octobre 2024
- Audience publique du 21 avril 2026

Merci!
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Questions du Conseil de la nation Anishnabe de Lac Simon

Réactifs de l’usine de traitement du minerai, de l’usine de filtration et remblai en pâte

Réactifs	Type
Cyanure de sodium	Vrac
Chaux vive	Vrac
Soude caustique	Vrac
Floculant (concentrateur)	Sacs
Floculant (filtration)	Sacs
Sulfate de cuivre	Sacs
Charbon activé	Sacs
Acide chlorhydrique (28 %)	Réservoir IBC
Anti-tartre (< 25%)	Réservoir IBC
SO_2 liquide	Vrac
Nitrate de plomb	Sacs
Sels de sodium	Sacs
Fondant d’affinage	Sacs
Ciment	Vrac

Utilisation annuelle des intrants de procédé des usines de traitement du minerai et de filtration durant l'exploitation

▪ Tableau RQC19-2 → Utilisation annuelle des intrants de procédé des usines de traitement du minerai et de filtration durant l'exploitation

Produit	Secteur	Consommation (t/an)	Inventaire		Livraison		
			Quantité (t)	Type d'entreposage	Capacité du camion (t)	Type de livraison	Nombre de camions
Chaux vive	Usine de traitement du minerai (5)	5 070	79	Silo de 79 t	36	Vrac	141
Nitrate de plomb	Usine de traitement du minerai (5)	447	34	34 supersacs de 1 000 kg	20	Sacs	22
Cyanure de sodium	Usine de traitement du minerai (5)	1 525	113	Réservoir de vrac de 100 m³	33	Vrac	46
Soude caustique	Usine de traitement du minerai (7a)	529	54	Réservoir de vrac de 35 m³	32	Vrac	17
Acide chlorhydrique 28 %	Usine de traitement du minerai (7a)	919	58	Réservoir de vrac de 50 m³	20	Vrac	46
Floculant d'affinage	Usine de traitement du minerai (4)	45	1,5	2 supersacs de 750 kg	20	Sacs	2
Floculant filtration	Usine de filtration	283	2,3	3 supersacs de 750 kg	20	Sacs	14
Anti-tartre 25 %	Usine de traitement du minerai (6)	30	4	4 fûtes de 1 m³	20	Conteneur	2
Charbon activé	Usine de traitement du minerai (6)	79	11	22 supersacs de 500 kg	20	Sacs	4
SO_2 liquide	Usine de traitement du minerai (7b)	1 172	50	Réservoir de vrac de 36 m³	30	Vrac	39
Sulfate de cuivre	Usine de traitement du minerai (7b)	74	2,5	2 supersacs de 1 250 kg	20	Sacs	4
Sels de sodium	Usine de traitement du minerai (5)	7	0,5	20 sacs de 25 kg	20	Sacs	1
Fondants d'affinage	Usine de traitement du minerai (7a)	5	0,5	20 sacs de 25 kg	20	Sacs	3
Boulets de broyage 2"	Usine de traitement du minerai (2)	2 065	70	Trémis	30	Vrac	69
Boulets de broyage 5"	Usine de traitement du minerai (2)	1 153	70	Trémis	30	Vrac	38

Questions sur le transport et la sécurité routière

Mesures prévues pour répondre aux enjeux identifiés (1/2)

Pendant la phase de construction : augmentation temporaire du trafic sera égale à environ 5 100 transports lourds/an (≈14 voyages/jour)

Gestion stricte de la sécurité

- Installation d'un poste de contrôle à l'entrée de la Route 1000 pour les usagers associés au projet
- Contrôle de la vitesse (limite de 70 km/h, radars, contrôles au poste de contrôle, contrôles routiers).
- Mesures disciplinaires à l'encontre des contrevenants
- Renforcement de la signalisation et maintien des procédures d'annonce radio tous les 5 km.
- Accès restreint selon des horaires spécifiques déjà en vigueur (interdiction de circuler entre 18 h et 6 h)
- Obligation d'être équipé d'une radio FM (tous nos usagers des routes d'accès doivent disposer d'une radio FM et être formés à son utilisation correcte pour circuler en toute sécurité sur les routes forestières).

Gestion des accidents

- Mise en place d'une procédure d'alerte en cas d'accident
- Création d'un registre des incidents et des accidents afin de recenser tous les événements impliquant la faune sauvage et des véhicules.

Photo crédit: ANCAI

Mesures prévues pour répondre aux enjeux identifiés (2/2)

Pendant la phase de construction : augmentation temporaire du trafic sera égale à environ 5 100 transports lourds/an prévus (≈14 voyages/jour)

- Entretien et surveillance
  - Augmentation de la fréquence des travaux d'entretien routier
  - Inspections régulières
  - *Gestion de la poussière : adaptation des règles d'accès (distance minimale entre les véhicules)*
  - *Débroussaillage pour améliorer la visibilité, planification de travaux supplémentaires visant à améliorer la visibilité*
- Cohabitation avec les usagers locaux
  - *Virages dangereux : suivi des signalements, ajout de panneaux de signalisation si nécessaire, rappel du respect des limitations de vitesse.*
  - *Communication continue avec les entreprises forestières*
  - *Adaptation des horaires et des règles pour limiter les conflits d'utilisation*

Photo credit: https://personscs.com/

Mesures prévues pour répondre aux enjeux identifiés

Pendant la phase d'exploitation: réduction du volume de transport est équivalent à environ 3 700 transports/an (≈10 voyages/jour), adaptés aux besoins opérationnels réguliers

- **Optimisation des transports**
  - Utilisation systématique du chemin le plus court (Lebel-sur-Quévillon – site Windfall)
- **Maintien des mesures de sécurité**
  - Contrôle de la vitesse et de la signalisation
  - Procédures de circulation et d'annonce par radio maintenues
- **Maintien des mesures d'urgence et de suivi**
  - Procédures d'alerte et d'intervention
  - Registre des accidents, et des collisions avec la faune
- **Entretien et surveillance**
  - Suivi *de l'état de la route*
  - *Interventions ciblées selon les saisons (dégel, chasse)*
  - *Débroussaillage pour la visibilité*
- **Préservation de l'environnement**
  - *Planification pour minimiser l'impact sur la faune et la flore*
  - *Gestion des périodes sensibles (dégel, chasse)*
- ***Cohabitation avec les usagers locaux***
  - *Communication continue*
  - *Mécanisme de gestion des plaintes*

Pour conclure

Actions concrètes pour renforcer la sécurité et assurer une bonne coexistence entre tous les usagers

- Gestion technique intégrée

  Le plan intègre des mesures techniques pour garantir une circulation sécurisée sur le chemin forestier.

- Respect de l'environnement

  Le projet Windfall prend en compte la préservation de l'environnement naturel autour du chemin forestier.

- Communications avec les compagnies forestières

  Le plan prévoit des communications ciblées et régulières avec les compagnies forestières afin de favoriser le partage d'information et d'optimiser la collaboration.

- Dialogue avec les parties prenantes

  Le plan encourage l'écoute et le dialogue avec la communauté locale pour une cohabitation harmonieuse.

Questions sur la participation locale et les retombées économiques

Emploi local

2022-2025

Catégorie	2022	2023	2024	2025
Waswanipi	25	8	7	4
Lebel-sur-Quévillon	5	7	7	8
Total	30	15	14	12

Main d’œuvre locale – actuelle

En décembre 2025 – total 254 employés de Gold Fields

- Chapais: 2
- Chibougamau: 1
- Lebel-sur-Quévillon: 8
- Matagami: 4

- Abitibi-Témiscamingue: 46 (18%)
- Nord-du-Québec: 23 (9,06%)
- Ontario: 6 (2,36%)
- Ailleurs au QC: 181 (71,26%)

Dons et commandites

2020-2025

Catégorie	2018	2019	2020	2021	2022	2023	2024	2025
Premières Nations	ND	ND	ND	33 390$	88 025$	41 379$	73 920$	47 200$
Allochtones	ND	ND	ND	45 517$	65 951$	78 782$	75 000$	66 197$
Total	95 109$	100 896$	42 748$	78 907$	153 976$	120 161$	148 920$	113 397$

854 114$

en dons et commandites depuis 2018

Opportunités d'affaires locales

2018-2025

Catégorie	2018	2019	2020	2021	2022	2023	2024	2025
Premières Nations	21M$ (21%)	40M$ (51%)	19M$ (20%)	50M$ (29%)	62M$ (45%)	50M$ (52%)	63M$ (57%)	89M$ (32%)
Nord-du-Québec	10M$ (10%)	9M$ (12%)	27M$ (29%)	57M$ (34%)	23M$ (17%)	23M$ (24%)	22M$ (20%)	63M$ (23%)
Total	100M$	78M$	93M$	170M$	135M$	97M$	111M$	276M$

234 M$ en contrats octroyés aux entreprises du Nord-du-Québec depuis 2018

394 M$ en contrats octroyés aux entreprises des Premières Nations depuis 2018

1,024 G$ en contrats octroyés aux entreprises québécoises depuis 2017

Question sur les fournisseurs locaux

Implication des entreprises de Lebel-sur-Quévillon dans le projet en 2025

- ALS Canada Ltd.
- Hydrau-Mecanic
- Excavation S. Rioux
- Ville De Lebel-Sur-Quevillon
- Service L. Y. B.
- Rona Materiaux Dubreuil
- Excavation Eric Bisson & Fille
- Quevillon Aller-Retour Inc.
- Coopérative C.P.M.Q.
- MP Renaud-Vation Inc.
- Transport JSV (9222 3783 Quebec Inc)
- Motel Du Lac
- 2164-3408 Quebec Inc. (Jean-Marie Hains)
- M.D. Entreposage Enr.
- Distribution Signal Inc.
- Station Du Boulevard
- Motel Iris
- Énergie Électrique du Nord Inc.
- TRAITEUR DU BOULEVARD INC.
- Le Son Du 49E
- Lave-Auto Charlot

Total: 21 compagnies quevillonnaises

MERCI

Questions?

Documents shared in response to questions

Waswanipi – April 29th, 2026

COMEX Public Hearings

COMEX Public Hearings – Gold Fields Introduction Presentation

Windfall Project

Presented by Andréanne Boisvert, VP Environment and Community Relations

Forward Looking Statements

Certain statements in this document constitute "forward looking statements" within the meaning of Section 27A of the US Securities Act of 1933 and Section 21E of the US Securities Exchange Act of 1934.

In particular, the forward-looking statements in this document include among others those relating to environmental, social and governance (ESG)-related initiatives and metrics including Scope 1-2 emissions, water recycled/reused and host community value. Such forward looking statements involve known and unknown risks, uncertainties and other important factors that could cause the actual results, performance or achievements of the company to be materially different from the future results, performance or achievements expressed or implied by such forward looking statements. Such risks, uncertainties and other important factors include among others: economic, business and political conditions in the countries where Gold Fields operates; decreases in the market price of gold and, to a lesser extent, copper and silver; hazards associated with underground and surface gold mining; labour disruptions; changes in government regulations, particularly taxation and environmental regulations; and new legislation affecting mining and mineral rights; changes in exchange rates; currency devaluations; the availability and cost of raw and finished materials; the cost of energy and water; the impacts of climate change, water scarcity or natural disasters; inflation and other macro-economic factors; and the impact of occupational health risks experienced by Gold Fields employees.

Further details of potential risks and uncertainties affecting Gold Fields are described in Gold Fields' filings with the Johannesburg Stock Exchange and the United States Securities and Exchange Commission, including the Integrated Annual Report 2020 and the annual report on Form 20-F for the fiscal year ended 31 December 2020. Gold Fields undertakes no obligation to update publicly or release any revisions to these forward-looking statements to reflect events or circumstances after the date of this report or to reflect the occurrence of unanticipated events.

Presentation Overview

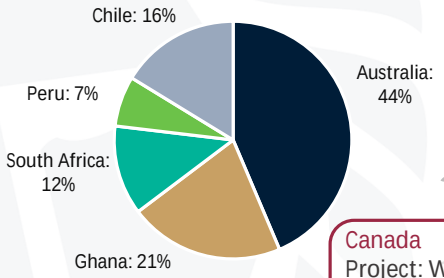
1. Gold Fields: Who we are
2. Windfall Project: From early exploration to today
3. Existing infrastructure
4. The future of Windfall

Gold Fields

Who We Are

A Global Gold Miner

FY 2025 att. gold production contribution



Gold Fields Group
Mines: 8
Projects: 1
Countries: 6
Att. production: 2,438koz (Au eq)

Canada
Project: Windfall
Exploration Interest: Vior , Bonterra Resources, Onyx Gold

Ghana
Mines: Damang* and Tarkwa
Att. production: 515koz (Au)

Australia
Mines: Gruyere, Granny Smith, St Ives and Agnew
Att. production: 1,063koz (Au)
Exploration interests: Great Southern Mining, Killi Resources, Gold Copper Resources, Hamelin Gold, Lilly Creek, Galloway, Greenvale

Peru
Mine: Cerro Corona
Att. production: 167koz (Au eq)
Exploration Interest: Chakana Copperr

Chili
Mine: Salares Norte
Att. production: 397koz (Au eq)
Exploration Interests: Torq Resources, Tesoro

South Africa
Mine: South Deep
Att. production: 297koz (Au)

Exploration interests:
- GFI 100%
- Equity interest
- Joint venture earn-in

** Damang mine site no longer belongs to Gold Fields as of April 18th, 2026.*

Our Core Values

Creating enduring value beyond mining

Security

If we cannot guarantee to operate safely, we will not operate.

Respect

We treat everyone with dignity, care, and fairness.

Responsibility

We own our actions - and their impact.

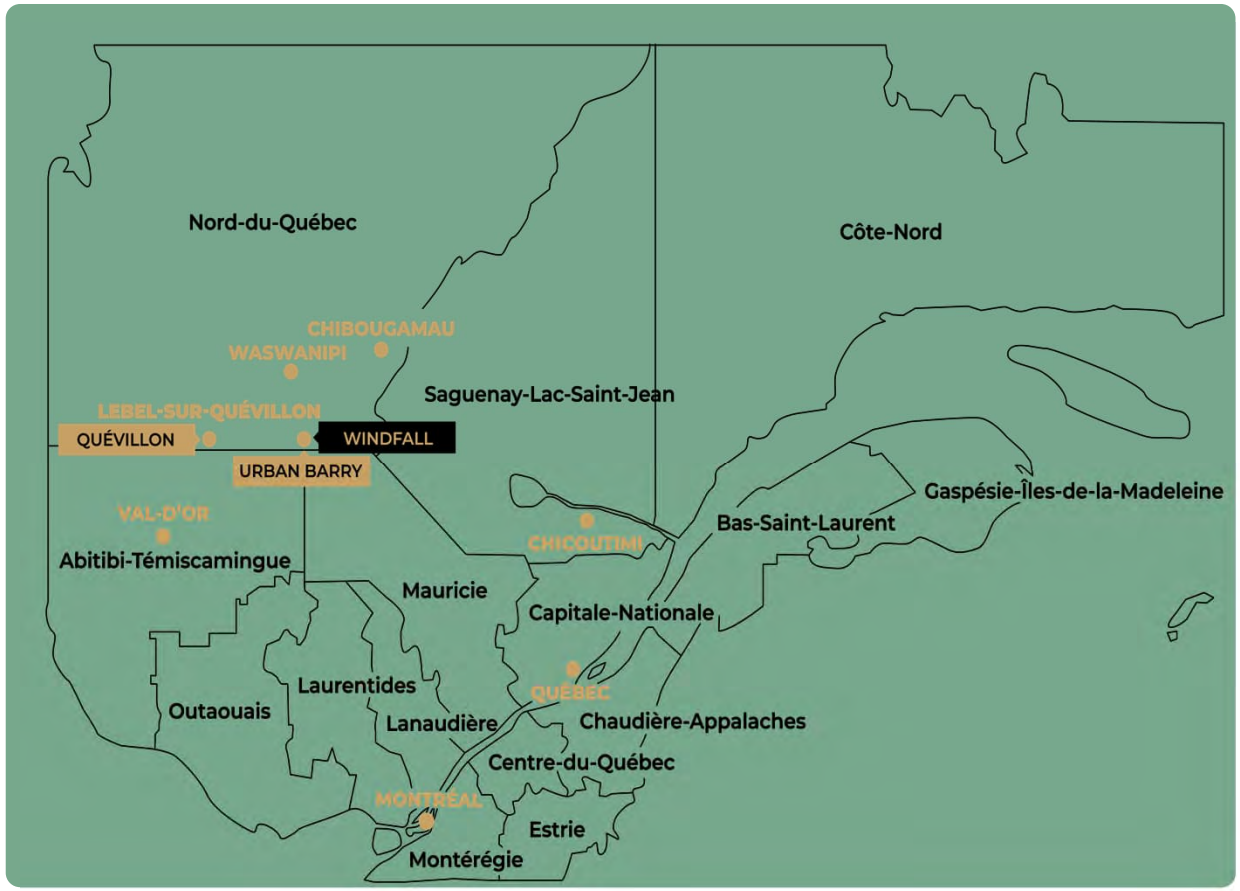
Collaboration

We work as a global team to succeed together.

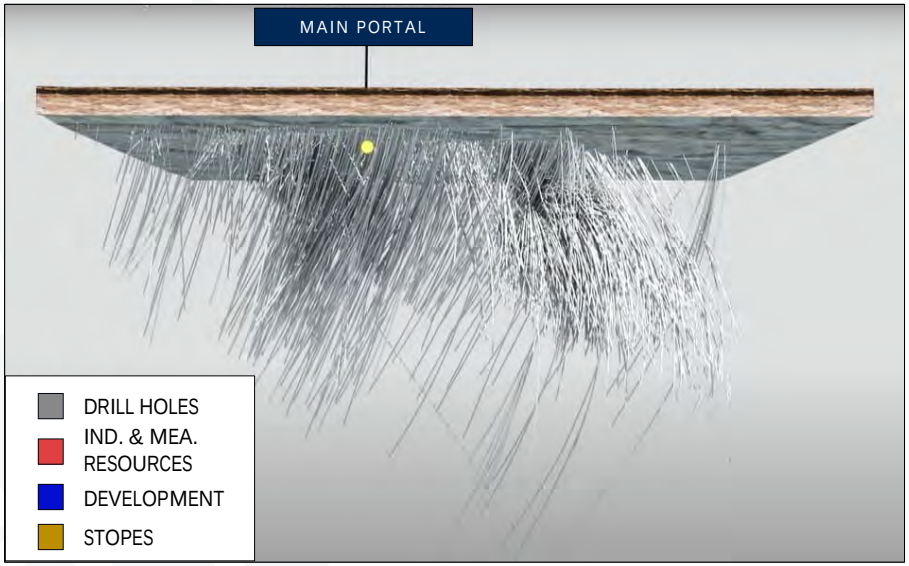
Windfall Project

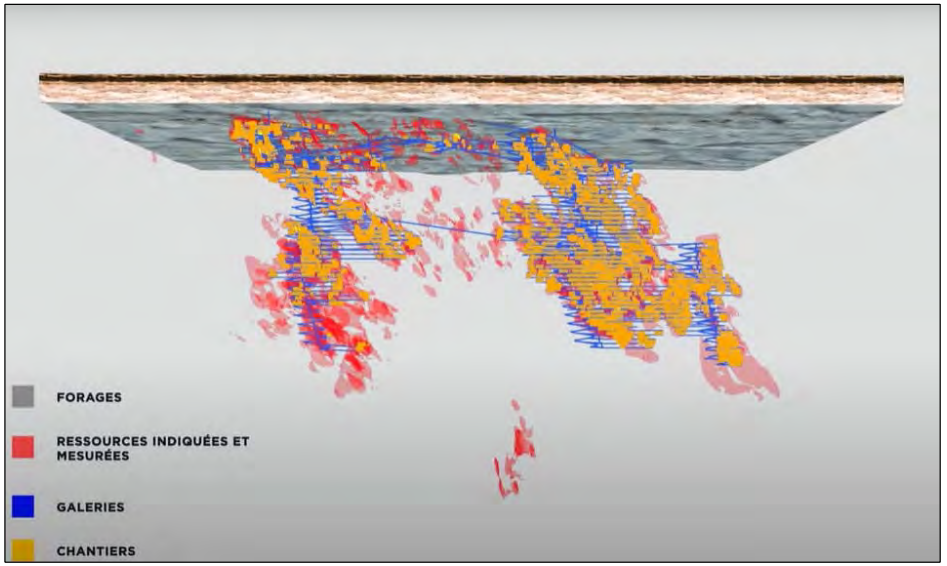
From Early Exploration to Today

Project Location



Exploration Activities at Windfall





- Significant drilling programs with the completion of over 2 millions meters
- Exploration ramp going up to the Lynx zone which is now at 680 m vertical depth

Mineral resource estimates completed in 2022 :

- 4.1 M oz Au measured & indicated resource averaging 11.4 g/t Au
- 3.3 Moz Au inferred resource averaging @ 8.4 g/t Au

Feasibility Study 2022

Highlights

10 years
Life of mine

3 400 t/d
Average quantity processed per day

306 000 oz Au
Average of gold production per year (1 600$ us/oz Au)

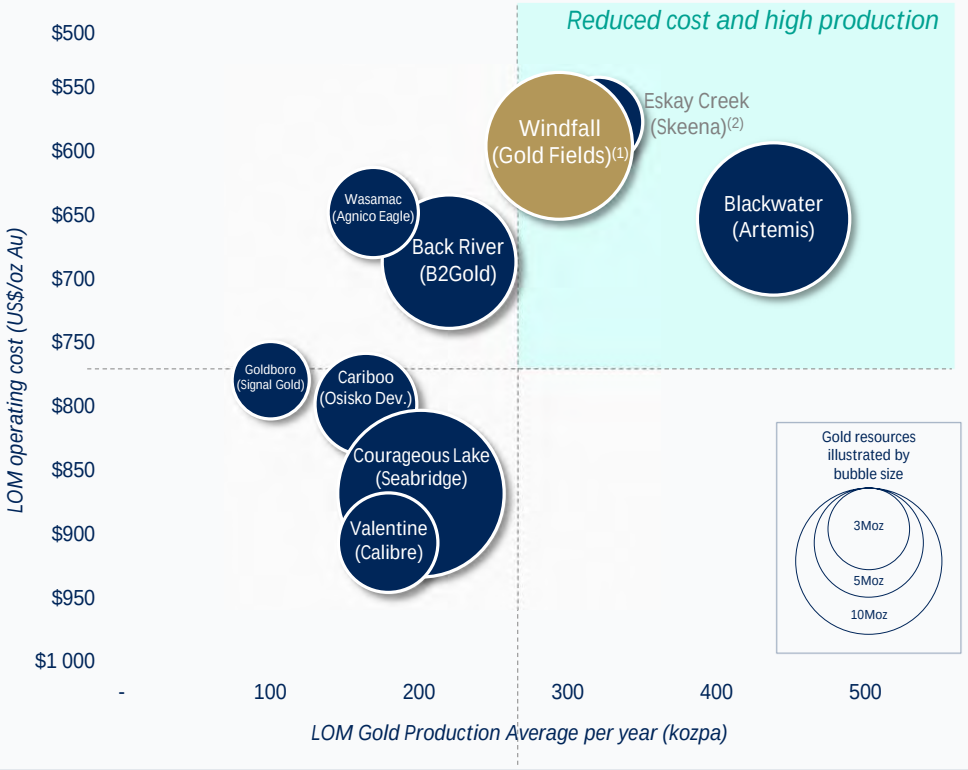
8.1 g/t Au
Average grade

1 100
Workers required at site during construction phase

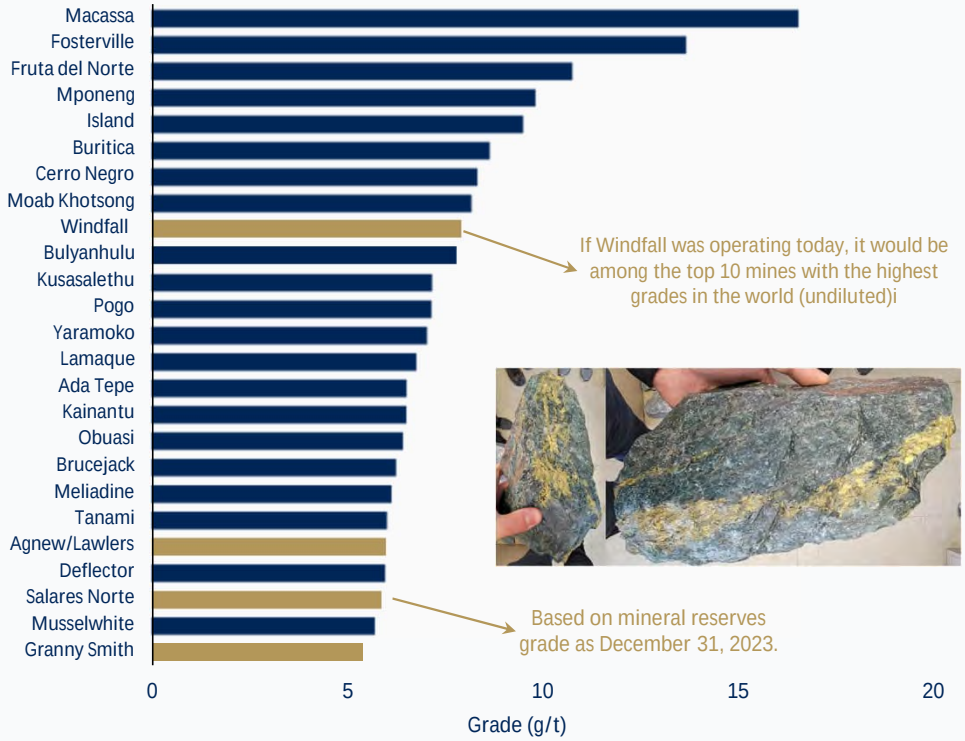
600 beds
in the worker's camp

A Major High-Grade Project

Development projects sample in North America : Production, operating cost per ounce and resources



Top 25 Global Gold Mines by Gold Grade (100kozpa+)



Unique development asset in North America, among the richest deposits in the world

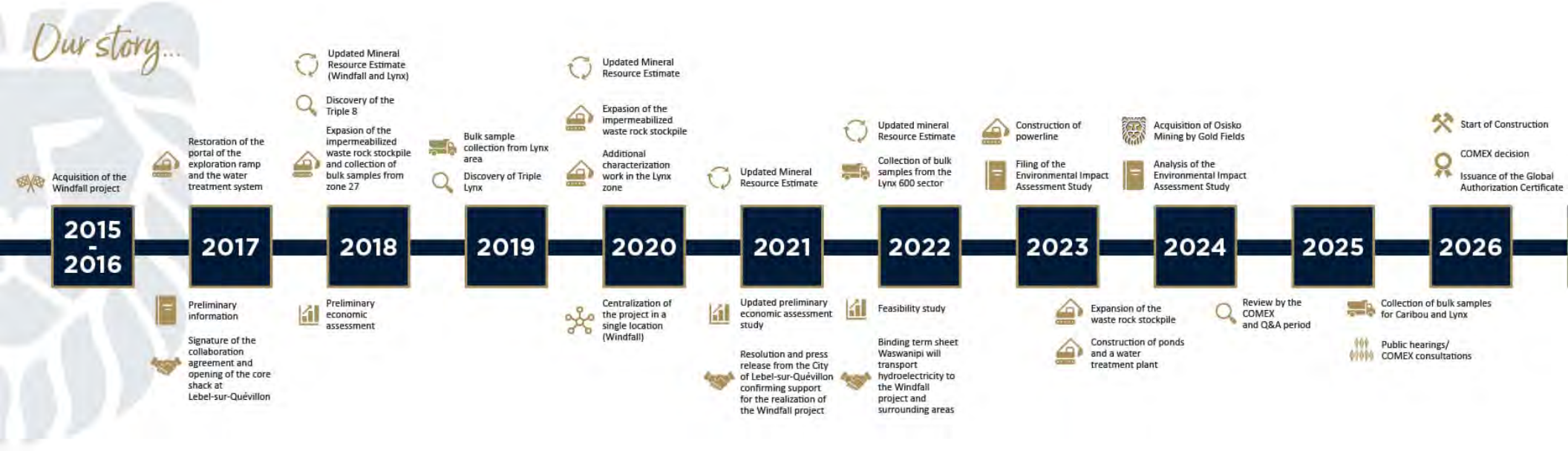
Source: Company disclosure, S&P Capital IQ

Note: Windfall metrics reflect life of mine averages from Osisko Mining's feasibility study available on SEDAR and filed on January 10, 2023; Metrics for other projects are based on the respective technical reports; Metrics for other mines are based on 2023 production.

(1) Resources include the Osborne-Bell deposit.

(2) Production is presented on a gold equivalent basis and the CMTC is presented on a co-product basis.

Key Milestones of the Windfall Project



Excellence in Sustainable Development Award

A meaningful recognition for the Windfall project

- The Windfall Project has received the Excellence in Sustainable Development Award at the 2025 Gala Reconnaissance organized by AEMQ.
- This recognition reflects our commitment to embedding sustainability into every aspect of our work in collaboration with our host communities of Lebel-sur-Quévillon and Waswanipi.
- Our innovative biodiversity program, the successful energy transition carried out with the Cree First Nation of Waswanipi, and governance grounded in transparency and inclusion carried this award.

Existing Infrastructure

Existing Infrastructure

Windfall is an active site, divided in two areas, the camp and the advanced exploration areas

The camp located south of the site, can accommodate 300 people and includes:

- Dormitories and administrative offices
- A nursery, a cafeteria and a dining room
- A domestic waste management storage area
- Three potable water wells and a sewage infiltration field
- Diesel, gasoline and propane storage and distribution systems
- An helipad
- Containers and storage domes

Existing Infrastructure

Advanced exploration area

The advanced exploration area includes:

- Main Portal
- Waste rock and overburden stockpiles with water collection ponds
- Domes, support buildings and storage area
- Water Treatment Plant

Future of Windfall

Video – Windfall Site Tour

Windfall Visite Guidée EN

Environmental Assessment Procedure

Windfall must follow the environmental assessment and review procedure applicable to the James Bay and to the Northern Québec

- Preliminary information in 2017 and updated by the COMEV in 2022
- Submission of the EIA and the Closure Plan on March 2023
- Responses to the first series of questions in October 2024
- Responses to second series of questions in July 2025
- Public hearing April 29th, 2026

Decision that will allow construction to begin afterwards

Thank you!
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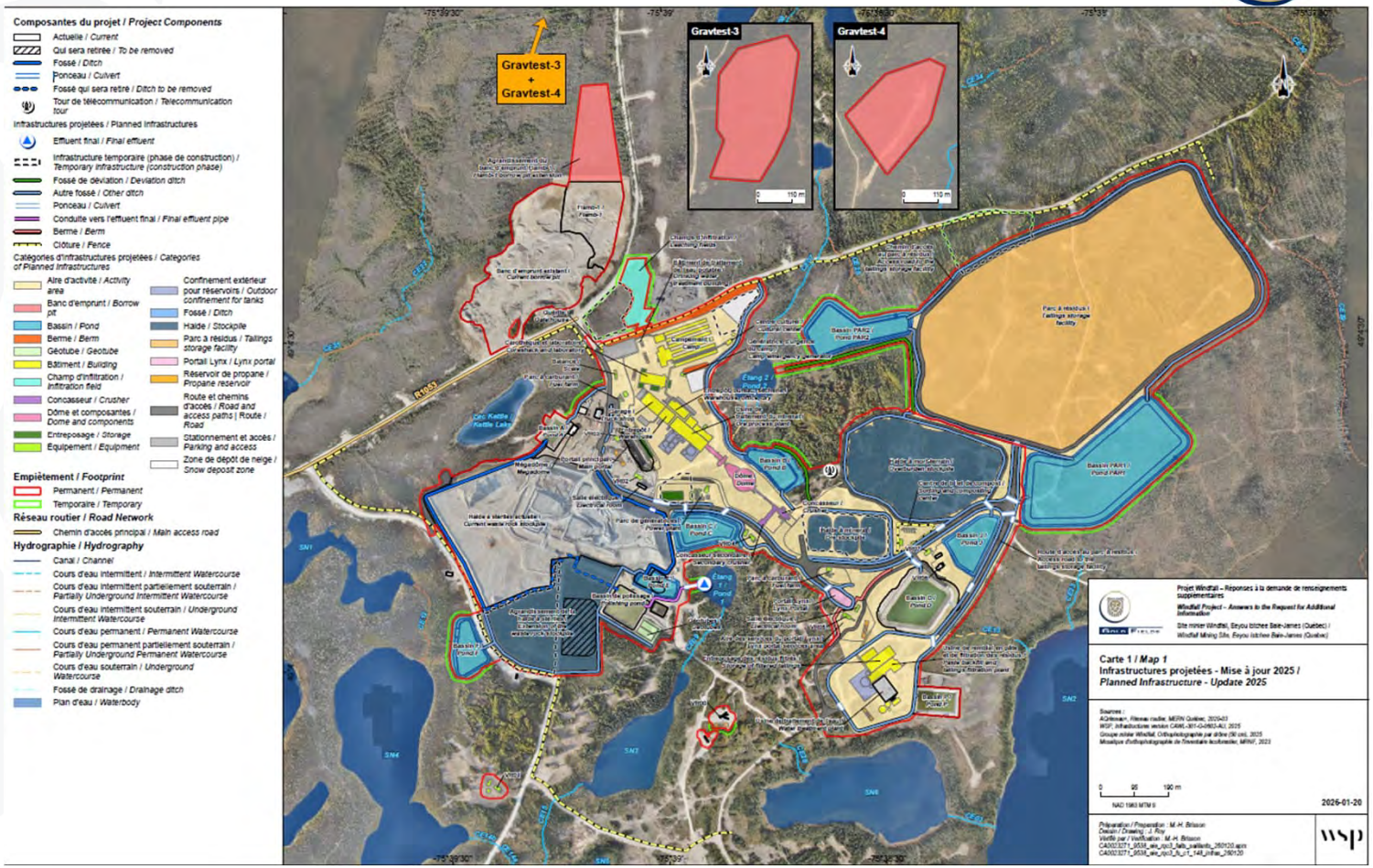
Questions on Employment and Local Content

Operations Phase

- Approximately 700 people will be directly employed by Windfall each year for operations.
- Approximately 350 additional people will be employed annually by contractors to support mining activities, including 170 on the mine site.

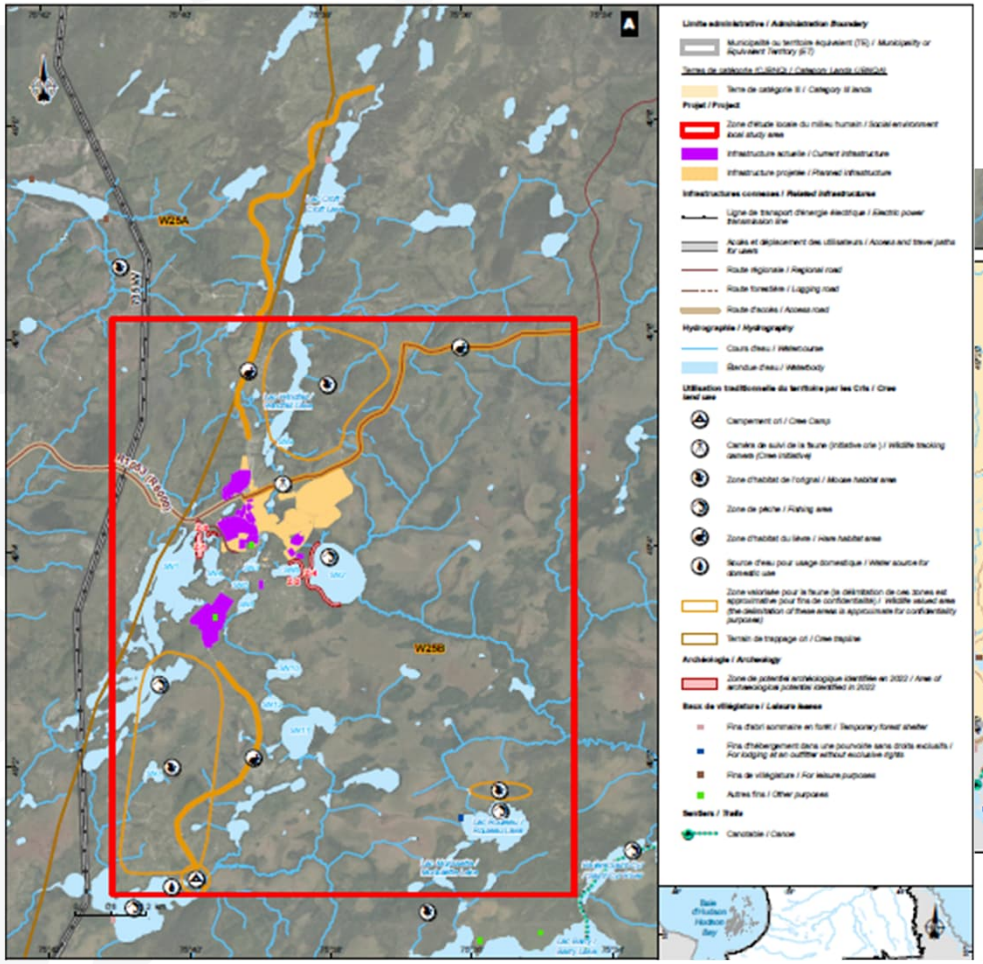
Questions on Planned infrastructures

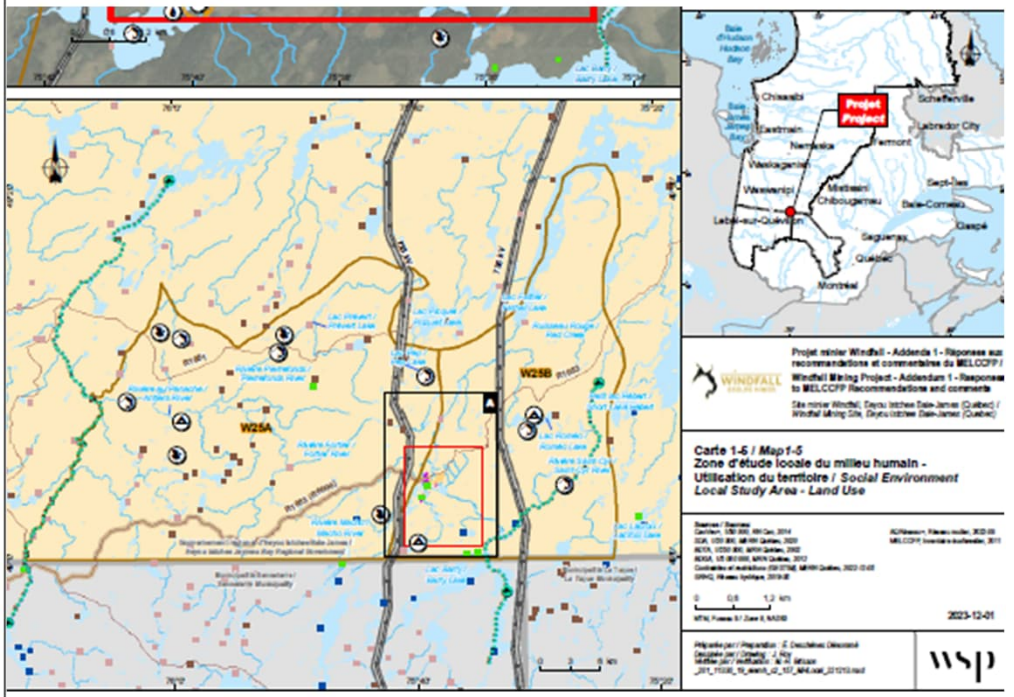
Map – Planned infrastructures



Question Social Environment and Local Study Area

Map – Social environment, Local Study Area





Questions on Local Content

Local Employment (FN workers at Windfall)
Between 2020 and 2025

Employment	2020	2021	2022	2023	2024	2025	2020-2025 Average
First Nations	75	105	87	92	104	93	92,7
Waswanipi	41	32	32	24	20	16	27,5

Historically, the First Nations workforce participation at Windfall has ranged between 20 to 25%.

Local Business Opportunities – between 2018 and 2025

Category	2018	2019	2020	2021	2022	2023	2024	2025
First Nations	21M$ (21%)	40M$ (51%)	19M$ (20%)	50M$ (29%)	62M$ (45%)	50M$ (52%)	63M$ (57%)	89M$ (32%)
Jamésie	10M$ (10%)	9M$ (12%)	27M$ (29%)	57M$ (34%)	23M$ (17%)	23M$ (24%)	22M$ (20%)	63M$ (23%)
Total	100M$	78M$	93M$	170M$	135M$	97M$	111M$	276M$

From 2018 to 2025, First Nations businesses and joint ventures have been awarded contracts representing about 400M$.

Question on Tailings Management

Windfall TMF – Alternative Assessment

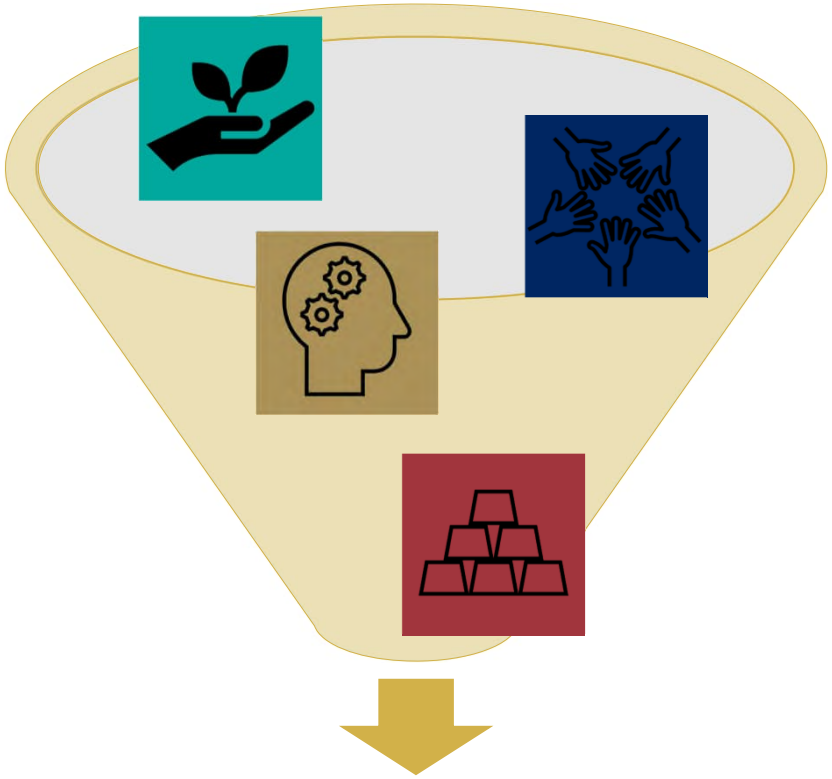
Tailings management strategy and location based on environmental and social criteria.

- Analyses completed according to four accounts: environment, social, technical, economics.
- Every account is subdivided in sub-accounts that include indicators that properly assess each element.

Windfall TMF – Alternative Assessment

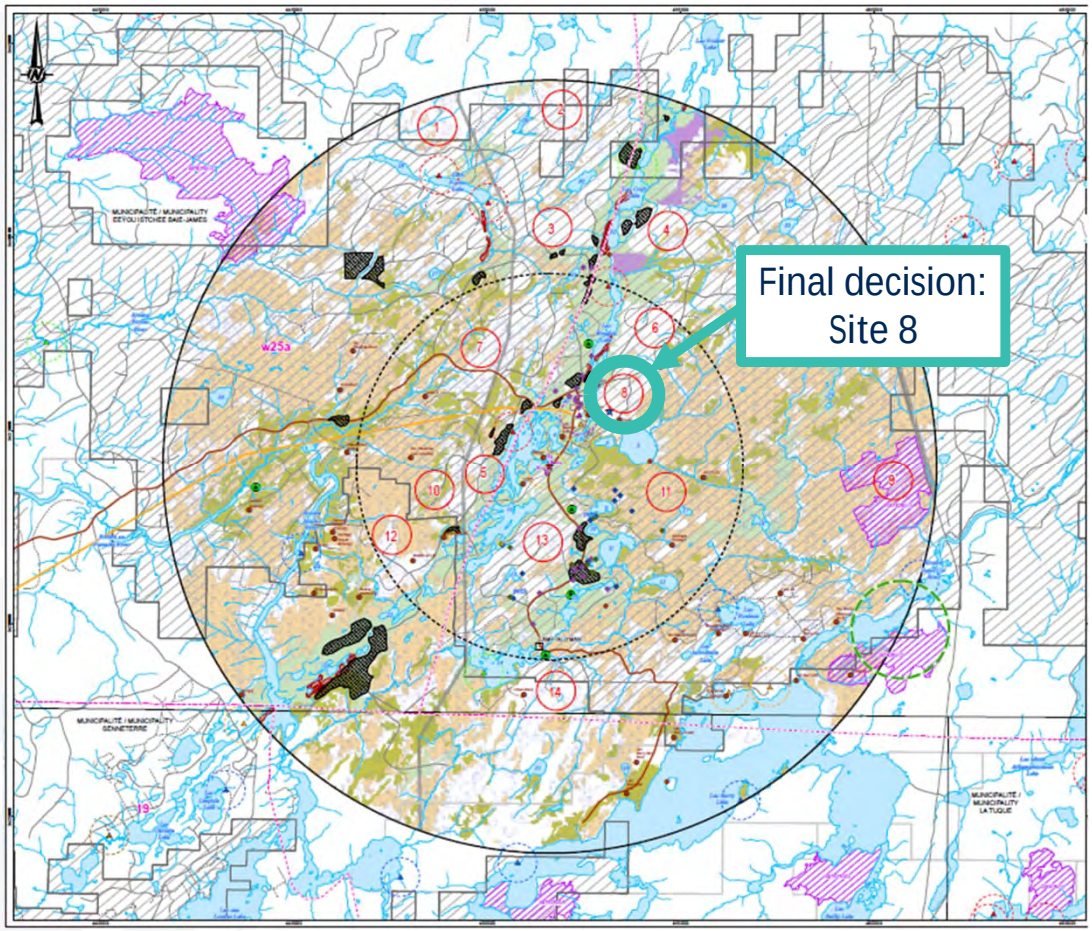
Potential site identification

1. Identify site alternatives
2. Pre-screening assessment
3. Alternative characterization
4. Multiple accounts ledger
5. Value-based decision process
6. Sensitivity analysis
7. Document results



Preferred alternatives based on environmental, social, technical and economic considerations

Windfall TMF – Alternative Assessment



Identification of alternatives

- Fourteen (14) potential sites identified within the limits of the study area (10 km radius around Windfall)
- Three (3) management strategies considered: slurry, thickened/paste, and filtered.

Windfall TMF – Alternative Assessment

Stakeholder engagement

- Windfall is located on the traditional lands of the Waswanipi Cree community, specifically on W25B and W25A traplines.
- Engagement sessions with families and community representatives were organized to document their current land use and to avoid possible direct encroachment of the project infrastructure (TSF, ponds, and stockpiles) on their valued sites.

Windfall TMF – Alternative Assessment

Proposed Pre-Screening Criteria	Alternative													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Presence of Waterbody	X	✓	X	X	X	X	✓	✓	✓	✓	✓	X	✓	X
Major River Crossing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Potable Water Sources	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Protected Areas or Parks	✓	✓	✓	✓	✓	✓	✓	✓	X	✓	✓	✓	✓	✓
Know Archaeological Sites	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Power Transmission Line (right-of-way)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Major constraints identified by the Crees	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	X	X

Notes :
✓: The alternative respects the pre-screening criteria. The alternative is therefore retained in the subsequent assessment.
X : The alternative does not respect the pre-screening criteria. The alternative is therefore eliminated from the subsequent assessment.

A pre-screening assessment identified four (4) locations in compliance with the established criteria.

Windfall TMF – Alternative Assessment

Scenario	Studied alternatives								
	2F	2P	7F	8F	8P	10F	10P	11F	11P
	Rank								
Reference scenario	3	7	2	1	4	5	6	8	9
Sensitivity analysis 1	2	8	1	3	6	4	5	7	9
Sensitivity analysis 2	4	9	3	1	2	5	7	8	6
Sensitivity analysis 3	7	9	3	2	1	6	5	8	4
Sensitivity analysis 4	4	7	1	2	3	5	6	8	9
Sensitivity analysis 5	6	2	1	3	4	5	7	9	8
Sensitivity analysis 6	6	8	1	2	3	4	5	9	7

Final decision:
Site 8
Filtered tailings management

Least advantageous score

Most advantageous score

From the value-based decision process and the sensitivity analyses, two (2) locations (sites #7 and #8) and one (1) management strategy (filtered tailings) stood out.

Question on Water Management

Water Strategy and Stewardship

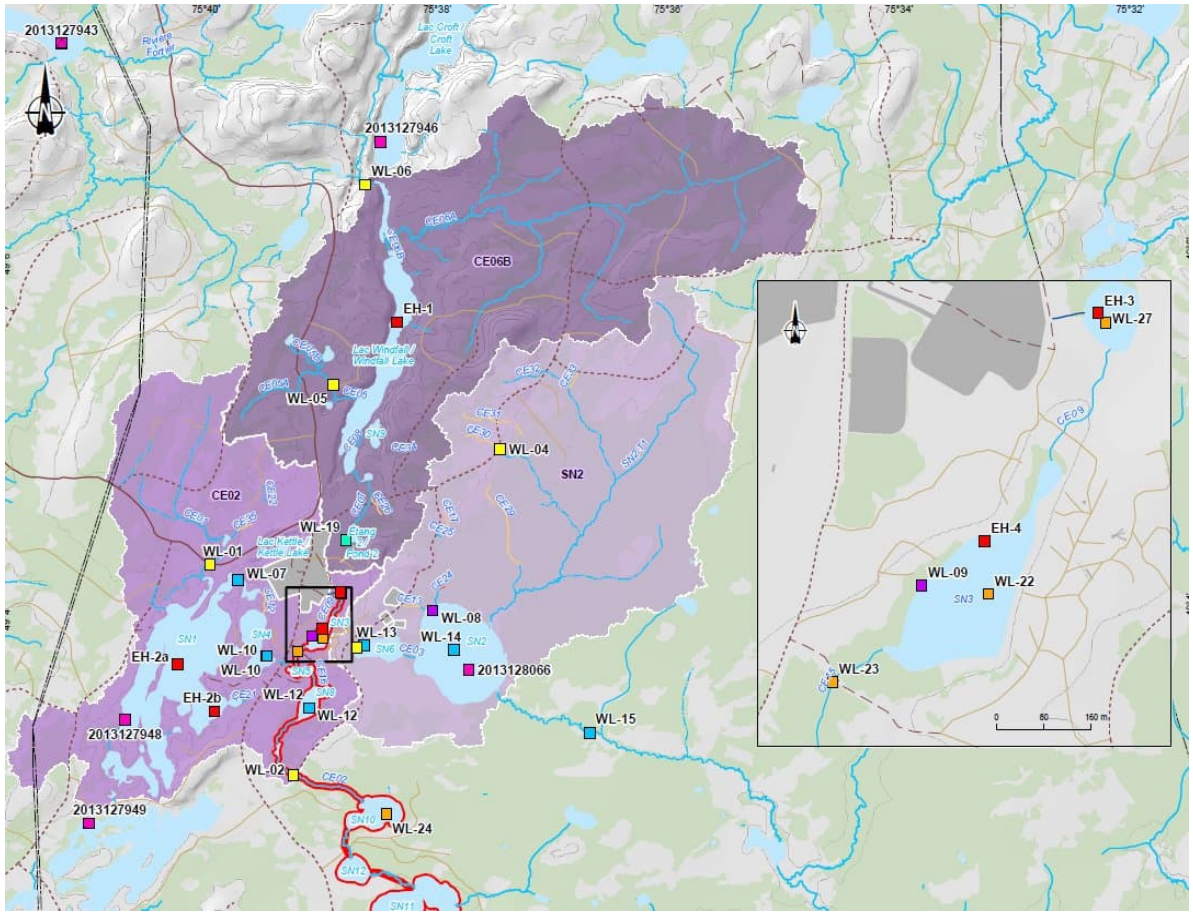
Recirculation rates:
Process & filtration plants: 91%.

- Efficiency and recycling
  Ore processing circuits designed to maximize water recovery and reuse. No freshwater withdrawal.
- Water treatment plant
  Advanced technologies to comply with regulatory requirements before surplus water is discharged.
- Ground and surface water quality protection
  Infrastructures lined (low-permeability geomembrane)
- Environmental Monitoring Program
  Regular sampling for rapid response to any emerging risks.

Balancing the needs of mining operations with the protection of local ecosystems and the interests of surrounding communities.

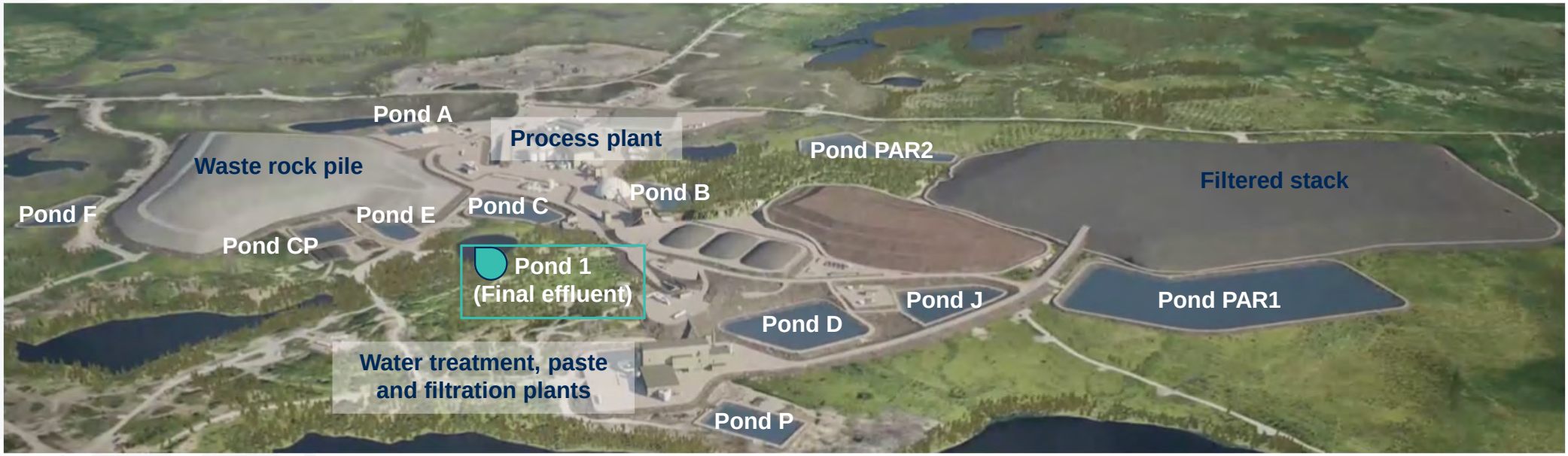
Background

The Windfall site is located at the top of the three (3) watersheds.



Water Treatment and Management Infrastructures

Overview



All water collected at the site will be treated to meet regulatory requirements.

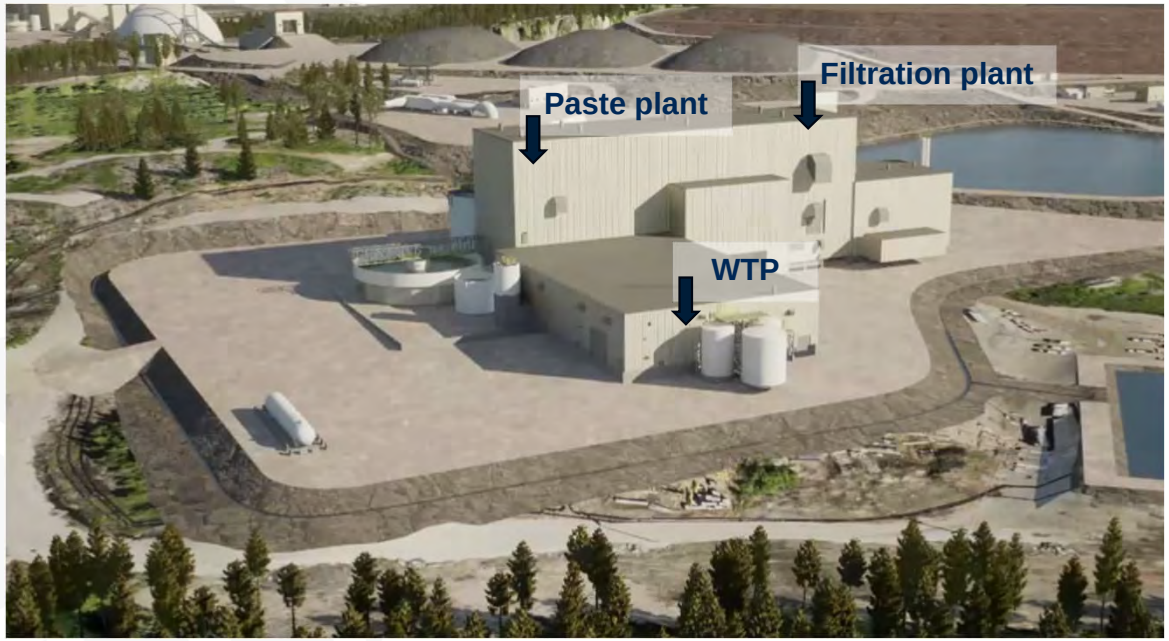
Water Treatment and Management Infrastructures

Water Management Strategy

- All infrastructures are surrounded by ditches directing contact and seepage water into collection ponds, to be reused in the process or to be treated at the water treatment plant before discharged to the environment.
- Storage accumulation areas (tailings, ore, waste rock), ditches, and ponds are lined using a low-permeability geomembrane for water quality protection purposes.

Water Treatment and Management Infrastructures

Water Treatment Plant (WTP)



The water treatment plant (WTP) will consist of four (4) circuits :

- WTP-TSS, to remove suspended solids.
- WTP-UG, to treat underground mine water.
- WTP-CN/Metals, to remove cyanide and dissolved metals.
- WTP-Biological, to provide secondary treatment for residual contaminants.

In January 2026, we committed to adding a 5th circuit for denitrification that will reduce the nitrogen load

Water Treatment and Management Infrastructures

Flood risks

The water management and treatment system is designed to manage extreme events: 100-year and 2000-year floods.

Climate change considerations are incorporated into the design: future changes in temperature, precipitation, and climate extremes are projected.

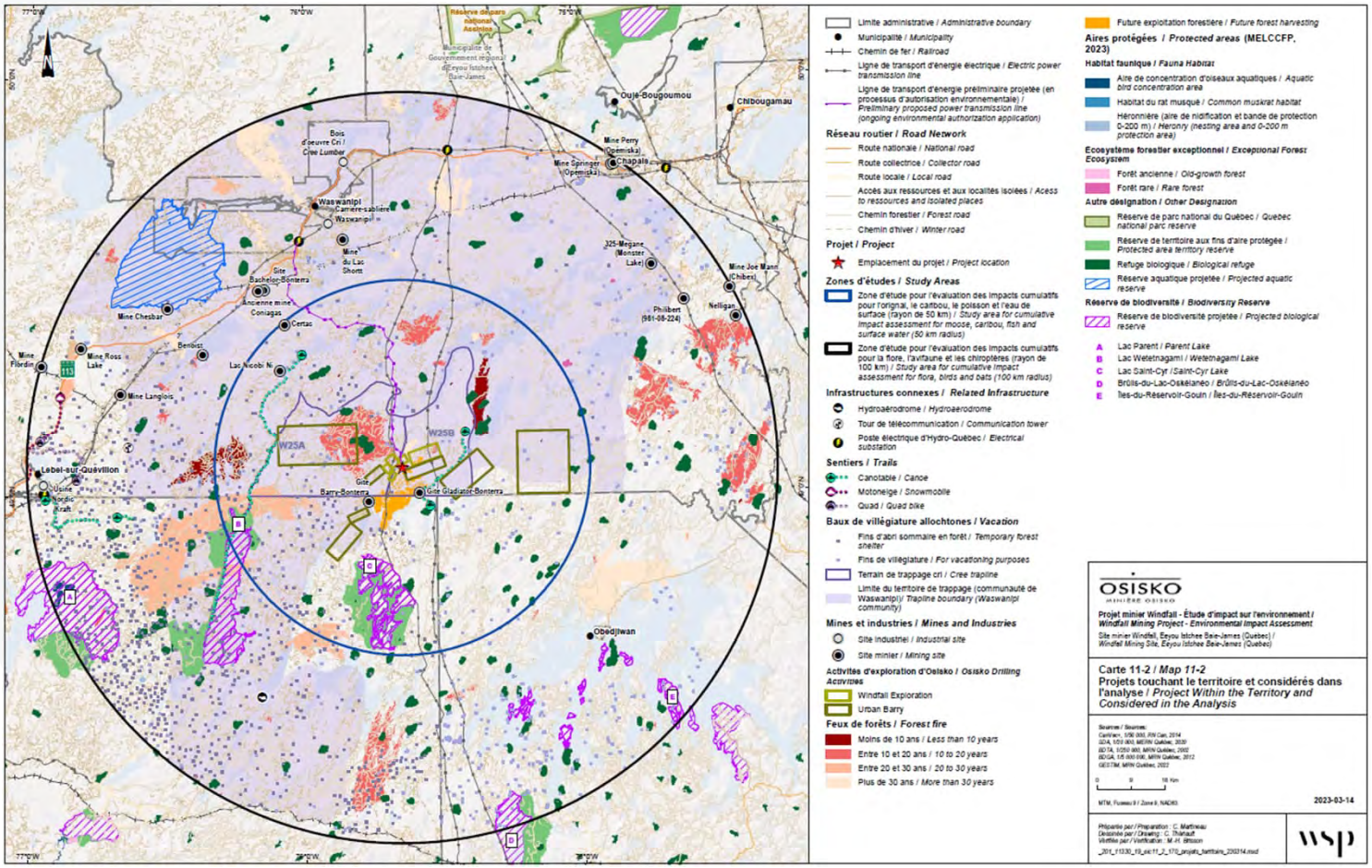
The water balance and water management plan show that, throughout the mine's lifespan,

- It is feasible to manage, without discharge to the environment, the design flood events.
- It is feasible to manage the design flood events while maintaining a safety freeboard of 1.0m to 1.5m.

In the unlikely event of poor operational performance of the water management and treatment system, each pond will be equipped with an emergency spillway to safely convey the excess water.

The risk of flooding outside the mining site from the ponds is minimal.

Question on Cumulative Effects

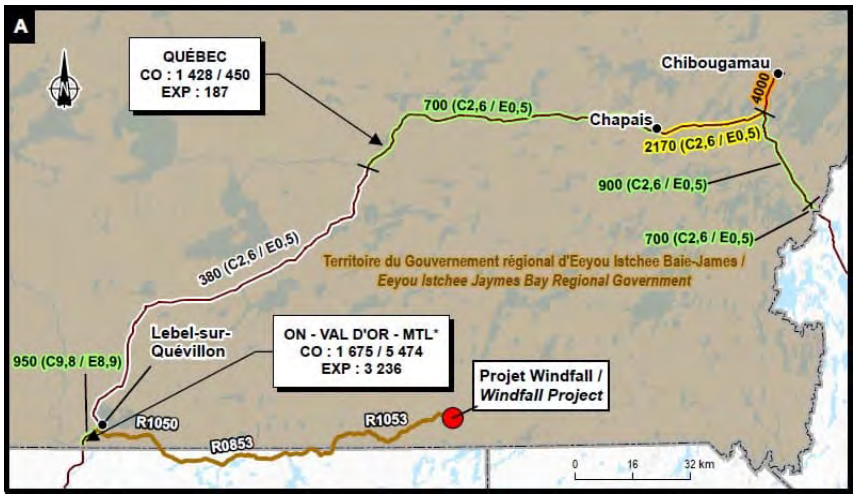

Limite administrative / Administrative boundary
Municipalité / Municipality
Chemin de fer / Railroad
Ligne de transport d'énergie électrique / Electric power transmission line
Ligne de transport d'énergie préliminaire projetée (en processus d'autorisation environnementale) / Preliminary proposed power transmission line (ongoing environmental authorization application)
Réseau routier / Road Network
Route nationale / National road
Route collectrice / Collector road
Route locale / Local road
Accès aux ressources et aux localités isolées / Acess to ressources and isolated places
Chemin forestier / Forest road
Chemin d'hiver / Winter road
Projet / Project
Emplacement du projet / Project location
Zones d'études / Study Areas
Zone d'étude pour l'évaluation des impacts cumulatifs pour l'orignal, le caribou, le poisson et l'eau de surface (rayon de 50 km) / Study area for cumulative impact assessment for moose, caribou, fish and surface water (50 km radius)
Zone d'étude pour l'évaluation des impacts cumulatifs pour la flore, l'avifaune et les chiroptères (rayon de 100 km) / Study area for cumulative impact assessment for flora, birds and bats (100 km radius)
Infrastructures connexes / Related Infrastructure
Hydroaérodrome / Hydroaerodrome
Tour de télécommunication / Communication tower
Poste électrique d'Hydro-Québec / Electrical substation
Sentiers / Trails
Canotable / Canoe
Motoneige / Snowmobile
Quad / Quad bike
Baux de villégiature allochtones / Vacation
Fins d'abri sommaire en forêt / Temporary forest shelter
Fins de villégiature / For vacationing purposes
Terrain de trappage cri / Cree trapline
Limite du territoire de trappage (communauté de Waswanipi)/ Trapline boundary (Waswanipi community)
Mines et industries / Mines and Industries
Site industriel / Industrial site
Site minier / Mining site
Activités d'exploration d'Osisko / Osisko Drilling Activities
Windfall Exploration
Urban Barry
Feux de forêts / Forest fire
Moins de 10 ans / Less than 10 years
Entre 10 et 20 ans / 10 to 20 years
Entre 20 et 30 ans / 20 to 30 years
Plus de 30 ans / More than 30 years
Future exploitation forestière / Future forest harvesting
Aires protégées / Protected areas (MELCCFP, 2023)
Habitat faunique / Fauna Habitat
Aire de concentration d'oiseaux aquatiques / Aquatic bird concentration area
Habitat du rat musqué / Common muskrat habitat
Héronnière (aire de nidification et bande de protection 0-200 m) / Heronry (nesting area and 0-200 m protection area)
Ecosystème forestier exceptionnel / Exceptional Forest Ecosystem
Forêt ancienne / Old-growth forest
Forêt rare / Rare forest
Autre désignation / Other Designation
Réserve de parc national du Québec / Quebec national parc reserve
Réserve de territoire aux fins d'aire protégée / Protected area territory reserve
Refuge biologique / Biological refuge
Réserve aquatique projetée / Projected aquatic reserve
Réserve de biodiversité / Biodiversity Reserve
Réserve de biodiversité projetée / Projected biological reserve
A Lac Parent / Parent Lake
B Lac Wetetnagami / Wetetnagami Lake
C Lac Saint-Cyr / Saint-Cyr Lake
D Brûlis-du-Lac-Oskélanéo / Brûlis-du-Lac-Oskélanéo
E Îles-du-Réservoir-Gouin / Îles-du-Réservoir-Gouin
OSISKO
MINIÈRE OSISKO
Projet minier Windfall - Étude d'impact sur l'environnement / Windfall Mining Project - Environmental Impact Assessment
Site minier Windfall, Eeyou Istchee Baie-James (Québec) / Windfall Mining Site, Eeyou Istchee Baie-James (Québec)
Carte 11-2 / Map 11-2
Projets touchant le territoire et considérés dans l'analyse / Project Within the Territory and Considered in the Analysis
Sources / Sources:
CanVec+, 1/50 000, RN Can, 2014
BDA, 1/20 000, MERN Québec, 2020
BDTA, 1/250 000, MERN Québec, 2002
BDGA, 1/5 000 000, MERN Québec, 2012
GESTIM, MRN Québec, 2022
0 5 10 Km
MTM, Fuseau 9 / Zone 9, NAD83
2023-03-14
Préparée par / Preparation : C. Mathieu
Dessinée par / Drawing : C. Thériault
Vérifiée par / Verification : M.-H. Simoon
wsp
Waswanipi
Mine Chesbar
Mine Ross Lake
Mine Langlois
Lac Nicobi N
Lebel-sur-Quévillon
Barry-Bonterra
Gite Gladiator-Bonterra
W25A
W25B
Obedjiwan
Ouje-Bougoumou
Chibougamau
Mine Joe Mann Chibex
Nelligan
Mine Perry Opemiska
Chapais
Mine Springer Opemiska
325-Megane (Monster Lake)
Philibert (981-08-224)

Questions on Transportation and Road Safety

Road Circulation

Construction and operation phases:
Increased road circulation may impact fauna, flora and road users

- Project will generate an average of 14 heavy vehicle trips per day during construction and 10 during operation
- Current traffic between 7 and 10 heavy vehicle trips per day
- Most traffic will be via Val d'Or (9.8 during construction and 8.9 during operation)



Measures planned to address the identified issues (1/2)

During construction phase: temporary increase in traffic equals approximately at 5,100 heavy transports/year planned (≈14 trips/day)

Strict security management

- Installation of an entry point at the entrance to Route 1000 for users associated with the project
- Speed control (70 km/h limit, speed cameras, checks at the gatehouse, road checks).
- Discipline measures for offenders
- Reinforced signage and maintenance of radio announcement procedures every 5 km.
- Restricted access according to specific schedules already in force (prohibition of driving between 6 p.m. and 6 a.m.)
- Obligation of FM radio (all our users of the access roads must have an FM radio and be trained on its proper use to circulate safely on forest roads).

Accident management

- Implementation of an alert procedure in the event of an accident
- Establishment of an incident and accident register to track all events involving wildlife and vehicles.

Photo crédit: ANCAI

Measures planned to address the identified issues (2/2)

During construction phase: temporary increase in traffic equals approximately at 5,100 heavy transports/year planned (≈14 trips/day)

- Maintenance and monitoring
  - Increased frequency of road maintenance
  - Regular inspections
  - Dust management such as adaptation of access rules (minimum distance between vehicles)
  - Clearing brush for visibility, planning additional work to improve visibility
- Cohabitation with local users
  - Dangerous curves: follow-up of reports, addition of signage if necessary, reminder to respect speed limits.
  - Ongoing communication with forestry companies
  - Adaptation of schedules and rules to limit conflicts of use

Photo credit: https://personscs.com/

Measures planned to address the identified issues

During the operation phase: reduction in transport volume equals approximately at 3,700 transports/year (≈10 trips/day), adapted to regular operational needs

- **Transport optimisation**
  - Systematic use of the shortest route (LsQ – Windfall site)
- **Maintaining security measures**
  - Speed and signal control
  - Traffic and radio announcement procedures maintained
- **Continuation of emergency and follow-up measures**
  - Alert and response procedures
  - Accident and wildlife collision records
- **Maintenance and monitoring**
  - Road condition monitoring
  - Seasonally targeted interventions (spring thaw, hunting)
  - Clearing brush for visibility
- **Preservation of the environment**
  - Planning to minimize the impact on wildlife
  - Management of sensitive periods (spring thaw, hunting)
- **Cohabitation with local users**
  - Ongoing communication
  - Grievance management mechanism

Question on Monitoring and Follow-up Program

Monitoring Schedule

- By type of monitoring (e.g., physical environment, biology, social, mining operations)
- Reporting: Follow-up Recipient Instances
- Frequency of follow-up (e.g., monthly/yearly/continuous every 6 days)

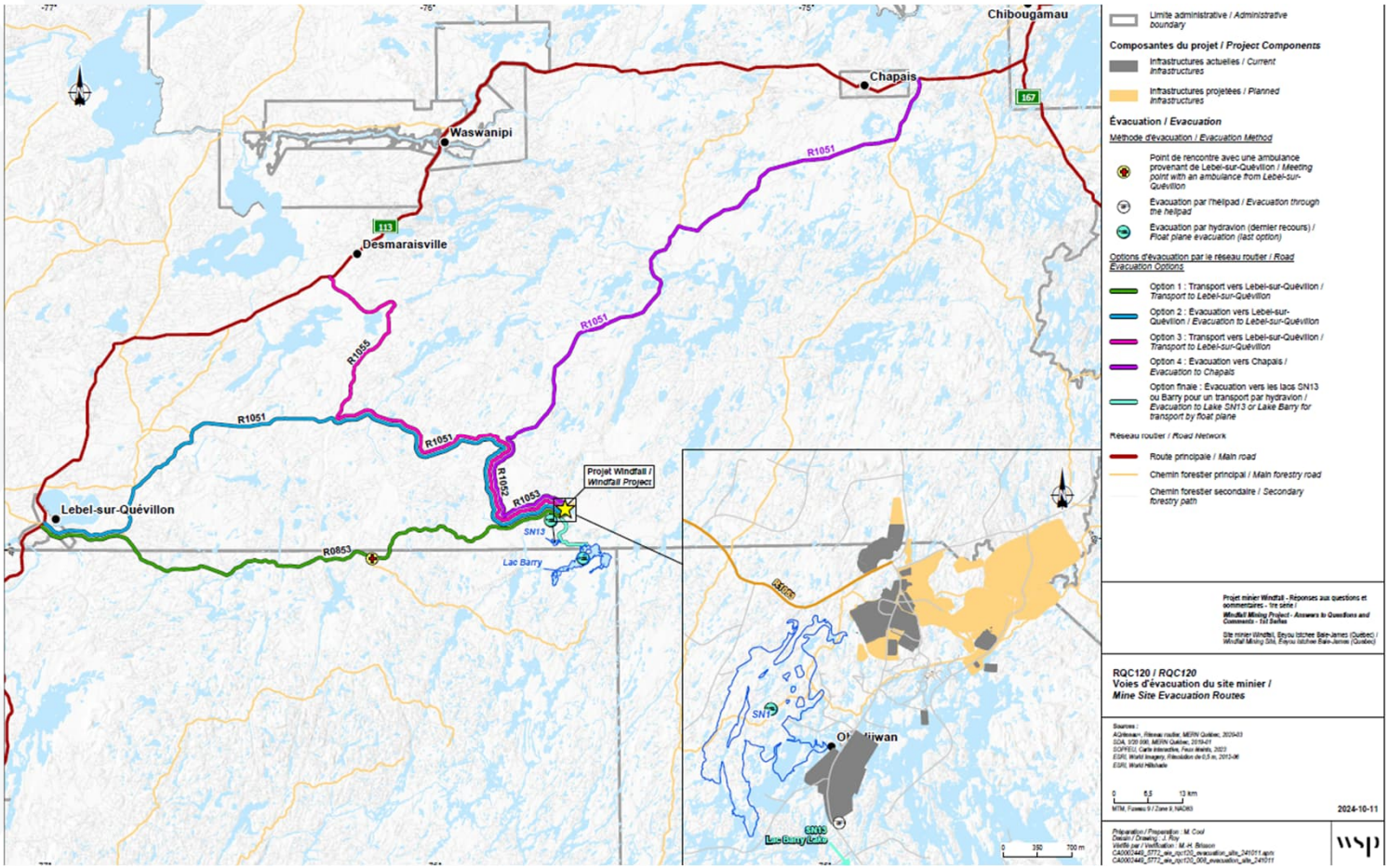
MONITORING	CONSTRUCTION PHASE	OPERATION PHASE	CLOSURE PHASE (POST-OPERATION)	CLOSURE PHASE (POST-RESTORATION)
MINING OPERATIONS				
Geochemistry of ore, waste rock and tailings	X	X		
Water and storage area management structure	X	X		
Environmental incidents and accidents	X	X	X	X
Waste and Hazardous Materials Management		X	X	X
Drinking water distribution network	X	X	X	X
Sanitary water	X	X	X	
Air emissions from mining operations		X		
PHYSICAL ENVIRONMENT				
Ambient air		X	X	
Greenhouse gases	X	X	X	X
Soundscape and vibrations	X	X	X	X
Soil			X	
Hydrology		X		
Mine effluent and surface water	X	X	X	X
Sediment	X	X		X
Hydrogeology	X	X	X	X
Groundwater quality	X	X	X	X

Monitoring Schedule

MONITORING	CONSTRUCTION PHASE	OPERATION PHASE	CLOSURE PHASE (POST-OPERATION)	CLOSURE PHASE (POST-RESTORATION)
BIOGICAL ENVIRONMENT				
Vegetation and wetlands	X			X
Ichtyofaune	X	X	X	
Benthos	X	X	X	
Avian fauna	X	X		
Mammal	X	X	X	X
Chiroptera (bats)	X	X	X	X
SOCIAL ENVIRONMENT				
Population, economy and employment		X		
Quality of life and well-being	X	X		
Land and Natural Resource Use	X	X	X	X
Indigenous Land Use	X	X		
Infrastructure and utilities	X	X		
Heritage and archaeology	X	X	X	X
Monitoring Committee	X	X	X	X
BIODIVERSITY PROGRAM				
Environmental studies on the effects of forest fires	X	X		
OTHER MONITORING				
Compensation for wetlands and bodies of water	X	X		
Fish habitat compensation	X	X		
ANNUAL MONITORING AND SURVEILLANCE REPORT				
Annual monitoring and surveillance report	X	X	X	X

Question on Emergency Evacuation

Mine Site Evacuation Routes



Question on Gold Fields Values

Our Core Values

Creating enduring value beyond mining

Security

If we cannot guarantee to operate safely, we will not operate.

Respect

We treat everyone with dignity, care, and fairness.

Responsibility

We own our actions - and their impact.

Collaboration

We work as a global team to succeed together.

THANK YOU

Questions?

APPENDIX

2

RESPONSES TO THE BRIEF FROM THE ANISHNABE NATION OF LAC SIMON

Responses to Brief

Brief from the Anishnabeg First Nation of Lac Simon received April 29

COMEX reponses

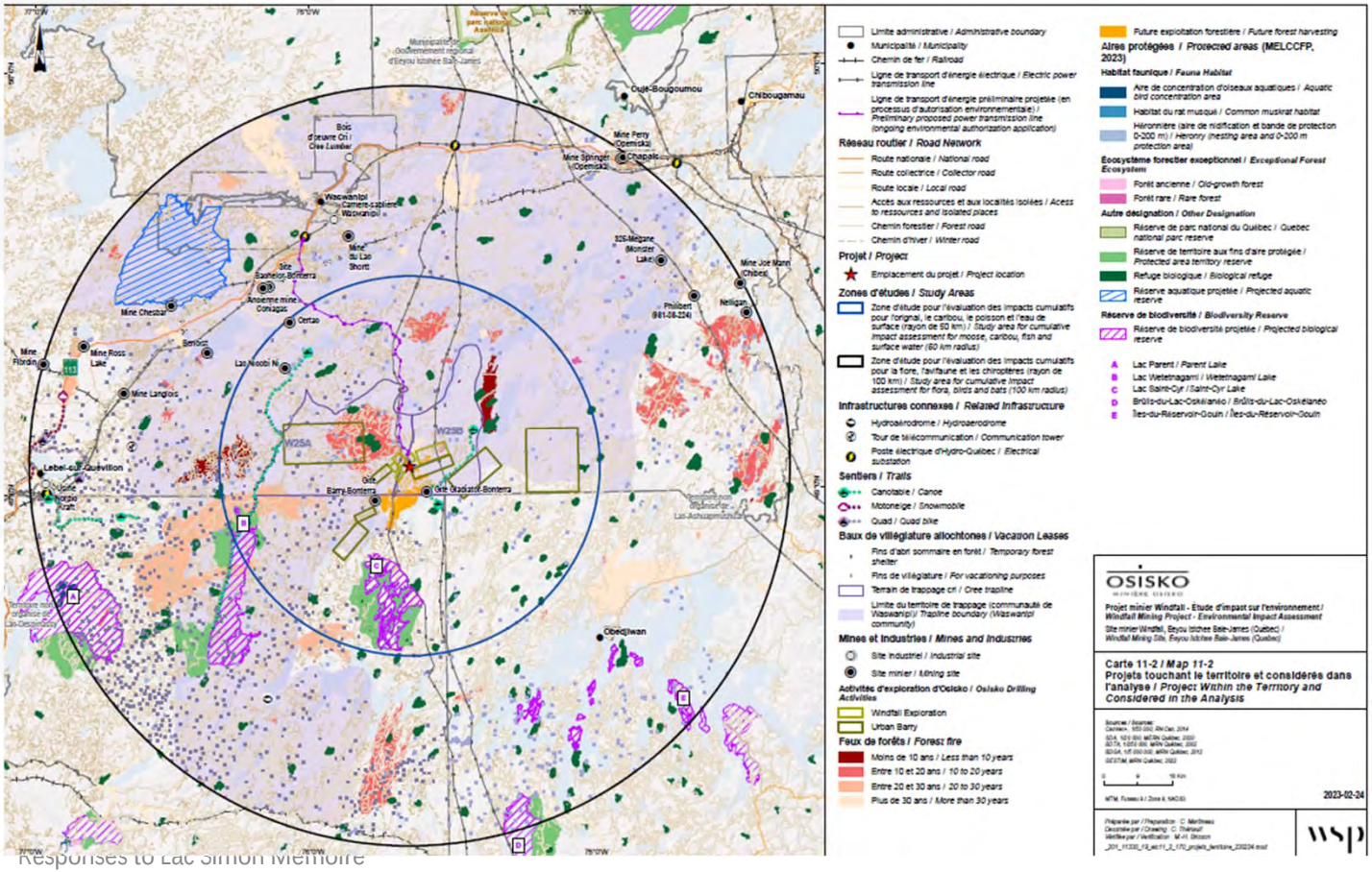
Information Sessions with Lac Simon

Concern #1 - Duty to consult

- Windfall Mining Group inc. (WMG) understands that the duty to consult is not in the responsibility of the proponent but lies with the COMEX and the Crown
- In all cases, since 2017, 22 meetings have occurred with Lac Simon representatives associated with Windfall but also other exploration projects of WMG in the sector.
- Discussions are advancing on a Collaboration Agreement

Cumulative Impacts

Concern #1 – Evaluation of Cumulative Impacts on the Nitakinan

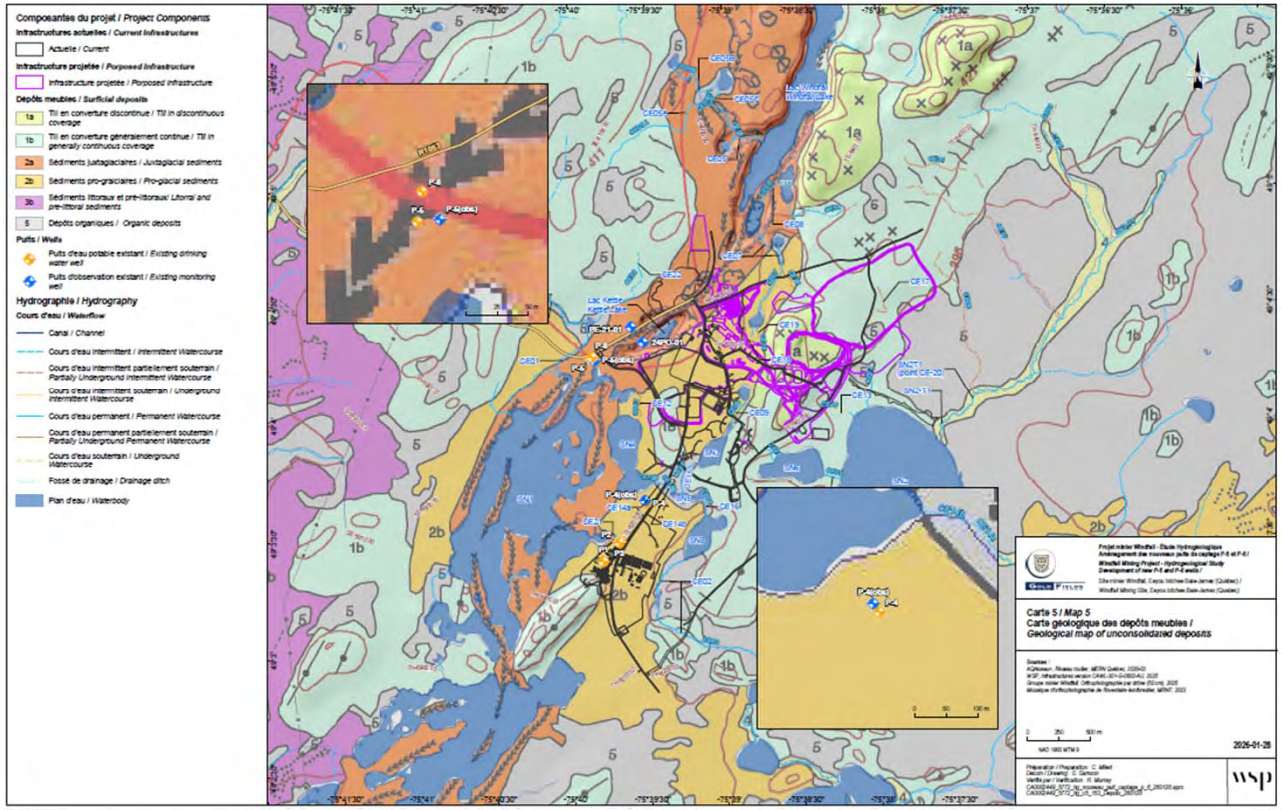


The Windfall Project evaluated the cumulative impacts of the project by assessing a radius of 100 km centered on the site.

The “traditional land and natural resources use” was on of the components assessed in the evaluation.

Water Quality

Concern #3 – Impact on eskers



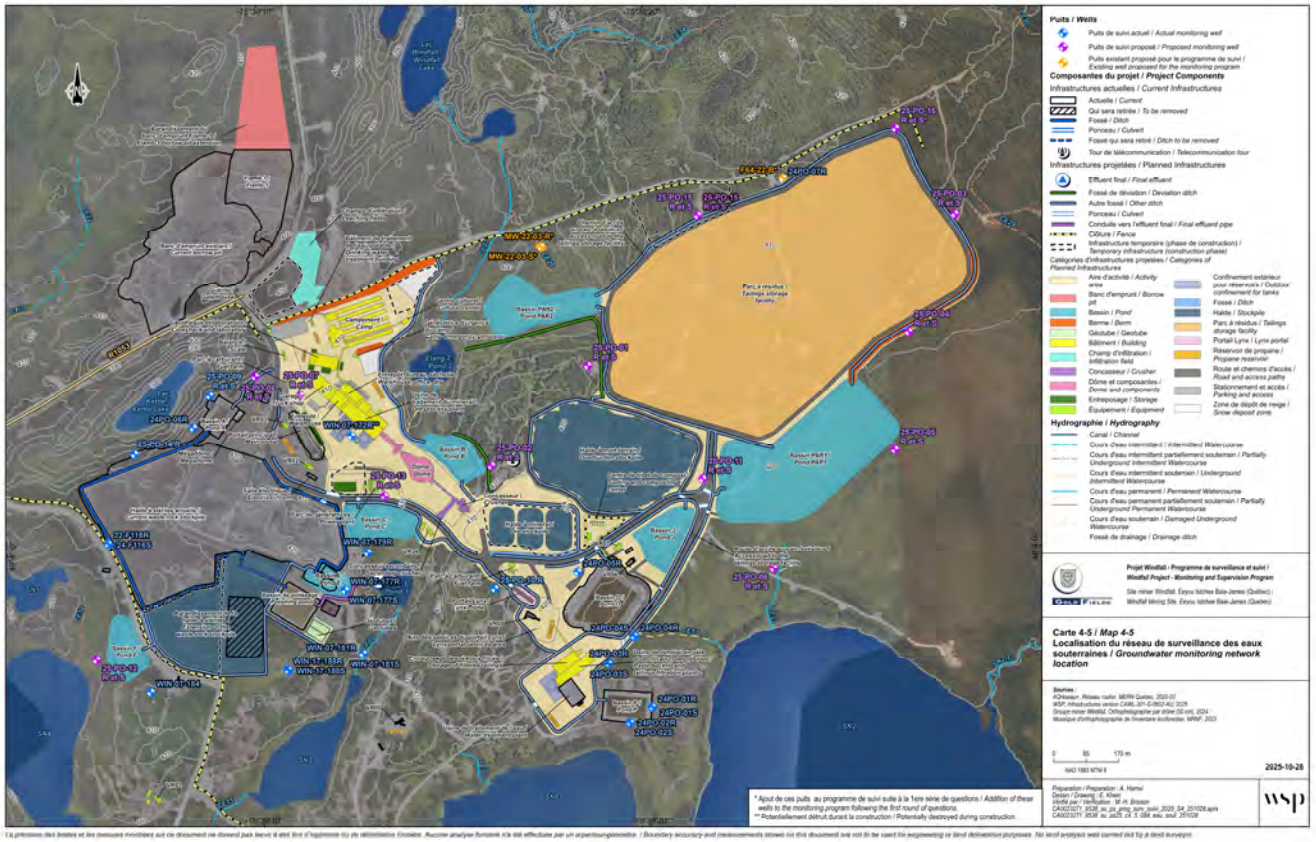
Windfall evaluated the impacts of the project on groundwater quality

Design measures included the lining of all basins and accumulation areas to prevent groundwater alterations

Windfall will use the water from the esker to provide for drinking water for its workers

Water Quality

Concern #3 – Impact on eskers



Complete groundwater program was determined jointly with experts and follow-ups will be realized twice a year

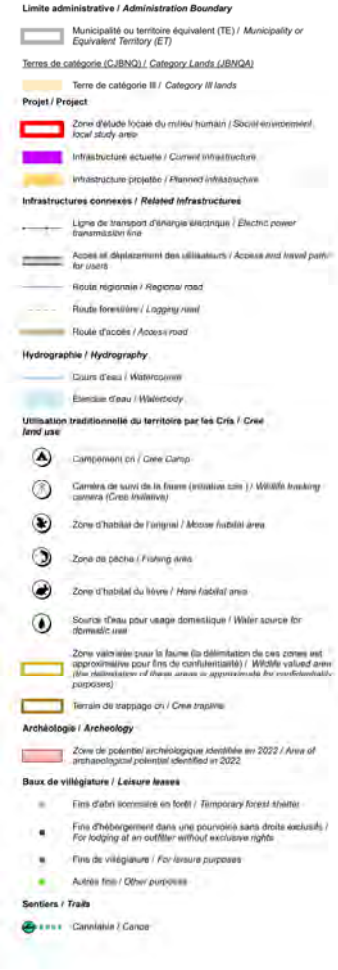
Revised follow-up program presented in appendix to this document

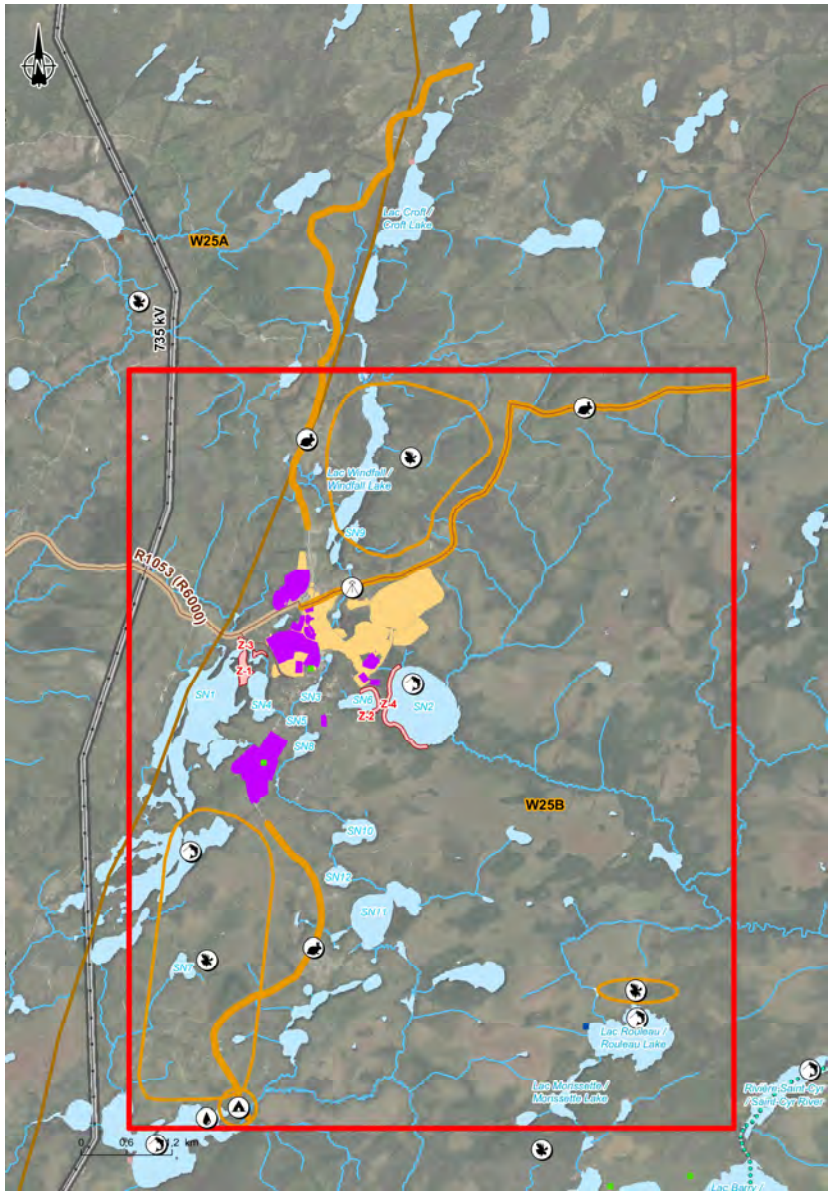
Traditional Landuse

Concern #4B – Impact of Windfall Project on Aki

The local social impact study area was developed to determine all the direct project impacts.

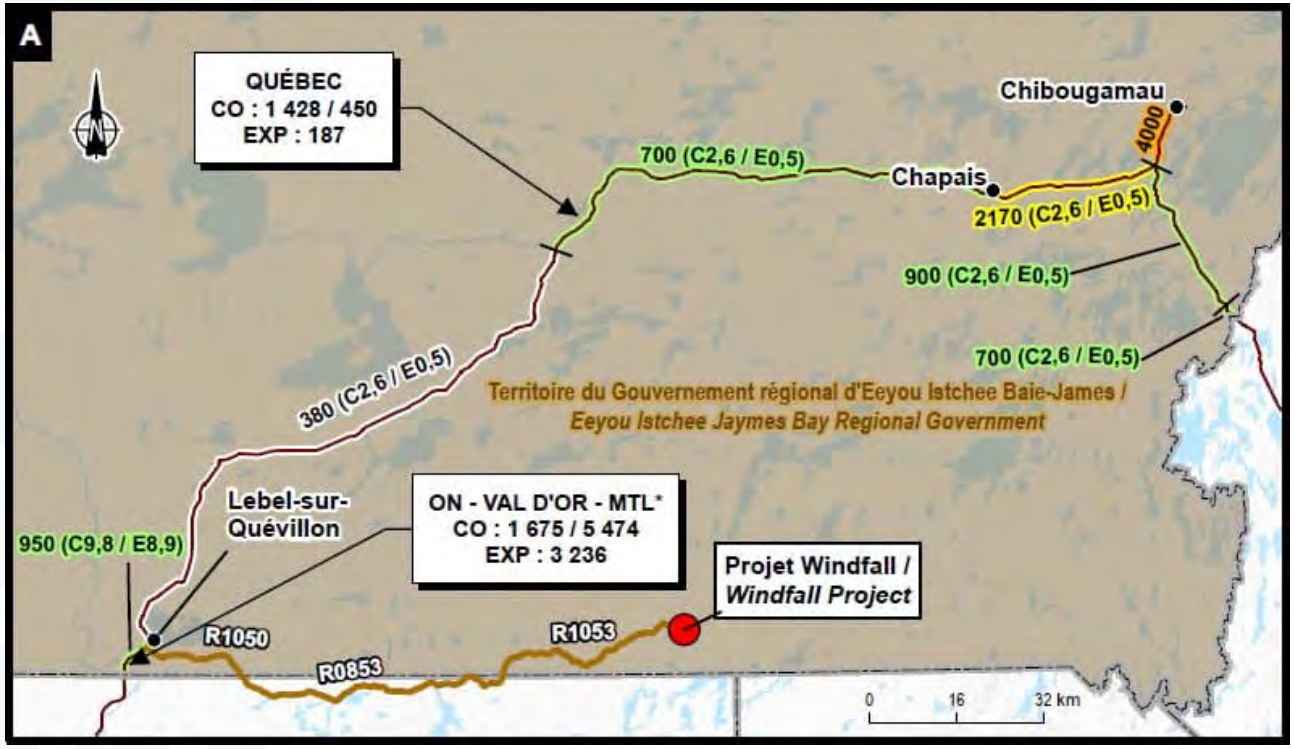
No Anishnabeg activities were identified in this zone.





Traditional Landuse

Concern #4B – Indirect impacts of Windfall Project on Aki



Project will generate an average of 14 heavy vehicle trips per day during construction and 10 during operation

Current traffic between 7 and 10 heavy vehicle trips per day

Most traffic will be via Val d'Or (9.8 during construction and 8.9 during operation)

Transportation of Goods to Windfall

Concern #4-2B – Impact of transportation of dangerous goods

Product	Sector	Consumption (t/year)	Inventory		Delivery		
			Quantity (t)	Storage type	Truck capacity (t)	Type of delivery	Number of trucks
Quicklime	Process plant (5)	5,070	79	79 t silo	36	Bulk	141
Lead nitrate	Process plant (5)	447	34	34 × 1,000 kg Super Sacks	20	Bags	22
Sodium cyanide	Process plant (5)	1,525	113	100 m^3 bulk tank	33	Bulk	46
Caustic soda	Process plant (7a)	529	54	35 m^3 bulk tank	32	Bulk	17
Hydrochloric acid 28%	Process plant (7a)	919	58	50 m^3 bulk tank	20	Bulk	46
Flocculant (polishing)	Process plant (4)	45	1.5	2 × 750 kg Super Sacks	20	Bags	2
Flocculent (filtration)	Filtration plant	283	2.3	3 × 750 kg Super Sacks	20	Bags	14
25% anti-scaling agent	Process plant (6)	30	4	4 totes of 1 m^3 each	20	Container	2
Activated carbon	Process plant (6)	79	11	22 × 500 kg Super Sacks	20	Bags	4
Liquid SO_2	Process plant (7b)	1,172	50	36 m^3 bulk tank	30	Bulk	39
Copper sulphate	Process plant (7b)	74	2.5	2 × 1,250 kg Super Sacks	20	Bags	4
Sodium salts	Process plant (5)	7	0.5	20 × 25 kg bags	20	Bags	1
Refining fluxes	Process plant (7a)	5	0.5	20 × 25 kg bags	20	Bags	3

Windfall and its suppliers abide by the existing regulations and will declare and intervene without delay

Women Well-Being

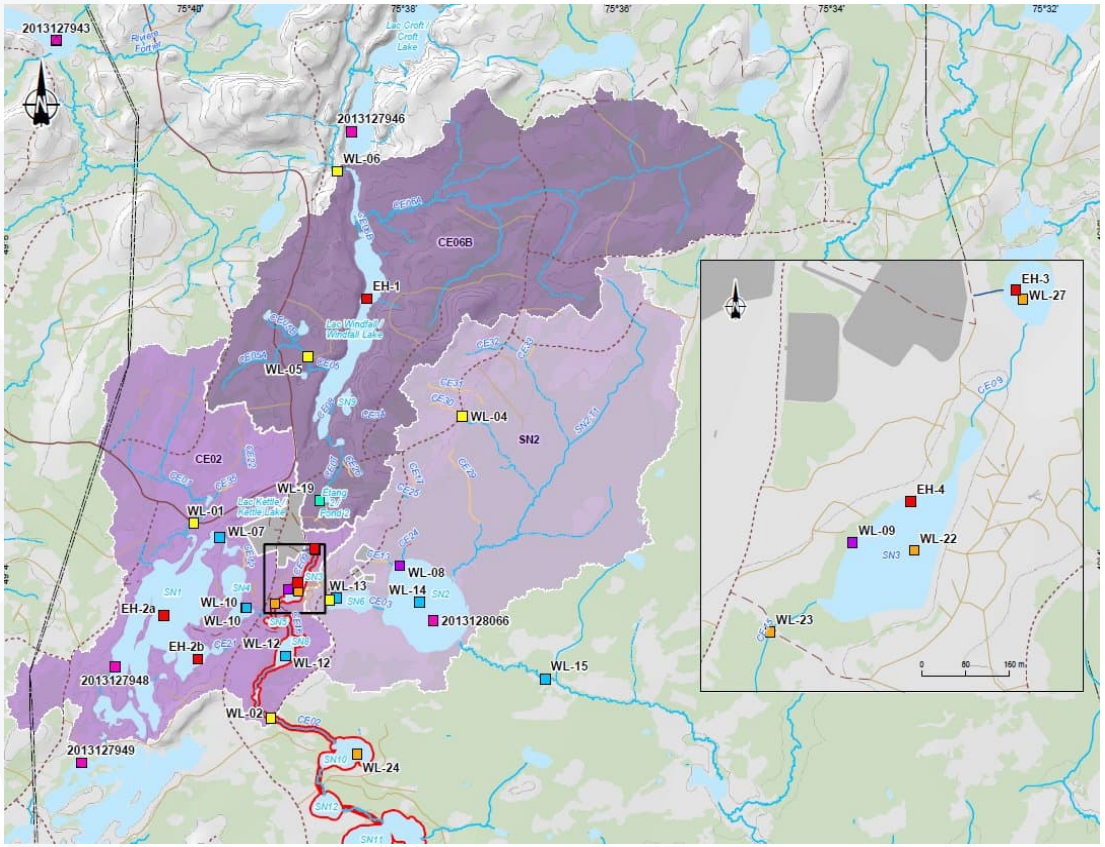
Concern #4-2B – Impact on women's well-being

Gold Fields has many policies in place to ensure women's well-being:

- Drug and alcohol policy: Bans any drugs and alcohol from site, with immediate expulsions, including baggage and security verifications as needed. Mandatory training every year
- Policy against harassment into the workplace, including ways to denounce. Investigations are done diligently and highly confidentially. Mandatory training every year
- Respectful workplace training: Mandatory training program for all WMG employees that educate on expected behaviors from all employees that ensure safe workplace environment and provide tools to Speak-up. Every employees contribute to a culture that is safe, inclusive, and respectful. By having an awareness of the harmful behaviours that can cause an impact on our emotional and mental health, we can take the necessary steps to ensure our actions align with our values.
- Cultural awareness training: Mandatory Indigenous cultural awareness training for all workers and suppliers coming to Windfall
- Mentorship and scholarships trainings for indigenous women (including non-traditional roles)
- Family accommodations and caregiving flexibility
- Camp wing (dormitories) dedicated to women : New camp design adapted to women safety - with separate dry for women, separate bathrooms and all security system (camera, emergency phones, etc)
- Cameras at each entries of the camps and the wings, with emergency phones at every levels of dormitories

Water Quality

Concern #4-3 – Surface water quality and fish habitat



Windfall evaluated the impacts of the project on surface water quality

Design measures included the lining of all basins and accumulation areas to prevent groundwater alterations

Windfall will complete a surface water monitoring program that will also verify the potential impacts on fish habitat

THANK YOU

Questions?

APPENDIX

3

TRANSPORTATION MANAGEMENT PLAN

Transportation Management Plan - Windfall Project

May 2026 – Revision 1

GOLD FIELDS

Creating enduring value *beyond mining*

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Photo1 : Map of Routes 1000, 5000, and 6000 from LSQ to Windfall
Photo2 : Bridge at KM 62

1. Introduction

Windfall Mining Group Inc. (“GMW”) has developed a transportation management plan to detail the control measures that will be implemented to minimize and manage the environmental and social impacts of the Windfall project throughout its entire lifespan. This transportation management plan specifically addresses traffic activities on forest roads between Lebel-sur-Quévillon and the Windfall site, including Routes 1000, 5000, and 6000.

The following document provides the details expected in the transportation management plan, namely transportation planning elements (Section 2), road safety measures (Section 3), the road communication plan (Section 4), provisions specific to traffic on access roads in the emergency response plan (Section 5), and finally incident management (Section 6).

This revised version incorporates measures developed since the October 2024 version. This revision aims to improve the Transportation Management Plan in order to more clearly address community concerns expressed during various consultation sessions, particularly regarding road safety, dust, curves on Route 6000, signage, emergency measures, carrier identification, and contractual obligations.

This plan aims to reduce risks to workers, transporters, contractors, land users, and affected communities. It also aims to demonstrate that GMW maintains active control of the access corridor during the construction, pre-production, operation, and closure phases.

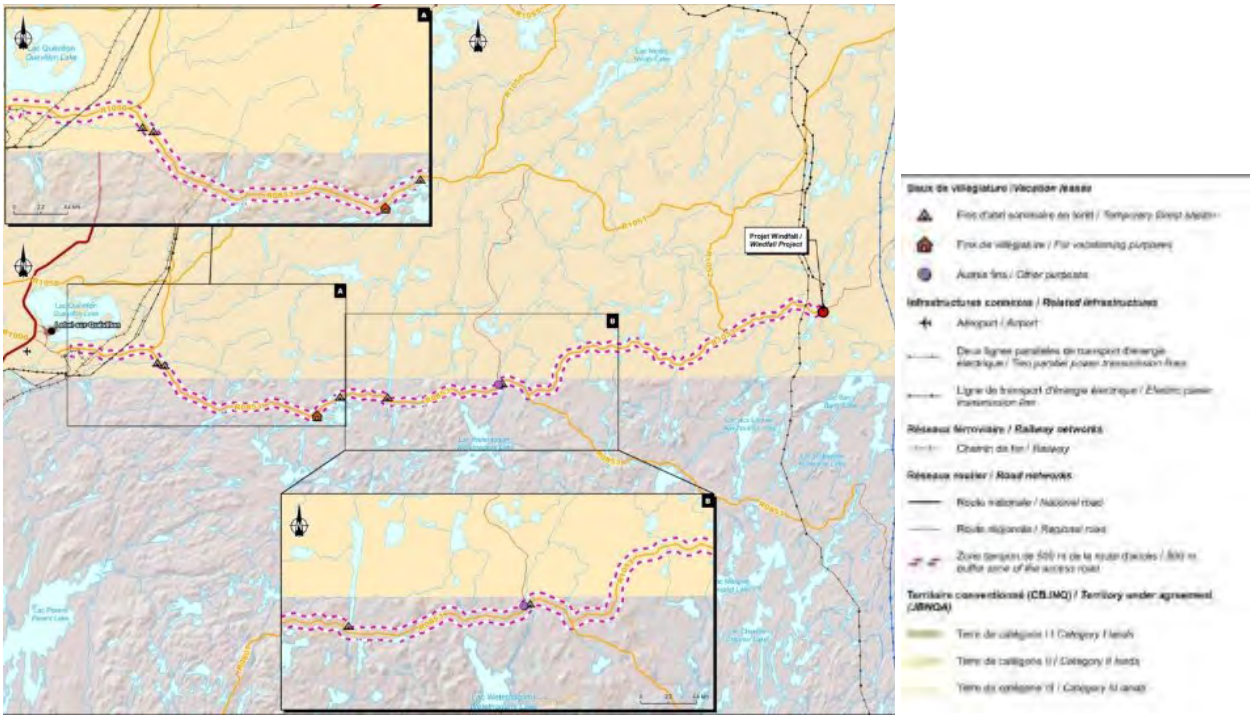


Photo 3 : Map of Routes 1000, 5000, and 6000 from LSQ to Windfall

2. Transportation Planning

2.1 Project Phases

Transportation planning will be carried out in three distinct phases to ensure effective and sustainable resource management throughout the project.

Construction Phase

During the construction phase, GMW anticipates an increase in transportation needs to deliver materials to the construction site. To minimize the impact, GMW will implement an optimized transportation strategy, maximizing the capacity of available carriers to reduce the volume of trips and associated emissions.

Operational Phase

During mining operations, the plan calls for a reduction in transport volume, in line with regular operational needs. GMW will focus on the efficiency of transport operations by optimizing loads and ensuring on-time deliveries. Specific measures will be implemented to minimize the impact, including improved route management to always use the shortest route to the departure point, Lebel-sur-Quévillon.

Closure Phase

During mine restoration, GMW anticipates an increase in transportation activities. GMW will apply the same approach of maximizing loads and minimizing impacts as in previous phases. This approach will ensure efficient resource management while adhering to high environmental standards.

2.2 Number of Trips per Phase

As mentioned, GMW anticipates an increase in road transport during the construction phase. Over these two years, a total of 3,104 heavy transport trips is projected. This planning aims to ensure efficient management of operations while minimizing impacts on traffic. Transport details are provided in Table 1.

In addition to construction activities, underground development activities will continue at the site. To this end, the number of transport trips has also been estimated. Table 2 presents the transport data for 2025 and 2026. The total represents approximately 14 trips per day.

Table 1 - Transportation of Materials Required for Construction at the Windfall Mine Site

Discipline	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Total
Campsite and facilities	70	75	80	0	0	0	0	0	225
Civil engineering	32	0	0	0	0	0	0	0	32
Concrete	40	125	120	120	40	0	0	0	445
Structure	50	125	125	25	0	0	0	0	325
Process mechanical equipment	3	79	39	189	297	88	18	17	730
Mechanical garage equipment	25	50	25	0	0	0	0	25	125
Piping	10	0	40	40	30	0	0	0	120
Electrical equipment and lines	30	58	30	5	52	1	0	0	176
Automation	0	12	12	11	4	0	0	0	39
Telecommunications	0	2	2	0	0	0	0	0	4
Fire protection	0	0	0	25	15	0	0	0	40
Deliveries of various parts	40	80	80	80	40	40	40	0	400
Diesel	60	60	60	60	53	50	50	50	443
Total	**360**	**666**	**613**	**555**	**531**	**179**	**108**	**92**	**3,104**

Table 2 - Transportation associated with the pre-production phase of the Windfall site

Type of cargo	2027	2028
Fuel	385	389
Explosive	60	104
Propane	104	164
Process input for plants	0	229
UTE	30	110
Cement for shotcrete	0	156
CRF cement	0	265
Cement slurry	0	0
Camp services	104	104
Worker bus	530	682
General delivery	376	342
Part delivery	730	730
Residual material	519	519
Total	**2,838**	**3,794**

Transportation Forecast During the Operational Phase

During the operational phase, a limited number of transports will be required to ensure adequate support for operations. Careful transport planning will be implemented to maximize the use of available space and

minimize the impact on wildlife. This approach aims to balance operational efficiency with environmental conservation.

GMW anticipates an average of 3,733 transports per full year of operation, which corresponds to an average of 10 trips per day.

Estimated Number of Trips During the Closure Phase

GMW anticipates a transport volume for the restoration phase equivalent to that of the construction phase, given that this process constitutes the reverse of the construction phase. This approach will ensure proper management of resources and traffic impacts.

Table 3 - Transportation associated with the operational phase

Type	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Fuel	405	397	401	399	400	398	400	397	400	109
Explosive	156	156	156	156	156	156	156	156	156	43
Propane	208	212	209	212	212	213	211	205	187	58
Process inputs for mills	454	454	454	454	454	455	454	454	454	124
Water treatment plant	112	112	112	112	112	112	112	112	112	31
Cement for shotcrete	156	156	156	156	156	156	156	156	156	156
CRF Cement	239	84	65	91	82	83	92	90	92	27
Cement paste for backfill	239	476	369	513	465	468	521	508	516	148
Camping services	78	78	78	78	78	78	78	78	78	21
Worker shuttle	530	530	530	530	530	530	530	530	530	158
General delivery	285	259	259	259	259	259	259	259	259	77
Delivery per item	548	548	548	548	548	548	548	548	548	150
Residual material	278	278	278	278	278	278	278	278	278	86
Total	**3,688**	**3,740**	**3,615**	**3,786**	**3,730**	**3735**	**3795**	**3771**	**3766**	**1191**

Transportation accounting distinguishes between transportation related to construction materials and equipment, operational transportation, employee buses, general deliveries, waste materials, fuels, explosives, contractor transportation, and road maintenance activities.

Any heavy vehicle transporting project materials, equipment, or supplies to the site will be tracked during the construction and operations phases and throughout the mine's lifespan using a vehicle positioning system via GPS . Note that vehicles used specifically for road maintenance and traffic safety are not included in the tally.

2.3 Transportation Estimates During Construction

Since the majority of equipment packages have not yet been awarded, the number of truckloads was estimated based on the list of procurement batches, data available in the project planning, information provided by equipment manufacturers, and assumptions based on the team's knowledge of previous projects. The points of origin remain to be confirmed based on the equipment manufacturing locations. Additionally, on-site delivery dates were established based on the dates required on-site for the first deliveries. The overall estimate accounts only for construction equipment and materials.

Transportation estimates will be updated periodically during project execution to reflect engineering progress, contract awards, supplier data, confirmed weights and dimensions, required on-site dates, actual construction needs, and corridor constraints.

The update will specifically use the list of materials and equipment, procurement records, required on-site dates, construction work packages, transport releases, transport instructions, data from the Lebel-sur-Quévillon transit zone, and on-site receipts. This approach will enable monitoring of peak periods, seasonal constraints, oversized shipments, and compliance with commitments regarding the number of trips.

2.4 Transportation Authorities

The equipment will be designed and assembled to comply with the maximum weights and dimensions authorized by local and municipal road authorities. All loads are subject to the rules and regulations of the Ministère de l' , des Transports et de la Mobilité Durable (MTMD) and the Société de l'assurance automobile du Québec (SAAQ). Carriers must obtain the necessary road permits prior to any ground transport to ensure safe transport, preserve existing road infrastructure, and protect the public at all times. The use of lead vehicles and police escorts will be in accordance with these regulations and the permit instructions.

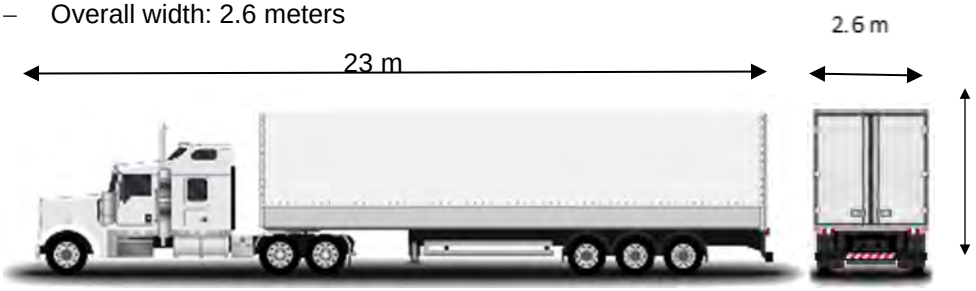
Preliminary equipment lists must be reviewed to determine whether a critical road study is required to reach the work site. If necessary, applications for permits for oversized and overweight loads will be submitted to the MTMD by GMW carriers in advance to validate the proposed routes and itineraries and to identify roads and/or infrastructure that may prevent the safe transport of equipment to the work site.

2.5 Type of Load

Legal Loads

Equipment and materials will be transported by road from various points of origin and must comply with MTMD standards and regulations as a reference. The standard legal dimensions for a load transported by road are as follows:

- Total length: 23 meters
- Total height: 4.15 meters
- Overall width: 2.6 meters



Class 1 General Permit

Carriers specializing in "Oversized Loads" or "Oversized Cargo" may apply for an annual general special permit (Class 1) allowing them to transport the following dimensions without requiring government studies:

- Overall length: 17 to 30 meters, depending on the equipment
- Overall height: 4.15 to 4.3 meters
- Overall width: 2.6 to 4.4 meters

The maximum combined length allowed for a truck under a Class 1 permit is 27.5 m. Exceeding the permitted length requires an escort vehicle behind the vehicle. Additionally, a load may extend beyond a trailer by up to 4 m without an escort. When the overhang exceeds 4 m, an escort vehicle behind is required.

Specific Class 1 Special Permit

A specific special permit (Class 1) may be requested within 24 hours when the following dimensions are met:

- Overall length: 23 to 40 meters, depending on the machinery
- Overall height: 4.15 to 5.0 meters
- Overall width: 2.6 to 5.0 meters

Permit classes

In the province of Quebec, most equipment can be transported with a Class 1 permit; however, larger oversized and overweight loads will require a special expert permit: Classes 5, 6, and 7.

- Class 1: Non-standard transport in terms of width, height, length, or front or rear overhang
- Class 2: Transport of prefabricated buildings
- Class 3: Transport of swimming pools (N/A)
- Class 4: Towing trucks (N/A)
- Class 5: Transport with a loaded mass exceeding the limits
- Class 6: Transport with a loaded weight exceeding limits, requiring an expert report from the MTMD
- Class 7: Transport exceeding size limits, requiring an expert report from the MTMD

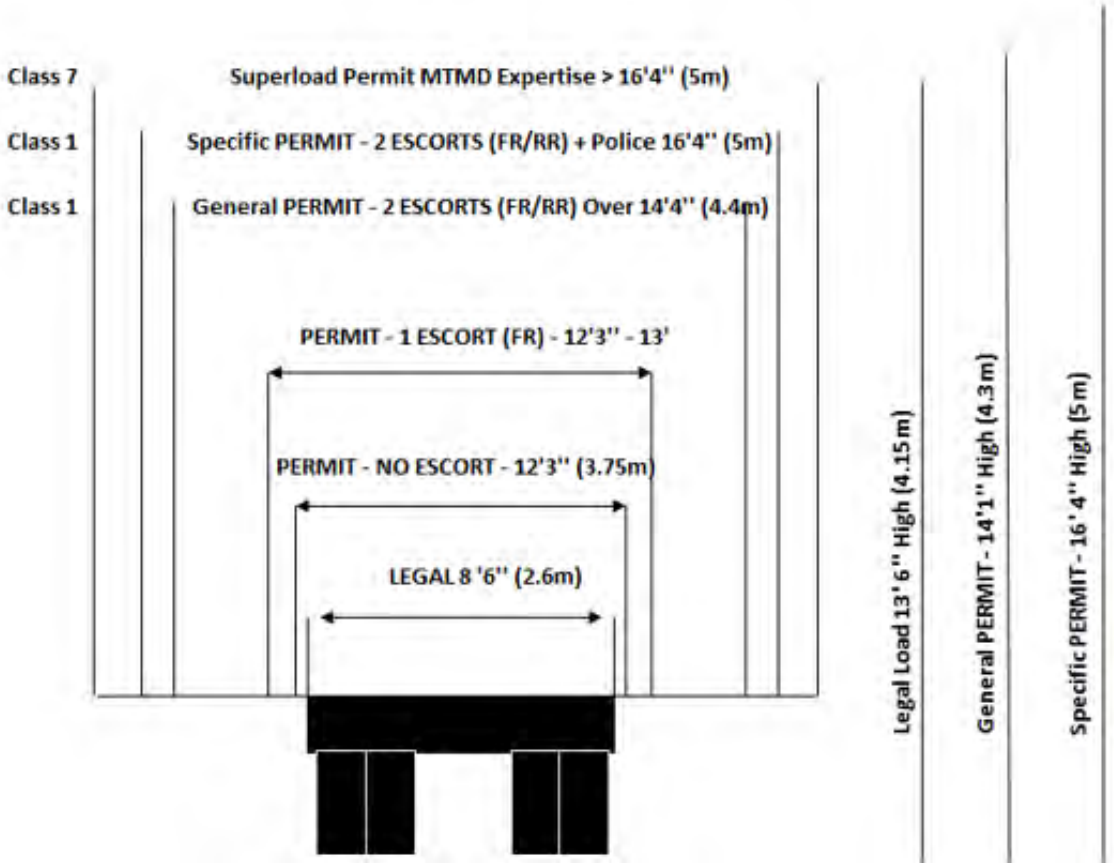
Permit applications for Classes 6 and 7 submitted to the MTMD for review may take several weeks to study the proposed route and examine infrastructure and bridges. All individual authorizations from municipalities and various public utilities must be received by the MTMD before it can issue a permit. A comprehensive logistics plan must be prepared for each oversized and overloaded load.

Oversized loads are generally not permitted during rush hour, outside of daytime hours, on Sundays, or on holidays. Restrictions may also apply to speed and areas where the load may stop. Complete guidelines will accompany the permit, and it is the carrier's responsibility to comply with them.

In addition to MTMD approval, authorized loads are always subject to winter conditions. It is strictly prohibited to operate an oversized or overloaded vehicle when visibility is less than one (1) km, or when the roadway is not cleared of snow or ice in accordance with the maintenance standards applicable to that road or highway.

Figure 1 shows vehicles classified by dimensions.

Figure 1 - Transport Class by Length



2.6 Spring Thaw

Each spring, the MTMD determines the dates of the thaw period for the three thaw zones across Quebec. During this period, heavy vehicles traveling on the road network must reduce their loads in accordance with the limits imposed by the *Regulation on Vehicle Load and Size Limits*. During thaw periods, the road is 30 to 70% more fragile than usual. A single overloaded vehicle can cause considerable damage. However, a slight reduction in load significantly reduces damage to the pavement. Consequently, load restrictions are imposed on heavy vehicles during thaw periods. These restrictions generally range from 8% to 20% depending on the axle configuration.

The province of Quebec is divided into three (3) zones from south to north, each with its own specific thaw period. The project site is located in Zone 3, which is expected to extend the thaw period timeline.

Thaw periods are determined after monitoring the progress of thawing on the pavement. This is done using sensors distributed across Quebec's road network and through physical surveys. Weather forecasts are also taken into account, and dates may be extended or shortened by the MTMD if necessary. Figure 2 was taken from the MTMD website.

Figure 2: MTMD Thaw Zones

The three thaw zones are as follows:

- Zone 1 covers southern Quebec, including major cities such as Gatineau, Montreal, Sherbrooke, Trois-Rivières, and Quebec City, and extends as far as Rivière-du-Loup.
- Zone 2 is located immediately north of Zone 1 and includes the La Vérendrye and Laurentides wildlife reserves, as well as Témiscamingue, Saguenay, Lac-Saint-Jean, Côte-Nord, Rimouski, Gaspésie, and the Îles-de-la-Madeleine.
- Zone 3 is located north of Zone 2 and includes Abitibi, the Chibougamau-Chapais region, and the Ashuapmushuan Wildlife Reserve.

Despite the restrictions imposed by the MTMD, heavy-load shipments may be authorized, provided that the appropriate number of axles is used to distribute the weight and comply with the reduced weight limits per axle. Consequently, the availability of these types of trailers during the thaw period is limited, and costs are very high. Figure 3 is taken from the MTMD website.

Figure 3: Mass and Axle Load Limits

TABLE 1: Axle Load Limits

Axle Category		Period	Thaw	Reduction
B.10	Single axle	d ≤ 1.2 m	10,000 kg	20%
B.21	Tandem	d ≤ 1.2 m	18,000 kg	15%
B.33	Tridem or tridem equivalent tridem	3.6 m d ≤ 2 d ≤ d 3.7 m	26,000 kg	15%
B.45	Self-steering axle ahead of a tandem or tridem 2.5 m ≤ d ≤ 3.7 m	3.6 m d 5 ≤ 2 3.0.0 m d 3.2 m	34,000 kg	13%

* Axlles load is limited to 1,000 kg in cases of tan equivalent tridem.

* The spacing of tridem axles is 3 m or more after soars adjusting spacing ŧ **1,000 kg** per more than shown 3.

TABLE 2: Total Loaded Mass Limits

Vehicle category and set of vehicles	Period	Thaw	Reduction
	25,250 kg	22,750 kg	10%
	41,500 kg	36,000 kg	13%
	49,500 kg	43,000 kg	13%
	57,500 kg	50,000 kg	12%
	62,500 kg	57,500 kg	8%

Typically, for Zone 3, the thaw period extends from late March to mid-May or early June. However, it is highly likely that most equipment and materials will need to transit through Zones 1 and 2 to reach the site. The MTMD will publish projected dates a few months in advance, but the official start and end dates may be adjusted weekly based on changing weather conditions. Table 4 presents the data published on the MTMD website regarding thaw dates by zone.

Table 4: Thaw dates by zone between 2019 and 2025

YEAR	ZONE 1			ZONE 2			ZONE 3		
	START	END	DURATION (days)	START	END	DURATION (days)	START	END	DURATION (days)
2019	March 25	May 17	53	April 1	May 24	53	April 15	May 24	39
2020	March 9	May 8	60	April 6	May 15	39	April 6	May 15	39
2021	March 22	April 30	39	March 22	May 14	53	March 29	May 14	46
2022	March 21	May 6	46	March 28	May 20	53	March 28	May 20	53
2023	March 20	April 28	39	March 27	May 19	53	April 17	May 26	39
2024	March 18	May 10	53	March 25	May 17	63	March 18	May 17	60
2025	March 24	May 23	60	March 24	May 23	60	April 14	May 23	39

2.7 Intermediate Storage

The project will employ an intermediate storage and transit strategy to limit congestion at the site, reduce truck queues on forest roads, protect the construction schedule, and manage shipments to Windfall. This strategy is based on two main points. The consolidation centre in the Montreal area will be used to receive, inspect, preserve, consolidate, and prepare shipments before they are transported north. The transit zone in Lebel-sur-Quévillon will serve as a holding, inspection, and sequencing point for trailers before departure to the site.

The Lebel-sur-Quévillon transit zone will allow for the holding of non-critical shipments when road conditions are unfavorable, maintain appropriate spacing between vehicles, limit departures during periods of dust or reduced visibility, and prevent unauthorized movements on Routes 1000, 5000, and 6000.

2.8 Approved Carriers and Vehicle Identification

Carriers authorized to travel on Routes 1000, 5000, and 6000 as part of the project must be approved and demonstrate their ability to meet requirements for safety, training, radio communication, speed, vehicle maintenance, fatigue management, incident reporting, and cargo tracking.

To ensure clear identification of heavy vehicles traveling along the corridor, whenever possible, each truck involved in project shipments must display visible identification. This identification must allow for the vehicle to be quickly linked to the carrier, the driver, the license plate, the trailer, the departure slot, and the cargo being transported. It will also allow local residents to quickly identify the various transports related to the Windfall project. The identification must be visible on both sides of the vehicle.

2.9 Freight Consolidation

The project will strongly encourage equipment consolidation strategies to minimize the number of deliveries to the site. For example, when collecting small shipments (less than a full truckload) from various suppliers, loads can be consolidated into full truckloads to maximize payload and reduce transportation costs, while minimizing the overall number of trucks delivered to the site.

The same principle applies when picking up containers at the Port of Montreal, which will generally be done using 3-axle intermodal chassis with a gross vehicle weight rating of approximately 65,000 lbs on Quebec roads. Full containers can weigh between 22,750 kg (50,155 lbs) and 29,500 kg (65,035 lbs) outside of thaw periods. Once transport is complete and the containers are returned to the port, the materials can be consolidated and transferred to 4-axle trailers capable of carrying up to approximately 84,000 lbs. No containers will be shipped from the Port of Montreal directly to the site.

Figure 4 shows the material distribution diagram for the Windfall mining project.

3. Road Safety Measures

The safety of workers, hauliers, contractors, land users, and communities is a priority for GMW. Roads 1000, 5000, and 6000 are forest roads used by various users, including project vehicles, maintenance vehicles, forestry hauliers, hunters, recreational users, and emergency services.

The road safety measures in this plan aim to monitor driving behavior, reduce the risk of collisions, limit dust-related impacts, improve signage, manage interactions with local residents, ensure carrier traceability, and maintain emergency response capabilities.

3.1 Speed Control

In accordance with the procedure for accessing the site via forest roads, GMW will ask every driver entering through the Lebel-sur-Quévillon entry point to report to the guardhouse. The driver must provide their name and departure time. Upon arrival, the guardhouse will verify the vehicle's average speed to ensure compliance with the speed limits established for forest roads, set at 70 km/h. In addition, every vehicle traveling on forest roads will be equipped with a GPS radio device that tracks the vehicle's speed in real time. In the event of a speed limit violation, security personnel will receive an alert that will identify the vehicle and, by extension, its driver.

Reduced speed limits may be enforced in specific areas, including high-risk zones, curves with limited visibility, bridge approaches, construction zones, public access points, and intersections. To encourage compliance with these standards, progressive corrective measures will be implemented in cases of non-compliance. In the event of a repeat offense, meetings will be organized with the employee or contractor concerned to address the situation and ensure optimal road safety. GMW will also emphasize the evaluation of occupational health and safety (OHS) performance to support suppliers who adhere to best practices in safe driving.

3.2 Installation of speed cameras

GMW will install and use mobile speed cameras to make drivers aware of their speed and to support traffic enforcement. Speed cameras will be positioned primarily in high-risk areas, including the approaches to Lebel-sur-Quévillon, major intersections, public access points, the approaches to the KM62 bridge, construction zones, targeted curves, and areas where complaints, observations, or incidents have been reported.

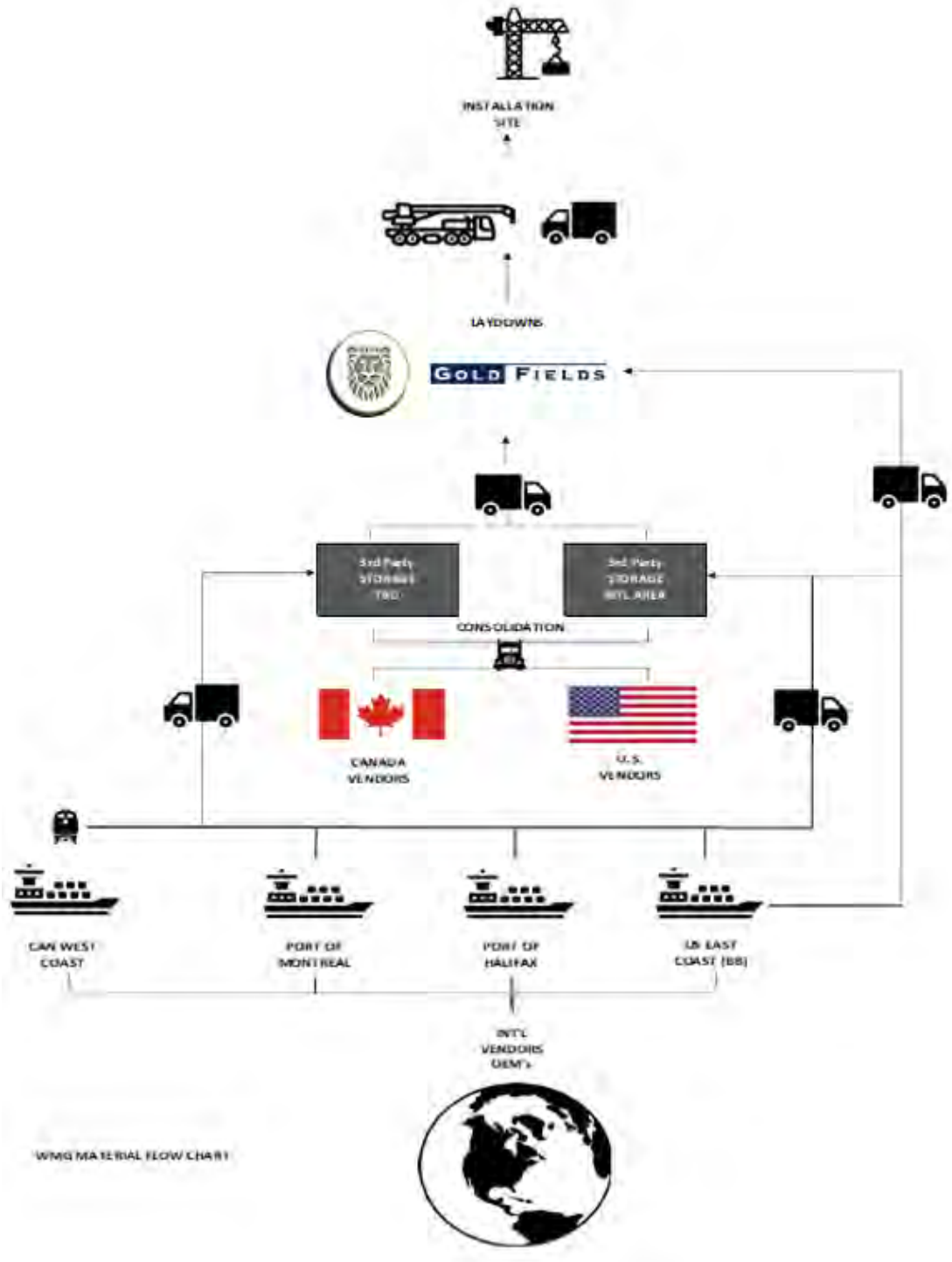
Photo 4 : KM 62 Bridge

The locations of radar signs may be adjusted periodically based on collected data, road conditions, hunting seasons, peak traffic times, roadwork, and community concerns.

3.3 Roadside Checks

Regular road checks will be conducted by GMW or by any resource authorized for this purpose. These checks will aim to verify compliance with this plan and the procedure for accessing forest roads. Checks may include speed, radio use, the 5-km announcement, notification at the gatehouse, adherence to authorized travel hours, visible vehicle identification, compliance of the carrier and driver, recording of the trip in the official transport log, adherence to departure slots, general vehicle condition, driving behavior, and compliance with reduced-speed zones. Non-compliances will be recorded and addressed using a progressive approach that may include a warning, a meeting with the driver or carrier, corrective action, a temporary suspension, removal from the list of approved drivers, or denial of access to the corridor.

Figure 4 - Windfall Project Distribution Diagram



3.4 Road Signage

Current signage along access roads includes speed limits, bridge load limits, and kilometer markers. GMW will maintain this signage in good condition and ensure that the areas around the signs remain clear to allow for quick and safe reading. In addition, GMW will propose installing targeted additional signage to address the safety issues identified along the corridor. This signage will be prioritized based on high-risk areas, field observations, complaints, incidents, dusty areas, roadwork, public access points, and curves on Route 6000.

The additional signage may include signs for dangerous curves, chevron markings, reduced speed, no passing, single-lane bridge, mandatory radio use, 5-km warning, dust or reduced visibility, public access, radar zone, roadwork, presence of heavy vehicles, and presence of local residents. All proposed modifications or additions must be validated and authorized by the MRNF. Following an analysis of traffic impacts on wildlife or findings from incident investigations, GMW may decide to add additional traffic signs. These measures aim to make certain sections of the road safer, thereby reducing risks to wildlife and ensuring safer freight transport.

3.5 Traffic Procedures

All drivers using Routes 1000, 5000, and 6000 must familiarize themselves with the applicable traffic rules before entering the corridor. These rules include the requirement to have a working radio, radio check-ins every 5 km, reporting to the guardhouse, adherence to speed limits, access hours, right-of-way rules, and specific instructions in this plan. Drivers must check in via radio, stating the vehicle type, road, kilometer marker, and direction. When the vehicle is associated with the project, the vehicle's visible identifier must also be used, whenever possible, to ensure clear traceability in the event of an observation, complaint, or incident. Departures to the site may be controlled from the Lebel-sur-Quévillon transit zone to maintain spacing between trucks, limit dust, avoid conflicts with roadwork, adhere to daylight hours, and reduce interactions with other road users.

3.6 Procedure During Freezing and Thawing Periods

The number of trips during thaw periods will be estimated and updated based on the actual construction schedule, official dates published by the MTMD, observed road conditions, applicable load restrictions, and construction needs. During periods of freezing, thawing, or poor road conditions, GMW may implement special measures, including increased inspection of roads and structures, reduction or postponement of non-critical movements, use of the Lebel-sur-Quévillon transit zone as a holding point, load limitations when required, prioritization of critical cargo, and temporary suspension of departures when conditions do not permit safe travel.

3.7 Procedure During Hunting Season

During hunting, fishing, trapping, or periods of increased activity in the area, GMW will implement coexistence measures to minimize disturbances and improve safety between project vehicles and other users of the area. These measures may include advance communication with hauliers and contractors, a reminder of engine braking restrictions when required, temporary or electronic signage, reduced speeds in targeted areas, a reminder of radio protocols, limiting passing, tracking complaints, and coordination with the Community Relations team.

A log of incidents, complaints, or observations, among other things, associated with periods of high traffic in the area will be maintained. This log will also track all incidents involving wildlife and vehicles. This measure aims to ensure proactive and effective management of interactions between wildlife and road infrastructure, and to improve road safety and wildlife protection practices. Furthermore, it is currently not

possible to estimate the number of trips that will be made during the hunting season, as the start date of the project will significantly influence this number.

3.8 Dust and Visibility Management

Roads 1000, 5000, and 6000 are unpaved forest roads. During dry periods, the passage of heavy vehicles can kick up dust, reduce visibility, increase the risk of collisions, affect local residents, and generate concerns within the community. The application of water or dust suppressant along the entire corridor is not selected as a primary measure, given the corridor's length, water supply constraints, costs, environmental concerns, the temporary effect of watering, and the potential impact on vehicle traffic. Instead, the project will apply a targeted, risk-based approach focused on specific zones. Special zones may include intersections, public access points, curves with reduced visibility, the approaches to the KM62 bridge, roadwork zones, crossing zones, areas frequented by local residents, site approaches, and areas where complaints, observations, or incidents confirm a problem.

Measures may include temporary speed reductions, minimum spacing between trucks, control of departures from the Lebel-sur-Quévillon transit zone, activation of a dust alert, temporary suspension of non-critical departures, localized watering only when required (and using products authorized by BNQ standard **2410-300**), targeted treatment of certain critical areas following environmental approval, mechanical stabilization of the surface, and visual inspection during dry periods.

No water will be drawn from lakes, waterways, or sensitive environments without environmental authorization. Any use of chemical dust suppressants must be limited to areas justified by the risk, excluding unauthorized sensitive areas.

3.9 Curves and Areas with Reduced Visibility on Route 6000

Route 6000 is the final approach to the Windfall site and includes curves, slopes, varying road surfaces, secondary access roads, and areas where visibility may be reduced by dust, vegetation, road geometry, weather conditions, or construction work.

GMW will assess curves and areas with reduced visibility on Route 6000. This assessment will be based on survey results, field validations, driver observations, safety reports, complaints, incidents, and recommendations from the road maintenance team.

Applicable measures may include advance curve warning signs, chevron markings, reflective road markings, speed limits, no-passing zones, brush clearing to improve sight lines, pavement maintenance, targeted dust control where warranted, mobile radar enforcement, and, if necessary, an engineering analysis for localized improvements.

The project does not call for a general realignment of Route 6000. Improvements will be targeted, proportionate to the risk, and prioritized based on safety, visibility, land use, projected traffic, and actual conditions along the corridor.

3.10 KM62 Bridge

There is only one major bridge on the forest road alignment. It is located on Route 5000 and identified as the KM62 bridge. The crossing procedure includes advance signage at both approaches, a reduced speed limit of , crossing one vehicle at a time, a no-stopping rule on the bridge, and a separate procedure for any oversized or overloaded vehicles.

3.11 Public Access, Intersections, and Land Users

Although the Windfall corridor is located in a remote forested area, it is used by various users, including forestry workers, local residents, hunters, fishermen, trappers, recreational users, maintenance vehicles, contractors, and emergency services.

GMW will ensure that protective measures are implemented, where necessary, including, among others, advance signage, speed limits, no-passing zones in certain areas, increased spacing between trucks, enhanced radio announcements, advance notice during periods of heavy traffic, and maintaining access for emergency vehicles.

3.12 Road Maintenance and Surface Stabilization

Road maintenance is an essential mitigation measure for safety, dust, visibility, traction, drainage, and corridor availability. Dust reduction measures must also include mechanical interventions to stabilize the road surface.

Maintenance and repair measures may include grading adapted to surface conditions, targeted granular replenishment, correction of particle size distribution when required, compaction after intervention, improved drainage, cleaning or replacement of culverts with conduits of the same type, repair of loose or sandy surface areas, slope stabilization, and brush clearing at curve approaches and intersections.

These interventions will be coordinated with road maintenance work, transport periods, special dust zones, thaw periods, and construction constraints to avoid traffic conflicts and maintain safe accessibility to the corridor. Road maintenance will be carried out in accordance with the Ministry of Natural Resources and Forests' Regulation on Sustainable Forest Management.

4. Communication Plan

Communication regarding transportation, safety, and traffic requirements will be centralized so that carriers, contractors, suppliers, drivers, internal teams, and stakeholders receive the necessary information before using the corridor.

The communication plan will cover, in particular, mandatory driver training, access procedures via forest roads, radio requirements, announcements every 5 km, notifications at checkpoints, speed limits, vehicle identification, transport permits, departure slots, special zones, signage, roadwork, hunting seasons or periods of increased traffic, emergency measures, and the complaint handling process.

Complaints or observations regarding speed, dust, safety, noise, truck identification, driving behavior, or interactions with users will be recorded in a log. Whenever possible, each complaint must include the date, time, location, road, kilometer marker, direction, vehicle identification, carrier, and a description of the incident.

5. Emergency Measures

Emergency response at GMW is organized into two main categories: environmental and traffic accidents. GMW has three response teams, comprising 71 first-aid-trained and volunteers on rotation, who are ready to respond in all circumstances until the arrival of the appropriate authorities or public services to care for the injured.

Emergency measures applicable to transportation along the Windfall corridor will be organized to enable a rapid, coordinated, and documented response to incidents that may occur on Highways 1000, 5000, and 6000. These measures cover, in particular, traffic accidents, injuries, stranded vehicles, spills, fires, collisions with wildlife, reduced visibility, road closures, weather events, incidents, and situations involving carriers or contractors.

The corridor emergency procedure will rely on immediate communication with the guardhouse, the use of applicable radio channels, the precise location of the incident by road, kilometer, and direction, the activation of first responders or security depending on the nature of the incident, coordination with external emergency services when required, the securing or temporary closure of the road, the protection of people and the environment, and the documentation of the incident.

5.1 Contractor Responsibilities

Contractors, carriers, and subcontractors are responsible for ensuring that their drivers, vehicles, equipment, procedures, insurance, and response plans comply with applicable requirements. They must adhere to this plan, the forest road access procedure, radio requirements, gatehouse instructions, speed limits, departure slots, and specific measures applicable to special zones. They must also train their drivers before accessing the corridor, maintain compliant and safe vehicles, immediately report any incident, accident, spill, breakdown, delay, detour, or hazardous condition, cooperate with emergency responses, participate in investigations, and implement requested corrective actions.

5.2 Environmental Section

The environmental section covers spills, cargo losses, fires, excessive dust, water use, application of dust suppressants, transport of hazardous materials, damage to sensitive environments, and any event that may have an impact on the environment. In the event of an environmental incident, the driver or witness must immediately contact the guardhouse, providing the road, kilometer marker, direction, type of event, presence of injuries, nature of the product or cargo, and immediate risks. The guardhouse will notify the appropriate resources in accordance with the applicable procedure. Any application of water, dust suppressant, or chemical treatment on the corridor must be approved prior to use and limited to areas where it is justified. Additionally, GMW maintains a fire truck and a response trailer specially equipped to handle environmental emergencies at all times.

5.3 Road Accident Procedures

In the event of a traffic accident, the driver or witness must immediately secure the area if it can be done safely, contact the guardhouse by radio or phone, and provide the following information: road, kilometer marker, direction, type of vehicle, vehicle or carrier identification, number of vehicles involved, presence of injuries, road obstruction, spill, fire, and need for an ambulance, first responders, towing, security, or road closure. The traffic monitoring system integrated into each vehicle will also detect sudden stops or vehicles stopped on the road, which could be associated with an accident or a breakdown. The control tower will then activate the appropriate response chain, including first responders, security, the SSE team, public utilities, the Lebel-sur-Quévillon ambulance, or any other necessary resources.

When an accident blocks the road or poses a risk to other users, GMW may implement a temporary closure of the corridor, traffic control, an approved detour, a suspension of departures from the Lebel-sur-Quévillon transit zone, or any other measure required to protect people and facilitate the response.

6. Incident Tracking

GMW will maintain a process for tracking incidents, complaints, observations, and non-conformities associated with the transport corridor. This process will aim to identify trends, correct risky behaviors, improve measures, and demonstrate follow-up on the commitments of this plan. Corrective actions will be documented with an assigned person, a target date, a status, and a validation of effectiveness when required.

Furthermore, GMW is committed to supporting government authorities, contractors, and host communities by providing full assistance as needed, in addition to collaborating during the investigation process.

6.1 Wildlife Incidents

GMW has adopted a Wildlife Protection Plan. This plan identifies the project's impacts on large wildlife—specifically woodland caribou, moose, black bears, and gray wolves—during each phase: construction, operation, and closure. It also outlines mitigation measures for these impacts, as well as monitoring and control measures to ensure the proper implementation and effectiveness of the mitigation measures. A wildlife sighting and collision registry will be established to analyze impacts on local species and develop

appropriate corrective measures. By integrating this data, GMW will be able to implement targeted protection strategies, particularly during critical periods or on road sections identified as high-risk. The goal is to minimize the impact on biodiversity while ensuring road safety. GMW has also already committed to adding signage in areas most at risk of wildlife collisions.

6.2 Complaints Register

GMW will maintain a register of complaints and observations. This register will be used to document community concerns, incidents reported by users, carrier non-compliance, and corrective actions. The log must include, where available, the date, time, road, kilometer marker, direction, subject of the complaint or observation, vehicle identification, carrier, description of the event, analysis conducted, corrective action, and closure status.

7. Contractual measures applicable to carriers and contractors

The requirements of this Transportation Management Plan will be incorporated, where applicable, into contracts issued by GMW. Minimum contractual requirements include compliance with this plan, adherence to the forest road access procedure, use of approved carriers, prior approval of subcontractors, mandatory driver training, use of a functional radio , reporting every 5 km, notification to the gatehouse, adherence to speed limits, adherence to departure windows, visible identification of heavy vehicles, immediate reporting of incidents, and cooperation with investigations. All heavy vehicles associated with the project must be linked to an approved carrier and visibly identified in accordance with project requirements. Failure to comply with these requirements may result in corrective measures, including a formal notice, suspension of the driver, suspension of the carrier, removal from the list of approved carriers, denial of access to the corridor, or any other measure provided for in the contract.

APPENDIX

4

MINUTES OF TRANSPORTATION MEETINGS

Compte rendu

Sujet	**Séance d'information publique sur la gestion de la circulation et de la sécurité routière**
Date	2025-10-28
Heure	18h10 à 18h45
Lieu	En personne au Bar la Prolongation de l'hôtel de ville de Lebel-sur-Quévillon
Participants	1. Jean-François Belleau, directeur relations communautaires, Gold Fields 2. Sarah Paradis, conseillère en relations avec les communautés, WSP 3. Public présent : 2 citoyens (une femme et un homme)
Documents	Windfall_séance_gestion-circulation_LsQ_v3_20251028.ppt
Agenda	1. Retour sur les commentaires et préoccupations des usagers concernant la circulation sur le chemin d'accès et routes forestières 2. Mesures et actions initiales prévues pour répondre aux préoccupations et enjeux soulevés 3. Principes directeurs et plan de gestion de la circulation et des enjeux de sécurité 4. Dialogue continu avec les communautés hôtes et les différents usagers
Discussion	La séance débute avec la présence d'une seule citoyenne, Mme Marie-Claude Labbée, organisatrice communautaire à la direction de la santé publique. M. André Marcotte rejoint la rencontre à mi-parcours. En raison du faible taux de participation, la présentation prend une forme plus informelle, favorisant les échanges spontanés entre les intervenants et les citoyens. **Promotion des séances publiques** Mme Labbée, étonnée par la faible affluence, propose d'utiliser la bande-annonce du cinéma local comme moyen de promotion pour les prochaines séances d'information, une stratégie déjà employée lors des débuts du projet avec Osisko. Elle suggère également de diffuser les invitations via ses réseaux, notamment l'organisme Agora Boréale et le groupe Facebook « Quoi faire à LsQ », soulignant que le bouche-à-oreille demeure particulièrement efficace dans la communauté.

Employabilité liée au projet Windfall

Elle s'informe ensuite sur le nombre d'employés de Lebel-sur-Quévillon actuellement impliqués dans le projet Windfall. M. Belleau (JFB) indique que trois employés sont en poste, précisant que le projet n'est pas encore en phase opérationnelle. Mme Labbée mentionne que son fils fait présentement une technique en instruments contrôlées, mais qu'il envisage de se réorienter vers un DEP en électro-mécanique, et souhaite savoir si ce type de profil est recherché. JFB confirme que l'électro-mécanique est un domaine pertinent pour le projet minier, ajoutant que plusieurs étudiants sont embauchés durant l'été, notamment en géologie.

Transport et hébergement des employés

Mme Labbée exprime des préoccupations quant à la capacité d'hébergement de la ville. JFB explique que, compte tenu de la distance entre le site et Lebel-sur-Quévillon (environ 1h45 sur les routes forestières), le modèle de navettage 7/7 a été privilégié. Les résidents de Lebel bénéficieront d'un trajet plus court, et des initiatives sont en cours pour promouvoir le mode de vie local et encourager l'établissement de nouveaux résidents.

M. Marcotte soulève la question des incitatifs financiers pour favoriser l'établissement, citant l'exemple d'Hydro-Québec. JFB confirme que des programmes sont à l'étude, notamment une aide à la mise de fonds pour l'achat d'une propriété.

Concernant l'aéroport, M. Marcotte estime que la piste et le tarmac devront être agrandis. JFB confirme que des améliorations sont prévues, mais que l'agrandissement du bâtiment n'est pas envisagé. Une salle d'attente pourrait plutôt être construite en ville, afin d'être réutilisée après la fin du projet minier. Mme Labbée accueille favorablement cette idée.

M. Marcotte s'interroge sur les types d'avions envisagés. Les ATR, Q400 et Dash8 sont à l'étude, tout comme les aspects de sécurité (éclairage, balises, lignes électriques). Il note qu'environ 300 pieds manqueraient à la piste actuelle pour accueillir un Q400, en comparaison avec celle d'Hydro-Québec au barrage LG.

Accès au site

Concernant l'accès au site, Mme Labbée indique posséder un campe sur la route 5000 et s'interroge sur l'utilisation de la route 6000 par les citoyens de Waswanipi.

	JFB précise que les routes autorisées sont les 1000, 5000 et 6000, bien que certains usagers empruntent un raccourci via Desmaraisville et Bonterra - Gladiator, un secteur non surveillé par Gold Fields. L'annonce de l'installation d'une guérite à l'entrée de la route 1000 surprend Mme Labbée, qui insiste sur l'importance pour les citoyens de s'informer sur les détails du projet. JFB clarifie que seuls les individus liés au projet Windfall devront s'enregistrer à la guérite. Mme Labbée questionne également l'élargissement des chemins. JFB répond que les routes n'ont pas été élargies, mais que les abords ont été débroussaillés, ce qui améliore significativement la visibilité selon Mme Labbée. Enfin, Mme Labbée demande si elle peut stationner son véhicule aux abords de la route 5000 pour accéder à son campe. JFB confirme que cela est permis, à condition que la voie soit dégagée et le véhicule bien visible. **Avancement du projet** JFB profite de l'occasion pour faire le point sur l'avancement du projet. Actuellement en phase d'exploration avancée, le site fonctionne comme une mine à très petite échelle. L'obtention du certificat d'autorisation marquera le début de la construction, prévue sur trois ans, suivie d'une mise en production vers 2029-2030. Environ 1500 travailleurs seront mobilisés. **Conclusion** La rencontre se termine à 18h45. Mme Labbée conclut sur une note personnelle, exprimant son attachement à Lebel-sur-Quévillon et à sa communauté solidaire. Elle partage l'histoire inspirante de Tanguy, un homme issu de l'immigration, bien intégré dans la communauté, qu'elle considère comme un excellent ambassadeur pour promouvoir la ville.
Résumé des faits saillants	• Mme Labbée propose d'utiliser la bande-annonce du cinéma local Et diffuser les invitations via ses réseaux pour promouvoir les séances d'information. • La guérite qui sera installée suscitera possiblement des questionnements auprès des usagers non liés au projet. • Les modalités de transport et d'hébergement des travailleurs doivent être clairement communiquées aux citoyens de Lebel-sur-Quévillon afin de ne pas semer la confusion.

	• Le débroussaillage de la route est perçu de manière très positive par les usagers de la route.
Actions à prendre	Les modalités de transport et d'hébergement des travailleurs doivent être clairement communiquées aux citoyens de Lebel-sur-Quévillon afin de ne pas semer la confusion.
Prochaine rencontre	À déterminer
Prise de notes	Sarah Paradis, Conseillère en relation avec les communautés

Plan de gestion de circulation et enjeux de sécurité

Séance d'information publique

28 octobre 2025

Lebel-sur-Quévillon

Partage SSEC

Partage SSEC (santé-sécurité-environnement-communauté)

Crédit photo: Luc Paradis, archives de Radio-Canada

Objectifs de la séance d'information

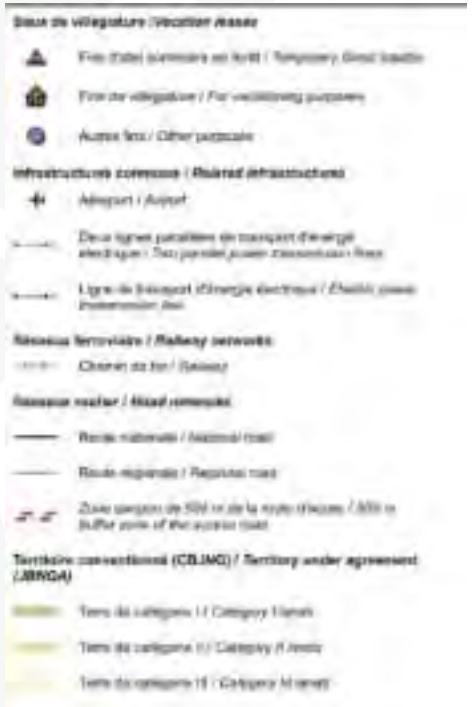
1. Retour sur les commentaires et préoccupations des usagers concernant la circulation sur le chemin d'accès et routes forestières

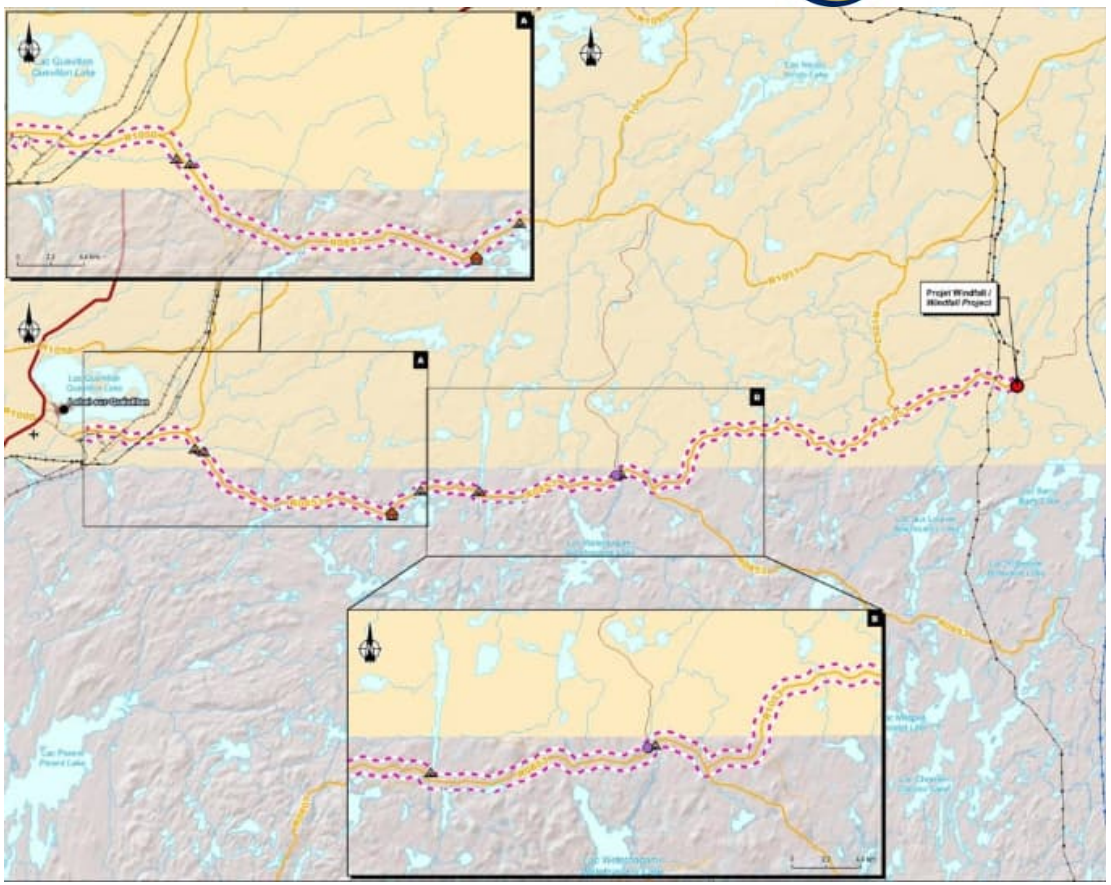
2. Mesures et actions initiales prévues pour répondre aux préoccupations et enjeux soulevés

3. Principes directeurs et plan de gestion de la circulation et des enjeux de sécurité

4. Dialogue continu avec les communautés hôtes et les différents usagers

Routes vers Windfall (1000, 5000, 6000)





Enjeux soulevés par les usagers à ce jour

Séance d'information publique

Lebel-sur-Quévillon

Observations et préoccupations exprimées par les usagers à ce jour

Coexistence générale avec les usagers locaux

- Inquiétudes sur la sécurité et le partage de la route entre les différents types d'usagers (travailleurs, résidents, villégiateurs, chasseurs, etc.)

Fréquence d'entretien de la surface des routes jugée insuffisante

- Questions sur la régularité du passage de la niveleuse et sur l'engagement à maintenir la surface de la route en bon état.

Débroussaillage minimal et visibilité limitée

- Préoccupation sur le manque de débroussaillage des abords, avec le constat que seulement le minimum a été fait jusqu'à présent. Cela réduit la visibilité et augmente les risques d'accident.

Gestion des poussières

- Inquiétudes sur la poussière générée par la circulation, notamment près des cours d'eau, et sur l'exposition des usagers, avec des contraintes environnementales sur l'utilisation d'abat-poussière.

Largeur insuffisante de la route

- La route est jugée trop étroite pour permettre un croisement sécuritaire, surtout avec l'augmentation du trafic lourd.

Courbes dangereuses

- Certains usagers perçoivent la présence de courbes dangereuses.

Non-respect des limites de vitesse

- Constats de dépassements fréquents des limites de vitesse, augmentant les risques d'accidents, notamment dans les courbes.

Gestion du trafic minier

- Demande de mise en place d'un bâtiment de contrôle à l'entrée du chemin forestier pour mieux gérer le trafic lié au projet minier.

Réponses initiales aux préoccupations soulevées

Avant le début de la construction

Possible rehaussement de la route

Nous étudions actuellement un possible rehaussement de la route de 20 cm dans certains secteurs. Cette mesure viserait à renforcer la stabilité et prolonger la durée de vie de la route. Si cette avenue est retenue, des démarches de consultations auprès des usagers seront entreprises et les permis et autorisations nécessaires seront demandés.

Gestion rigoureuse des bancs d'emprunt

Une sélection et une gestion rigoureuse des bancs d'emprunt selon des critères environnementaux stricts pour limiter l'érosion, la sédimentation et les impacts sur les milieux naturels.

Virages et courbes

Selon les observations actuelles, les virages et courbes du chemin forestier ne présentent pas de problématique particulière lorsque les limites de vitesse sont respectées par l'ensemble des usagers. Ainsi, aucune modification majeure du tracé n'est envisagée pour le moment. En revanche, nous entamons des démarches pour améliorer la signalisation des limites de vitesse avant ces segments critiques.

Guérite

Installation d'une guérite à l'entrée de la route 1000 pour les usagers liés au projet

Plan de gestion de la circulation

Séance d'information publique

Lebel-sur-Quévillon

Objectif du plan de gestion de la circulation

Objectif : Aligner la gestion logistique avec les attentes des communautés locales (LsQ et Waswanipi) et des autorités régionales, tout en assurant une coexistence harmonieuse et sécuritaire entre tous les usagers.

6 principes directeurs du plan de gestion de la circulation

Stratégie de gestion logistique

- Optimiser les transports en limitant le nombre de camions et en adaptant les horaires de circulation.

Sécurité de tous les usagers

- Garantir la sécurité de tous les usagers des routes forestières menant aux camps Laforest et Barry, et sites miniers.

Encadrer l'utilisation des routes forestières

- Préciser les routes entretenues par Gold Fields Windfall et les responsabilités sur les routes publiques.

Faciliter la gestion des accès et des urgences

- Obligation d'aviser la guérite à chaque départ et arrivée
- Procédures d'enregistrement et de communication en cas d'incident ou d'urgence

Garantir le respect des règles de circulation

- Respect des limites de vitesse et de la signalisation
- Procédures d'annonce par radio à intervalles réguliers
- Adaptation de la conduite selon les conditions météorologiques et la présence d'autres usagers

Renforcer la vigilance et la prévention

- Rappels sur la prudence, la conduite en convoi et la gestion des arrivées/départs
- Procédures spécifiques pour les visiteurs et les travailleurs réguliers

Mesures prévues pour répondre aux enjeux identifiés

Pendant la phase de construction : augmentation temporaire du trafic = environ 3 100 transports lourds prévus sur 2 ans (≈14 voyages/jour)

Gestion stricte de la sécurité

- Installation d'une guérite à l'entrée de la route 1000 pour les usagers liés au projet
- Contrôle de la vitesse (limite à 70 km/h, radars, vérification à la guérite, contrôle routiers).
- Mesures disciplinaires pour les contrevenants
- Signalisation renforcée et maintien des procédures d'annonce par radio tous les 5 km.
- Accès restreint selon des horaires précis déjà en vigueur (interdiction de circuler entre 18h et 6h)
- Obligation de la radio FM (tous nos usagers des chemins d'accès doivent posséder une radio FM et être formés sur sa bonne utilisation pour circuler en sécurité sur les routes forestières).

Gestion des accidents

- Mise en place d'une procédure d'alerte en cas d'accident
- Mise en place d'un registre des incidents et accidents pour suivre tous les événements impliquant la faune et les véhicules.

Entretien et surveillance

- Fréquence accrue de l'entretien de la route
- Inspections régulières
- Gestion des poussières : utilisation d'abat-poussière conforme aux normes environnementales, adaptation des règles d'accès (distance minimale entre véhicules)
- Débroussaillage pour la visibilité, planification de travaux supplémentaires pour améliorer la visibilité

Cohabitation avec les usagers locaux

- Courbes dangereuses : suivi des signalements, ajout de signalisation si nécessaire, rappel du respect des limites de vitesse.
- Communication continue avec les compagnies forestières
- Adaptation des horaires et des règles pour limiter les conflits d'usage

Mesures prévues pour répondre aux enjeux identifiés

Pendant la phase d'exploitation: réduction du volume de transport = environ 3 700 transports/an (≈10 voyages/jour), adaptés aux besoins opérationnels réguliers

Optimisation des transports

- Utilisation systématique du chemin le plus court (Lebel-sur-Quévillon – site Windfall)

Maintien des mesures de sécurité

- Contrôle de la vitesse et de la signalisation
- Procédures de circulation et d'annonce par radio maintenues

Maintien des mesures d'urgence et de suivi

- Procédures d'alerte et d'intervention
- Registre des accidents, et des collisions avec la faune

Entretien et surveillance

- Suivi de l'état de la route
- Interventions ciblées selon les saisons (dégel, chasse)
- Débroussaillage pour la visibilité

Préservation de l'environnement

- Planification pour minimiser l'impact sur la faune et la flore
- Gestion des périodes sensibles (dégel, chasse)

Cohabitation avec les usagers locaux

- Communication continue
- Mécanisme de gestion des plaintes

Pour conclure

des actions concrètes pour renforcer la sécurité et assurer une une bonne coexistence entre tous les usagers

Gestion technique intégrée

Le plan intègre des mesures techniques pour garantir une circulation sécurisée sur le chemin forestier.

Respect de l'environnement

Le projet Windfall prend en compte la préservation de l'environnement naturel autour du chemin forestier.

Communications avec les compagnies forestières

Le plan prévoit des communications ciblées et régulières avec les compagnies forestières afin de favoriser le partage d'information et d'optimiser la collaboration.

Dialogue avec les parties prenantes

Le plan encourage l'écoute et le dialogue avec la communauté locale pour une cohabitation harmonieuse.

Échanges et discussion

- Avez-vous constaté des améliorations quant à l'entretien et au débroussaillage de la route?

- Avez-vous des suggestions pour une meilleure coexistence des usagers sur le chemin forestier ?

Source: opérations forestières et de scierie. Photo de l'entreprise Gilbert.

Merci de votre intérêt!
Avez-vous d’autres réflexions ou perspectives à partager?

Séance d’information publique

Lebel-sur-Quévillon

Meeting minutes

Sujet/topic	**Public information session on traffic management and road safety**
Date	2025-10-29
Heure/time	18h00 à 18h57
Lieu/location	Conference room of community Center in Waswanipi
Participants	1. Jean-François Belleau, Community relations director, Gold Fields 2. Sarah Paradis, Community relations advisor, WSP 3. Present public: A few coming and goings with 12 participants at peak
Documents	Windfall_session_Traffic-safety-management_LsQ_v3_20251029.ppt
Agenda	1. Review of user comments and concerns regarding traffic on the access road and forest roads 2. Initial measures and actions planned to address the concerns and issues raised 3. Guiding principles and management plan for traffic and safety issues 4. Ongoing dialogue with host communities and various users
Discussion	**Speed limits and road conditions** The meeting began with an informal discussion on road safety and speed limits. A participant asked whether there was a speed limit on the road, including large trucks**.** JFB confirmed that the limit is 70 km/h for all vehicles traveling to the site. This conversation prompted several participants to express concerns about the road's poor condition, noting that it was causing damage to vehicles, including cracked windshields. JFB acknowledged the issue and shared an example of a driver (Gold Field's contractor) who was banned for speeding. Questions then shifted to road improvements. One participant asked if the road was being enlarged. JFB clarified that no widening work was underway; only brush clearing was being done to improve visibility. **Gatehouse** Another question focused on the location of the gate to Windfall and whether it could be placed closer to the site.

	JFB explained that the gate will be located at the beginning of road 1000 for users associated with Windfall project only. There will be signage in Quevillon to ensure vehicles stop before Road 1000. He clarified that no controls are planned for other road users. **Safety equipment** Safety requirements were also discussed. Participants asked if trucks needed lights and flags and what equipment was mandatory on-site. JFB responded that lights and flags are required on-site but not on forestry roads, and that FM radios are mandatory for forest roads. He also mentioned that GPS will be installed in Windfall trucks to monitor speed and routes. **Road maintenance** The conversation moved to road maintenance contracts. A participant noted that for the past three years, only one company maintained the road from Quevillon to Windfall, but now the work has been divided between three companies. JFB confirmed that the results of the bidding process are not yet available but emphasized that maintenance frequency will increase. Windfall would prefer a single contractor for simplicity, even though the road will be divided into segments. **Wide load protocols and material transport** Participants raised questions about wide load protocols, asking if the road would be shut down when transporting oversized loads. JFB said that such decisions would likely be made on a case-by-case basis, but it may happen that the road needs to be closed temporarily. Regarding road usage, JFB clarified that only Roads 1000, 5000, and 6000 are authorized for transporting materials to the site, and any exceptions will be communicated. Construction contractors will no longer be allowed to use Road 3000, although exploration teams may use existing roads before cutting down trees. Trucks will have GPS to controle speed and route. **Winter operations** Winter operations were also addressed. When asked whether graders or plows are used, JFB confirmed that graders are used even in winter, not plows. **Speeding issues**

	Concerns about trucks transporting hazardous material (eg. Gas) were voiced. One participant complained about large trucks tailgating and speeding at 120 km/h while they were driving at 100 km/h. JFB encouraged reporting such incidents for safety. When asked if the SQ would patrol the road, JFB said resources are limited, but occasional patrols may occur on Road 1000. The gate will be monitored by a former SQ agent. **Wildlife** Wildlife concerns were mentioned, with a participant asking if any employees had hit a moose. JFB said no such incidents had been reported so far from what he is aware of. Another participant commented that heavy forestry activity has reduced the moose population. **Infrastructure issues** Infrastructure issues were an important topic. A participant expressed strong concern about the bridge near Roads 3000 and 6000, noting that it was built for forestry trucks, not heavy mine trucks, and highlighted risks of oil spills and accidents. Her trapline is just across this bridge. She suggested installing lights and more signage and even having police presence. JFB acknowledged the problem, noting that culverts may need replacement and advised raising bridge concerns with the forestry ministry. The root of the problem stems from the fact that the trucks are driving too fast, especially on this type of infrastructure which is not designed to handle at such speed. **Community engagement** When asked if Windfall would rent the hockey rink as Osisko did, JFB confirmed that Windfall continues to sponsor local activities. Finally, participants suggested installing speed display signs similar to those in Chapais and improving communication about road closures for wide loads. JFB agreed to look for the right solution and encouraged participants to email him with further concerns. A participant asked to visit the site. JFB encouraged him to reach out by email if he wishes to visit the site, and he will make the necessary arrangements.

	Conclusion: JFB acknowledged that increased activity around Windfall will lead to more traffic and committed to improving safety measures, signage, and communication. The session ended at 6:57 p.m., and participants thanked Windfall for the KFC refreshments.
Résumé des faits saillants	**Key Concerns** • Poor road conditions damaging vehicles. • Large trucks speeding and tailgating. • Bridge near Roads 3000 and 6000 not suitable for heavy trucks. **Suggestions** • Install more signage and speed display signs to control speed • Add lights and signage before sensitive infrastructures such as bridges. • Enhance communication on road closures. • Encourage reporting of unsafe driving behavior.
Actions à prendre	Report the new concerns gathered to the internal teams in order to add the necessary measures.
Prochaine rencontre	TBD
Prise de notes	Sarah Paradis, Community relations advisor, WSP

Objectives of the information session
1. Review of road user comments and concerns regarding traffic on the district road and forest roads
2. Initial and planned measures to address the comments and concerns raised
3. Guiding Principles of the Traffic and Road Safety Management Plan
4. Ongoing dialogue with host communities and other road users

Meeting minutes

Sujet/topic	**Consultation on exploration activities (Phoenix JV 2026) & road safety (dangerous curves)**
Date	2025-12-03
Heure/time	3:00 to 3:30 p.m.
Lieu/location	Conference room of Waswanipi band office
Participants	1. Jean-François Belleau, Community relations director, Gold Fields 2. Sarah Paradis, Community relations advisor, WSP 3. Jarred Benac, mining coordinator, CFNW 4. Garry Cooper, W25A tallyman 5. Josiah Cooper, W25A tallyman's son
Documents	Windfall_session_Traffic-safety-management_LsQ_v3_20251029.ppt
Agenda	No formal agenda.
Discussion	*The first part of the meeting focused on exploration activities related to the Phoenix JV exploration campaign. Minutes are documented in a dedicated document. **Road Conditions – Route 6000 & 5000** JFB suggested that Garry drives Route 6000 to identify problematic areas (note kilometer markers of pronounced curves) directly in the field rather than on a map. JFB committed to covering the cost of a full tank of gas for this work. Josiah agreed to this approach. Josiah emphasized that the entire Route 6000 should be redone before the mine opens, including all curves. In his view, all curves pose potential safety risks, primarily due to excessive vehicle speeds. While some issues could be mitigated by clearing trees to improve visibility, others would require modifications to the road alignment itself. JFB confirmed that there are plans to resurface the road and replace culverts. It was noted that the road becomes narrower beyond Josiah's camp. Garry reported that a family member nearly had an accident on Route 6000. He also expressed concerns that the original road construction method may be flawed. In response,

	JFB explained the construction approach that had been used. Garry added that much of the 0–3/4 aggregate layer appears to have deteriorated or disappeared. **Dust Issues** Dust was identified by Josiah as a major concern, particularly due to increased truck traffic. This issue affects both Routes 5000 and 6000 and is considered one of the two primary concerns on their trapline during the summer months. Garry suggested that previous mitigation methods such as applying sand and water, similar to practices on the Billy Diamond Highway were effective. He also referenced the Matagami-Quévillon road as an example with minimal dust and suggested that similar materials or methods could be explored. JFB noted that environmental regulations regarding dust control products have changed over the past 2-3 years, which limits the range of available mitigation solutions. **Road Improvements & Engineering** JFB committed to arranging for an engineer to present detailed road improvement methods after receiving Garry's field feedback on the specific problematic curves. Josiah reiterated his second major concern: the need to straighten certain critical sections of the road to improve safety. **Traffic Management & Safety** Garry expressed skepticism about the effectiveness of measures to control vehicle speeds. JFB outlined planned measures: • Installation of a gate to control access (in and out) • Speed limit adjustments, especially at critical curves • Improved signage, including earlier warnings before the bridge Josiah indicated that he accepts this proposed approach as a compromise. **Varia** Garry raised the point that tallymen should also benefit from contracts awarded by Gold Fields, rather than these opportunities being limited to the band.

	Conclusion FB proposed rescheduling the supper meeting in Quévillon to December 9. Garry agreed to the new date.
Actions à prendre/ Action items :	**Action Items** • **Garry and/or Josiah Cooper:** Drive Route 6000 and document pronounced curves by kilometer. • **Gold Fields :** o Provide gas reimbursement (1 full tank) after above action is completed. o Arrange for an engineer to present roadwork plans after receiving field input. o Continue planning road resurfacing and culvert replacements. o Implement traffic control measures (gate, signage, speed limits).
Prochaine rencontre/ next meeting :	December 9th, 2025
Prise de notes/ note taker	Sarah Paradis, Community relations advisor, WSP

Résumé des présentations publiques

Octobre: plan de gestion de la circulation et de la sécurité routière

- **Objectif :** Assurer une circulation sécuritaire et une coexistence harmonieuse sur les routes forestières menant au site Windfall (1000, 5000, 6000), en respectant l'environnement et les attentes des communautés locales.

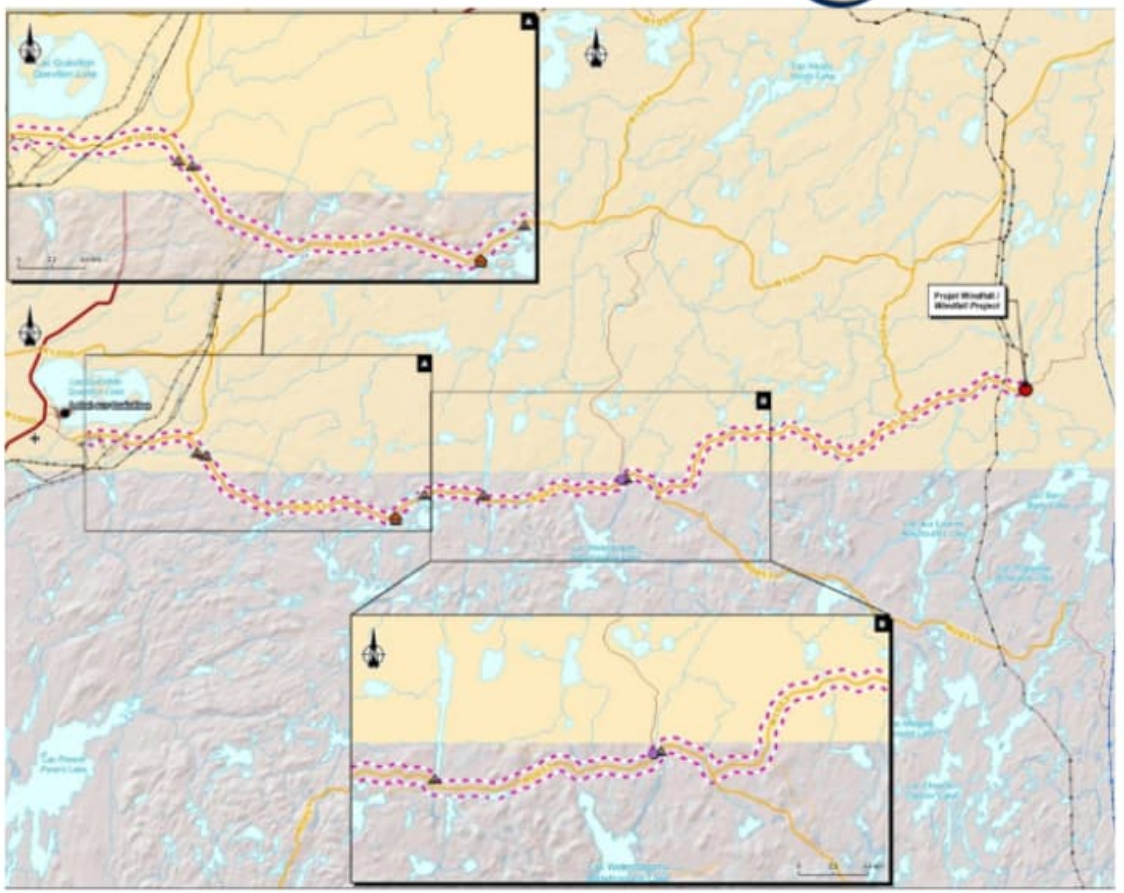
- **Principaux usagers:** travailleurs Windfall, travailleurs de la foresterie, résidents, utilisateurs du territoire/villégiateurs

- **Principales préoccupations exprimées par les usagers:**
  - Sécurité et partage de la route (trafic lourd, vitesse)
  - Entretien insuffisant et visibilité réduite (débroussaillage minimal)
  - Poussière et contraintes environnementales,
  - largeur des routes jugées insuffisantes
  - courbes dangereuses, dépassements des vitesses permises

- **Construction :** trafic élevé (≈14 voyages/jour), mesures renforcées.
- **Exploitation :** trafic réduit (≈10 voyages/jour), suivi saisonnier, mécanisme des plaintes.

- **Mesures prévues et engagements :**
  - Étude d'un rehaussement de la route (+ 20 cm) pour stabilité
  - Gestion stricte des bancs d'emprunt selon critères environnementaux
  - Amélioration de la signalisation avant les courbes
  - Installation d'une guérite de sécurité à l'entrée de la 1000
  - Optimisation des transports (limiter nb. de camions et horaires adaptés)
  - Contrôle de vitesse (70 km/h)
  - Accès restreint (interdiction de circuler entre 18h et 6h)
  - Obligation d'utiliser la radio FM pour la sécurité
  - Entretien accru, débroussaillage
  - Abat-poussière conforme aux normes environnementales
  - Communication continue avec les usagers et compagnies forestières
  - Registre des incidents et accidents (incluant collisions avec la faune)

Routes vers Windfall (1000, 5000, 6000)



APPENDIX

5

MINUTES OF TAILINGS STORAGE FACILITY MEETINGS

2020-08-25_Meeting Minutes Gary Cooper VF.doc

Référence : 2020-08-25_Meeting Minutes_Gary Cooper VF.docx — section Discussion

Subject	**Discussion on Cree land use and infrastructure on trapline W25A**
Date	2020-08-25
Time	1:30 pm to 2:15 pm
Location	Videoconference
Attendees	• Gary Cooper, Tallyman W25A, Waswanipi; • Jack Cooper, Trapline W25B, Waswanipi; • Evelyn Cooper, Trapline W25B, Waswanipi; • Ronnie Ottereyes, Deputy-Chief Waswanipi • Steven Blacksmith, Director Natural Resources, Waswanipi • Joshua Blacksmith, Mining Coordinator, Waswanipi; • Alix Drapack, Senior VP Sustainable Development, Osisko Mining; • Andrée Drolet, Director Environment, Osisko Mining; • Eva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining; • Danny Happyjack, Liaison Advisor, Osisko Mining;
Document	Maps with 5 km and 10 km radius

“Ms. Drapack invited Mr. Cooper to indicate the areas where Osisko should avoid planning permanent infrastructure such as a tailings management facility, camps, mill, waste rock stockpile, etc.”

“Mr. Joshua Blacksmith asked what a tailing management facility is. Ms. Roy-Vigneault shared pictures on the screen and Ms. Drapack answered that the rock will be taken from underground, will be crushed and ground to a size as fine as sand. This sand will be mixed with water and some chemicals to separate the gold from the uneconomic sand. After the gold is recovered, the residual material is called tailings. The tailings will be stored in lined areas with lined ditches and berms on the surface of the earth. At the end of the life of the operation the facility will be closed, and this includes revegetation and stabilizing the slopes.”

“Ms. Drapack explained that there are a lot of factors that go into choosing where to put a tailings management facility, for example avoiding wetlands and waterbodies or good geotechnical properties to support the foundations.”

“Ms. Drapack and Ms. Roy-Vigneault pointed out two areas that appear to be more promising for placement of the tailings and asked the tallyman what he feels about those areas.”

“Ms. Drolet invited the attendees to communicate with Osisko if they have any question and she can provide additional information on tailings management facilities, for example.”

2020-08-25_Meeting Minutes_Monitoring Committee VF.docx

Référence : 2020-08-25_Meeting Minutes_Monitoring Committee VF.docx — section Discussion

Subject	**Windfall Lake Monitoring Committee**
Date	2020-08-25
Time	2:00 pm to 4:00 pm
Location	Videoconference
Attendees	• Marshall Icebound, Tallyman W25B, Waswanipi; • Judy Trapper, Trapline W25B, Waswanipi; • Ronnie Ottereyes, Deputy-Chief Waswanipi • Steven Blacksmith, Director Natural Resources, Waswanipi • Joshua Blacksmith, Mining Coordinator, Waswanipi; • Alix Drapack, Senior VP Sustainable Development, Osisko Mining; • Andrée Drolet, Director Environment, Osisko Mining; • Clarisse Deschênes-Rancourt, Senior Environmental Technician, Osisko Mining; • Eva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining; • Danny Happyjack, Liaison Advisor, Osisko Mining;
Document	PowerPoint: 2020-08-25_Monitoring Committee_FINAL Maps with 5 km and 10 km radius

“This would mean that all the infrastructure, including the mill and the tailings management facility, will be on Windfall site and not at Lebel-sur-Quévillon.”

“Ms. Roy-Vigneault invited Mr. Icebound and Ms. Trapper to indicate the areas where Osisko should avoid planning permanent infrastructure such as a tailings management facility.”

2020-10-27_Meeting Minutes_Monitoring Committee Final.docx

Référence : 2020-10-27_Meeting Minutes_Monitoring Committee Final.docx — section Discussion

Subject	**Windfall Environmental Monitoring Committee + Urban Barry drilling activities after Moose Break**
Date	2020-10-27
Time	10:00 am – 10:45 am
Location	Videoconference
Attendees	• Marshall Icebound, Tallyman W25B, Waswanipi; • Judy Trapper, Trapline W25B, Waswanipi; • Joshua Blacksmith, Mining Coordinator, Waswanipi; • Clarisse Deschênes-Rancourt, Senior Environmental Technician, Osisko Mining; • Eva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining; • Danny Happyjack, Liaison Advisor, Osisko Mining;
Document	PowerPoint: 2020-10-27_Monitoring Committee_FINAL

“She explained that it is the same map showed in August to support the discussion on Cree land use and planning permanent infrastructure such as a tailings management facility.”

2020-11-25_Meeting Minutes_Monitoring Committee VF.docx

Référence : 2020-11-25_Meeting Minutes_Monitoring Committee VF.docx — section Discussion

Subject	**Windfall Environmental Monitoring Committee**
Date	2020-11-25
Time	1:30 pm – 3:00 pm
Location	Videoconference
Attendees	• Judy Trapper, Trapline W25B, Waswanipi; • Joshua Blacksmith, Mining Coordinator, Waswanipi; • Clarisse Deschênes-Rancourt, Senior Environmental Technician, Osisko Mining; • Èva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining; • Alix Drapack, Senior VP Sustainable Development, Osisko Mining;
Document	PowerPoint: 2020-11-25_Monitoring Committee_VF Map : 301-G-0601-ZA_2020-11-19 fond de carte

“Ms. Roy-Vigneault mentioned that the team worked on an alternative assessment for the tailings management facility.”

“Ms. Drapack explained what tailings are and explained that option A is the preferred, but the study is not finished yet.”

Référence : 2021-03-10_Meeting Minutes_Monitoring Committee.docx — section Discussion

Subject	**Windfall Environmental Monitoring Committee**
Date	2021-03-10
Time	9:00 am
Location	Videoconference
Attendees	• Marshall Icebound, Tallyman W25B, Waswanipi; • Judy Trapper, Trapline W25B, Waswanipi; • Joshua Blacksmith, Mining Coordinator, Waswanipi; • Alix Drapack, Senior VP Sustainable Development, Osisko Mining; • Èva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining; • Danny Happyjack, Community Liaison Advisor, Osisko Mining;

“She reviewed the main elements from the mine zone (roads, power lines, tailings management, mill components, stockpiles, water management, ramp portals, ventilation raises and other service buildings) and the camp zone.”

“Mr. Icebound asked what tailings is. Ms. Drapack explained that when the ore is coming out of the ground, it is crushed and grinded. After it is processed in the plant to get the gold out of it, but there is waste coming out of the processing, this waste is called tailings. The tailings look like fine sand in water. The water is collected to be reused in the process or treated to be released in the final effluent.”

“Mr. Blacksmith asked if the decision is made on the tailings management facility location.”

“Ms. Drapack answered that it is the preferred location. She mentioned that last fall, she showed different locations for the tailings management facility location, one was on Gary Cooper’s trapline and another one was the location that is shown on this preliminary mine layout map.”

“Ms. Trapper asked if the tailings are coming with water waste.”

“Ms. Drapack explained that a cyanide destruction circuit will be used in the mill to reduce the concentration and the water going to the tailings management facility will be collected and treated.”

“Ms. Trapper asked if the tailings were supposed to be placed near Lebel-sur-Quévillon.”

“Ms. Drapack said that one of the options being considered is to place the mill and the tailings near Lebel-sur-Quévillon and trucking the ore back and forward.”

“Ms. Roy-Vigneault mentioned that they will use paste backfill to return some tailings underground and reduce the tailings management facility footprint.”

2021-04-27_Monitoring Committee FINAL.pdf

Référence : 2021-04-27_Monitoring Committee FINAL.pdf — pages 2, 3 et 14

Subject	**Windfall Environmental Monitoring Committee**
Date	2021-04-27
Time	3:00 PM
Location	Videoconference
Attendees	• Marshall Icebound, Tallyman W25B, Waswanipi; • Judy Trapper, Trapline W25B, Waswanipi; • Joshua Blacksmith, Mining Coordinator, Waswanipi; • Alix Drapack, Chief Sustainability Officer, Osisko Mining; • Èva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining; • Danny Happyjack, Community Liaison Advisor, Osisko Mining;
Document	PowerPoint: 2021-04-27_Monitoring Committee_FINAL

“Preliminary Mine Layout – Picture of tailings;”

“Show pictures of tailings at the next meeting”

“Surface infrastructure – Pictures of filtered tailings”

2021-06-30_Meeting Minutes_Monitoring Committee_Distribution.docx

Référence : 2021-06-30_Meeting Minutes_Monitoring Committee_Distribution.docx — section Discussion

Subject	**Windfall Environmental Monitoring Committee**
Date	2021-06-30
Time	3:00 PM
Location	Videoconference
Attendees	• Judy Trapper, Trapline W25B, Waswanipi; • Steven Blacksmith, Director Natural Resources, Waswanipi; • Joshua Blacksmith, Mining Coordinator, Waswanipi; • Alix Drapack, Chief Sustainability Officer, Osisko Mining; • Èva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining; • Djecika Mensah, Environmental Supervisor, Osisko Mining;
Document	PowerPoint: 2021-06-30_Monitoring Committee_FINAL

“She mentioned that the team will prepare information for a subsequent meeting to answer the tallyman family’s questions and concerns about the tailings management facility, the water management and control measures.”

Référence : 2021-10-21_Meeting Minutes_Monitoring_FINAL.docx — section Discussion

Subject	**Windfall Environmental Monitoring Committee**
Date	2021-10-21
Time	2:00 PM
Location	Videoconference
Attendees	• Marshall Icebound, Tallyman W25B,Waswanipi; • Judy Trapper, Trapline W25B, Waswanipi; • Joshua Blacksmith, Mining Coordinator, Waswanipi; • Alix Drapack, Chief Sustainability Officer, Osisko Mining; • Èva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining; • Andrée Drolet, Director Environment, Osisko Mining; • Christian Bonhomme, Environment Supervisor, Osisko Mining; • Danny Happyjack, Liaison Advisor, Osisko Mining;
Document	PowerPoint: 2021-10-21_Monitoring Committee_FINAL

“She mentioned that Ms. Drolet will present later in this meeting basic information on tailings management facilities to answer concerns raised earlier this summer by the tallyman’s family.”

“Mining 101 - Tailings”

“Ms. Drolet explained that mine tailings is a mixture of ground rock and water that is left after the gold extraction.”

“Ms. Drolet explained that at Windfall the technology chosen for tailings is filtered. She mentioned that a part of the tailings will be mixed with cement and returned underground for rock support. She explained that almost half of the tailings that were supposed to be stored on the surface will go back underground, so the surface will be less disturbed because the tailings management facility will be smaller.”

“Ms. Drolet presented the four different kinds of tailings technology (slurry, thickened, paste, filtered) and showed pictures of each kind. She mentioned that

filtered tailings are composed of more than 80% solid and look like a sand. Ms. Drolet mentioned that the Eleonore mine is using filtered tailings."

"Ms. Drolet showed a picture of a tailings management facility using the slurry technology. She explained that there are dikes and structures to contain and manage the water. She mentioned that this kind of tailings management facility is harder to manage than filtered tailings."

"Ms. Drolet showed a picture of a tailings management facility using the filtered technology. She explained that the tailings are stored in a pile and contact water coming from the rain or snow is collected in a pond and treated. She explained that the water is not retained. Ms. Drolet mentioned that this kind of tailings management facility is easier to manage and there is least risk of accident. She mentioned that the tailings management facility shown on the picture is about 8 Million tonnes and Windfall will be around 12 Million tonnes. Ms. Drolet also explained that because there is no water in the facility, it is possible to start reclamation and partial closure earlier."

"Ms. Drolet said that she will share more information on the Windfall tailings management facility next year when she sill have more information to show. Ms. Roy-Vigneault asked Mr. Icebound and Ms. Trapper if they have concerns or questions regarding the information shared on the tailings management facility, and they did not. Mr. Blacksmith mentioned that the presentation helped him to have a better understanding of what a tailings management facility is."

2021-11-23_Meeting Minutes_Monitoring_FINAL.docx

Référence : 2021-11-23_Meeting Minutes_Monitoring_FINAL.docx — section Discussion

Subject	**Windfall Environmental Monitoring Committee**
Date	2021-11-23
Time	10:00 AM
Location	Videoconference
Attendees	• Judy Trapper, Trapline W25B, Waswanipi; • Joshua Blacksmith, Mining Coordinator, Waswanipi; • Alix Drapack, Chief Sustainability Officer, Osisko Mining; • Èva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining; • Christian Bonhomme, Environment Supervisor, Osisko Mining; • Danny Happyjack, Liaison Advisor, Osisko Mining;
Document	PowerPoint: 2021-11-23_Monitoring Committee_FINAL

“She (Eva Roy-Vigneault) explained that this work will be done to assess the soil and rock competency under the foundation of the planned tailings management facility.”

2022-02-16_Meeting Minutes_Monitoring_Final.docx

Référence : 2022-02-16_Meeting Minutes_Monitoring_Final.docx — section Discussion

Subject	**Windfall Environmental Monitoring Committee**
Date	2022-02-16
Time	1:30 PM
Location	Videoconference
Attendees	• Ronnie Ottereyes, Deputy Chief, Waswanipi • Judy Trapper, Trapline W25B, Waswanipi; • Joshua Blacksmith, Mining Coordinator, Waswanipi; • Alix Drapack, Chief Sustainability Officer, Osisko Mining; • Èva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining; • Christian Bonhomme, Environment Supervisor, Osisko Mining; • Danny Happyjack, Liaison Advisor, Osisko Mining;
Document	PowerPoint: 2022-02-16_Monitoring Committee_FINAL

“Ms. Roy-Vigneault mentioned that the LaForest camp was reopened. She also explained that geotechnical work, geotechnical drilling and test pits, are planned in February to mid-April to test the foundation under the future infrastructure. They will begin with one drill on the footprint of the planned tailings management facility and they will move on the other planned infrastructure after. She explained that this work will be done to assess the soil and rock competency.”

2022-09-29_Meeting Minutes_Monitoring V1.docx

Référence : 2022-09-29_Meeting Minutes_Monitoring_V1.docx — section Discussion

Subject	**Windfall Environmental Monitoring Committee**
Date	2022-09-29
Time	11:00 AM
Location	Videoconference
Attendees	• Marshall Icebound, Tallyman W25B, Waswanipi; • Judy Trapper, Trapline W25B, Waswanipi; • Joshua Blacksmith, Mining Coordinator, Waswanipi; • Andréanne Boisvert, VP Environment and Community Relations, Osisko Mining; • Èva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining; • Danny Happyjack, Liaison Advisor, Osisko Mining; • Vanessa Millette, Director Environment, Osisko Mining.
Document	PowerPoint: 2022-09-29_Monitoring Committee_FINAL

“She (Mme Roy-Vigneault) mentioned that she took back an action item from meetings number 15 & 16 and prepared some information on tailings.”

“Ms. Roy-Vigneault showed a large scale of the map, so Mr. Icebound and Ms. Trapper can see the entire site with the location of the tailings management facility and associated basins.”

“Water treatment plant, including a paste backfill plant and tailings plant”

“Ms. Trapper mentioned that the family requested more information about the tailings and the water management because his son, Willie Icebound, is fishing in the Lac Sans Nom 2.”

“Ms. Roy-Vigneault explained that she contacted the Eleonore mine site to request a site visit, so the family can see in person the dry tailings over there.”

“Ms. Roy-Vigneault presented information about the tailings storage facility and the water treatment process (see flow chart on slide 12). She also presented pictures of

dry tailings sample, dry stack tailings disposal and compaction, liners and an animation of a filter press."

"Ms. Roy-Vigneault mentioned that dry stack tailings require a smaller footprint, and this footprint will be lined. She also explained that the facility will be monitored, including ground stability and environmental data. The tailings storage facility will be surrounded by ditches and basins will be present to collect contact water such as rain and snow. The water collected will be sent back to the water treatment system to be treated before being recycled or sent to the final effluent."

"Ms. Roy-Vigneault showed an example of progressive reclamation. She explained that when a sector of the tailings storage facility is completed it is reclaimed, so we don't need to wait at the end of the mine life to start the reclamation."

"Ms. Millette and Ms. Boisvert explained that the tailings storage facility at Windfall will be split in three phases and reclaimed progressively."

"Ms. Trapper said that Willie Icebound is fishing in Lac Sans Nom 2. Mr. Blacksmith asked information about the tests on the water released and what the control measures are if the water is contaminated."

2022-10-24_W25B_MIcebound_final.docx

Référence : 2022-10-24_W25B_MIcebound_final.docx — lignes 24 à 32, 68 et grille de faits saillants

MEETING INFORMATION	
WSP reference:	201-11330-19
Date:	2022-10-24
Time:	1:57 pm – 3:32 pm (duration of 1:37)
Location:	Band office, Waswanipi
Documents:	- Preliminary infrastructure plan
	- Local study area map with W25B-W25A trapline
Author:	Sarah Paradis
Number of pages:	9

Present at the interview:

- Marshall Icebound, tallyman
- Judy Trapper, tallyman's spouse

Interviewed by: Sarah Paradis, community relations advisor, WSP.

Also present:

- Èva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining Inc.
- Danny Happyjack, Liaison officer, Osisko Mining Inc.
- Joshua Blacksmith, Mining coordinator, Cree First Nation of Waswanipi

"Mrs. Roy-Vigneault goes on with the tailing's storage facility explaining the tailings will use a dry technology and the reclamation will be progressive in 3 phases."

"Mrs. Trapper asks why the tailings still are in the project."

"Mrs. Roy-Vigneault answers the tailings storage facility goes with the mill."

"Mrs. Trapper replies that Mr. Icebound has never accepted the tailings component and that Osisko bypassed them to the chief and council to make it sound like they had approved."

"To her understanding, Osisko put it back in the project scope because Lebel-sur-Quévillon did not approved it on its end."

"Mrs. Roy-Vigneault explained that since then the Lynx zone has been explored and now constitutes 65% of the Mineral Resources Estimate (MRE) and the Osborne-Bell

mineral resources are not included in the updated MRE. She mentions that now the Windfall deposit can sustain the mill by itself, so the preferred option is on the site."

"Mrs. Trapper disagrees. She perceives the tailings will impact their land use activities (hunting, trapping and fishing). They worry about the availability and quality of resources to hunt for their future generations. They also worry about the potential contamination of the meat (C2)."

"Mrs. Trapper precises their son Willie doesn't approve it neither because he fishes in SN2 Lake."

"Mrs. Trapper refers to the projected tailings area again. She is aware that Osisko will protect the soil with a protective geomembrane, but she wonders what is the lifespan of this covering system (''the rug'') (Q2 and C4)?"

"Mrs. Roy-Vigneault reminded them that the tailings storage facility will be dry."

"Mr. Blacksmith requests clarification on the monitoring of the tailing's reclamation 3 stages. He understood the tailings were only reclaimed once the mine is closed."

"Mrs. Trapper gets back about the tailings project. She circles the area and draws question marks, they request more visuals and want to see it in person (R8)."

"Mr. Icebound wonders if there are no tailings, there is no mine?"

"Mrs. Roy-Vigneault answers that the tailings go with the mill. She explains again the process of ore extraction."

"Mrs. Trapper asks if this is the only location Osisko can build the tailings facility of they can find another location?"

"Mr. Icebound adds it was supposed to be elsewhere a few years ago but it was too swampy. His concern is about the potential contamination of the lakes."

"Mrs. Roy-Vigneault will gather more information about how it is built and will present to them in addition to scheduling a site visit at Eleonore in the spring of 2023 as they use this dry technology already."

"Concern about the tailing's storage facility's location. Perceived impact on traditional activities and meat resources availability and quality for their future generations (disturbance on wildlife and potential contamination of their land). Wildlife conservation."

"What can be the approx. lifespan of a covering system with geomembrane for tailings storage facility?"

2022-10-26_W25B_HGrant_final.docx

Référence : 2022-10-26_W25B_HGrant_final.docx —

MEETING INFORMATION	
Référence WSP:	201-11330-19
Date:	2022-10-26
Heure:	15h00– 16h27 (durée de 87 minutes)
Endroit:	Conseil de bande, Waswanipi & appel vidéoconférence Zoom
Documents:	- Plan préliminaire des infrastructures
	- Carte de la zone d'étude locale 36x36 avec aires de trappe W25B-W25A trapline (focus surW25B)
Auteur:	Sarah Paradis
Nombre de pages:	9

Présent.e.s à l'interview:

- Harry Grant, Territoire de trappe W25B (via Zoom)
- Roger Grant, Territoire de trappe W25B (via Zoom)
- Eliane Grant, Territoire de trappe W25B (en personne)

Interviewé par: Sarah Paradis, conseillère en relations avec les communautés, WSP.

Aussi présent.e.s:

- Èva Roy-Vigneault, Directrice relations communautaires & ESG, Osisko Mining Inc.
- Danny Happyjack, Agent de liaison, Osisko Mining Inc.
- Joshua Blacksmith, Coordonnateur mines, Première Nation de Waswanipi

« Mme Eliane Grant demande qu'est-ce qu'Osisko entend par la phase de restauration'' (Q3)?

Mme Roy-Vigneault explique que la restauration sera un processus progressif et qu'il constitue la phase post-exploitation pendant laquelle certaines infrastructures de surface sont démantelées et recouvertes à l'aide du matériel issue de la halde à mort-terrain, notamment, et revégétée. Mme Roy-Vigneault suggère de leur fournir davantage d'information incluant des photos du site existant et des photos d'un exemple de parc à résidus restauré lors de leur prochaine rencontre pour les aider à concrétiser l'image qu'ils ont en tête du site minier projeté.

Référence : 2023-01-25_Meeting Minutes_Monitoring VF.docx — section Discussion

Subject	**Windfall Environmental Monitoring Committee**
Date	2023-01-25
Time	1:30 PM
Location	Videoconference
Attendees	• Marshall Icebound, Tallyman W25B, Waswanipi; • Judy Trapper, Trapline W25B, Waswanipi; • Joshua Blacksmith, Mining Coordinator, Waswanipi; • Andréanne Boisvert, VP Environment and Community Relations, Osisko Mining; • Èva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining; • Vanessa Millette, Director Environment, Osisko Mining.
Document	PowerPoint: 2023-01-25_Monitoring Committee_FINAL

“Ms. Roy-Vigneault informed the attendees that she will recontact Éléonore mine to plan a site visit so Mr. Icebound and Ms. Trapper can see their tailings storage facility.”

“As requested by the family last October, Ms. Roy-Vigneault presented more information about the tailings storage facility. She mentioned that the tailings will be dry, she showed a map of the footprint and mentioned that it will be developed in three phases that will allow for progressive reclamation. She presented a plan of the infrastructure and explained that the tailings will be placed on an impermeable membrane and the liner warranty by supplier is 100 years. She also mentioned that a network of ditches, drains and basins will collect the contact water and sent it the water treatment unit. She explained that approximately 40% of the tailings will be mixed with cement and go back underground as paste backfill.”

“Ms. Roy-Vigneault asked the attendees if they have questions about the information presented on the tailings storage facility.”

“Mr. Blacksmith asked if Osisko began to work on the tailings storage facility.”

“Ms. Trapper mentioned that the family is still not comfortable with the construction of the tailings storage facility.”

“Mr. Icebound asks what will happen to the tailings storage facility when the mine closes.”

“Mr. Blacksmith asked what the tailings will look like when the site is closed and if the tailings must stay on site.”

“Ms. Millette explained that the tailings storage facility will look like a flat mountain and will be revegetated. She confirmed that the tailings and the waste rock stockpile need to stay on site.”

“Ms. Trapper asked if the bedrock under the tailings storage facility will be blasted.”

“Ms. Roy-Vigneault asked the attendees if they have other questions about the tailings storage facility and they did not.”

“Mr. Willie Icebound expressed concerns about the impact of the dust from the tailings storage facility on the SN2 Lake area.”

“Ms. Trapper mentioned that the family is still not comfortable with the construction of the tailings storage facility and it is not authorised yet.”

“Ms. Roy-Vigneault said that COMEX has not authorized the project yet and reminded the attendees that before doing the assessment of the alternatives for the location of the tailings storage facility, Osisko did a consultation with the tallymen W25A and W25B to identify areas not compatible with the construction of permanent infrastructure like a tailings storage facility.”

“She also explained that changing the location of the tailings storage facility will delay the project by 2 years.”

“Ms. Trapper mentioned that there is no need to go as far as 10 km, but the tailings storage facility can be on the other site of the road, in the borrow pit area, for example.”

“Ms. Roy-Vigneault suggested presenting at the next meeting the content of the tailings storage facility site selection report; the technologies assessed, the option assessed, the criteria used in the study, the reason why the current location is the best option. She also wants to present the controls that will be put in place and the mitigation measures planned to reduce the impacts.”

2023-01-30_Waswanipi-portes-ouvertes.docx

Référence : 2023-01-30_Waswanipi-portes-ouvertes.docx — lignes 30 à 33

MEETING INFORMATION	
WSP reference:	201-11330-19
Date:	2023-01-30
Schedule:	*2:00 to 5:45 pm - Open house (posters)*
	5:45 to 6:00 pm - traditional meal buffet
	6:00 to 7:00 - presentation
	7:00 to 8:00 pm – Q & A and informal discussions
	Total: 6 hours
Location:	Waswanipi's Community Health & Fitness Centre (gymnasium)
Documents:	- Pwp presentation: Update on Windfall project, EIA process and preliminary data
	- 16 posters (24 x 36 in.): EIA data summarized
	- Printed leaflets: EIA data summarized
	- Printed feedback forms
Author:	Sarah Paradis (sarah.paradis@wsp.com)
Number of pages:	8

Present at the event

Presenters:

- Èva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining Inc.
- Andréanne Boisvert, VP, Environment and Community relations, Osisko Mining Inc.
- Vanessa Millette, Environment director, Osisko Mining Inc.
- Kim-Quyên Nguyên, Feasibility study project director, Osisko Mining Inc.
- Jean-Sébastien Berthelot, Environmental permitting coordinator, Osisko Mining Inc.

Facilitators:

- Danny Happyjack, Liaison officer, Osisko Mining Inc.
- Joshua Blacksmith, Mining coordinator, Cree First Nation of Waswanipi

Witness and secretary:

Sarah Paradis, community relations advisor, WSP

"For instance, the Windfall project will include a dried tailings facility, which means tailings will be filtered and water will be removed. Therefore, there is no possible accident that could happen with dam breaking and water going into the natural environment."

“Mrs. Boisvert stated the project has a very low risk tailings management facility compared to what have been done in the past that are traditional slurry tailings, which are composed of 50% water. Such tailings facilities need very strong dams to capture all the water and tailings, which can fail. As the Windfall tailings will be dry and site will include a state-of-the-art water treatment plant to release water in the best possible way, risks will be significantly reduced.”

“Regarding the tailings, Osisko intends to close off the site gradually, operated in 3 phases in order to reduce the quantity of dust from the tailings.”

2023-02-22_Meeting Minutes_Monitoring_FINAL.docx

Référence : 2023-02-22_Meeting Minutes_Monitoring_FINAL.docx — section Discussion

Subject	**Windfall Environmental Monitoring Committee**
Date	2023-02-22
Time	1:00-2:30 PM
Location	Windfall and Videoconference
Attendees	• Marshall Icebound, Tallyman W25B, Waswanipi; • Judy Trapper, Trapline W25B, Waswanipi; • Willi Icebound, Trapline W25B, Waswanipi; • Joshua Blacksmith, Mining Coordinator, Waswanipi (by Teams); • Èva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining; • Vanessa Millette, Director Environment, Osisko Mining; • Danny Happyjack, Community Liaison Advisor, Osisko Mining (by Teams).
Document	PowerPoint: 2023-02-22_Monitoring Committee_FINAL Windfall Feasibility Study site layout map

"Tailings Storage Facility (TSF)"

"Ms. Roy-Vigneault informed the attendees that no blasting work will be required during the TSF construction."

"Mr. Willie Icebound expressed concerns about the impact of the dust from the tailings storage facility on the SN2 Lake area."

"Ms. Trapper mentioned that the family is still not comfortable with the construction of the tailings storage facility and it is not authorised yet. She is wondering the reasons why the area was selected."

"Ms. Roy-Vigneault said that COMEX has not authorized the project yet and reminded the attendees that before doing the assessment of the alternatives for the location of the tailings storage facility, Osisko did a consultation with the tallymen W25A and W25B to identify areas not compatible with the construction of permanent infrastructure like a tailings storage facility."

"She also explained that changing the location of the tailings storage facility will delay the project by 2 years."

“Ms. Trapper mentioned that there is no need to go as far as 10 km, but the tailings storage facility can be on the other site of the road, in the borrow pit area, for example.”

“Ms. Roy-Vigneault suggested presenting at the next meeting the content of the tailings storage facility site selection report; the technologies assessed, the option assessed, the criteria used in the study, the reason why the current location is the best option. She also wants to present the controls that will be put in place and the mitigation measures planned to reduce the impacts.”

2023-03-23_Monitoring Committee VF.pdf

Référence : 2023-03-23_Monitoring Committee VF.pdf — pages 2, 5 à 10

Subject	**Windfall Environmental Monitoring Committee**
Date	2023-03-23
Time	10am
Location	Lebel-sur-Quévillon
Attendees	• Marshall Icebound, Tallyman W25B, Waswanipi; • Judy Trapper, Trapline W25B, Waswanipi; • Willie Icebound, Trapline W25B, Waswanipi; • Joshua Blacksmith, Mining Coordinator, Waswanipi; • Andréanne Boisvert, VP Environment and Community Relations, Osisko Mining (on Teams); • Èva Roy-Vigneault, Director Community Relations & ESG, Osisko Mining; • Danny Happyjack, Liaison Officer, Osisko Mining. Observers: • Marie Pier Jean, Forestry Department, Cree Nation Government; • Stéphane Ouellette, Forestry Department, Cree Nation Government;
Document	PowerPoint: 2023-03-23_Monitoring Committee_FINAL

Steps of the Tailings Storage Facility Alternative Assessment

Ms. Roy-Vigneault explained the main steps and the methodology to choose the best location for the tailings storage facility and how the information gathered on the family land use during the 2020 consultation activities were included in the study and were also used to screen out options.

The main concerns and comments raised by the tallyman family were:

- They feel that Osisko already decided where to put the tailings storage facility and made up a study to support the decision.

- They feel that the fact that Willie is fishing in the SN2 Lake is not considering in the assessment.

- They are concerned by the dust that can come from the tailings storage facility. Willie is fishing in the SN2 Lake and does not want to have to put a mask on like the one he is using to cut the core.

- They are concerned about the impact of the dust on the fish.

- They mentioned that Albert Miascum from Oujé-Bougoumou died from cancer because he was exposed to tailings while living full time on his trapline. They mentioned a documentary about it (Mamouidow). They are concerned about the impact of the tailings on human health.

- They would prefer that the tailings storage facility be placed in the borrow pit on the other side of the road and are wondering why this option was not considered.

- They wonder why the tailings storage facility is not on the W25B trapline, because Gary Cooper has all the contracts.

- They wonder if blasting will be required because the tailings storage facility is planned on bedrock.

Mr. Blacksmith shared his experience regarding a tailings spill located on his trapline and the impact on the fish. He also asked how the dry tailings will be transported.

Ms. Jean mentioned that there is no biological refuge under option 9. Mrs. Roy-Vigneault explained that the locations of these sensitive areas were provided by the government and that they were valid at the time of the study.

In response to some questions and concerns, information on how the dust can be managed at the tailings storage facility were provided and it was mentioned that a study is underway to model the air quality. Also, an air quality monitoring program will be put in place during the operation phase. Blasting will likely be required to build the ditch system around the tailings storage facility.

In another response, Ms. Boisvert reiterated that the Icebound family had been consulted on where the mining infrastructure could not be located on their trapline during the assessment of alternatives study process and that the chosen sector was not identified initially by the Icebound family. She understands that they can change their mind. The assessment of alternative study process is very rigorous and follow specific guidelines dictated by the government. It follows a specific set of rules for the evaluation and there is even a sensitivity analysis done on the results. In all cases, when the multi-factor analysis was done, the social and environmental accounts were weighted more heavily, and more importance was given to the possible other uses in the assessment (such as the use of SN2 Lake for fishing). It is

important to take all the factors into account and a decision is not made unilaterally based on one criterion. She reiterated that the concerns of the family are important to the company, and they are not taken lightly. Ms. Roy-Vigneault explained that the sites located in known sensitive areas such as the moose yard were removed from the assessment

Ms. Boisvert also explained that the technological choice to go with filtered tailings allowed to minimize the risk of dam failures because no such dams will be present on the site. There are no water retention dams for the tailings, as they are dry. Therefore, although the concerns are valid for the other examples given by Mr. Icebound and Blacksmith, they cannot be applied to the Windfall context. This is also important because the total footprint is smaller because there is less water that needs to be managed.

Ms. Boisvert explained that the borrow pit site is not suitable for the tailings storage facility due to its size (not large enough) and because of the slopes. This is the reason why it was never identified as an option. During the assessment of alternatives, the sites identified must be able to contain the entire volume of expected tailings.

Discussion on SN2 Lake

Ms. Boisvert presented the mitigation measures specific to SN2 Lake. She mentioned that based on the information gathered during consultation activities done with the tallyman family and other land users, it was decided to relocate the final effluent from the SN2 Lake to the existing release point in Pond 1. She explained that the project was designed to minimize the footprint in SN2 Lake's watershed and there will be no anticipated water levels and flows variations expected during the operation. Also, no water will be collected in SN2 Lake. Finally, an air quality monitoring program will be implemented during the operation phase.

Ms. Trapper noticed that the exit ditch at the end of the existing water treatment plant looks brown and red. Ms. Boisvert explain that it is the effect of iron, the water is tested and compliant.

Mr. Icebound noticed that a beaver that was seen near the water treatment plant since last year has not been seen since last year.

Mr. Blacksmith asked if there will be stations to monitor the air quality. Ms. Boisvert explained that there will be stations and it will be possible to follow the air quality and implement corrective actions if there is an issue.

Ms. Boisvert suggested delineating a buffer zone around SN2 Lake where no trees will be cut.

Ms. Jean and Mr. Blacksmith explained that the biological refuge requested by the Icebound family was denied by Quebec government.

Mr. Marshall Icebound said that the biological refuge is there to stay, and it does not matter what Quebec said. He feels if there was not mining activities in the area his request would be granted.

Ms. Trapper said that Quebec government representatives are not living on the territory and do not understand how their lifestyle is impacted by noise and activities.

2024-03-20_Monitoring Committee_V1.pdf

Référence : 2024-03-20_Monitoring Committee_V1.pdf — pages 5 et 6

Subject	**Windfall Environmental Monitoring Committee**
Date	2024-03-20
Time	12h30 PM
Location	Windfall and Teams
Attendees	• Judy Trapper, Trapline W25B, Waswanipi; • Marshall Icebound, Trapline W25B • Willie Icebound, Trapline W25B • Jean-François Belleau, Director community relations and ESG, Osisko Mining; • Louis Grenier, Exploration Director, Osisko Mining; • Steven Blacksmith, Natural Resources Director CFNW (On Teams)
Document	PowerPoint: 2024-03-20 Monitoring Committee_VF

“On the subject of the visit to the Eleonore site, the Icebound family stresses that they have already made the visit, implying[AB1.1] that they have no further interest in going. The Eleonore visit will not be organized. Mr. Belleau will inform Newmont.”

2024-05-14_Meeting Minutes_Chief Irene Neeposh_Tailing_Storage_Facilities_Waswanipi_14h_MS.docx

Référence : 2024-05-14_Meeting Minutes_Chief Irene Neeposh_Tailing_Storage_Facilities_Waswanipi_14h_MS.docx — section Discussion

Subject	**Windfall – TAILINGS STORAGE FACILITIES (TSF)**
Date	2024-05-14
Time	2:00-3:00 PM
Location	Waswanipi Band Office
Attendees	• Chief Irene Neeposh, Cree First Nation of Waswanipi; • Jarred Benac, Mining Coordinator, Cree First Nation of Waswanipi; • Andréanne Boisvert, Vice-President, Environment and Community Relations, Windfall Mining Group; • Jean Bastien, general manager, Windfall Mining Group; • Jean-François Belleau, Director of Community Relations and ESG, Windfall Mining Group; • Danny Happyjack, Community Liaison Advisor, Windfall Mining Group; • Max Sauvageau, Community Relations Coordinator, Windfall Mining Group.
Document	PowerPoint: 2024-05-14_Tailings_Storage_Facilities_Waswanipi.ppt

“Ms. Boisvert explained that this will be the same presentation given to community members, and that it was important for the team to begin the presentation with a 101 course on tailings management to give the community a better understanding of the process and the project.”

“She takes this opportunity to explain the thinking behind the team's choice of technology for the tailings storage facilities (dry stack).”

“Ms. Boisvert presented a map showing the sites where it was physically possible to install the tailings facility, based on the following minimum criteria (can't be on a hill, can't be in a protected area, etc.).”

“Ms. Boisvert adds that the main concerns of the tallymen of trapline W25B concern their new fishing site, which is located very close to the tailings storage facilities.”

“Ms. Boisvert replied that yes, but this site is the borrow pit, and it doesn't even meet the minimum criteria for receiving mine tailings. It wasn't even possible to assess the site.”

“Ms. Boisvert explained the approach adopted for the opening of the tailings facility with cells, which allows for progressive reclamation during operations. She explained that this choice also enabled us to reduce dust emissions.”

“Would it be possible to use more paste backfill? You're currently proposing to use around 40%, but would it be possible to double that to 80%, for example?”

“Ms. Boisvert explains what she calls “_the sandwich_”. An illustration showing the different layers we will be using in the tailings storage facility. Another figure shows a projected cross-section of the tailings storage facility, which will be surrounded by a ditch and a road. All water will be collected and sent to the treatment plant.”

“Ms. Boisvert also showed a 3D simulation of the equipment. These images show that the tailings facility will not be visible.”

“Ms. Boisvert ended the presentation with a few images of examples of sites that use dry stack tailings, including the Éléonore mine.”

2024-05-14_Meeting Minutes_Tailing Storage Facilities_Waswanipi_18h30_MS.docx

Référence : 2024-05-14_Meeting Minutes_Tailing Storage Facilities_Waswanipi_18h30_MS.docx — section Discussion

Subject	**Windfall – TAILINGS STORAGE FACILITIES (TSF)**
Date	2024-05-14
Time	6:30-7:30 PM
Location	Waswanipi community center (conference room)
Attendees	• Tony Gull; • Chris Cooper; • John Kitchen; • Jarred Benac; • 3 community members (unidentified). • Andréanne Boisvert, Vice-President, Environment and Community Relations, Windfall Mining Group; • Jean Bastien, general manager • Jean-François Belleau, Director of Community Relations and ESG, Windfall Mining Group; • Danny Happyjack, Community Liaison Advisor, Windfall Mining Group; • Max Sauvageau, Community Relations Coordinator, Windfall Mining Group.
Document	PowerPoint: 2024-05-14_Tailings storage facilities_Waswanipi.ppt

“This month, we'll be talking to the public about the tailings storage facility.”

“Ms. Boisvert presents the tailings cycle. Part of the tailings also go back underground.”

“Has we are extracting ore from the underground mine we are filing back our extracting zone by putting the tailings back in and we mixt the tailing with cement.”

“Once the tailings are dried then they will go to the tailing storage facility and they will be trucked from the dry tailing storage to the tailing storage facility.”

“Ms. Boisvert explains the 4 main ways of managing mine tailings.”

“Then you end up with a filtered residue with over 80% solid matter. This is the preferred technology for the windfall project.”

“Ms. Boisvert explained the benefits of using filtered tailings. No use of dikes or dams, so no risk of dam failure. Smaller footprint. No long-term issues with wastewater management. Enables reclamation that blends in better with the natural environment.”

“Ms. Boisvert points out that this is a trend we're seeing in the industry, with more and more mining companies moving towards dry stack. The incidents in Brazil about 10 years ago, with the fatal dam breach that shook the industry over the tailings ponds.”

“Ms. Boisvert replies that by removing the water, it's obvious that there's now a dust issue, this is certainly the main cons.”

“Ms. Boisvert points out that, there's no such thing as zero risk, but by favoring the dry stack we avoid the issues of water accumulation and the risk of dam collapse.”

“Ms. Boisvert explained that once the technology has been chosen, the site for the tailings facility must be identified, as it is an element with a large footprint.”

“Ms. Boisvert presented a map showing the sites where it was physically possible to install the tailings facility, based on the following minimum criteria (can't be on a hill, can't be in a protected area, etc.).”

“Ms. Boisvert summarized what the tailings facility will look like. She pointed out that it will have a capacity of 9Mt and will be developed in 3 zones. The zoned development allows for progressive reclamation during the years of operation. The entire site will be placed on a waterproofed membrane. There will be a peripheral contact water collection network, and finally, 40% of the tailings will be mixed with cement and returned as paste backfill in the underground.”

“Q. Why isn't it possible to use 100% of the tailings as paste backfill and turn them underground?”

“Ms. Boisvert explained what she calls her sandwich. An illustration showing the different layers we will be using in the tailings storage facility. Another figure shows a projected cross-section of the tailings storage facility, which will be surrounded by a ditch and a road. All water will be collected and sent to the treatment plant.”

“Ms. Boisvert also showed a 3D simulation of the equipment. These images show that the tailings facility will not be visible. The most visible element will be the water treatment plant, especially from the lake.”

“Jean Bastien replied that not to his knowledge, it seems to be a much safer technology than the tailings pond.”

“Learn about the risks associated with forest fires and the types of membranes used in the tailings facility.”

2024-05-24_Meeting Minutes_Monitoring_AB

Référence : 2024-05-24_Meeting Minutes_Monitoring_AB, section Concern about tailing

Subject	**Windfall Environmental Monitoring Committee**
Date	2024-05-24
Time	9:30-10:15 AM
Location	Videoconference
Attendees	• Marshall Icebound, Tallyman W25B, Waswanipi; • Judy Trapper, Trapline W25B, Waswanipi; • Jarred Benac, Mining Coordinator, Waswanipi; • Jean-François Belleau, Director Community Relations & ESG, Osisko Mining; • Maxime Baillargeon, Director Environment, Windfall Mining Group; • Danny Happyjack, Community Liaison Advisor, Windfall Mining Group; • Max Sauvageau, Community Relations Coordinator, Windfall Mining Group.
Document	PowerPoint: 2024-05-24_Monitoring Committee_FINAL

Mrs. Trapper said to forget anything about tailings, they don't want to talk about it anymore, they've already said no and that's still a no.

She said she was aware of the presentation we made a few weeks ago, and asked why she hadn't received an invitation. Mr. Belleau said the invitation was for the whole Waswanipi community, everyone was welcome.

Secondly, Mr. Belleau wanted to do a one-to-one presentation with them.

Mrs. Trapper said to forget anything about tailings, they don't want to talk about it anymore, they've already said no and that's still a no.

Mr. Belleau says it would be important to take the time to discuss it again and give them a new presentation, as we now have a better overview of the project.

Ms. Trapper said that Osisko had been trying to convince her for 6 years about the tailings facility, and that her answer was always “no”.

2026-02-02 Tailings presentation W25B (Eliane)

Référence : 2026-02-02 Tailings presentation W25B (Eliane)section Discussion

Sujet	**Séance d'information W25B sur la gestion du parc à résidus**
Date	2026-02-02
Heure	13h40 à 14h50
Lieu	En ligne via Microsoft Teams
Participants	1. Eliane Grant, W25B représentante de la famille Grant (W25B) 2. Jarred Benac, coordonnateur minier, CFNW 3. Danny Happyjack, agent de liaison communautaire, Gold Fields 4. Edouardine-Pascale Ingabire, ingénieure responsable du parc à résidus, Gold Fields 5. Jean-François Belleau, directeur relations communautaires, Gold Fields 6. Sarah Paradis, conseillère en relations avec les communautés, WSP
Autres invités non présents	Marshall Icebound, maître de trappe W25B et Judy Trapper
Documents	2026-01-30_EN_Windfall_Tailings storage facilities.ppt

La rencontre débute à 13 h 39 et se tient en français, selon la préférence de Mme Eliane Grant. Le support de présentation est toutefois en anglais, ayant été initialement préparé afin de permettre également la compréhension de M. Icebound.

D'entrée de jeu, tous les parcs à résidus présentent des risques. Les résidus filtrés peuvent générer de la poussière. Les résidus en pulpes présentent un risque plus élevé de rupture entraînant un relâchement de fluides.

Elle précise également que la direction dominante des vents dans le secteur a été prise en compte.

Mme Grant indique être en accord avec la méthode de gestion des résidus proposée, dans la mesure où celle-ci est adéquatement appliquée. Elle mentionne qu'au site de Nemaska Lithium, la gestion des poussières représente un défi en raison de la manipulation fréquente de la membrane géotextile selon les conditions de vent, ce qu'elle considère peu efficace.

Mme Grant demande ensuite des précisions quant à l'emplacement du site, notamment par l'obtention d'une cartographie plus détaillée permettant d'identifier

la sous-station hydroélectrique et de situer le parc à résidus par rapport au camp et au chemin d'accès. Elle s'interroge également sur le caractère définitif de l'emplacement proposé.

M. Belleau précise qu'une analyse comparative rigoureuse des variantes, incluant des critères pondérés, a été réalisée et que l'option retenue en découle objectivement. De plus, plusieurs rencontres ont eu lieu avec les utilisateurs du territoire concernés et le conseil de bande de Waswanipi afin de bien évaluer l'impact social de l'emplacement.

Mme Grant indique que les vents dominants provenant de l'ouest réduisent, selon elle, les risques de dispersion de poussières vers le lac SN2. Elle exprime toutefois des préoccupations pour le lac Roméo, en raison de son orientation et des conditions estivales parfois sèches.

Mme Ingabire précise que la restauration du parc à résidus sera effectuée de manière progressive, cellule par cellule, au sein de chaque zone. Le plan de déposition (Zones 1, 2, 3) et les cellules de la zone 1 (a, b, c, d) ont été déterminées pour travailler en direction des vents dominants et ainsi réduire les poussières. La restauration progressive permet également de minimiser la génération de poussières.

M. Belleau compare cette approche à celle utilisée à la mine Éléonore, où la restauration s'effectuait par zones, mais pas par cellule. Il souligne que l'approche par cellule limite la durée d'exposition des résidus aux éléments environnementaux. Une fois recouverte, chaque cellule fera l'objet d'une revégétalisation avec des espèces sélectionnées en collaboration avec les utilisateurs du territoire en temps opportun.

Concernant la composition des résidus, Mme Grant demande si des contaminants préoccupants, tels que l'arsenic ou le mercure, pourraient être présents dans les poussières, en particulier en direction du lac Roméo. Elle souligne que ce point constitue une préoccupation importante.

M. Belleau rappelle qu'il est prévu d'aménager deux bassins (PAR1 et PAR2) pour gérer les exfiltrations et les eaux de contact du parc à résidus. Mme Ingabire ajoute qu'un modèle de la qualité des eaux de surface a été complété parmi les études déposées au Comex dans le cadre de l'EIE. Le dimensionnement des bassins PAR1 et PAR2 a été fait en considérant un évènement de crue majeur et en considérant des scénarios liés aux changements climatiques.

Mme Grant questionne également la nature des installations PAR 1 et PAR 2.

M. Belleau confirme qu'il s'agit de bassins qui seront construits et non de fosses naturelles.

En ce qui concerne les eaux souterraines, Mme Ingabire mentionne que les géomembranes sont installées comme mesure de protection de la qualité des eaux souterraines. M. Belleau indique que le programme de suivi et de contrôle de la qualité vise en priorité à prévenir toute contamination des eaux et à maintenir la qualité de l'eau potable.

Les résultats sont partagés lors des rencontres du comité de suivi environnemental avec Waswanipi, dont Mme Grant est membre.

Mme Grant demande des précisions sur la fréquence des analyses de l'effluent en phase d'exploitation ainsi que sur les paramètres analysés.

M. Belleau indique que, bien que les analyses soient actuellement réalisées en continu en phase d'exploration avancée, il devra valider les modalités prévues pour la phase d'exploitation.

Mme Grant mentionne que seules des moyennes mensuelles sont actuellement présentées lors des rencontres du comité de suivi environnemental.

Elle questionne également le choix du site 8 comme option finale, notant qu'il s'agit de l'un des sites les plus élevés du secteur, et demande si la topographie a été prise en compte dans l'analyse des variantes.

Mme Ingabire confirme que cet aspect a été considéré, et M. Belleau précise que la topographie permet un drainage naturel des eaux de ruissellement par gravité.

Mme Grant réitère que les poussières demeurent sa principale préoccupation, compte tenu du fait que les résidus soient filtrés.

M. Belleau indique que les informations relatives à la direction dominante des vents, issues de l'étude d'impact, lui seront transmises.

Mme Grant demande si le port d'équipements de protection respiratoire (masque) est prévu pour les travailleurs, considérant qu'il pourrait s'agir d'un indicateur du niveau de risque pour la santé humaine.

M. Belleau mentionne qu'il devra valider cette information auprès de l'équipe de santé et sécurité.

Mme Ingabire ajoute qu'une étude de dispersion atmosphérique sera transmise pour information complémentaire.

M. Belleau précise enfin que, suivant la signature de l'Entente sur les répercussions et avantages (ERA) avec le conseil de bande de Waswanipi, l'actuel comité de suivi environnemental sera intégré à un comité environnemental relevant de l'ERA. Ce comité constituera l'instance privilégiée pour soulever les enjeux, formuler des recommandations et ajuster les pratiques, notamment dans le cadre de la restauration progressive. Il souligne que les plans et processus pourront évoluer en fonction des observations et des contributions des communautés, et que les autorisations ministérielles pourront être modifiées au besoin.

La rencontre se termine à 14 h 50. M. Belleau demande à M. Benac de coordonner une reprise de la rencontre avec M. Icebound, absent lors de cette séance.

De :	Sarah Paradis
À :	Eliane Grant
Cc :	Jean-Francois Belleau; Andreanne Boisvert; Edouardine-Pascale Ingabire; Danny Happyjack
Objet :	Windfall - infos sur gestion des résidus miniers
Date :	20 février 2026 15:07:31
Pièces jointes :	2026-02-04_EN_Windfall_Environmental Monitoring Program on the Integrity of Lake SN2.pdf 2026_01-30_EN_Windfall_Tailings storage facilities.pdf image001.png

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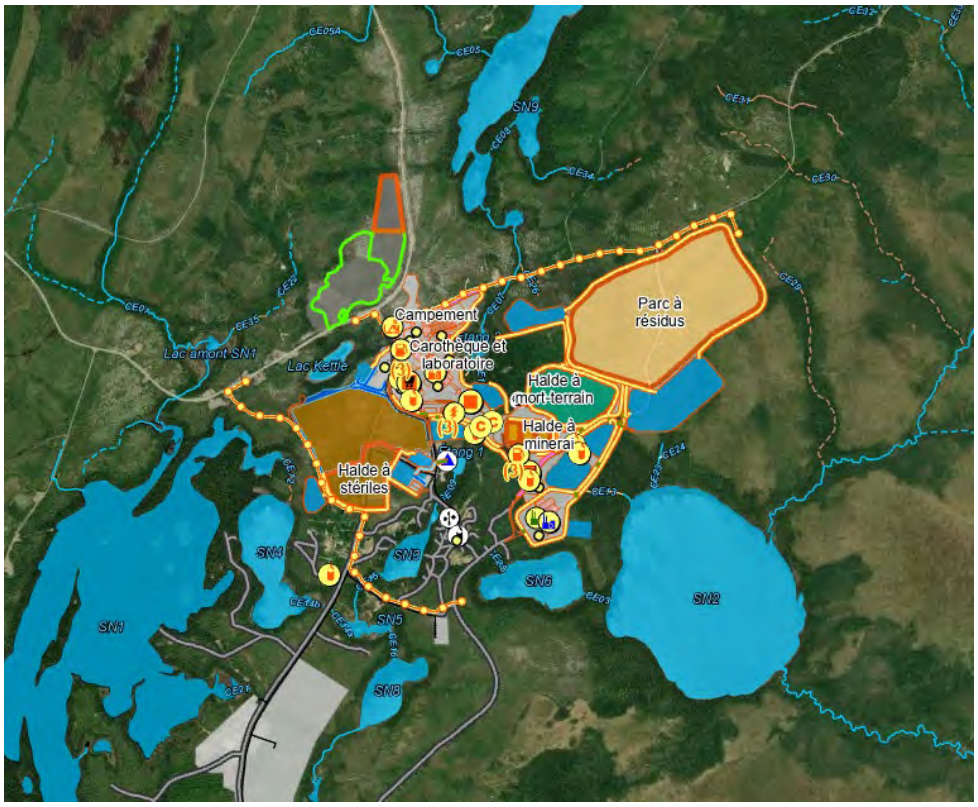
Bonjour Eliane,

Nous te remercions encore pour ta disponibilité lors de la rencontre du 2 février dernier concernant le parc à résidus de Windfall.
Comme convenu, nous te transmettons les documents et informations pertinents :

- Présentation sur la gestion des résidus miniers à Windfall (en anglais : 2026_01-30_EN_Windfall_*Tailings storage facilities.pdf* en PJ)
- Présentation sur l'intégrité du lac SN2 (en anglais : *2026-02-04_EN_Windfall_Environmental Monitoring Program on the Integrity of Lake SN2.pdf* en PJ)
- Carte de localisation du parc à résidus dans les infrastructures prévues. Cette capture d'écran provient de notre outil web qui permet de naviguer dans la carte interactive, mais aussi dans la maquette 3D du projet. Tu y trouveras aussi l'ensemble de nos études.



- Étude de dispersion atmosphérique peut être consultée à l'adresse suivante : https://www.goldfieldswindfall.com/wp-

content/uploads/2024/01/CA0023271_9538_R_Windfall_ModAir_REV2_241017.pdf (le fichier est trop gros pour voyager par courriel). La section 5 de cette étude (méthodologie) est très précise quant à la catégorisation des vents dominants dans le secteur.

- Concernant ta question sur le port du masque pour les futurs travailleurs qui devront aller sur le parc à résidus, les experts en hygiène industrielle vont déterminer si le port est nécessaire, cette évaluation n'est pas encore réalisée.
- Liste des paramètres actuellement suivis à l'effluent, incluant le mercure :

  pH (en continu)
  Matières en suspension (3 fois par semaine)
  Métaux (1 fois par semaine) (As, Cu, Fe, Ni, Pb, Zn)
  Truite et daphnie (1 fois par mois)
  Mercure (Hg) (au trimestre)

  - Pour le mercure, voici un tableau qui couvre les résultats d'échantillonnages pour 2025 (il n'y a pas de valeur maximale autorisée mais nous nous comparons généralement au seuil de 1 µg/L pour les rejets industriels). Nous sommes largement sous cette valeur.

Date (échantillonnage trimestriel)	**Paramètre**
	Mercure (Hg) ug/L
25-02-10	<0,002
25-04-22	<0,002
25-07-08	0,028
25-10-21	<0,002

N'hésite pas à nous faire signe si tu as des questions ou si des informations supplémentaires sont requises.

Cordialement,

Sarah Paradis
Coordonnatrice relations communautaires

APPENDIX

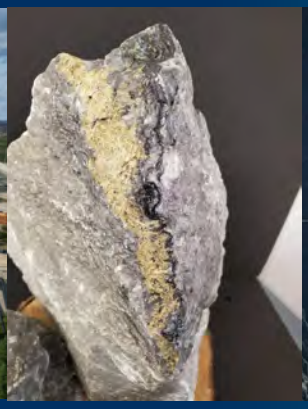
6

SURVEILLANCE AND MONITORING PROGRAM

Windfall Mining Project

Environmental Impact Assessment

Final Monitoring and Follow-up Program



May 2026

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WINDFALL MINING GROUP

WINDFALL MINING PROJECT – ENVIRONMENTAL IMPACT ASSESSMENT

FINAL MONITORING AND FOLLOW-UP PROGRAM

EEYOU ISTCHEE BAIE-JAMES TERRITORY

FINAL VERSION
CONFIDENTIAL

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Appendix

A Dust Management Plan

1 Introduction

As a precious metal exploration and resource property development company in Canada, Windfall Mining Group Inc. (WMG) wishes to develop a mining complex comprising an underground mine to extract gold and process it on site.

The Windfall mining project (hereinafter the Project) is subject to the provincial environmental impact assessment and review procedure under section 153 of Chapter II of the *Environment Quality Act* (LQE, R.S.Q. c. Q-2), which documents the provisions applicable to the James Bay and Northern Quebec region, in connection with the agreement of the same name. In accordance with this procedure, the environmental impact assessment (EIA) was submitted to the *Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs* (MELCCFP) in March 2023. The Project is not subject to a federal environmental assessment under the *Impact Assessment Act* (S.C., 2019, c. 28, s. 1) pursuant to the *Concrete Activities Regulation* (s. 18, paragraph c), since the planned production of this new gold mine is less than 5,000 tons per day (t/day).

As part of the activities associated with the construction, operation, and closure phases of the Windfall mining project, WMG will put in place the human and financial resources required to carry out the project's environmental monitoring and follow-up program. In fact, it is currently planned that approximately 18 resources will be assigned to environmental and water management at the site to ensure the deployment of this program, including the operation of the water treatment plant, not counting the collaboration of other departments, when required. In addition, the use of subcontractors' services is also being considered based on specific needs that may arise. The following sections present the various activities proposed for the monitoring and follow-up program for the project phases. It should also be noted that this document serves as a wildlife and plant protection plan, as required by QC2-33. As such, the chapters will detail the following aspects:

- Environmental monitoring (chapter 2);
- Monitoring related to mining operations (chapter 3);
- Monitoring related to the physical environment (chapter 4);
- Monitoring related to the biological environment (chapter 5);
- Monitoring related to the social environment (chapter 6);
- The biodiversity program (chapter 7);
- Other monitoring related to habitat compensation projects (chapter 8);
- The annual monitoring and follow-up report (chapter 9);
- The monitoring schedule (chapter 10).

2 Environmental Monitoring

An environmental monitoring program will be implemented during the construction, operation, and closure phases of the project for the completion of construction work in each phase; this program will consist of ensuring compliance with environmental commitments and obligations. It also aims to verify the integration of proposed mitigation measures into the project and to ensure compliance with laws, regulations, and other environmental considerations in plans and specifications.

- The environmental monitoring program will be prepared and operated by WMG and will include all commitments made in this document as well as subsequent commitments to be made with the Environmental and Social Impact Review Committee (ESIRC) as part of the environmental assessment process. The aspects covered by this program will include, in particular:
- Monitoring and supervising all tasks that require preventive, mitigation, or corrective measures with regard to the environment.
- Ensuring that the work is carried out in compliance with laws, regulations, and the conditions of authorizations/permits, and defining mechanisms for monitoring possible non-compliance during the work (protection of watercourses and wetlands, air quality, management of residual and hazardous materials, etc.).
- Monitor the construction of ponds and the management of excavated soil.
- Monitor retention structures during the operational phase.
- Ensure that work areas are clearly marked and that machinery encroachment is limited.
- Provide environmental support and raise awareness among workers about the impacts of their activities.
- Ensure compliance with refueling procedures for petroleum equipment used in the project.
- Verify the presence of containment measures for petroleum tanks on mobile equipment (pumps, generators, etc.).
- Supervise and monitor procedures in the event of accidental spills, including monitoring the temporary storage conditions of contaminated soil, if applicable.
- Ensure compliance with deadlines regarding biological restriction periods and the proper completion of environmental monitoring associated with the project.

One of the activities of the monitoring program will also be to ensure that all necessary authorizations and permits have been received. To this end, a list of the conditions and commitments made in this study and in all authorizations that will be issued for the project will be drawn up. The list presented above represents only a portion of the commitments that WMG will be required to follow. This list will serve as the basis for the development of the environmental monitoring program, which will then be the concrete tool that can be deployed in the field during the work by WMG officials and those of the general contractor mobilized on the site. This program will be updated throughout the course of the work.

In conjunction with the general contractor for the work, site managers and WMG's environmental supervisor will organize a site meeting to be held at the very beginning of the work. The purpose of this meeting will be, in particular, to inform and educate site personnel about the environmental monitoring program, the safety measures that will be in place throughout the work period, and the general operation of monitoring activities.

In general, the environmental supervisor will make regular visits to the work areas, ensure that the various commitments, obligations, measures, and other requirements are strictly complied with by the parties involved, evaluate the quality and effectiveness of the measures applied, and note any non-compliance observed. He or she will then report his or her observations to the site manager so that appropriate preventive and corrective measures can be taken as soon as possible, if necessary. He or she will also ensure that workers report any spills to the authorities without delay.

During the work, mitigation measures will be strictly followed, particularly when working near sensitive environments, watercourses, and bodies of water. Suspended solids (SS) emissions into the water and the presence of any accidental spills of petroleum products will be closely monitored near these environments. Photographs will be taken to document how the work was carried out.

Finally, it should be noted that the restoration work associated with the closure of the site will be subject to a monitoring program adapted to the nature of the work and based on the requirements established during the construction phase.

3 Mining Operations

3.1 Geochemistry of ore, waste rock, and tailings

3.1.1 Construction phase

Since this monitoring is directly related to production during mine operation, no monitoring is planned during the construction phase.

3.1.2 Operation Phase

3.1.2.1 Commitments

A multi-year geochemical characterization program has been conducted for the various existing mining materials that will be generated and used as part of the Project to determine the characteristics of acid rock drainage/metal leaching (ARD/ML) and the inherent geological variability of the ore and mine rock (WSP, 2023a).

The objective of the ADR monitoring and management plan to be implemented during mining operations is to confirm that the materials generated throughout the life of the mine are consistent with the results obtained during the initial characterization. This management plan has been developed to be consistent with current mine waste management strategy plans (WSP, 2023b) and with the requirements of the *Guide to the Characterization of Ore and Mine Waste* (MELCC, 2020; hereinafter "Characterization Guide"). It is anticipated that the monitoring plan will be updated based on any relevant changes to the mine waste management strategies

3.1.2.2 Characterization Context

Tailings Characterization

A multi-year sampling program was conducted for Project waste rock by WSP (formerly Golder) and Osisko in 2017-2018 (Golder, 2021), 2020 (Golder, 2021) and 2022 (Golder, 2022).

In total, the waste rock dataset comprises 256 waste rock samples (246 from drill cores and 10 blasted samples from ramp development) from the Bobcat, Caribou, Lynx Main, Lynx HW, Lynx SW, Lynx 4, Triple Lynx, Mallard, Underdog, and Zone 27 areas, in quantities that reflect the tonnage of each lithology and the number of samples recommended by the Characterization Guide. In summary, geochemical characterization identified that waste rock from the Project site has variable acid generation potential. Although no lithology was classified as having a high risk of metal leaching according to the criteria in the Characterization Guide, the potential for leaching of arsenic, silver, copper, molybdenum, mercury, and manganese was identified in the waste rock.

Characterization of Residues

Between 2017 and 2020, seven composite residue samples were provided by Osisko following pilot tests to represent potential ore combinations to be processed during the mine's lifetime.

In summary, all tailings samples were classified as potentially acid-generating and leachable for metals, including arsenic, cadmium, copper, mercury, lead, and/or zinc. They were not classified as presenting a “high risk” of metal leaching according to the criteria in the Characterization Guide. The tailings are also classified as containing cyanide, as cyanide will be used in the processing of the materials.

3.1.2.3 Sampling Plan

According to the Project's mining plan (WSP, 2023b), the mine life (ML) is 10 years (2024 to 2035). The objective of this operational monitoring sampling plan is to collect and analyze mining materials generated throughout the mine life, based on the tonnage forecast for each type of material in accordance with the mine plan (2023b), in order to confirm that the materials observed during operations are consistent with expectations based on the geochemical characterization program conducted as part of the environmental impact assessment.

This plan complies with the sampling requirements outlined in the Characterization Guide. The following sections detail the sampling plan for waste rock and tailings throughout the LOM

3.1.2.4 Methodology

Waste rock

According to the Project Mine Plan (WSP, 2023b), approximately 8.4 Mt of waste rock is expected to be generated over the mine's lifetime (MLT), the vast majority of which is expected to be brought to the surface and stored in the waste rock pile.

The mine's waste rock sampling plan is presented below:

- Collect up to 26 spot samples (approximately 2 kg each) annually from the waste rock pile, ensuring that there are a minimum of two and a maximum of five samples per major waste rock lithology mined during the period. In addition, checks will be carried out using additional samples in the following year in the event of significant variations in the results.
- Ensure that the samples taken are visually representative of the different materials/lithologies placed on the pile within the specified time frame and reasonably distributed over the surface of the freshly placed materials (i.e., materials placed since the previous sampling).
- The sample collection schedule may vary, but should not be less than once a year. A reasonable recommended interval for sample collection is twice a year.
- Samples should be collected by an experienced licensed geologist who can confirm the representativeness of the samples collected.

It is assumed that construction rock (if sourced from waste rock) will undergo operational testing to confirm that it does not generate acid (non-PGA). The production and monitoring of construction rock is not covered in this document, but a plan will be implemented based on the ministerial authorization that will be granted for the revaluation of materials.

The quantity of waste rock (i.e., truckloads/ton) placed at each level of the mine's rock piles and/or used for construction purposes will be recorded by the mine planning department and communicated to the mine geologist. This information will be communicated to the project manager prior to the annual site inspection, for the purpose of planning the inspection and preparing the annual report.

Residues

According to the Project's mining plan (WSP, 2023b), approximately 12 Mt of ore will be extracted throughout the MSD and placed in the ore stockpile prior to processing at the mill.

Mining will commence with the Lynx Zone (Lynx 4, Lynx Main, and Triple Lynx), continue with the Main Zone (Caribou and 27), and conclude with the Underdog Zone, with at least three ore zones mined per year. It is assumed that there will be a blend of ore from different zones prior to processing.

The tailings sampling plan is as follows:

- Collect up to 12 tailings samples each year, representative of the variability of the ore processed throughout the period represented by each sample, to be reviewed following analysis of the results.
- Sampling must be performed or supervised by a competent person who can certify the samples (usually a geologist or engineer). A detailed description of the sampling method must be documented.

Analytical Program

The waste rock and tailings samples will undergo certain static tests in a laboratory accredited by the *Centre d'expertise en analyse environnementale du Québec* (CEAEQ) for the analyses performed. This program consists of a set of standardized methods and specific tests designed to provide information on the acid generation potential and mobility of metals from the sampled mining materials.

The following static analyses are recommended for all samples collected:

- Analysis of metal composition in solid phase according to method MA.200 - Met 1.2 (CEAEQ, 2014): Br, Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, F, Fe, Hg, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Se, Si, Sn, Sr, Th, Ti, Tl, U, V, W, and Zn.
- Acid-base balance (BAB), including total sulfur, sulfate (SO4), total carbon (C), and total carbonate (CO3), in accordance with standard MA.110 ACISOL 1.0 (CEAEQ, 2014).

A subset of samples must be subjected to a leaching test. The subsets must comprise at least 50% of the samples collected, ensuring that all samples with solid-phase metal concentrations (MA.200) exceeding the respective criteria for soil A, in accordance with the Characterization Guide, are included in the selected subset. The following leaching tests must be performed:

- Leaching test according to the synthetic precipitation leaching procedure (SPLP), which simulates acid rain in accordance with method MA. 100-Lix.com.1.1 (CEAEQ, 2012).
- Leaching test according to the CTEU-9 procedure, which uses a pH-neutral water leachate, according to method MA. 100-Lix.com.1.1 (CEAEQ, 2012).
- Leaching test according to the TCLP (*Toxicity Characteristic Leaching Procedure*) according to method MA. 100 - Lix.com.1.1 (CEAEQ, 2012).
- Analysis of the following parameters in the leachates from the two leaching tests (SPLP, CTEU-9.): Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, total reactive P, Pb, Sb, Se, Si, Sn, Sr, Th, Ti, Tl, U, V, W, Zn, Hg, F, Cl, SO4, PO4, NO2, NO3, Br, pH, acidity, alkalinity, conductivity, carbonates, and bicarbonates.

3.1.2.5 Frequency and monitoring period

It is recommended that an annual site visit be conducted by an experienced geologist:

- Collection of waste rock and tailings samples, as described in section 3.0, for geochemical analysis.
- Visual inspection of rocks and tailings placed on the site, as well as any observations of indicators of acid rock drainage (ARD).

3.1.2.6 Monitoring Report

The results of the geochemical analysis must be interpreted internally by a certified person and included each year in the site monitoring report. Every five years, a comprehensive report will be prepared and will present the results of continuous sampling and monitoring of waste rock and tailings. Although it is recommended that a separate annual geochemical report be prepared by an experienced geochemist identified in Section 5.0, it is also acceptable to include the results of geochemical monitoring as part of other reporting requirements.

A comprehensive geochemical report must include the following information:

- Documentation of sampling methods and results from semi-annual site visits.
- A compilation of geochemical data on waste rock and tailings collected up to the date of the report.
- A comparison of the geochemical data collected with the existing geochemical data set (WSP, 2023a); Any outliers, anomalies, or inconsistencies should be reported.
- Review of all water quality monitoring data to identify potential indicators of ARS/metal leaching (ML). Instructions for water quality monitoring and sampling are not included in this plan.

As part of the activities associated with updating the restoration plan, which must be completed every five years, a geochemical characterization of tailings, waste rock, and ore must be carried out. This study will be coordinated with the monitoring report listed in the previous section. This study will be initiated in the year prior to the renewal of the site restoration plan and will be based on the recommendations of the Guide to the Characterization of Mine Tailings and Ore (MELCC, 2020) to ensure that the tests meet expectations, particularly with regard to the number of samples, the nature of the tests to be performed, and the content of the reports presenting the results. The characterization of ore, waste rock, and tailings will be completed at the end of the mining period.

3.1.3 Closure phase

No specific monitoring will be required for the geochemistry of materials during the closure phase. The performance of recovery methods will be evaluated through water quality monitoring.

3.2 Cyanide destruction operations

Cyanide will not be used at Windfall prior to the operational phase. Consequently, no monitoring is planned prior to this phase.

3.2.1 Operational phase

The Cyanide Management Program, appended to RQC1-43, presents a comprehensive approach to cyanide (CN) destruction, water treatment, environmental monitoring, and discharge management, in accordance with the International Cyanide Management Code (ICMC). These elements will be central to mining operations.

Cyanide destruction occurs after the leaching process, at the stage where tailings are sent to a detoxification unit. WMG has proposed using the SO_2/oxygen process, which operates using two tanks in parallel. In these reactors, sulfur dioxide is added, while oxygen gas is injected from the bottom to activate the oxidation reaction. The system may include copper sulfate as a catalyst and hydrated lime to stabilize the pH. An agitator ensures mixing and treatment efficiency. This process converts cyanide into non-toxic compounds and reduces its concentration to a level considered safe for wildlife and ecosystems.

After detoxification, the solid residues will be filtered and then sent to the residue park or used as underground backfill. The treatment does not stop there: the water from the process will then pass through a biological treatment plant. This plant carries out two steps:

1. The transformation of thiocyanates and cyanates into ammoniacal nitrogen, bicarbonates, and sulfates.
2. Converting ammoniacal nitrogen into nitrates via nitrification.

This system ensures that potential contaminants are reduced to acceptable levels before being discharged into the mine effluent. Samples will be taken regularly from the mine effluent to validate compliance with current standards. In addition, a campaign to sample the air from the treatment plant is planned.

In terms of environmental monitoring, WMG already conducts regular and rigorous inspections of its facilities, which will continue. Detailed procedures will govern the inspection of tanks, pipes, and containment structures, particularly to detect any corrosion, leaks, or unauthorized modifications. The detoxification unit will be inspected at predetermined intervals, and any anomalies will be treated as internal non-compliance. In addition, pH sensors and gas detectors (HCN) will be installed at critical points to prevent exposure or accidents.

With regard to possible sources of contamination, WMG has implemented preventive and corrective measures to avoid contamination of surface and groundwater. Liquid discharges, including those from mining residues, will be contained using infrastructure equipped with geosynthetic liners, in particular LLDPE (low-density polyethylene) lined with geotextile. The tailings pond is designed to prevent any contaminated water from seeping into the ground, while interstitial water will be directed to a treatment plant before discharge. The groundwater monitoring program will provide a framework for environmental monitoring in relation to this valuable component.

The plan demonstrates a high level of preparedness and rigor in cyanide destruction, water treatment, continuous monitoring of facilities, and compliant management of mine effluent, always taking into account the protection of human health, the environment, and local communities. WMG seeks to position itself as a leader in sustainable mining management, with a clear commitment to transparency and regulatory compliance.

3.2.2 Closure phase

No specific monitoring is planned for the closure phase, as operations using cyanide will have ceased. The water quality monitoring program will validate the performance of the accumulation area recovery methods.

3.3 Water management and accumulation areas

Monitoring of the waste rock pile, water management basins and their associated ditches, and the tailings pond was recommended. These recommendations are subject to adjustment as engineering details are finalized, particularly when the structures are built.

3.3.1 Construction and operation phases

3.3.1.1 Basic principle of monitoring

The monitoring of water management structures and storage areas is based on two tools: visual inspection and instrumentation. The purpose of monitoring is to detect any phenomenon that could compromise the structural and functional integrity of the structures being monitored. The objective is to detect the early warning signs of these phenomena before they become uncontrollable.

3.3.1.2 Implementation and application of the monitoring program

The Site Manager is responsible for implementing and monitoring the monitoring program as soon as the infrastructure is put into service.

3.3.1.3 Different types of inspection

Visual inspection is the primary means of monitoring a water and/or mine tailings retention structure. Its primary purpose is to detect any significant phenomena that characterize its condition and to track its evolution. It serves as input for monitoring its behavior and assessing its safety as part of the annual performance report. The inspection will also be used to validate the presence of airborne dust at the tailings pond. It will guide the implementation of additional measures when deemed necessary, such as water spraying. Five types of inspections will be conducted at the Windfall site, as presented in the following sections.

Routine inspections during operation

Conducted daily by operator staff, usually at the beginning of the shift, routine inspections focus on potential operational risks. Among other things, the designated person will check the water level in the basins (against operating criteria), ensure that ditches and culverts are flowing freely (especially during thaw periods), and verify that the mechanical equipment installed in the basins (pumps, pipes, etc.) is functional.

The purpose of the daily inspection of the accumulation areas is to check the piles, verify the presence of furrows, holes, saturated areas, or signs of erosion or movement that could pose a challenge to site operations (e.g., detection of new cracks in the waste rock storage area for the upcoming shift).

Seasonal inspections

WMG will hire an outside firm to do four seasonal inspections each year of the storage areas, related ditches, and contact water retention basins.

The inspector, a qualified dam safety engineer, will observe and report, where applicable, the presence of cracks, surface deformations, erosion grooves, and seepage at the berms of the various basins and any adjacent ditches. During these inspections, the inspector will also verify that the emergency spillways are clear of any obstacles that could pose a problem in the event of an emergency spill.

A factual inspection report will be issued following the visit. It will compile field observations and instrument readings.

Statutory inspection

The statutory inspection is conducted once a year by representatives of the designer of the retention structures and accumulation areas (and/or the designated engineer, if applicable), accompanied by routine monitoring personnel. This visit, which is as comprehensive as possible, will result in the creation of a prioritized list of actions (maintenance, monitoring, or corrective).

Special inspections

Following an unexpected or suspicious observation or behavior, the designer may require special inspections to be carried out to ensure adequate monitoring for a specified period. The triggers for special inspections will be detailed in the action plan in the event of triggers or critical controls (TARP).

Special inspections

Following an unusual climatic or seismic event, the Designer may require a special visit. The triggers for special inspections will be detailed in the Trigger Action and Response Plan (TARP).

3.3.1.4 Instrumentation

The purpose of geotechnical instrumentation is to measure displacement and the generation of pore pressure at the tailings pile, in the foundation soils, and in the embankments of retention structures. In addition, in the case of tailings, changes in saturation through the filtered tailings will be monitored.

The typical instrumentation generally used for this purpose consists of four types of instruments:

1. **Vibrating wire piezometers**

These instruments, installed at critical sections, will monitor interstitial overpressure in the underlying foundation soils and validate the proper functioning of the drainage system and the containment element (the waterproof geomembrane).

2. **Inclinometers**

These instruments will monitor the movement of the slopes of the filtered tailings pile. Given the current configuration of the retention structures, preliminary engineering does not call for the installation of inclinometers in the slopes of these structures during the operational phase. The slopes of the tailings pile may be instrumented at the end of a filling phase. This phasing could be adjusted during operations.

3. Settlement plates

Installed beneath the surface to be monitored, these plates enable the consolidation and settlement of foundation materials or backfill materials to be monitored.

4. Suction probes and volumetric water content probes

These probes will be installed in the filtered tailings pile to monitor water content conditions.

Stability analyses will be used to determine piezometric thresholds for monitoring (piezometric level at which the safety factor under static stress conditions is less than 1.5) and alerting (piezometric level at which the safety factor under static stress conditions is less than 1.3). Deformation thresholds may also be established during the detailed engineering phase.

The definition of thresholds will be an input to the action plan in the event of triggers or critical controls (TARP). A detailed monitoring and alert level plan will be developed prior to the implementation of filtered residues and the filling of retention basins. Alert levels will be revised each time the geometry of the park changes.

During the operation, the Owner will monitor the values measured by the instruments and compare them to the alert and vigilance thresholds on a daily basis.

The values will be compiled and analyzed annually, and the Designer will issue a performance report on the retention structures.

3.3.1.5 Targeted infrastructure

The monitoring program applies only to the infrastructure listed in Table 3-1.

Table 3-1 Preliminary list of infrastructure covered by the structure monitoring program

	Routine inspection	Seasonal inspection	Statutory inspection	Specific inspection	Special inspection
Performed by / **Infra.**	**Operator**	**Designer**	**Designer/ Design engineer**	**Operator**	**Designer or Operator**
Basin A	X	X	X	If necessary	If necessary
Basin A pumping station	X	-	-	-	-
Basin B	X	X	X	If necessary	If necessary
Basin B pumping station	X	-	-	-	-
Basin C	X	X	X	If necessary	If necessary
Basin C pumping station	X	-	-	-	-
CP basin, known as the polishing basin	X	X	X	If necessary	If necessary
Polishing basin pumping station	X	-	-	-	-
Basin D	X	X	X	If necessary	If necessary
Basin D pumping station	X	-	-	-	-
Basin E	X	X	X	If necessary	If necessary
Basin E pumping station	X	-	-	-	-
Basin F	X	X	X	If necessary	If necessary
Basin F pumping station	X	-	-	-	If necessary
Basin J	X	X	X	If necessary	If necessary
Basin J pumping station	X	-	-	-	If necessary

	Routine inspection	Seasonal inspection	Statutory inspection	Specific inspection	Special inspection
Performed by / Infra.	Operator	Designer	Designer/ Design engineer	Operator	Designer or Operator
Basin P	X	X	X	If necessary	If necessary
Basin P pumping station	X	-	-	-	If necessary
PAR 1 basin	X	X	X	If necessary	If necessary
PAR 1 basin pumping station	X	-	-	-	If necessary
PAR 2 basin	X	X	X	If necessary	If necessary
PAR 2 basin pumping station	X	-	-	-	If necessary
PAR 3 pumping station	X	-	-	-	If necessary
Residue pile and peripheral ditches	X	X	X	If necessary	If necessary
Waste rock pile and peripheral ditches	X	X	X	If necessary	If necessary
Overburden pile and peripheral ditches	X	X	X	If necessary	If necessary

3.3.2 Closure phase

A visual inspection will be carried out in accordance with the terms agreed with the Department after the restoration of the accumulation areas. Since the restoration work will be completed during this phase, this involves monitoring the integrity of the accumulation areas after restoration.

3.4 Environmental incidents and accidents

3.4.1 Construction, operation, and closure phases

The accident risk analysis for the Windfall project, conducted as part of the environmental impact assessment (EIA) process (WSP, 2023), identified the incidents and accidents most likely to occur and potentially impact the environment. In this regard, a preliminary emergency response management plan has been developed and is presented in the appendix.

The results of the analysis suggest that the most likely events to occur are those associated with hazardous material spills, water or mine tailings pipeline leaks, and possible non-compliant discharges.

Surface water is the environmental component most likely to be affected by a potential incident of this type. However, considering that rainwater will be captured and confined within the stormwater management system and that water generated by mining activities will be collected, filtered, and treated to meet regulatory standards throughout the life of the site, the potential effects of an environmental incident will be contained within a local radius. In fact, if a hazardous material spill were to occur, surface water would be collected through collection ditches.

In addition, WMG has already committed to limiting supply activities to less than 60 m from a water body. Fuel supply activities must be carried out by adequately equipped service trucks using refueling nozzles specifically designed for flammable and combustible liquids and equipped with anti-drip spouts.

A drip pan will be positioned under the transfer points during refueling to eliminate any dripping onto the ground, and activities will be constantly monitored. This measure will apply mainly to the construction and closure phases, as there will be a fuel park during mining operations. Vehicles will therefore refuel at these locations. Thus, since activities that could degrade the soil during environmental events will take place in developed areas of the site, the risk of soil alteration adjacent to the site is low.

Spill kits (absorbent sheets, booms, drain covers) will be available in sufficient quantities to respond quickly and effectively in the event of an accidental spill. If spills occur, the debris collected during environmental response operations will be managed, characterized, and stored in accordance with the contaminated soil management grid in the MELCCFP's Response Guide – Soil Protection and Contaminated Land Remediation (hereinafter the Response Guide). When an incident occurs, WMG will promptly contact Emergency Environment and/or Environment and Climate Change Canada to notify them that an incident has occurred.

In order to maximize the effectiveness of its actions and minimize potential environmental impacts, WMG is already putting in place the human and financial resources to ensure the implementation and execution of an environmental monitoring and follow-up program, including a spill management plan (SMP). It should be noted that the site already has an SMP in place, which is expected to remain in effect until the end of the Project's useful life. The document is constantly reviewed by WMG's internal teams to ensure that it remains consistent with the materials present on site and that the response methods are appropriate, modern, and safe.

In short, the response strategy is defined based on various factors related to the incident, such as its scale, the types of products released, their volume and state (solid, liquid, gaseous), and the receiving environment. It also lists best practices for preventing incidents during activities deemed “high-risk” in order to reduce the likelihood of environmental incidents.

In order to properly document incidents, WMG uses three (3) documents: a spill log, an incident report, and an investigation report. The latter is only used in the event of a major incident. WMG assigns a unique identification number to each incident, regardless of the quantity and/or type of material spilled, to enable effective follow-up.

3.5 Waste and Hazardous Materials Management

The management of waste and hazardous waste at the Windfall site will be governed by a number of measures. The following table outlines the content of these measures.

Table 3-2 Measures planned for the management of waste (W) and hazardous waste (HW) by project phase

Planned measures for waste management (hazardous and non-hazardous)	Applicable Project Phase		
	Construction Phase	Operational Phase	Closure Phase
Regulatory compliance: Strict adherence to applicable laws and regulations, including the management of hazardous and non-hazardous materials, soil and water protection, and specific requirements of the MELCCFP.	X	X	X
Material management infrastructure: Sorting center installed during the construction phase. There will also be a dedicated composting area on site.	X	X	X
Compliance with the 3RV principles: Systematic application of the 3RV hierarchy (Reduce, Reuse, Recycle, Recover) in order to minimize final waste and maximize the recovery of residual materials.	X	X	X

Planned measures for waste management (hazardous and non-hazardous)	Applicable Project Phase		
	Construction Phase	Operational Phase	Closure Phase
Inspections of containers and storage areas: A visual inspection of MR containers is carried out and confirmation is obtained that materials are being segregated properly	X	X	X
Awareness and accountability: Continuously raise awareness among staff and subcontractors, clearly defining roles and responsibilities in waste management.	X	X	X
Management of specific materials: Specialized handling of construction materials (rubble, concrete, asphalt) with recycling where possible, as well as safe management of hazardous materials in accordance with standards.	X	X	X
Commitment to continuous improvement: Implementation of corrective action plans following internal non-compliance issues, adaptation of procedures to continuously optimize waste management throughout the project.	X	X	X

Furthermore, compliance with the 3RV principles identified above is detailed in the waste reduction plan in the following section. Details on the monitoring of the project phases are provided below.

3.5.1 Waste Reduction Plan

Reducing the amount of waste produced is key to promoting better waste management. Reducing waste at source, promoting reuse, recovering for recycling, and finally recovering waste through composting are solutions for reducing waste from the Windfall mining project. This reduction will apply to all phases of the Windfall project. WMG will comply with waste management prioritization measures in order of priority from a circular economy and climate change perspective, namely: reduction at source, reuse, recycling, recovery, and finally disposal of the ultimate material.

Reduction at source

Reduction at source refers to any action aimed at using fewer resources in order to generate less waste. In other words, the best waste is no waste. Some measures that WMG is currently implementing in this area include: replacing single-use products with multi-use products (eliminating water bottles in the cafeteria and providing water bottles to each new employee) and regularly maintaining mobile and fixed equipment to ensure optimal energy performance.

Reuse

Reuse involves using a product multiple times in order to limit waste production. One initiative currently being undertaken by WMG is the replacement of single-use items with reusable products whenever possible.

Recycling

Recycling refers to the transformation of waste materials into new products, thereby avoiding the use of virgin raw materials. WMG is currently adopting several measures to this end, including:

- Purchasing products made from recycled materials rather than virgin materials.
- Setting up sorting stations to ensure that recyclable materials are correctly directed to treatment centers.

Recycling

Recycling waste materials aims to transform waste into useful resources, thereby contributing to a circular economy. For example, WMG currently composts, which diverts organic materials from landfills to produce a natural soil amendment that enriches the soil and supports the gradual restoration of the Windfall site. This process not only reduces the environmental impact of waste, but also promotes more responsible and beneficial waste management. It refers to the transformation of waste into new products, thereby avoiding the use of virgin raw materials.

Disposal

Landfill disposal is the last resort for waste management. This option is the least desirable, as landfilled waste is generally neither recovered nor reused. WMG's objective is therefore to minimize the volume of materials sent for disposal.

3.5.2 Construction phase

No specific monitoring is planned during the construction phase for the management of residual materials and hazardous residual materials. However, the environmental monitoring program during the construction phase will include all of the mitigation measures listed in the previous section.

The site environmental supervisor will ensure that workers comply with the commitments listed in the program and that materials are sorted in accordance with the recommendations of the PGMR.

3.5.3 Operation phase

Various types of waste will be generated during the site's day-to-day operations. Monitoring will ensure that the volumes and nature of non-hazardous and hazardous waste estimated in the EIA are consistent and that their treatment and sorting are carried out as planned at the various sites authorized by the MELCCFP.

As part of routine site operations, the environmental team will monitor employees to ensure that waste sorting and recycling methods are being followed. The site's environmental department will ensure that it conducts tours of the storage areas for these residues and will report any non-compliance to users and sector managers and/or responsible foremen in order to correct the situation.

Follow-up will also be carried out to ensure that cardboard waste is stored and reused to feed the on-site composter and that waste from the composter is reused for progressive restoration work. The same type of monitoring will also be carried out for the sorting of uncontaminated wood on the waste rock pile to ensure that the materials stored there are eligible for shredding.

WMG will ensure that the site remains clean at all times. Every day, outdoor trash cans will be emptied, containers will be securely closed, and the team will ensure that no waste is left around the sorting center facilities or in any areas where trash cans are located. The sorting center site will also be fenced off.

Specific monitoring for MDRs

Contaminated soil will be subject to specific monitoring. WMG operations will occasionally generate some soil contamination, mainly through hydraulic fluid leaks from machinery. In such cases, the soil will be excavated, sampled, and placed in containers (e.g., roll-off type) before being shipped to the nearest authorized treatment center.

In the case of soil with a contamination level > C, WMG will use the services of a waste management contractor to dispose of it appropriately at an authorized site.

In the case of soil with a contamination level < C, WMG will, if necessary, use the services of a waste management contractor to dispose of it appropriately, including possibly at the Lebel-sur-Quévillon LEET as daily cover.

Finally, sludge from the mobile equipment garage wash area will be sampled before final disposal. Oily water will be treated on site using appropriate equipment (water-oil separator), while sludge will be disposed of at an authorized site and managed as MDR.

Follow-up report

As requested by COMEX, WMG will submit an annual report to MELCCFP on hazardous and non-hazardous waste. This follow-up report will be added to the annual documentation produced and will be submitted jointly or in accordance with regulatory requirements.

Hazardous waste:

Data will be submitted using the annual management report under the Regulation respecting hazardous materials (ch. Q-2, r. 32) if thresholds are exceeded. To monitor the quality of used oil, a summary report covering the period of operation from January to December will be produced annually and submitted to the MELCCFP according to the regulatory schedule. This report will contain the quantities of oil burned, the date, and the sampling results.

Non-hazardous residual materials:

A summary report covering the period of operation from January to December will be produced annually and submitted to the MELCCFP in the following year's annual report.

3.5.4 Closure phase

No specific monitoring is planned during the closure phase for residual materials and residual hazardous materials. However, the environmental monitoring program during the closure phase will include all of the mitigation measures listed in the previous section.

The site environmental supervisor will ensure that workers comply with the commitments listed and that materials are sorted in accordance with the recommendations of the PGMR.

3.6 Drinking water distribution network

Given the presence of workers on site during the construction, operation, and closure phases, the quality of drinking water must be monitored throughout these phases.

WMG will monitor the quality of drinking water distributed on the mining camp site for as long as there are workers occupying the camp. The program for monitoring the quality of the water distributed, presented in Table 3-2, was designed based on the *Regulation respecting the quality of drinking water* (RQEP, ch. Q-2, r. 40) and the MELCCFP's interactive table “Controls on the quality of drinking water distributed.”

The following parameters were taken into account:

- A sodium hypochlorite-chlorinated water distribution network;
- 600 employees present at the camp;
- Operated by WMG (one company);
- Supplied from wells, without the addition of ozone or chlorine dioxide;
- Operated annually.

It should be noted that the MELCCFP's interactive table indicates that no monitoring is required, but WMG will nevertheless carry out monitoring to ensure that the water is safe to drink and to comply with the *Regulation respecting occupational health and safety* (s-2.1, r. 13).

3.6.1.1 Sampling plan

Sampling will be carried out at well P-5. The analyses will quantify certain physicochemical and biological parameters (see Table 3-2). The methodology complies with the standards for sampling and storing water samples set out in Appendix 4 of the RQEP (Q-2, r. 40).

Based on the characterization of the groundwater quality at well P-5, green sand filters will be used to remove manganese in order to comply with the RQEP and aesthetic objectives. Iron will also be removed by the filters to meet aesthetic objectives for the water. These parameters will therefore also be added to the monitoring program in the distribution network.

3.6.1.2 Response mechanism

An action plan in the event of quality standards being exceeded must be established pursuant to section 36.2, introduced by section 1 of the RQEP (Q-2, r. 40). People likely to consume drinking water must be notified.

3.6.1.3 Frequency and monitoring period

The frequency of sampling and the applicable physicochemical and microbiological parameters are presented in Table 3-3. The analysis location "External" refers to an external laboratory accredited under the MELCCFP's Laboratory Accreditation Program (PALA).

Table 3-3 Sampling frequency and applicable physicochemical and biological parameters

Analytical parameters	Frequency	Sampling method	Location of analysis	Location
E. Coli	Twice a month	Punctual	External	Factory inlet, after tanks, at the three ends of the network
Atypical colonies	Minimum 7 days between samples	Punctual	External	
Total coliforms	Once a month	Punctual	External	
pH, color, turbidity, total iron, total manganese	Once a month	Punctual	At the site (colorimeter)a	Network environment (Multiservice building or equivalent)

Analytical parameters	Frequency	Sampling method	Location of analysis	Location
THM	Once a year between July < and October	Punctual	External	At the three ends of the network
Nitrates and nitrites	4 times a year, minimum 60 days between samples	Punctual	External	Network environment
Copper, lead	Twice a year	Punctual, after a flow of 5 minutes and a stagnation period of 30 minutes	External	Network environment
Inorganic substances (Appendix 1 RQEP) other than free residual chlorine, turbidity, pH, nitrates-nitrites, lead, and copper	Once a year, between July 1 and October 1	Punctual	External	Network environment

Note: Chlorine will be analyzed as required by the process.

3.6.1.4 Monitoring report

A report will be produced presenting the monitoring of drinking water quality. The data collected may be submitted annually as part of the annual report to the MELCCFP.

3.7 Sanitary water

Given the presence of workers on site during the construction, operation, and closure phases, the sanitary water treatment system will need to be monitored throughout these phases.

The sanitary water treatment system to be installed at the Project site will require regular monitoring to ensure that its components are functioning properly and to detect any defects that could lead to contamination. As mentioned in Addendum 1 (section 1.3.2.7), the wastewater treatment system will be implemented using an advanced secondary wastewater treatment device with a polishing field. The treatment device will consist of aerobic biological treatment. Once the nature of this system has been finalized, an analysis program will be prepared in accordance with the expectations of the MELCCFP, setting the parameters to be analyzed and the sampling frequency (WSP, 2023c). This analysis program will be ratified with the ministerial authorization for the sanitary water system that will be issued for the Project.

The analyses will be sent to a laboratory accredited by the MELCCFP, when required, for the parameter concerned. It should be noted that treatment targets will be established during the authorization process. These standards will be based on the final technology selected and the *Guide for Establishing Discharge Standards for Domestic Wastewater Treatment Facilities* (MELCCFP).

Ultimately, the domestic wastewater treatment process will generate sewage sludge, which will be pumped by a specialized contractor responsible for its disposal. WMG plans to use the services of a specialized contractor. This will allow the sewage sludge to be recycled in accordance with the service's authorizations.

3.8 Air emissions from mining operations

The program for monitoring air emissions from mining operations applies only to the exploitation phase. In addition to the diffuse emissions generated by general activities at the Windfall site, the ore processing and filtration plants will include various chimneys, which are fixed sources. These will also be monitored using the reference methods prescribed in the *Guide to Sampling for Environmental Analysis – Book 4 – Sampling of Atmospheric Emissions from Fixed Sources*. As stipulated in the *Regulation respecting the purification of the atmosphere* (RAA, c. Q-2, r. 4.1), sampling will begin within one year of the plants becoming operational and will be repeated every three years. A quote will be prepared before sampling activities begin and sent to the MELCCFP for approval. Sampling at the chimneys will be governed by the ministerial authorization issued for the site's commissioning. WMG has committed to including potential sources of cyanide emissions in the ventilation of the ore processing plant, as well as atmospheric emissions from ventilation stacks, to the extent that sampling methods representative of current conditions can be developed.

With regard to fugitive emissions associated with wind erosion, WMG has committed to implementing a monitoring program at the tailings pond. This program includes conducting visual inspections (in addition to those described in section 3.3) and maintaining a record of spreading activities.

Monitoring of the off-site impact of site activities is detailed in Section 4.1 Ambient Air.

4 Physical environment

4.1 Ambient air

The mitigation measures planned for the ambient air component are presented in Table 4-1.

Table 4-1 Common and specific mitigation measures for the ambient air component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Exploitation	Closure	
AIR01	X	X	X	Use water or dust suppressants on traffic routes during activities to prevent, as much as possible, fugitive dust emissions associated with activities that may cause dust to be stirred up. The dust suppressant used shall comply with BNQ 2410-300.
AIR02	X	X	X	Restrict access to designated areas and limit vehicle speeds on various construction sites and during mining operations. Traffic signs will be installed at designated locations.
AIR03	X			Rather than burning, shred tree trimmings and brush cuttings on site as much as possible, then spread them around.
AIR04	X	X	X	Where possible, use electricity from the Hydro-Québec grid as the primary source of energy.
AIR05	X	X	X	Continue to evaluate energy-saving initiatives on an ongoing basis in order to reduce GHG emissions and regulated pollutants in equipment selection, construction methods, and operating modes.
AIR06	X	X	X	Raise awareness among workers about factors that influence fuel consumption, including effective management of acceleration and deceleration, as well as bringing the vehicle to a complete stop, when possible, during periods of waiting (“idling”).
AIR07	X	X	X	Validate the feasibility of using biofuels, such as biodiesel, in accordance with the recommendations of machinery manufacturers.
AIR08		X	X	Establish mechanisms for monitoring fuel and electricity consumption in operations management and for fleet maintenance.
AIR09	X	X	X	Produce and implement a dust management plan that includes the different phases of the project.
NOR01	X	X	X	Ensure that vehicle and machinery exhaust systems are in good condition and operating optimally to minimize air contaminant emissions, and ensure that the same applies to dust collection systems for equipment and machinery equipped with them. Reference: Clean Air Regulation, Section 6.
P01		X	X	Gradually restore the tailings pond in three stages to reduce areas susceptible to wind and runoff erosion.
P26	X	X	X	An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Exploitation	Closure	
P29		X		Leave inactive areas of the tailings pond covered with snow during the winter period: during the winter months, the passive area, final slopes, and inner slopes are considered covered and inactive.
P30		X		Water the inactive areas of the tailings pond using a water truck when necessary.
P31		X		Install dust barriers on slopes and final (outer) surfaces of the tailings pond.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

4.1.1 Construction phase

No instrumented monitoring of ambient air will be carried out during the construction phase. The measuring devices described below will be installed during the construction phase. However, the environmental monitoring program during the construction phase will include all of the mitigation measures listed in the previous section.

The site environmental supervisor will ensure that workers comply with the commitments listed therein.

4.1.2 Operational phase

The ambient air quality monitoring program aims to ensure compliance with the air quality standards and criteria applicable in the area surrounding the Windfall project facilities.

The program details the substances covered by this monitoring, the air quality standards and criteria applicable to these substances, the methods, analyses, equipment, and procedures to be used, as well as the specific conditions of the sampling sites for this program.

4.1.2.1 Standards

The document “Quebec Air Quality Standards and Criteria, Version 9” from the Ministry of the Environment, Climate Change, Wildlife and Parks (MELCCFP, 2025) defines the air quality standards and criteria in Quebec as follows:

“The standards and criteria were designed for evaluating air quality measures and for studying projects that generate air contaminant emissions and are submitted to the MELCCFP for authorization. A reference threshold is referred to as a ‘standard’ when it is included in the *Regulation respecting air quality* (RAA).”

The fact that a substance does not appear in Appendix K of the RAA does not mean that its impacts on the population and the environment do not need to be assessed. The MELCCFP publishes a list of air quality criteria that must be assessed before an authorization is granted (MDDELCC, 2016). In addition, if an emitted substance is not included in the list of air quality criteria, the MELCCFP studies the impacts of that substance and determines an air quality criterion for it, if applicable.

Standards and criteria are established for specific periods and, in some cases, with specific determination methods. For example, almost all metals must be quantified according to their presence in total particulate matter, while nickel and manganese must be quantified in respirable PM10 particulate matter. The standards and criteria applicable to this baseline condition are presented in Table 4-2. The metals included in the monitoring are those to which the project contributes significantly and for which the standard or criterion is based on a period of at least 24 hours due to the sampling method. In the case of crystalline silica, only the annual criterion will be usable. Total chromium characterized in the monitoring does not have a standard listed in the RAA but will be used to quantify the majority presence of trivalent chromium; hexavalent chromium will not be sampled.

It is important to note that these standards and criteria apply only outside the property boundary of a facility and outside any industrial zone. The concentration in the air of respirable particles with an aerological diameter of 10 microns and less, PM10, is not standardized in the RAA or in the MELCCFP's list of air quality standards and criteria.

Table 4-2 Air quality standards and criteria

Substance	Particle type of the standard	Period	Limit value [1] ($\mu g/m^3$)	Type of reference value
Total particulate matter (TPM)	PST	24 hr	120	Standard
Fine particulate matter (PM2.5)	PM2.5	24 hr	30	Standard
Antimony (Sb)	PST	Annual	0.17	Standard
Silver (Ag)	PST	Annual	0.23	Standard
Arsenic (As)	PST	Annual	0.003	Standard
Baryum (Ba)	PST	Annual	0.05	Standard
Beryllium (Be)	PST	Annual	0.0004	Standard
Cadmium (Ca)	PST	Annual	0.0036	Standard
Trivalent chromium (Cr III)	PST	Annual	0.1	Standard
Hexavalent chromium(Cr VI)	PST	Annual	0.004	Standard
Total chromium	s.o.	N/A	N/A	N/A
Cobalt	PST	Annual	0.1	Criterion
Copper (Cu)	PST	24 hr	2.5	Standard
Manganese (Mn)	PM10	Annual	0.025	Criterion
Nickel (Ni)	PM10	24 hr	0.07	Standard
		Annual	0.02	
Lead (Pb)	PST	Annual	0.1	Standard
Thallium (TI)	PST	Annual	0.25	Standard
Vanadium (V)	PST	Annual	1	Standard
Zinc (Zn)	PST	24 hr	2.5	Standard
Crystalline silica	PM4	Annual	0.07	Criterion
	PM10	1 hr	23 [2]	Criterion

Notes: [1] MELCCFP, 2025. Quebec Air Quality Standards and Criteria, Version 9, Quebec City, Air Quality and Climate Branch, [Online]. www.environnement.gouv.qc.ca/air/criteres/index.htm
N/A No applicable standards

4.1.2.2 Sampling stations

Map 4-1 shows the location of the sampling stations that will be used for environmental monitoring of the Windfall project during the operational phase. Two stations are planned. Each station will be located in an area that will allow for the assessment of air quality that could affect sensitive receptors near the mine.

Each station will be positioned to optimize compliance with the following best practice criteria:

- Located at least 60 m from a significant watercourse or basin;
- Located at least twice the height of windbreaks;
- Located so that sampling nozzles or collection points are at least 2 m above the ground;
- Located at least 10 m from a road;
- Located at least 30 m from an unvegetated surface that may emit dust;
- Located at least 20 m from the ground footprint of tree foliage.

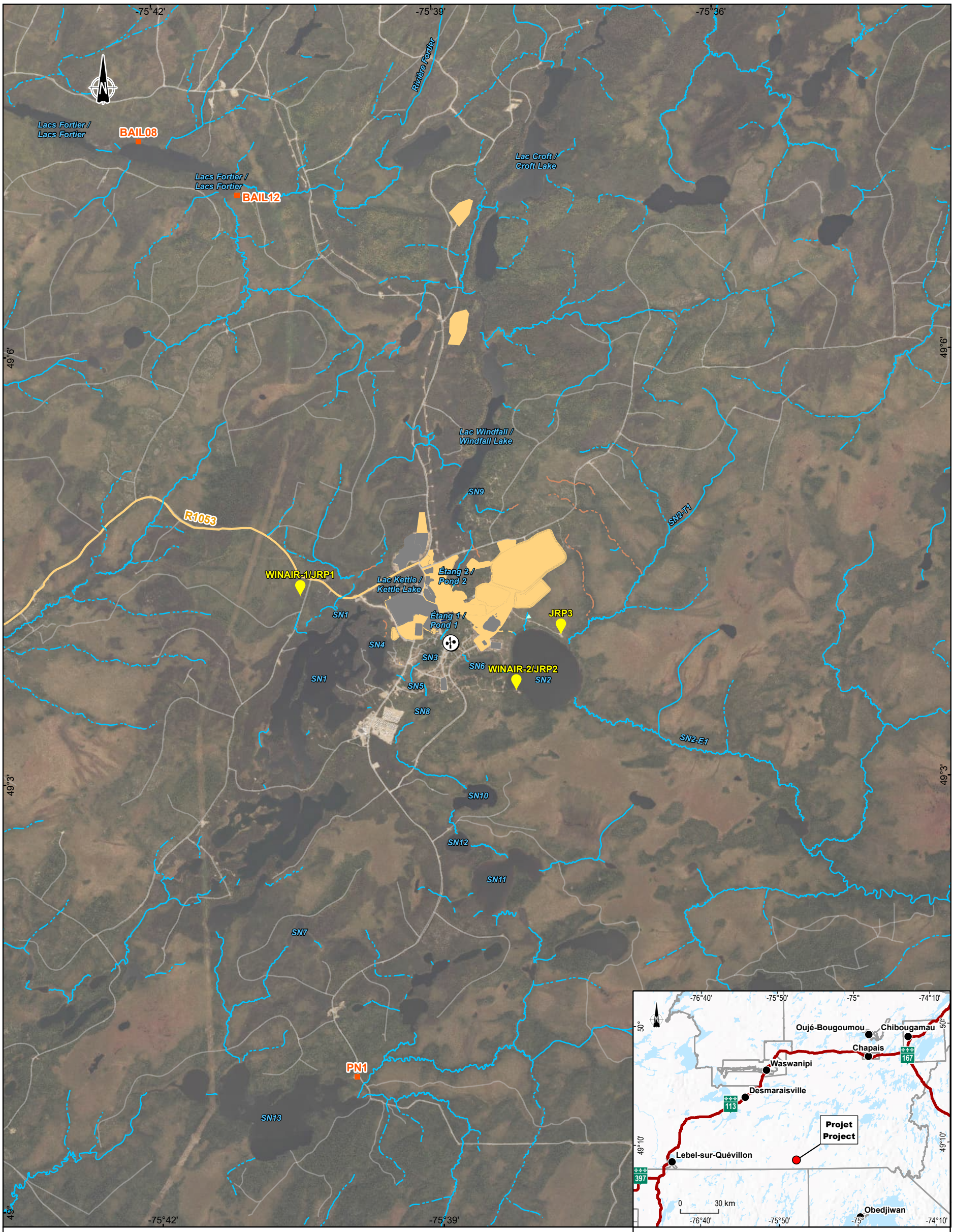
As shown on Map 4-1, the planned stations are at least 60 m from significant bodies of water and a good distance from busy roads. Once the site has been developed and cleared, there will be no significant windbreaks; this development will also meet the criterion of distance from the ground footprint of tree foliage. A platform will be used to ensure a sampling height of at least 2 m. The site development will meet the criterion of distance from surfaces likely to emit dust.

The ambient air quality monitoring program is a dynamic tool that can be adapted to operating conditions. Consequently, the location of the stations may change depending on operating conditions or the conditions of the receiving environment. Any changes to the location of the stations required during the operational phase will be submitted in advance to the MELCCFP for approval. A brief description of the locations of the ambient air sampling stations is presented in Table 4-3.

Where possible, the layout of sites hosting sampling stations will be carried out in accordance with the *Guidelines for Air Quality Monitoring Stations* (CEAEQ, 2017).

4.1.2.3 Meteorology

A weather station will be kept in operation during operation in order to obtain the data necessary for interpreting air quality data. The station is already in place and equipped with the instruments listed in Table 4-4.



Suivi de la qualité de l'air / *Air Quality Monitoring*

- Station projetée / *Proposed station*
- Station existante / *Weather Station*
- Récepteur sensible près du site / *Sensitive Receptors Near Site*

Composantes du projet / *Project Components*

- Infrastructure actuelle / *Current infrastructures*
- Infrastructure projetée / *Planned infrastructure*

Réseau routier / *Road Network*

- Route principale / *Main road*
- Chemin forestier principal / *Main forestry road*
- Chemin forestier secondaire / *Secondary forestry path*

Cours d'eau / *Waterflow*

- Canal / *Channel*
- Cours d'eau intermittent / *Intermittent Watercourse*
- Cours d'eau intermittent partiellement souterrain / *Partially Underground Intermittent Watercourse*
- Cours d'eau intermittent souterrain / *Underground Intermittent Watercourse*
- Cours d'eau permanent / *Permanent Watercourse*
- Cours d'eau permanent partiellement souterrain / *Partially Underground Permanent Watercourse*
- Cours d'eau souterrain / *Damaged Underground Watercourse*
- Fossé de drainage / *Drainage ditch*
- Inexistant / *Inexistent*

Gold Fields

Projet Windfall - Programme de surveillance et suivi /
Windfall Project - Monitoring and Supervision Program

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte 4-1 / *Map 4-1*
Localisation des stations de suivi de la qualité de l'air / *Location of Air Quality Monitoring Stations*

Sources :
CanVec 1M, Réseau hydrographique, 2019
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
MRNF, Mosaïque d'orthophotographies aériennes de l'inventaire écoforestier, 2024

0 0,5 1 km
MTM, Fuseau 9 / *Zone 9*, NAD83

2025-07-23

Préparation / Preparation : S. Marcoux
Dessin / Drawing : E. Kheiri
Vérifié par / Verification : M.-H. Brisson
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CA0023271_9538_su_ps25_c4_1_091_climat_stations_250723

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La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. / Boundary accuracy and measurements shown on this document are not to be used for engineering or land delineation purposes. No land analysis was carried out by a land surveyor.

Table 4-3 Description of ambient air sampling station locations

Designation	Description	Coordinates	
		Latitude	Longitude
WINAIR-1/JRP1	Station northwest of the project site	49° 04'18.34"N	75°40'27.87"O
WINAIR-2/JRP2	Station southeast of the project site	49° 03'37.70"N	75°38'10.02"O
JRP3	Dust fall gauge site east of the site	49°04'00.94" N	75°37'41.03"O

Table 4-4 Instruments de la station existante

Equipment	Parameter	Type	Calibration type	Field QA/QC activity
Rain gauge	Precipitation	Pluvio 400	In factory	Annual inspection
Pyranometer	Solar radiation	SP Lite2	In Factory, initial	Calibration every 2 years
Barometer	Atmospheric pressure	PTB110	In factory	Calibration every 2 years
Sonic sensor -	Snow cover	SR50A	-	-
Temperature probe	Temperature and humidity	HygroVUE10	In factory	Annual inspection
Sonic anemometer	Wind speed and direction	860004	In factory	Annual inspection

4.1.2.4 Sampling plan

Sampling methodology

As mentioned in Table 4-5, the sampling methods used will follow the specifications set out by the US Environmental Protection Agency (USEPA) in the document *List of designated reference and equivalent methods* (USEPA, 2023; hereinafter referred to as the "USEPA List of Methods"). However, there are certain contaminants included in this monitoring program that are not mentioned in this document. In addition, any equivalent method published by Environment and Climate Change Canada (ECCC) and/or recommended by the MELCCFP for a given contaminant will prevail. The sampling program is the same for both stations shown in Table 4-5.

Table 4-5 Sampling methodology by substance

Substance	Dwsignation	Sampling method	Frequency	Duration	Reference method
Total suspended particles	PMT	Sequential, high air flow	Every 6 days	24 hours	US-EPA: 40 CFR Part 50, Appendix B complétée par Compendium Method IO-2.1
Metals	By metal element	Sequential, high air flow	Every 6 days	24 hours	Associé à l'échantillonnage séquentiel des PMT
Fine particles	PM2.5	Sequential, low air flow	Every 6 days	24 hours	Manual Equivalent Method: RFPS-1014-219
Crystalline silica	Silica on PM4	Sequential, low air flow	Every 12 days	96 hours	Méthode CARB modifiée* ; analyse NIOSH 7500
Dust fallout	Total dust fallout	Sequential, drop gauge	Monthly during non-winter months	30 days	MA.100 RP1.0

All metals will be sampled from total suspended particulates; the assessment of metals whose standards are based on their concentrations in PM10 will therefore be conservative. The method used for sampling silica is based on a California Air Resources Board (CARB) method.

A low-flow Wilbur sampler configured at 16.7 LPM and equipped with a Tisch TE-PM4C selective head is used. The sampling duration is 96 hours (4 days from midnight to midnight), allowing a volume of approximately 96 m^3 to pass through the filter. This sampling duration could be revised downward if filter saturation is observed.

The laboratory uses the NIOSH 7500 method, which achieves a detection limit of 5 micrograms for the sample. This allows the minimum concentration at 1 MDL (once the detection limit) to be determined at 0.063 $\mu g/m^3$, just below the annual criterion for silica in PM4.

In addition to air sampling, dust fallout will be characterized at the two air quality monitoring stations and at a third location, JRP3. Dust fall gauges will be deployed and used to collect dust fall over 30-day periods according to the MA.100 Part 1.0 method. Dust gauge monitoring will be carried out during the period of the year when there is no snow cover on the ground.

The equipment used can operate outdoors year-round. No shelter is planned for the instruments. The site will have an electrical power supply from the local grid.

Quality assurance/quality control

The equipment will be calibrated and standardized according to the manufacturer's recommendations:

- The calibration curve of the high-flow air sampler will be reviewed every three months;
- The flow rate of the Wilbur low-flow air sampler will be checked.

When sampling, standardized field sheets will be used to define the important sampling parameters, namely:

- The date and time the test began;
- The date and time the test ended;
- The start and end values of the meter (high air flow sampler only);
- The measurement point ID and the device used;
- The test ID and the filter used;
- The device's set flow rate;
- The pressure drop measurement (high-flow air sampler only);
- The name of the technician in charge of sampling.

This data will be used to assess the validity of the test based on the required sampling parameters (sampling duration and sample volume according to the method).

Certificates of analysis from accredited laboratories and evidence of equipment calibration and standardization will be retained. Field and laboratory blanks will be taken to reach 10% of the total number of samples.

- Field blank, high-volume air sampler, and Wilbur: 3 each;
- Laboratory blank, high-volume air sampler, and Wilbur: 3 each;
- Field blank, crystalline silica: 2;
- Laboratory blank, crystalline silica: 2.

Additional blanks, including filter blanks, may be performed if potential contamination is detected in other types of blanks.

In accordance with section 201 of the RAA, the analyses required to ensure compliance with this Regulation must be performed by a laboratory accredited by the MELCCFP under section 118.6 of the *Environment Quality Act* (LQE). When there is no laboratory accredited for the analysis of a given substance, the samples taken will be sent to a laboratory that meets the ISO/IEC 17025 standard

Laboratory analysis

A laboratory will be selected to perform the required high-throughput equipment analyses. It will also be responsible for implementing a quality assurance process. This process will be documented in the analysis certificates produced by the laboratory (ISO/IEC 17025).

Sampling schedule

The schedule will be established for sequential sampling with the objective of following the schedule of the Quebec Air Quality Monitoring Network (RSQAQ) in order to enable possible comparisons with data from other stations.

4.1.2.5 Intervention mechanisms

In order to avoid exceeding applicable air quality standards and criteria, WMG has provided for mitigation measures in the atmospheric emissions dispersion modeling study process (WSP, 2024), including a specific dust management plan (Appendix A). In the event that applicable standards or criteria are exceeded, WMG undertakes to discuss additional intervention mechanisms and mitigation measures with the MELCCFP.

Monitoring procedures, including sampling frequencies, will be reassessed jointly with the MELCCFP after the third year of mine operation.

4.1.2.6 Monitoring report

A report compiling the results of ambient air quality monitoring will be prepared and will include the following information:

- Date and duration of measurements taken;
- Geographical coordinates of measurements;
- Equipment used and methodology applied;
- Analysis of results and comparisons with applicable ambient air quality standards and criteria;
- Possible causes of exceedances of applicable standards or criteria, if any;
- Description of mitigation measures implemented, if any.

This annual ambient air quality monitoring report will be submitted to the MELCCFP at the end of the monitoring period it covers, normally as part of the site's overall annual report.

4.1.3 Closure phase

The ambient air monitoring described in the operational phase will continue at the start of the closure phase until the infrastructure has been dismantled. Monitoring will therefore cease once the accumulation areas have been restored and the buildings on the site have been dismantled.

4.2 Greenhouse gases

The mitigation measures planned for the greenhouse gas component are presented in Table 4-6.

Table 4-6 General and specific mitigation measures for the greenhouse gas component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
AIR02	X	X	X	Restrict access to designated areas and limit vehicle speeds on various construction sites and during mining operations. Traffic signs will be installed at designated locations.
AIR03	X	X	X	Rather than burning, shred tree trimmings and brush cuttings on site as much as possible, then spread them around.
AIR04	X	X	X	Where possible, use electricity from the Hydro-Québec grid as the primary source of energy.
AIR05	X	X	X	Continue to evaluate energy-saving initiatives on an ongoing basis in order to reduce GHG emissions and regulated pollutants in equipment selection, construction methods, and operating modes.
AIR06	X	X	X	Raise awareness among workers about factors that influence fuel consumption, including effective management of acceleration and deceleration, as well as bringing the vehicle to a complete stop, when possible, during periods of waiting (“idling”).
AIR07	X	X	X	Validate the feasibility of using biofuels, such as biodiesel, in accordance with machinery manufacturers' recommendations.
AIR08		X		Establish mechanisms for monitoring fuel and electricity consumption in operations management and for fleet maintenance.
AIR09	X	X	X	Produce and implement a dust management plan that includes the different phases of the project.
NOR01	X	X	X	Ensure that vehicle and machinery exhaust systems are in good condition and operating optimally to minimize air contaminant emissions, and ensure that the same applies to dust collection systems for equipment and machinery equipped with them. Reference: Clean Air Regulation, Section 6.
PLA01	X	X	X	For temporary construction site facilities (site offices, access roads, etc.), prioritize sites that have already been deforested or disturbed.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
P26	X	X	X	An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.
P32	X	X	X	Implement the Monitoring and Follow-up Program

Since the site is already subject to RDOCECA and INRP, greenhouse gas emissions will continue to be monitored throughout the construction, operation, and closure phases. Therefore, in order to quantify the actual greenhouse gas (GHG) emissions from the Windfall project during operation, WMG will monitor activities, data, and parameters associated with GHG sources.

4.2.1.1 Context and objectives

The monitoring plan will establish responsibilities and procedures for collecting, analyzing, and documenting data and information related to the Project. This data will be used to produce the GHG emissions reports required by the *Regulation respecting the mandatory reporting of certain air contaminant emissions* (RDOCECA, Q-2, r.15).

The monitoring plan specifies the sources of information and data to be used, the methods, instruments, and frequencies of monitoring, as well as the method of processing and recording this information. When monitoring equipment is used, the monitoring plan inherently provides for compliance with the procedures for use and calibration specified by the equipment manufacturer.

4.2.1.2 Responsibilities

WMG will be responsible for implementing the monitoring plan and the regular activities outlined therein. WMG will therefore be responsible for setting up and using the tools, instruments, procedures, and logistical and administrative structures required for the annual calculation and reporting of GHG emissions related to the Project.

4.2.1.3 Activities included in monitoring

The following Project activities have been identified as GHG emitters and are incidentally included in GHG emissions monitoring:

- Fuel consumption (diesel, gasoline, propane) of machinery and equipment during the construction phase;
- Fuel consumption (diesel, gasoline, propane) by machinery and equipment during the operational phase;
- Fuel consumption (diesel, propane) by fixed sources during the construction and operational phases;
- Electricity consumption from the grid.

4.2.1.4 Calculation methodology

For each piece of machinery or equipment, the data obtained from the emission calculation protocols will be summed by converting CH_4, N_2O, and refrigerant emissions into CO_2 equivalent tons, using the global warming potential (GWP) factor for these gases. These GWP values are cited in the MELCCFP's *Guide to Quantifying Greenhouse Gas Emissions*. If the Guide is revised during the course of the Project, the calculation value for the applicable year will be adjusted. Emission factors determined by ECCC may also be used, if necessary.

Mobile equipment

The protocols cited in section QC-27 of RDOCECA (R.R.Q., c. Q-2, r.15) will be used for mobile equipment. CO_2 emissions will be calculated according to protocol QC.27.3.1. Similarly, protocol QC.27.4.1 will be used to inventory and calculate CH_4 and N_2O emissions from this same equipment. Emission factors will be taken from Table 27-1 of the same regulation, in the same section.

Fixed equipment

The calculation method in section QC.1.3 of Appendix A.2 of RDOCECA, more specifically calculation protocol QC.1.3.1, will be used to assess CO_2 emissions from fixed equipment. Default values for CO_2 emission factors will be taken from Tables 1-1 to 1-6. For CH_4 and N_2O emissions from the same equipment, protocol QC.1.4.1, the default emission factors for fuel emissions will be selected from Tables 1-3, 1-6, or 1-7 for which the fuel used has a calorific value specified in Tables 1-1 and 1-2.

4.2.1.5 Main data and parameters

Basic data

The main operational parameters of the Project are:

- Fossil fuel consumption in liters during the construction phase;
- Annual fossil fuel consumption in liters or cubic meters during the operational phase;
- Annual electricity consumption in kWh;
- Where applicable, the biodiesel content of the diesel consumed during construction or operation.

Intermediate parameters

The following data and parameters are intermediate parameters required by the assessment to process, obtain, or validate monitoring data:

- GHG emission factors for trucks and equipment;
- GHG emission factors for stationary sources;
- GHG emission factors associated with the use of electrical energy;
- GHG PRPs emitted by the Project.

Final parameter

The output parameter of the GHG emissions reduction assessment is tons of CO_2 equivalent (t CO_2eq).

Parameters monitored

The tasks in the monitoring plan for each stage of the Project are presented in Table 4-7.

4.2.1.6 Implementation schedule

Annual emissions estimates will be calculated after the end of each calendar year in order to meet the reporting deadlines applicable to RDOCECA and INRP.

4.2.1.7 Additional monitoring

In addition to enabling the reporting of emissions required by RDOCECA, the annual quantification of emissions will make it possible to assess the impact of the GHG emission reduction measures put in place and, if necessary, to guide the planning and implementation of additional mitigation measures.

In addition, quantifying annual GHG emissions will make it possible to identify the main sources as a percentage of total emissions. The dominant GHG sources identified will be those for which an annual verification will be carried out in order to identify opportunities to reduce these emissions. The verification of these opportunities will include, among other things:

- Verification of the technical and economic capacity of new substitute technologies aimed at reducing emissions;
- Verification of the technical and economic capacity of substitute fuels and forms of energy aimed at reducing emissions;
- Review of operating procedures aimed at reducing emissions.

This monitoring will therefore include updates on technological improvements that could lead to a conversion in the use of fossil fuels from fixed and mobile sources. In addition, where possible, WMG will assess the possibility of:

- Using less energy-intensive equipment;
- Storing energy;
- Continuing to evaluate low-carbon energy sources;
- Optimizing processes to limit energy consumption;
- Applying best practices in explosives management;
- Sequestering carbon.

This additional monitoring will be included in the annual report every three years, allowing technologies to develop and relevant technical and economic studies to be carried out. It will begin in year 3 of operation and will be carried out three times (years 3, 6, and 9).

Table 4-7 Parameters monitored as part of the GHG monitoring plan

Element	Method	Unit	Potential source	Storage	Frequency	Alternative data verification element
Amount of fuel consumed during construction (by fuel type)	Documented	L	Invoices	Paper and IT	Annual	Invoice/transport voucher/fuel key
Amount of fuel consumed during construction (by fuel type)	Documented	L	Invoices	Paper and IT	Quarterly	Invoice/transport voucher/fuel key
Biodiesel content of diesel fuel	Documented	%	Diesel fuel technical data sheet	Paper and IT	Annual	
Electricity consumption	Documented	kWh	Hydro-Québec meter reading	Paper and IT	Monthly	Engineering calculation based on power
Emissions factors for fuel combustion in stationary sources	Documented	kg CO_2/L kg CH_4/L kg N_2O/L	ECCC or RDOCECA	IT	Annual	
Fuel combustion emission factors in mobile sources	Documented	kg CO_2/L kg CH_4/L kg N_2O/L	ECCC or RDOCECA	IT	Annual	
Emission factors – Use of electrical energy	Documented	Tonne CO_2eq/kWh	ECCC or Hydro-Québec	IT	Annual	
Global warming potential of GHGs	Documented		ECCC or MELCCFP	IT	Annual	

4.3 Noise and Vibration

The mitigation measures planned for the Noise and Vibration component are presented in Table 4-8.

Table 4-8 Common and specific mitigation measures for the Sound Environment and Vibrations component

Measure code or commitment number	Work Phase			Description of the mitigation measure
	Construction	Operation	Closure	
AIR02	X	X	X	Restrict access to designated areas and limit vehicle speeds on various construction sites and during mining operations. Traffic signs will be installed at designated locations.
NOR01		X	X	Ensure that vehicle and machinery exhaust systems are in good condition and operating optimally to minimize air contaminant emissions, and ensure that the same applies to dust collection systems for equipment and machinery equipped with them. Reference: Clean Air Regulation, Section 6.
NOR02	X	X	X	The noise level assessment of a fixed source associated with mining activity must be evaluated in accordance with the requirements of Instruction Note 98-01. Reference: D019, section 3.4.1.

Measure code or commitment number	Work Phase			Description of the mitigation measure
	Construction	Operation	Closure	
NOR03	X		X	Observe distances and maximum loads when blasting in order to comply with D019 criteria and guideline thresholds for the use of explosives in or near Canadian fishing waters. Reference: D019, section 3.4.2 and Fisheries Act, subsection 35(2) and Guidelines for the Use of Explosives in or Near Canadian Fishing Waters, p. 6, paragraphs 8 and 9.
P26	X	X	X	An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

4.3.1 Construction, Operation, and Closure phases

Noise and ground vibration speeds resulting from Project activities must comply with the requirements of Directive 019 (D019; MELCCFP, 2025). With regard to noise, any dwelling or public establishment located within 1 km of mining activities must be subject to a predictive noise climate study to ensure compliance with maximum noise levels. Similarly, the presence of dwellings or water supply wells within 1 km of mining activities requires the establishment of a network to monitor ground vibrations and air pressure in the vicinity of these infrastructures.

However, there are no homes, public facilities, or water supply wells located within 1 km of the Project's mining activities; only three Cree camps are located more than 4.5 km south of the mining site (approximately 7 km). In this case, no predictive study of the sound environment is required, nor is any monitoring required. In addition, ground vibrations have been estimated at these locations.

Estimates obtained at these stations show a peak vibration velocity (PPV) of 0.1 mm/s during a production blast of 316 kg of explosives (four holes of 79 kg/hole with an 8 ms delay). At this amplitude, the vibrations were not felt at the three Cree camps. Furthermore, in terms of peak vibration velocity during a blast (point vibration), the level of human perception is around 0.8 mm/s.

Thus, a request for exemption, demonstrating the absence of infrastructure that could be affected by vibrations caused by mine blasting, may be submitted to the Ministry.

WMG will also keep a record of complaints received from local communities, particularly those that may relate to noise or vibration disturbance resulting from mining activities (see section 6.2.1). Finally, the implementation of the mitigation measures presented in Table 4-8 will help reduce the noise and vibration generated by mining activities.

4.4 Soil

The mitigation measures planned for the Soil component are presented in Table 4-9.

Table 4-9 Common and specific mitigation measures for the Soil component

Measure code or commitment number	Word Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA01	X		X	Stripping, clearing, excavation, backfilling, and leveling of work areas will be limited to the absolute minimum.
QUA02	X		X	In the event that earthworks must be carried out in areas with steep slopes, the bottom of the trenches will be covered with granular drainage materials and/or rock fill to prevent erosion.
QUA03	X		X	In order to reduce the risk of erosion on sloping land, methods such as the installation of retaining embankments, channels, or diversion ditches perpendicular to the slope, or other methods, will be used.
QUA04	X		X	The slopes of excavated material and embankments will be stabilized using techniques that blend in as much as possible with the natural environment, wherever erosion is likely to cause particulate matter to enter a watercourse (slope softened to 1.5 H: 1 V, plus other available techniques). Along steep slopes, sediment barriers (geotextile, straw, etc.) will be used at the foot of the embankments, as necessary, to reduce the volume of transported particles. Protective measures (straw, wood chips, mattresses) may also be used directly on the slope. Excavated material will not be placed on steep slopes. Fill material shall be adequately compacted.
QUA05	X		X	Excavation, backfilling, and redevelopment work will be carried out in such a way as to minimize the need to borrow materials and crushed stone. The necessary backfill materials will be transported by truck from borrow pits located on or near the project site. Excavated soil will, depending on its characteristics, be used as backfill material on site or removed from the site if its quantity is deemed excessive or its quality unsuitable for engineering purposes, and transported and disposed of in accordance with applicable laws and regulations.
QUA06			X	An assessment of the environmental quality of the soil will be carried out in areas of the site where activities likely to have contaminated the soil have taken place. If contaminated soil is discovered, the land will be remediated.
QUA07	X		X	In the event of temporary storage of contaminated excavated material, take all necessary measures to preserve the integrity of the surrounding soil and water and to ensure worker safety (e.g., pile material on a sealed or impermeable surface, cover piles, restrict access to piles, etc.).
QUA08	X		X	Where possible, trees and shrubs will be removed by cutting them down to ground level on embankment slopes. Their root systems will be preserved to promote runoff infiltration and natural soil stability.
QUA09	X	X	X	In order to detect any possibility of slippage, monitoring will be carried out during excavation and profiling work. Corrective measures will be put in place to prevent any slippage if a risk has been identified.
QUA15	X	X	X	Where possible, abrasives will be used instead of de-icing salts in winter and, where necessary, water will be used as a dust suppressant instead of a chemical solution.
QUA22	X	X	X	Ensure that emergency kits for recovering petroleum and chemical products are available in sufficient quantities and at sensitive locations. Petroleum products (hydrocarbons) will be handled in such a way as to prevent and control leaks and spills.

Measure code or commitment number	Word Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA23	X	X	X	Ensure that the machinery is in good condition (clean and free of any leaks of contaminating products) and that the fuel and lubricant tanks are completely leak-proof. Any leak detected must result in immediate repair of the tank in question.
QUA24	X		X	During construction, vehicle and surface equipment maintenance will generally be carried out on site in an existing garage. Fuel will be supplied by appropriately equipped service trucks located more than 60 m from any watercourse or wetland. A drip tray will be positioned under the transfer points during refueling to prevent any dripping onto the ground.
QUA25	X	X	X	Equip all fixed equipment containing oil and/or fuel (e.g., light towers, generators, etc.) located within 60 m of a watercourse, body of water, or wetland with a leak-proof recovery system. The equipment must be equipped with absorbent material so that it can be used quickly and effectively in the event of an accidental spill.
QUA26	X	X	X	Tout déversement accidentel sera rapporté immédiatement. Advenant un déversement d'hydrocarbures ou de toute autre substance nocive, le réseau d'alerte du MELCCFP (1 866 694-5454) devra être avisé sans délai. Si le rejet rejoint un plan d'eau Environnement Canada (1 866 283-2333) sera aussi avisé. Tout déversement de contaminants devra faire l'objet de mesures immédiates d'intervention pour confiner et récupérer les produits. Le sol contaminé devra être retiré et éliminé dans un lieu autorisé et une caractérisation devra être effectuée selon les modalités de la Politique de protection des sols et de réhabilitation des terrains contaminés du MELCCFP. L'équipe d'intervenant de WMG (premier répondant et pompier) interviendra toujours lors d'un appel d'urgence afin de minimiser l'impact et de secourir les blessés, le cas échéant.
NOR04	X		X	Manage excavated material according to its degree of contamination and in accordance with the requirements of the Soil Protection and Contaminated Land Remediation Policy. (Reference: Q-2, r. 37 - Regulation respecting the protection and rehabilitation of land: Appendices I and II and Intervention Guide - Soil Protection and Rehabilitation of Contaminated Land: Table 5 - Methods of soil recovery authorized in Quebec).
NOR05	X		X	Dispose of contaminated excavated material in accordance with the contaminated soil management grid in the Intervention Guide. If disposal in a landfill is a viable option, the proponent will apply to the Ministry for authorization and will not proceed until authorization has been obtained. Reference: Q-2, r. 18 - Regulation respecting the disposal of contaminated soil: Appendix I and Intervention Guide - Soil Protection and Contaminated Land Remediation: Appendix 5 - Excavated Soil Management Grid; Section 6.4.3.1 List of Authorized Treatment Centers.
NOR10	X	X	X	Stop the leak as soon as it is detected during an accidental spill, contain the product, and recover it using appropriate equipment (absorbent sheets, booms, drain covers, etc.). Notify the Minister immediately. Excavate contaminated soil, place it in leak-proof containers, and dispose of it in accordance with the hazardous materials management program. Recommend rapid intervention to prevent deep infiltration. Reference: LQE, s. 21 and Hazardous Materials Regulation, s. 9.
NOR11	X		X	Set aside overburden and segregate topsoil for reuse when reclaiming disturbed areas. Reference: D019, section 3.6.

Measure code or commitment number	Word Phase			Description of mitigation measure
	Construction	Operation	Closure	
NOR12	X	X	X	Hazardous materials will be managed in accordance with the Hazardous Materials Regulation (R.S.Q., c. Q-2, r. 15.2) using a management system that is separate from the one used for residual materials. If necessary, recovery will be carried out by a specialized company. All hazardous materials will therefore be stored in a designated area and protected from the elements by a waterproof tarp while awaiting loading and transport. In winter, it is recommended that containers be placed on pallets or storage tables. If the retention time exceeds 30 days, the storage area must include a waterproof shelter with at least three sides, a roof, and a waterproof floor forming a basin with a retention capacity equal to 110% of the volume of the largest container. The storage area for hazardous materials must be located away from vehicle traffic and at a reasonable distance from drainage ditches or sumps and any other sensitive elements, as well as at least 60 m from any watercourse. Reference: Hazardous Materials Regulation (R.S.Q., c. Q-2, r. 15.2).
PLA02	X		X	At the end of the work, the work areas will be cleared of equipment, machinery parts, materials, temporary installations, waste, scrap, rubble, and debris from the work. These work areas will be redeveloped and restored so that they blend into the natural landscape (leveling and loosening the soil, softening slopes). If sections of roads or paths have been abandoned, they will be scarified and revegetated. The slopes of the project right-of-ways will be seeded to stabilize them quickly. All areas that will not be used for future projects will be revegetated.
P26	X	X	X	An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

4.4.1 Construction and operation phases

Spills of hazardous materials, among the most likely environmental incidents or accidents to occur, can have an impact on soil integrity. Therefore, during the construction and operation phases, WMG will maintain the human and financial resources necessary to ensure the implementation and completion of the environmental monitoring and follow-up program, which includes a spill management plan (SMP). This SMP is detailed in section 3.4.1.

4.4.2 Closure phase

In accordance with the requirements of D019 (section 2.12.2.1) and the LQE (section 31.51), WMG will characterize the soil at the mining site prior to carrying out restoration work in order to identify and limit the emission of contaminants and, ultimately, to adjust the work to be carried out as necessary.

This is required by section 31.51 of the EQA, which stipulates that a soil and groundwater characterization study of phases I and II of the site, certified by an expert, must be carried out within six months of the cessation of activities at the Windfall mine site. WMG will take the necessary measures in accordance with the provisions of the EQA and the *Regulation respecting the protection and rehabilitation of land* (RPRT, c. Q-2, r.37) in the event that this characterization reveals the presence of contaminants beyond the criteria established by the regulations. Several activities designated in Schedule III of the RPRT are or will be carried out at the Windfall site, including, but not limited to:

- Extraction and processing of gold and silver ore;
- Production of electricity from fuel oil or diesel;
- Manufacture of explosives;
- Machining workshops;
- Petroleum product storage facilities;
- Fuel distribution stations;
- Maintenance of trucks or heavy vehicles.

In the event of a temporary cessation of activities, certain specific provisions may be made for a maximum of two years in total. Given that no other use is foreseeable upon closure of the Windfall mine site, the target level for soil restoration at the site corresponds to Appendix I of the RPRT and criteria "B" of the *Intervention Guide – Soil Protection and Contaminated Land Remediation* (Beaulieu, 2021). Thus, soil volumes with concentrations equal to or greater than the generic "B" criteria in the Intervention Guide must be assessed, and appropriate environmental management methods must be determined for soil, groundwater, surface water, and sediments that exceed these values and criteria.

Subsequently, remediation work will be carried out to extract or treat soils with non-compliant concentrations. As mentioned in the restoration plan for the project, a volume of 120 tons of contaminated soil, which corresponds to just over 60 m^3 above criterion "B" of the indicative criteria grid established by the MELCCFP, has been identified and entered in the contaminated soil registry. In addition, on a preliminary basis, for the purpose of estimating restoration costs, a volume of 225 m^3 of soil around the sites where the gas distribution stations will be installed was considered to be potentially affected by petroleum hydrocarbons. It is planned to excavate all of this soil and dispose of it at an authorized site. It was also considered that 10% of the surface area of the facilities in the industrial sector (excluding the camp area) will have been affected by metals to a depth of 150 mm. It is planned to relocate the soil affected by metals underground. The total volume of contaminated soil will be updated at closure to include additional data and risks that have emerged between the completion of this closure plan and the cessation of operations. The costs associated with the environmental characterization of the entire site were presented in the restoration plan.

4.5 Hydrology

The mitigation measures planned for the Hydrology component are presented in Table 4-10.

Table 4-10 General and specific mitigation measures for the Hydrology component

Measure code or commitment number	Word Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA01	X			Stripping, clearing, excavation, backfilling, and leveling of work areas will be kept to a minimum.
QUA08	X			Where possible, trees and shrubs will be removed by cutting them down to ground level on embankment slopes. Their root systems will be preserved to promote runoff infiltration and natural soil stability.
QUA10	X			Where possible, carry out development work that may affect the hydraulic conditions of permanent watercourses outside the snowmelt period. The installation of a culvert in a permanent watercourse should preferably be carried out during low water periods and as soon as possible. It must not impede water flow or contribute to the formation of ponds upstream during flood periods. Gradually restore temporarily disrupted flows after the work is completed to avoid sudden changes in flow rate. The end of the culvert must extend beyond the base of the embankment supporting the road by no more than 30 cm, and the embankment must be stabilized at both ends of the culvert. The material used for this embankment must not contain any organic matter.
QUA11	X			When installing or replacing a culvert, first confine the work area to prevent particulate matter from being carried into the water (e.g., partially or completely drain the area). The work techniques and materials used (e.g., diversion structures, geotextile, polyethylene, etc.) should not generate turbidity in the water as much as possible. The natural flow of the watercourse must be maintained continuously and the water must return immediately downstream of the work area. Where possible, the stream bed should not be narrowed by more than two-thirds during the work. If necessary, water accumulations in the work area must be pumped to a vegetation area at least 30 m from the stream or wetland.
QUA12	X			After installing a culvert, any other structures required for this work must be removed from the water. Ensure that the stream bed is properly stabilized at the inlet and outlet. The stream bed should then preferably be restored to its natural profile using materials similar to those previously used. The banks should be stabilized and, if necessary, revegetated.
QUA13	X		X	A runoff management system will be implemented during the construction phase. Depending on the situation, methods to control suspended solids emissions such as temporary water retention basins, sediment barriers, turbidity curtains, or slope stabilization will be used. These structures will be inspected and cleaned as needed. In addition, water will be pumped to a vegetated area at least 30 m from a watercourse.
QUA17	X		X	Within and in the 15-meter strip bordering the high-water line of a watercourse or body of water and within any wetland (pond, marsh, swamp, or bog), it will be prohibited to pile up temporary waste, debris, materials, or spoil (e.g., organic matter from topsoil removal). It shall also be prohibited to pile up wood waste and debris. Runoff shall be diverted to a vegetated area at least 30 m from the watercourse or intercepted by sediment barriers or a sedimentation basin.
QUA18	X		X	If required, temporary culverts and bank protection will be removed. The riverbed and banks will be restored.

Measure code or commitment number	Word Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA19	X			The granular materials used for the construction of structures may not come from the bed of a body of water or its banks, or from any source located less than 75 m from the aquatic environment, except for rock excavated from the area adjacent to the loading platforms and access road or from watercourses or bodies of water that will be directly affected by the project infrastructure.
QUA20			X	The riparian strips damaged by the work will be restored to reproduce the natural banks of the watercourse, body of water, or wetland.
QUA21			X	Temporary facilities (e.g., construction trailers, access roads, storage areas, waste disposal sites) must be located more than 60 m from a watercourse or wetland.
VEG01	X			During deforestation, special attention will be paid to vegetation at the edge of work areas so as not to damage it. If trees accidentally fall, they will be removed with care not to disturb the environment.
VEG04	X			Keep vegetation intact along waterways, wetlands, and access roads.
PLA01	X		X	For temporary construction site facilities (site offices, access roads, etc.), prioritize sites that have already been deforested or disturbed.
PLA02			X	At the end of the work, the work areas will be cleared of equipment, machinery parts, materials, temporary installations, waste, scrap, rubble, and debris from the work. These work areas will be redeveloped and restored so that they blend into the natural landscape (leveling and loosening the soil, softening slopes). If sections of roads or paths have been abandoned, they will be scarified and revegetated. The slopes of the project right-of-ways will be seeded to stabilize them quickly. All areas that will not be used for future projects will be revegetated.
NOR07	X		X	Install culverts or crossing structures designed to maintain free water flow (and free passage for fish). The construction of bridges or culverts must not reduce the width of the watercourse by more than 20%, measured from the LNHE. The base of the lower culvert must be sunk below the natural bed of the watercourse to a depth of at least 15 cm or 10% of the height of the structure, and its ends must extend beyond the base of the embankment by no more than 30 cm and be adequately stabilized. Reference: Regulation respecting the sustainable management of state-owned forests.
NOR14			X	Implement a post-restoration monitoring and maintenance program (including monitoring of water quality in mine effluent) to verify the integrity of the structures and the effectiveness of the corrective measures applied in the field. This monitoring will be carried out during the first ten years following the closure of the mine, at a rate of eight sampling campaigns per year. Reference: D019, section 3.11
NOR16	X		X	Restore construction sites and stockpiles by leveling surfaces, covering them with natural soil, scarifying them, or seeding them to promote vegetation regrowth. Stabilize reworked areas, embankment slopes, piles of loose deposits, etc., as work is completed. Reference: D019 for the restoration phase.
PLA01	X		X	For temporary construction site facilities (site offices, access roads, etc.), prioritize sites that have already been deforested or disturbed.

Measure code or commitment number	Word Phase			Description of mitigation measure
	Construction	Operation	Closure	
P26	X	X	X	An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

4.5.1 Construction phase

Hydrological monitoring is mainly associated with changes in effluent water volume. During the construction phase, water volumes will gradually increase until the water treatment plant is commissioned. Hydrological monitoring will therefore begin after mining operations have started.

The environmental monitoring program during construction activities will be implemented by the environmental supervisor at the site. The supervisor will ensure that the mitigation measures listed above are properly followed by the teams at the site.

4.5.2 Operation phase

According to the environmental impact assessment conducted for the Windfall mining project, it was estimated that this project would have an impact on river hydrology.

In fact, an increase in flow rates is expected in the watercourse downstream of the mine effluent due to planned discharges, while decreases in flow rates are expected in other watercourses in the study area due to changes in watersheds and mine dewatering.

As part of the Windfall mining project impact review and assessment process, WMG has therefore committed to implementing environmental and social monitoring and follow-up programs. In particular, a program to monitor hydrological conditions is planned in order to validate the project's impact on the hydrology of the study area and to enable corrective measures to be put in place if necessary.

The following sections describe the activities planned as part of this monitoring.

4.5.2.1 Monitoring of water flows and levels

In order to analyze the effects of the mining project on flow rates and levels in the watercourses in the study area, the following activities are proposed:

- Installation of six level probes in certain lakes and watercourses. Some probes will be located in the same place as during the field activities to establish baseline conditions, which will allow for a comparison of pre- and post-project conditions. A few additional probes have also been added at strategic locations in order to document the potential impacts of the Project in greater detail. Finally, a probe is planned for a watercourse not impacted by the mining project in order to have a reference point and to visualize interannual variations independently of the impact of the mining project. The probes will thus be positioned at the following locations:
  - Locations already used during the baseline assessment:
    - Watercourse CE02, at the culvert between SN8 and SN10.
    - Lake SN2.
    - Lake SN4.
  - New locations:
    - Watercourse CE07, at the culvert with the road.
    - Lake SN3.
  - Watercourse not impacted: Watercourse CE01, at the culvert with the road.
- The level probes will be installed in the spring, after the rivers have thawed, and will be retrieved in the fall, before the lakes and rivers freeze over. This will cover periods of high water flow (just after the thaw and during the fall rains) as well as periods of low water flow in the summer.
- Precipitation will be recorded between the spring and fall campaigns using the weather station already in place at the mine site. This will provide a better understanding of the water level variations recorded by the level probes, but also put the impacts of the Project into perspective with natural interannual hydraulic variations (rainy years, dry years, etc.).
- Measurements (speed measurements to determine flow rate) will be taken at the probes for probes installed in watercourses, or at the lake outlet for those installed in a lake. These gauging operations will be carried out twice a year: in the spring when the probes are installed and in the fall when the instruments are removed, which should provide measurements under different hydraulic conditions (low and high flow rates).

Map 4-2 shows the location of the level probes planned for monitoring flow rates and water levels.

4.5.2.2 Erosion monitoring

According to the hydraulic study conducted during the impact assessment (Addendum 1 - Responses to MELCCFP recommendations and comments, volume 3, Appendices 7-1 Hydraulic study - Assessment of effluent impacts on the downstream receiving environment), an increase in flow is expected in the watercourse downstream of the mine effluent. However, the analysis showed that the resulting increases in water level and velocity are relatively small, apart from some larger variations at specific points, depending on the local topography. In light of these results, it was concluded that the Project was not expected to cause significant flooding or erosion/stability issues downstream of the mine effluent, with the section between Pond 1 and Lake SN5 being the most at risk in terms of increased erodibility, with some significant increases in velocity. In addition, the culverts on watercourses CE09 and CE15 will be replaced to compensate for this increase in flow, which will limit the impact on the stability of the watercourse.

Nevertheless, monitoring of field conditions in the section between Pond 1 and Lake SN5 is planned to ensure that their integrity is maintained and that the increase in flow will not adversely affect the stability of the watercourse. To this end, the following activities are planned:

- Visit the watercourse downstream from the mine effluent, between Pond 1 and Lake SN5, on foot, three times a year.

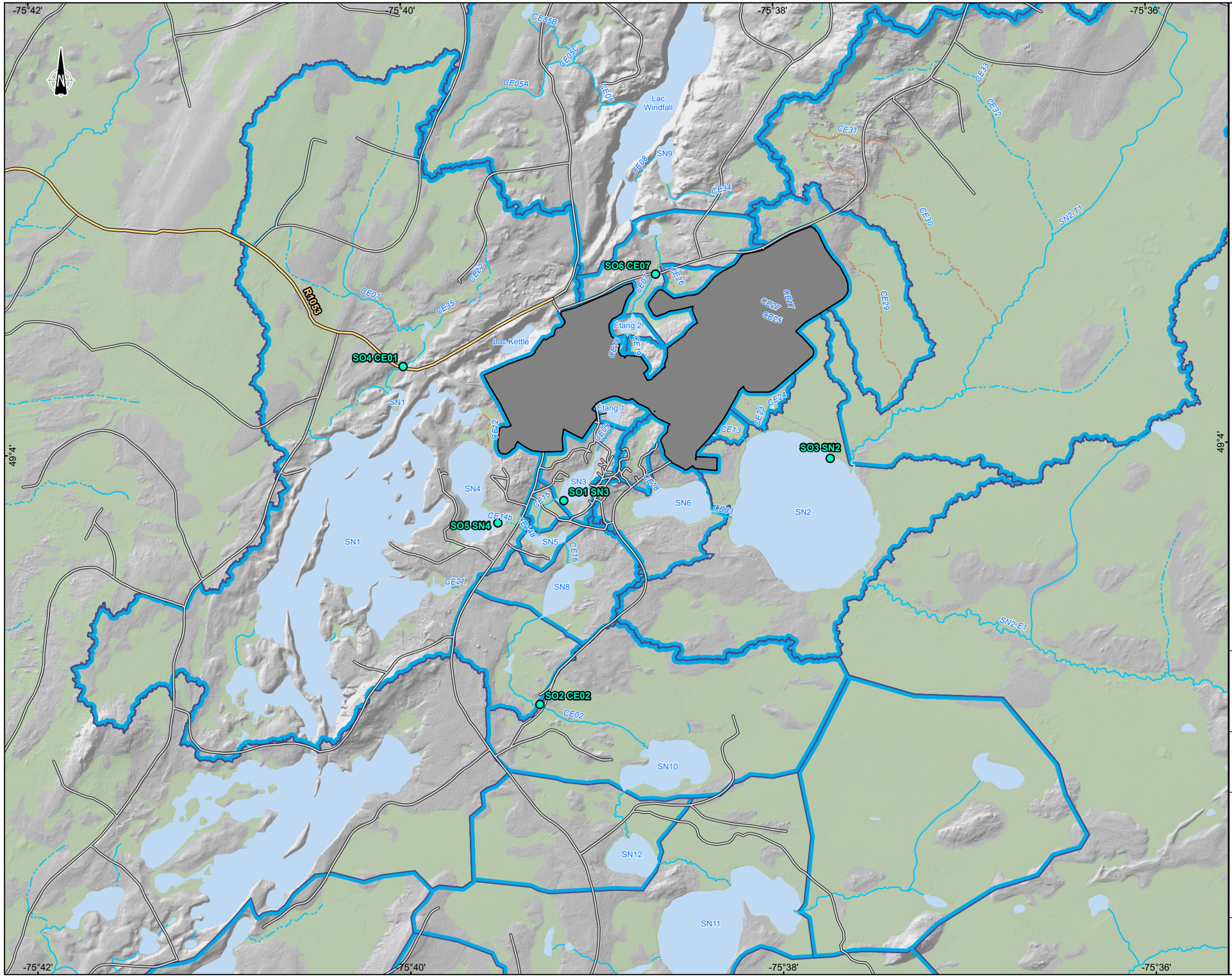
In particular, one visit will take place just after the snow melts, which is a period of high water flow when the effluent is expected to be operating at maximum capacity and is therefore critical in terms of erosion potential. These visits may be carried out at the same time as hydrological monitoring, if possible and relevant.

- During these visits, numerous photos and notes will be taken to document the condition of the watercourse, and in particular the banks, at different times.
- Attention will also be paid to changes in the hydraulic conditions of the watercourse that are not directly related to the Project (construction or breakage of a beaver dam, vegetation jams, etc.).
- Combined with other hydrological monitoring activities, this will make it possible to correlate water level and flow values with field observations.
- If erosion is observed, the frequency of monitoring (visits) will be increased in order to better document and understand the processes underway. In addition, local bank stabilization measures (rockfill) may be implemented as needed.

This monitoring will be carried out in years 1 and 2, then in years 5 and 6 (following the start of phase 2), and then one year after the restoration of the site. It should be noted that Cree users will be informed of the monitoring program and invited to participate in each field campaign. Their knowledge and traditional expertise will be taken into account and integrated into the monitoring. A monitoring report presenting the data collected in the field as part of the monitoring and their analysis will be produced after the data has been collected and processed.

The report will contain the following elements:

- Description of field activities carried out (campaign dates, instruments installed, location map, etc.).
- Data collected, in terms of water levels recorded by probes, measured flows, and recorded rainfall. Relevant photographs of watercourses will also be included (at the location of probes and major hydraulic controls, condition of banks in the area between Pond 1 and Lake SN5, for example).
- Analysis of the data collected: the level data will be correlated with rainfall data and field observations to draw conclusions about the effects of the project on watercourses. In addition, if the data collected allows, level-flow relationships will be established at the probes (calibration curves) and the water levels recorded by the level probes will be converted into a hydrograph in order to obtain average flow values.
- Any relevant observations related to water levels and flows in the watercourse (creation or removal of obstacles or hydraulic control, drying up, erosion, apparent changes, etc.).
- Recommendations on adjustments to be made to the monitoring program or mitigation measures to be implemented, if necessary.



Composantes du projet / *Project Components*

Site minier / *Mining site*

Programme de suivi hydrologique / *Hydrological Monitoring Program*

Sonde à niveau prévue / *Planned level probe*

Limites de bassin versant / *Watershed limits*

Caractérisation des milieux / *Environment Characterization*

Milieux humides et hydrique / *Wetlands and Hydrography*

Milieux humides / *Wetlands*

Canal / *Channel*

Cours d'eau intermittent / *Intermittent Watercourse*

Cours d'eau intermittent partiellement souterrain / *Partially Underground Intermittent Watercourse*

Cours d'eau intermittent souterrain / *Underground Intermittent Watercourse*

Cours d'eau permanent / *Permanent Watercourse*

Cours d'eau permanent partiellement souterrain / *Partially Underground Permanent Watercourse*

Cours d'eau souterrain / *Underground Watercourse*

Fossé de drainage / *Drainage ditch*

Inexistant / *Inexistent*

Réseau routier / *Road Network*

Chemin forestier principal / *Main forestry road*

Chemin forestier secondaire / *Secondary forestry road*

Projet Windfall - Programme de surveillance et suivi /
Windfall Project - Monitoring and Supervision Program

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte 4-2 / *Map 4-2*
Localisation des stations de suivi hydrologique / *Location of Hydrological Monitoring Stations*

Sources :
AQréseau+, Réseau routier, MERN Québec, 2023
WSP, Photointerprétation des milieux naturels, 2022
MFFP, Carte écoforestière 4e inventaire, 2020
MFFP, Ombre - 32G04SE, 2020

0 0,25 0,5 km
MTM, Fuseau 9 / *Zone 9*, NAD83

2025-07-23

Préparation / Preparation : K. Cadoret
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4.5.3 Closure phase

No monitoring has been planned for the closure phase in relation to hydrology, as the natural environment will return to its natural balance prior to the project.

4.6 Mining effluent and surface water

The mitigation measures planned for the Surface Water component are presented in Table 4-11.

Table 4-11 General and specific mitigation measures for the Surface Water component

Measure code or commitment number	Word Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA01	X	X	X	Stripping, clearing, excavation, backfilling, and leveling of work areas will be limited to the absolute minimum.
QUA02	X	X	X	In the event that earthworks must be carried out in areas with steep slopes, the bottom of the trenches will be covered with granular drainage materials and/or rock fill to prevent erosion.
QUA03	X	X	X	In order to reduce the risk of erosion on sloping land, methods such as the installation of retaining embankments, channels, or diversion ditches perpendicular to the slope, or other methods will be used.
QUA04	X	X	X	The slopes of excavated material and embankments will be stabilized using techniques that blend in as much as possible with the natural environment, wherever erosion is likely to cause particulate matter to enter a watercourse (slope softened to 1.5 H: 1 V, plus other available techniques). Along steep slopes, sediment barriers (geotextile, straw, etc.) will be used at the foot of the embankments, as necessary, to reduce the volume of transported particles. Protective measures (straw, wood chips, mattresses) may also be used directly on the slope. Excavated material will not be placed on steep slopes. Fill material shall be adequately compacted.
QUA07	X	X	X	In the event of temporary storage of contaminated excavated material, take all necessary measures to preserve the integrity of the surrounding soil and water and to ensure worker safety (e.g., pile material on a sealed or impermeable surface, cover piles, restrict access to piles, etc.).
QUA08	X	X	X	Where possible, trees and shrubs will be removed by cutting them down to ground level on embankment slopes. Their root systems will be preserved to promote runoff infiltration and natural soil stability.
QUA10	X	X	X	Where possible, carry out development work that may affect the hydraulicity of permanent watercourses outside the snowmelt period. The installation of a culvert in a permanent watercourse should preferably be carried out during low water periods and as soon as possible. It must not impede water flow or contribute to the formation of ponds upstream during flood periods. Gradually restore temporarily disrupted flows after the work is completed to avoid sudden changes in flow rate. The end of the culvert must extend beyond the base of the embankment supporting the road by no more than 30 cm, and the embankment must be stabilized at both ends of the culvert. The material used for this embankment must not contain organic matter.

Measure code or commitment number	Word Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA11	X	X	X	When installing or replacing a culvert, first confine the work area to prevent particulate matter from being carried into the water (e.g., partially or completely drain the area). The work techniques and materials used (e.g., diversion structures, geotextile, polyethylene, etc.) should not cause turbidity in the water as much as possible. The natural flow of the watercourse must be maintained continuously and the water must return immediately downstream of the work area. Where possible, the stream bed should not be narrowed by more than two-thirds during the work. If necessary, water accumulations in the work area must be pumped to a vegetation area at least 30 m from the stream or wetland.
QUA12	X	X	X	After installing a culvert, any other structures required for this work must be removed from the water. Ensure that the stream bed is well stabilized at the inlet and outlet. The stream bed should then preferably be restored to its natural profile using materials similar to those previously used. The banks should be stabilized and, if necessary, revegetated.
QUA13	X	X	X	A runoff management system will be implemented during the construction phase. Depending on the situation, methods to control suspended solids emissions such as temporary water retention basins, sediment barriers, turbidity curtains, or slope stabilization will be used. These structures will be inspected and cleaned as needed. In addition, water will be pumped to a vegetated area at least 30 m from a watercourse or wetland.
QUA14	X	X	X	If calcium chloride-based dust suppressants are used, the product should not be disposed of or equipment rinsed in or near a watercourse or on vegetation.
QUA15	X	X	X	Where possible, abrasives will be used instead of de-icing agents in winter and, where necessary, water will be used as a dust suppressant instead of a chemical solution.
QUA16	X	X	X	During snow removal activities, snow will be kept, as far as possible, outside a 30-meter strip of a watercourse or wetland.
QUA17	X	X	X	Within and in the 15-meter strip bordering the high-water line of a watercourse or body of water and within any wetland (pond, marsh, swamp, or bog), it will be prohibited to pile up temporary waste, debris, materials, or spoil (e.g., organic matter from soil stripping). It shall also be prohibited to pile up wood waste and debris. Runoff shall be diverted to a vegetated area at least 30 m from the watercourse or wetland, or intercepted by sediment barriers or a sedimentation basin.
QUA18	X	X	X	If required, temporary culverts and bank protection will be removed. The riverbed and banks will be restored.
QUA19	X	X	X	The granular materials used for the construction of structures may not come from the bed of a body of water or its banks, or from any source located less than 75 m from the aquatic environment, except for rock excavated from the area adjacent to the loading platforms and access road or from watercourses or bodies of water that will be directly affected by the project infrastructure.
QUA20	X	X	X	The riparian strips damaged by the work will be restored to replicate the natural banks of the watercourse, body of water, or wetland.
QUA21	X	X	X	Temporary facilities (e.g., construction trailers, access roads, storage areas, waste disposal sites) must be located more than 60 m from a watercourse or wetland.

Measure code or commitment number	Word Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA22	X	X	X	Ensure that emergency kits for recovering petroleum products and chemicals are available in sufficient quantities and at sensitive locations. Petroleum products (hydrocarbons) will be handled in such a way as to prevent and control leaks and spills.
QUA23	X	X	X	Ensure that the machinery is in good condition (clean and free of any leaks of contaminating products) and that the fuel and lubricant tanks are completely leak-proof. Any leaks must be repaired immediately.
QUA24	X	X	X	During construction, vehicle and surface equipment maintenance will generally be carried out on site in an existing garage. Fuel will be supplied by appropriately equipped service trucks located more than 60 m from any watercourse or wetland. A drip tray will be positioned under the transfer points during refueling to prevent any dripping onto the ground.
QUA25	X	X	X	Equip all fixed equipment containing oil and/or fuel (e.g., light towers, generators, etc.) located within 60 m of a watercourse, body of water, or wetland with a leak-proof recovery system. The equipment must be equipped with absorbent material so that accidental spills can be dealt with quickly and effectively.
QUA26	X	X	X	Any accidental spills must be reported immediately. In the event of a spill of hydrocarbons or any other harmful substance, the MELCCFP alert network (1-866-694-5454) must be notified without delay. If the spill reaches a body of water, Environment Canada (1-866-283-2333) must also be notified. Any spill of contaminants must be subject to immediate response measures to contain and recover the products. Contaminated soil must be removed and disposed of at an authorized site, and a characterization must be carried out in accordance with the terms of the MELCCFP's Soil Protection and Contaminated Land Remediation Policy. The WMG response team (first responder and firefighter) will always respond to an emergency call in order to minimize the impact and rescue any injured persons, if necessary.
NOR06	X	X	X	Dispose of excess or unusable excavated material (clay, silt, gravel, rock) with the usual precautions and in accordance with the Regulations respecting activities in wetlands, water environments, and sensitive areas and D019 to ensure sufficient spacing from wetlands and water environments.
NOR07	X	X	X	Install culverts or crossing structures designed to maintain free water flow (and free passage for fish). The construction of bridges or culverts must not reduce the width of the watercourse by more than 20%, measured from the LNHE. The base of the lower culvert must be sunk below the natural bed of the watercourse to a depth of at least 15 cm or 10% of the height of the structure, and its ends must extend beyond the base of the embankment by no more than 30 cm and be adequately stabilized. Reference: Regulation respecting the sustainable management of state-owned forests.
NOR08	X	X	X	All operators must seek to maximize the use of mine wastewater produced on the mine site and minimize liquid discharges (Reference: D019, section 3.2.2.1). Produce a management plan for surface water, whether natural or related to the treatment process (Reference: D019, section 4.2.8.5).
NOR10	X	X	X	Stop the leak as soon as it is detected during an accidental spill, contain the product and recover it using appropriate equipment (absorbent sheets, booms, drain covers, etc.). Notify the Minister immediately. Excavate contaminated soil, place it in leak-proof containers and dispose of it in accordance with the hazardous materials management program. Recommend rapid intervention to prevent deep infiltration. Reference: LQE, s. 21 and Hazardous Materials Regulation, s. 9.

Measure code or commitment number	Word Phase			Description of mitigation measure
	Construction	Operation	Closure	
NOR12	X	X	X	Hazardous materials will be managed in accordance with the Hazardous Materials Regulation (R.S.Q., c. Q-2, r. 15.2) using a management system that is separate from the one used for residual materials. If required, recovery will be carried out by a specialized company. All hazardous materials will therefore be stored in a designated area and protected from the elements by a waterproof tarp while awaiting loading and transport. In winter, it is recommended that containers be placed on pallets or storage tables. If the retention time exceeds 30 days, the storage area must include a waterproof shelter with at least three sides, a roof, and a waterproof floor forming a basin with a retention capacity equal to 110% of the volume of the largest container. The storage area for hazardous materials must be located away from vehicle traffic and at a reasonable distance from drainage ditches or sumps and any other sensitive elements, as well as at least 60 m from any watercourse. Reference: Hazardous Materials Regulation (R.S.Q., c. Q-2, r. 15.2).
NOR13	X	X	X	Implement the surface water quality monitoring program (final effluent) in accordance with the REMMMD and D019. The results of water quality monitoring at the effluent and in the receiving watercourse will be compared to the criteria in the regulations in force. Reference: D019, section 3.1.1, Metal and Diamond Mine Effluent Regulation, Appendix 5.
NOR14			X	Implement a post-restoration monitoring and maintenance program (including monitoring of water quality in mine effluent) to verify the integrity of the structures and the effectiveness of the corrective measures applied in the field. This monitoring will be carried out during the first ten years following the closure of the mine, at a rate of eight sampling campaigns per year. Reference: D019, section 3.11.
P01		X	X	Gradually restore the tailings pond in three stages to reduce areas susceptible to wind and runoff erosion.
P26	X	X	X	An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

This program aims to detect and document any changes in the environment compared to the baseline assessed in 2024 (whether related to the Project or not). It will also verify the accuracy of the impact assessment and evaluate the effectiveness of the mitigation measures outlined in the EIS.

Monitoring of mining effluent compliance also applies to the operational and closure phases, with varying durations and frequencies depending on the parameters measured. The purpose of monitoring mining effluent is to ensure that its quality complies with applicable standards and criteria and to collect information that will help evaluate and interpret the results of biological monitoring. In addition, it will verify the effectiveness of the mitigation measures put in place to reduce the potential impacts of mining activities. This monitoring includes characterizing the mine effluent and conducting lethal and sublethal toxicity tests using samples taken from the effluent. **The monitoring of mine effluent is detailed below and applies to all three phases of the project.**

4.6.1 Mining effluent

Mining effluent has been active since around 2007 and its current discharge point will be moved downstream, but will remain close to Pond 1. Discharge into the natural environment will take place at the same location. In accordance with D019, regular monitoring of the final effluent will continue as announced until WMG applies to switch to post-restoration monitoring. The same applies to the REMMMD (Government of Canada, 2024) and its requirements for operating mines.

Directive 019

D019 provides for regular monitoring of a set of physical, chemical, and biological parameters at varying frequencies depending on the parameter (Table 4-12).

According to the 2025 update to D019, weekly monitoring of ammoniacal nitrogen has been added and annual monitoring has been replaced by additional quarterly monitoring. Quarterly monitoring of chronic toxicity to invertebrates has also been added.

Table 4-12 Parameters and frequencies of measurements or sampling at the final mine effluent under Directive 019

Parameters	Frequency
pH and flow rate	Continuously
Suspended solids (SS)	Three times a week
As, Cu, Fe, Ni, Pb, Zn, total cyanides[1], ammoniacal nitrogen	Once a week
Acute toxicity	Once a month
Petroleum hydrocarbons (PH) C_{10}-C_{50}, radium-226	Once per quarter
Chronic toxicity to invertebrates (*Ceriodaphnia dubia*) and algae (*Raphidocelis subcapitata*, formerly *Pseudokirchneriella subcapitata*)	Once per quarter
Parameters for the additional monitoring measurement table Group 1: chlorides, conductivity, hardness, fluorides, total dissolved solids, sulfates, nitrates, nitrites, total phosphorus, cadmium, calcium, chromium, magnesium, manganese, mercury, potassium, selenium, sodium Group 2: cyanates, thiocyanates Group 3: sulfides, thiosulfates Group 4: acute toxicity	Once per quarter

D019 also imposes maximum monthly average concentrations and maximum daily concentrations for certain parameters. These discharge standards are more restrictive than those of the REMMMD for most parameters. The requirements at the final effluent discharge point under D019 are presented in Table 4-12 and below:

- pH between 6.0 and 9.5;
- No acute toxicity (> 1 Uta) for at least one of the species being analyzed: rainbow trout (Oncorhynchus mykiss) or daphnia (Daphnia magna).

Table 4-13 Requirements at the point of discharge of final effluent under D019

Parameters	Average concentration Monthly maximum	Daily concentration Maximum
Extractable arsenic	0.1 mg/l	0.2 mg/l
Extractable copper	0.1 mg/l	0.2 mg/l
iron	3 mg/l	6 mg/l
Extractable nickel	0.25 mg/L	0.5 mg/L
Extractable lead	0.08 mg/l	0.16 mg/l
Extractable lead zinc	0.4 mg/l	0.8 mg/l
Total cyanides	0.5 mg/l	1 mg/l
Petroleum hydrocarbons (C_{10}-C_{50})	---	2 mg/l
Suspended solids	15 mg/l	30 mg/l
Radium 226	0.37 Bq/l	1.11 Bq/l

Source : D019, 2025.

Metal and Diamond Mine Effluent Regulations (MDMER)

Monitoring of final effluent also includes all physicochemical parameters, at the frequency specified by the MDMER. For information purposes, in 2022, WMG obtained authorization from ECCC to reduce the frequency for metals and radium, given that the measured concentrations were below 10% of the monthly average criteria for a consecutive year. Table 4-14 presents the details of the analyses and frequencies required under the MMDEMR.

Table 4-14 Parameters and frequency of measurement or sampling of final mine effluent under the MMWR

Parameters	Frequency
pH, temperature, As, Cu, Ni, Pb, Zn, Ra226[1], total cyanides, suspended solids, non-ionized ammonia	Once a week [1, 3]
Acute lethality	Once a month
Hardness, alkalinity, conductivity, nitrate, chloride, sulfate, phosphorus, Al, Cd, Cr, Co, Fe, Hg, Mn, Mo, Se, Tl, U	Four times a year
Sublethal toxicity of *Lemna minor*	Twice a year

1 The owner or operator of a mine other than a uranium mine may, at a final discharge point, reduce the frequency of testing for radium-226 concentration to at least once per calendar quarter, with each test conducted at least one month apart if the concentration at that final discharge point is less than 0.037 Bq/L for 10 consecutive weeks

2 The owner or operator of a mine may reduce the frequency of acute lethality testing at a final discharge point to once per calendar quarter if, for 12 consecutive months, the effluent at that final discharge point does not exhibit acute lethality according to this test..

3 The owner or operator of a mine may, at a final discharge point, reduce the frequency of testing for arsenic, copper, cyanide, lead, nickel, zinc, or non-ionized ammonia to at least once per calendar quarter, with each test conducted at least one month apart, if the average monthly concentration of the substance at that final discharge point is less than 10% of the value set out in column 2 of Appendix 4 of the MMEMR for 12 consecutive months.

Next, as with the requirements of D019, the pH must be maintained between 6.0 and 9.5, and the acute toxicity unit for bioassays conducted on rainbow trout (*Oncorhynchus mykiss*) and daphnia (*Daphnia magna*) must be less than 1 ATU. Table 4-15 presents the maximum monthly average concentrations of contaminants in an instantaneous effluent sample under the MMWR.

Table 4-15 Maximum contaminant requirements for effluent under the MMWEM

Parameters	Average concentration Monthly maximum	Daily concentration Maximum
Arsenic	0.30 mg/L	0.60 mg/L
Copper	0.30 mg/L	0.60 mg/L
Cyanide	0.50 mg/L	1.00 mg/L
Lead	0.10 mg/L	0.20 mg/L
Nickel	0.50 mg/L	1.00 mg/L
Zinc	0.50 mg/L	1.00 mg/L
Suspended solids	15.00 mg/L	30.00 mg/L
Radium 226	0.37 Bq/L	1.11 Bq/L
Non-ionized ammonia	0.50 mg/L sous forme d'azote (N)	1.00 mg/L sous forme d'azote (N)

Source : REMMMD (2022).

In addition, water quality will be monitored by taking water samples in areas exposed to the effluent and in a reference area. The aim is to observe changes in environmental conditions in the receiving waters. This monitoring will also provide measurements of environmental variables to support the interpretation of biological monitoring results (fish fauna (section 5.2) and benthos (section 5.3)). The parameters for monitoring surface water quality in the receiving environment and the reference area targeted by the REMMMD are presented in Table 4-16. Radium-226 in mine effluent will also be monitored once a year.

Table 4-16 Parameters considered for effluent characterization and monitoring of receiving environment water quality under the REMMMD

Basic settings	Required frequency
pH, hardness, alkalinity, conductivity, temperature, dissolved oxygen	At least four times a year
Metal parameters	
Harmful substances referred to in Article 3 (As, Cu, total cyanide, Pb, Ni, Zn, non-ionized ammonia MES)	
Substances referred to in paragraph 4(1) (Al, Cd, Cr, Co, Fe, Hg, Mn, Mo, Se, Tl, U, nitrate, chloride, sulfate, phosphorus)	

Sampling plan

Sampling will be carried out directly at the mine effluent. As part of the current monitoring of the receiving environment's water quality, sampling of the exposed area will be carried out in watercourse CE09. The reference area will be located in watercourse CE07 (Map 4-3).

Methodology

Sampling and measurements will be carried out in accordance with the requirements of D019, REMMMD, and the MELCCFP's *Guide to Sampling for Environmental Analysis* (MELCCFP, 2023).

The usual precautions will be taken to avoid contamination during sampling and transport of samples. The analysis of parameters will be carried out by a laboratory accredited by the MELCCFP and in accordance with the analytical methods recognized by the latter. Rigorous quality control and assurance measures will be put in place for sampling and laboratory analysis.

Response mechanism

The requirements at the final effluent discharge point under D019 are presented in Table 3-1. In the event that the average concentrations presented in this table are exceeded, the following responses will be implemented:

- Contact the relevant authorities to notify them of the degradation.
- Find the source of the problem, verify the operation and effectiveness of mitigation measures already in place and provided for in the EIS.
- Correct the situation or implement additional mitigation measures depending on the source of the problem.
- Contact the relevant authorities to inform them of the corrections and modifications made and the maintenance of the new measures in place.

Frequency and monitoring period

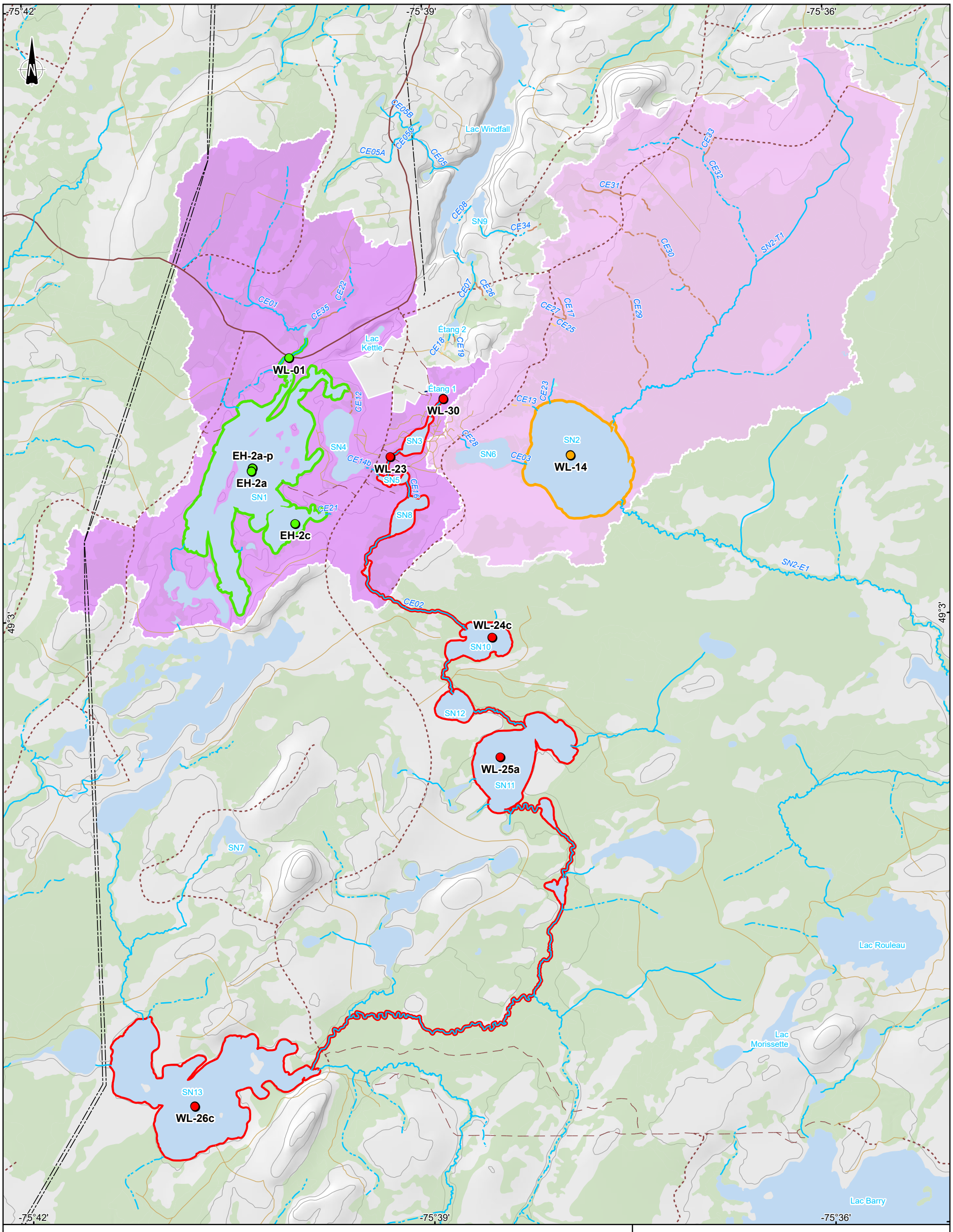
Tables 4-13, 4-14, 4-15, and 4-16, presented in the sections above, detail the frequency of sampling to be carried out in accordance with D019 and the REMMMD during the mine's operating period.

At the provincial level, sampling and flow measurement at the effluent sampling station during the **post-operational** period will be carried out according to the frequency and duration established in Table 3.6 of D019 (MELCCFP, 2025). Given that geochemical analysis of tailings, waste rock, and ore has concluded that they are potentially acid-generating and leachable, sampling will be conducted weekly for 0 to 6 months after the end of operations, then bi-monthly until the end of restoration work (Table 4-20). A minimum time of 4 days, 7 days, and 15 days is required between each weekly, bi-monthly, and monthly sampling, respectively (MELCCFP, 2025).

In addition, during the period following the permanent cessation of mining activities at a mining site, and before restoration work is completed on the entire mining site, WMG will implement, where necessary, an updated mining wastewater and groundwater monitoring program. This program, which will be subject to approval by the Department, will monitor compliance and the qualitative and quantitative evolution of discharges into the environment during the transitional period preceding the complete restoration of the site. WMG will then undertake to identify and characterize all potential sources of contamination still present on the mine site (effluents, soil, and groundwater). Based on the results of post-mining monitoring, adjustments may be made to the restoration plan, if necessary.

During the **post-restoration** period, considering that residues remain potentially acid-generating and leachable, the sampling frequency at effluent stations will increase to eight times per year for at least 10 years, in accordance with Table 3.7 of D019. During this period, at least one sample will be taken each spring and fall, with a 30-day interval between each sample. If the flow is intermittent or the effluent is present for short periods, the interval between samples will be adjusted to comply with the minimum monitoring frequency (MELCCFP, 2025). After 10 years of water quality monitoring, if the requirements of section 3.11 of D019 are met and contaminant concentrations show a downward trend, WMG may consider discontinuing the water quality monitoring described in the previous sections, subject to approval by the MRNF and the MELCCFP.

Post-restoration monitoring under the REMMMD will continue for a period of three years following the closure notice.



Cours d'eau / *Waterflow*

- Canal / *Channel*
- Cours d'eau intermittent / *Intermittent Watercourse*
- Cours d'eau intermittent partiellement souterrain / *Partially Underground Intermittent Watercourse*
- Cours d'eau intermittent souterrain / *Underground Intermittent Watercourse*
- Cours d'eau permanent / *Permanent Watercourse*
- Cours d'eau permanent partiellement souterrain / *Partially Underground Permanent Watercourse*
- Cours d'eau souterrain / *Underground Watercourse*
- Fossé de drainage / *Drainage ditch*
- Inexistant / *Inexistent*
- Plan d'eau / *Waterbody*

Infrastructures / *Infrastrutures*

- Ligne de transport d'énergie électrique / *Electric power transmission line*

Routes / *Roads*

- Route forestière secondaire / *Secondary forest road*
- Route forestière tertiaire / *Tertiary forest road*
- Sentier / *Trail*
- Chemin d'hiver / *Winter road*

Bassins versants / *Watersheds*

- CE02
- SN2

Milieux humides / *Wetlands*

- Milieux humides / *Wetlands*

Zones et stations d'échantillonnage / *Sampling areas and stations*

Exposée à l'effluent / Exposed to effluent

- Zone exposée / *Exposed to effluent*
- Station eau de surface / *Surface water station*

Non exposée / *No exposed*

- Non exposé / *No exposed*
- Station eau de surface / *Surface water station*

Référence / Reference

- Zone de référence / *Reference Area*
- Station eau de surface / *Surface water station*

GOLD FIELDS

Projet Windfall - Programme de surveillance et suivi / *Windfall Project - Monitoring and Supervision Program*

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte 4-3 / *Map 4-3*
Localisation des stations d'échantillonnage de l'eau de surface / *Location of Surface Water Sampling Stations*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
CanVec, 1/50 000, RNCan, 2012
AQréseau+, Réseau routier, MERN Québec, 2020-03
GRHQ, Réseau hydrique linéaire, 2023
SIEF, MRNF Québec, 2012
Photo-interprétation de la végétation / Photointerpretation of the vegetation, WSP, 2015 à 2021

0 350 700 m
MTM, Fuseau 9 / *Zone 9*, NAD83

2025-07-22

Préparation / Preparation : K. Cadoret
Dessin / Drawing : E. Kheiri
Vérifié par / Verification : M.-H. Brisson
CA0023271_9538_su_ps_prog_surv_suivi_2025_S4_250722.aprx
CA0023271_9538_su_ps25_c4_3_099_eau_surface_250722

wsp

La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. / Boundary accuracy and measurements shown on this document are not to be used for engineering or land delineation purposes. No land analysis was carried out by a land surveyor.

During the post-restoration period, the sampling frequency at effluent stations will be reduced to eight times per year for 10 years, in accordance with Table 3.7 of D019. Monitoring must be carried out for a minimum of 10 years during the post-restoration period, as tailings and waste rock are potentially acid-generating and leachable. At least one sampling will be carried out each spring and fall, with a 30-day interval between each sampling. If the flow is intermittent or the effluent is present for short periods, the interval between each sample will be modified to comply with the minimum monitoring frequency (MELCCFP, 2025; Table 3.7).

After 10 years of water quality monitoring, if the requirements of section 2.11.3 of D019 are met and downward trends in contaminant concentrations are observed, WMG may consider discontinuing the water quality monitoring described in the previous sections, subject to approval by the MRNF and the MELCCFP.

With regard to monitoring under the REMMMD, monitoring will continue for a period of three years following the closure notice.

Table 4-17 Parameters and frequency of measurement or sampling of final mine effluent under Directive 019 during the post-operational period

Target locations	Sampling frequency in the post-exploitation period[11]	
Leachable and acid-generating mine residue accumulation areas – mine effluent sampling	0 to 6 months after the end of operation	6 months or more after the end of operation
	Weekly	Bimonthly

Follow-up report

On a monthly basis, water quality data collected from the final effluent will continue to be sent via the Environmental Monitoring System (SENV). WMG's account on this MELCCFP electronic platform is active. WMG must therefore provide the data with the results no later than 30 days after the end of the month, with some exceptions. Each quarter, final effluent water quality data will also be sent to ECCC via their Mining Effluent Reporting System (MER) 45 days after the end of the quarter. An annual monitoring report will be produced, as required for companies subject to D019.

4.6.2 Surface water and OER monitoring

Two additional monitoring activities are planned during the operational phase in relation to surface water: monitoring in the receiving environment and monitoring of OERs.

Surface water monitoring

Sampling plan

WMG proposes monitoring that is complementary to the regulatory monitoring described above. The sampling points are shown on Map 4-3. Table 4-18 shows the stations targeted by zone. The stations will be located as far as possible above areas of stable sedimentation. Lake SN1 and watercourse CE01 will be the stations located in the reference area. Lake SN2 is not in the area exposed to the effluent, but has been retained in the monitoring program since it is used by local communities.

Table 4-18 Surface water sampling stations by area

Zone type	Lake or watercourse	Preliminary name of the station	Position in the lake
Reference area	Lake SN1	EH-2a	West Center
		EH-2c	East
		EH2a-P	Below the thermocline of SN1
	CE01	WL-01	-
Lake not exposed	Lake SN2	WL-14	Center
Area exposed to mine effluent	CE09	WL-30	-
	CE15	WL-23	-
	Lake SN10	WL-24c	Center
	Lake SN11	WL-25a	Center
	Lake SN13	WL-26c	Center

Methodology

Sampling and measurements in the effluent receiving environment and in the reference area will be carried out in accordance with the requirements mentioned above. Temperature, conductivity, pH, and dissolved oxygen profiles will be recorded at each station. If there is thermal stratification in the lakes, a sample will be taken.

In addition, the usual precautions will be taken to avoid contamination during sampling and transport of samples. Rigorous quality control and assurance measures will be implemented for sampling and laboratory analysis. The parameters to be analyzed for surface water are presented in Table 4-19.

Table 4-19 Parameters to be analyzed for surface water

Microbiology		
	Fecal coliforms	
Basic physical chemistry and nutrients		
Alkalinity	Nitrates	Nitrites-Nitrates
Conductivity (*in situ*), pH (*in situ*) Temperature (*in situ*) Dissolved oxygen (*in situ*)	Total dissolved solids	Total phosphorus (lower limit)
Hardness	Turbidity	Non-ionized ammonia
Dissolved and total organic carbon	Ammoniacal nitrogen	
SS	Total nitrogen	
Anions and cations		
Bromides	Fluorides	Sodium
Calcium	Magnesium	Sulfates
Chlorides	Potassium	
Trace metals		
Aluminium	Cadmium	Nickel
Antimony	Chrome	Lead
Silver	Cobalt	Selenium
Arsenic	Copper	Strontium
Baryum	Iron	Thallium
Beryllium	Manganese	Uranium
Boron	Molybdenum	Vanadium
Mercury[1]		Zinc
Project-specific		
Cyanides	Radium 226	Petroleum hydrocarbons C_{10}-C_{50}*

[1] Mercury concentration no longer needs to be analyzed if the mercury concentration of twelve consecutive samples taken is less than 0.10 µg/L

Frequency and monitoring period

For this monitoring program during the operational phase, water sampling will be carried out at each station once a year after the flood, when the flow in the watercourses decreases but the effluent is active to empty the basins following the snowmelt.

The program will be updated if a final effluent is added or moved, or if a change is made to the parameters to be analyzed.

Intervention mechanism

Compliance will be monitored in relation to mine effluent. This aspect of monitoring will mainly serve to document the effluent plume.

Monitoring report

The monitoring report will contain the results of water quality monitoring in the receiving environment as well as the following information:

- The dates of sampling for water quality monitoring;
- The latitude and longitude of the sampling stations used for water quality monitoring and a description allowing the location of these areas to be identified;
- The methods used for water quality monitoring, as well as their detection limits;
- A description of the quality assurance and quality control measures that were taken, as well as data related to their implementation.

Monitoring of OER

Based on the calculation of OER for mine effluent, additional requirements at the effluent discharge point were added when the ministerial authorization was issued. No monitoring of health OER is required.

Monitoring requirements (parameters, frequency, detection limits, etc.) and reporting will be regulated through the permits issued at the start of operations. WMG will carry out this monitoring in accordance with the conditions dictated by government authorities.

These OERs are presented in Table 4-19.

More specifically, the treatment system has been designed and will be operated/improved so that the water discharged into the environment complies with or comes as close as possible to the OER values set out in Table 4-19 for the parameters concerned. To this end, WMG will follow the recommendations below:

- A water sample at the outlet of the treatment system will be analyzed on a quarterly basis for all parameters covered by OERs. WMG considers the representative outlet to be the mine effluent.
- The interval between two samples will be at least 60 days;
- The sampling method will be instantaneous or composite over 24 hours;
- Sampling will be carried out simultaneously for all parameters;

- The analytical methods selected will have detection limits that allow for verification of compliance with OERs or correspond to the values of the accredited method applicable by the Quebec Government Analysis Expertise Center.
- The following parameters may have a higher detection limit than the OER: silver, cadmium, copper, mercury, lead, C_{10}-C_{50} petroleum hydrocarbons, and hydrogen sulfide. For these parameters, the absence of detection will be interpreted as compliance with the OER;
- The OER for total cyanides is established based on the quality criterion for free cyanides. In the possible presence of metal-cyanide complexes, especially iron-cyanide complexes, it is recommended to measure total cyanide. Compliance with the OER can be verified by first analyzing total cyanides. If the OER is not complied with, the available cyanides, which include free cyanides and weak cyanide complexes, must be measured;
- The monitoring results will be expressed as total concentration for all contaminants, except for metals, for which they will be expressed as total extractable metal. If OER exceedances are observed for certain metals, speciation analyses may be required, particularly for chromium, since the OER is established for Cr VI. An analysis of the different forms will make it possible to specify the risk when the concentration measured in the effluent exceeds the OER.

When comparing monitoring results with EROs, detailed information on comparing the quality of discharges with EROs can be found in the document *Guidelines for the use of environmental release objectives for industrial discharges into the aquatic environment* and its addendum *Comparison between measured effluent concentrations and environmental release objectives for existing facilities*.

The measured total sulfide concentrations must be converted to dissolved non-ionized hydrogen sulfide before being compared to the ERO, using the following equation:

$$0.15 * 0.61 * [\text{total sulfides}] = [\text{dissolved non-ionized sulfides}]$$

After three years, and every five years thereafter, WMG will submit a report to the MELCCFP comparing the effluent monitoring results obtained in accordance with the principles set out in the above documents with the OER. The data processing spreadsheet will be used to compare the effluent concentrations measured with the OER.

If OER exceedances are observed, WMG must submit to the MELCCFP the cause of these exceedances and the measures it plans to implement to get as close as possible to the target. This exercise will also serve to eliminate contaminants that do not pose a risk to the environment, thereby reducing the list of parameters to be monitored. This review may be conducted after three years of data, excluding, if applicable, the running-in period inherent in the adjustment of the treatment process.

Table 4-20 Environmental discharge objectives

Parameters	Criterion (mg/L)		Upstream (mg/l)	Environmental discharge targets (mg/L)	Period of application
Conventionnels					
Suspended solids (SS)	CVAC	6.9	1.9	**6.9**	Annual
Ammoniacal nitrogen	CVAC	2[(2)]	0.031	**2**	June 1— November 30
	CVAC	4.6[(2)]	0.031	**4.6**	December 1 – May 31
Nitrites	CVAC	0.02[(3)]	0.02	**0.02**	Annual
Nitrates	CVAC	3	0.034	**3**	
Phosphorus	CVAC	0.03	0.01	**0.03**	
Métaux					
Aluminium	CVAC	0.41[(4)]	0.048	**0.41**	Annual
Silver	CVAC	0.0001	0	**0.0001**	
Arsenic	CPCO	0.021	0.0003	**0.021**	
Boron	CVAC	5	0.0022	**5**	
Cadmium	CVAC	0.00007 [(5)]	0.0000078	**0.00007**	
Chromium	CVAC	0.018	0.00018	**0.018**	
Copper	CVAC	0.0018[(5)]	0.00017	**0.0018**	
Iron	CVAC	1.3	0.3	**1.3**	
Manganese	CVAC	0.36[(5)]	0.015	**0.36**	
Mercury	CFTP	0.0000013	0.000015	**0.0000013**	
Nickel	CVAC	0.010[(5)]	0.00016	**0.01**	
Lead	CVAC	0.00028[(5)]	0.0002	**0.00028**	
Selenium	CVAC	0.005	0.00005	**0.005**	
Zinc	CVAC	0.024[(5)]	0.001	**0.024**	
Others					
C_{10}-C_{50}	CVAC	0.2[(6)]	0	**0.2**	Annual
Chlorides	CVAC	120	0	**120**	
Free cyanides	CVAC	0.005	0	**0.005**	
Fluorides	CVAC	1.6 [(5)]	0	**1.6**	
Hydrogen sulfide	CVAC	0.00036	0	**0.00036**	
pH	-	-	-	**6.0 à 9.5(7)**	
Acute toxicity	-	1 UTa	-	**1 UTa**	
Chronic toxicity	-	1 UTc	-	**1 UTc**	

4.7 Sediments

The mitigation measures planned for the Sediment component are presented in Table 4-21.

Table 4-21 Standard and specific mitigation measures for the Sediment component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA01	X	X	X	Stripping, clearing, excavation, backfilling, and leveling of work areas will be kept to a minimum.
QUA02	X	X	X	In the event that earthworks must be carried out in areas with steep slopes, the bottom of the trenches will be covered with granular drainage materials and/or rock fill to prevent erosion.
QUA03	X	X	X	In order to reduce the risk of erosion on sloping land, methods such as the installation of retaining embankments, channels, or diversion ditches perpendicular to the slope, or other methods will be used.
QUA04	X	X	X	The slopes of excavated and backfilled areas will be stabilized using techniques that blend in as much as possible with the natural environment, wherever erosion is likely to cause particulate matter to enter a watercourse (slope softened to 1.5 H: 1 V, plus other available techniques). Along steep slopes, sediment barriers (geotextile, straw, etc.) will be used at the foot of the embankments, as necessary, to reduce the volume of transported particles. Protective measures (straw, wood chips, mattresses) may also be used directly on the slope. Excavated material will not be placed on steep slopes. Fill material shall be adequately compacted.
QUA07	X	X	X	In the event of temporary storage of contaminated excavated material, take all necessary measures to preserve the integrity of the surrounding soil and water and to ensure worker safety (e.g., pile material on a sealed or impermeable surface, cover piles, restrict access to piles, etc.).
QUA08	X	X	X	Where possible, trees and shrubs will be removed by cutting them down to ground level on embankment slopes. Their root systems will be preserved to promote runoff infiltration and natural soil stability.
QUA10	X	X	X	Where possible, carry out any development work that may affect the hydraulic conditions of permanent watercourses outside the snowmelt period. The installation of a culvert in a permanent watercourse should preferably be carried out during low water periods and as soon as possible. It must not impede water flow or contribute to the formation of ponds upstream during flood periods. Gradually restore temporarily disrupted flows after the work is completed to avoid sudden changes in flow rate. The end of the culvert must extend beyond the base of the embankment supporting the road by no more than 30 cm, and the embankment must be stabilized at both ends of the culvert. The material used for this embankment must not contain any organic matter.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA11	X	X	X	When installing or replacing a culvert, first confine the work area to prevent particulate matter from being carried into the water (e.g., partially or completely drain the area). The work techniques and materials used (e.g., diversion structures, geotextile, polyethylene, etc.) should not cause turbidity in the water as much as possible. The natural flow of the watercourse must be maintained continuously and the water must return immediately downstream of the work area. Where possible, the stream bed should not be narrowed by more than two-thirds during the work. If necessary, water accumulations in the work area must be pumped to a vegetation area at least 30 m away from the stream or wetland.
QUA12	X	X	X	After installing a culvert, any other structures required for this work must be removed from the water. Ensure that the stream bed is properly stabilized at the inlet and outlet. The stream bed should then preferably be restored to its natural profile using materials similar to those previously used. The banks should be stabilized and, if necessary, revegetated.
QUA13	X	X	X	A runoff management system will be implemented during the construction phase. Depending on the situation, methods to control suspended solids emissions such as temporary water retention basins, sediment barriers, turbidity curtains, or slope stabilization will be used. These structures will be inspected and cleaned as needed. In addition, water will be pumped to a vegetated area at least 30 m from a watercourse.
QUA14	X	X	X	If calcium chloride-based dust suppressants are used, the product should not be disposed of or equipment rinsed in or near a watercourse or on vegetation.
QUA15	X	X	X	Where possible, abrasives will be used instead of de-icing agents in winter and, where necessary, water will be used as a dust suppressant instead of a chemical solution.
QUA16	X	X	X	During snow removal activities, snow will be kept, as far as possible, outside a 30-meter strip of a watercourse or wetland.
QUA17	X	X	X	Within and in the 15-meter strip bordering the high-water line of a watercourse or body of water and within any wetland (pond, marsh, swamp, or bog), it will be prohibited to pile up temporary waste, debris, materials, or excavated material (e.g., organic matter from topsoil removal). It shall also be prohibited to pile up wood waste and debris. Runoff shall be diverted to a vegetated area at least 30 m from the watercourse or intercepted by sediment barriers or a sedimentation basin.
QUA18	X	X	X	If required, temporary culverts and bank protection will be removed. The riverbed and banks will be restored.
QUA19	X	X	X	The granular materials used for the construction of the structures may not come from the bed of a body of water or its banks, or from any source located less than 75 m from the aquatic environment, except for rock excavated from the area adjacent to the loading platforms and access road or from watercourses or bodies of water that will be directly affected by the project infrastructure.
QUA20	X	X	X	The riparian strips damaged by the work will be restored to replicate the natural banks of the watercourse, body of water, or wetland.
QUA21	X	X	X	Temporary facilities (e.g., construction trailers, access roads, storage areas, waste disposal sites) must be located more than 60 m from a watercourse or wetland.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA22	X	X	X	Ensure that emergency kits for recovering petroleum and chemical products are available in sufficient quantities and at sensitive locations. Petroleum products (hydrocarbons) will be handled in such a way as to prevent and control leaks and spills.
QUA23	X	X	X	Ensure that the machinery is in good condition (clean and free of any leaks of contaminating products) and that the fuel and lubricant tanks are completely leak-proof. Any leak detected must result in immediate repair of the tank in question.
QUA24	X	X	X	During construction, vehicle and surface equipment maintenance will generally be carried out on site in an existing garage. Fuel will be supplied by appropriately equipped service trucks located more than 60 m from any watercourse or wetland. A drip tray will be positioned under the transfer points during refueling to prevent any dripping onto the ground.
QUA25	X	X	X	Equip all fixed equipment containing oil and/or fuel (e.g., light towers, generators, etc.) located within 60 m of a watercourse, body of water, or wetland with a leak-proof recovery system. The equipment must be equipped with absorbent material in order to respond quickly and effectively in the event of an accidental spill.
QUA26	X	X	X	Any accidental spills must be reported immediately. In the event of a spill of hydrocarbons or any other harmful substance, the MELCCFP alert network (1-866-694-5454) must be notified without delay. If the spill reaches a body of water, Environment Canada (1-866-283-2333) must also be notified. Any spill of contaminants must be subject to immediate response measures to contain and recover the products. Contaminated soil must be removed and disposed of at an authorized site, and characterized in accordance with the MELCCFP's Soil Protection and Contaminated Land Remediation Policy. The WMG response team (first responder and firefighter) will always respond to an emergency call in order to minimize the impact and rescue the injured, if necessary.
NOR06	X	X	X	Dispose of excess or unusable excavated material (clay, silt, gravel, rock) with the usual precautions and in accordance with the **Regulations respecting activities in wetlands, water environments, and sensitive** areas and D019 to ensure sufficient spacing from wetlands and water environments.
NOR07	X	X	X	Install culverts or crossing structures designed to maintain free water flow (and free passage for fish). The construction of bridges or culverts must not reduce the width of the watercourse by more than 20%, measured from the LNHE. The base of the lower culvert must be sunk below the natural bed of the watercourse to a depth of at least 15 cm or 10% of the height of the structure, and its ends must extend beyond the base of the embankment by no more than 30 cm and be adequately stabilized. Reference: Regulation respecting the sustainable development of state-owned forests.
NOR08	X	X	X	All operators must seek to maximize the use of mine wastewater produced on the mine site and minimize liquid discharges (Reference: D019, section 3.2.2.1). Produce a management plan for surface water, whether natural or related to the treatment process (Reference: D019, section 4.2.8.5).
NOR09		X	X	Ensure that effluents from the site comply with standards. Reference: Metal and Diamond Mine Effluent Regulation, section 4 and Appendix 4 and D019, section 3.1.1.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
NOR10	X	X	X	Stop the leak as soon as it is detected during an accidental spill, contain the product and recover it using appropriate equipment (absorbent sheets, booms, drain covers, etc.). Notify the Minister immediately. Excavate contaminated soil, place it in leak-proof containers and dispose of it in accordance with the hazardous materials management program. Recommend rapid intervention to prevent deep infiltration. Reference: LQE, s. 21 and Hazardous Materials Regulation, s. 9.
NOR12	X	X	X	Hazardous materials will be managed in accordance with the Hazardous Materials Regulation (R.S.Q., c. Q-2, r. 15.2) using a management system that is separate from the one used for residual materials. If necessary, recovery will be carried out by a specialized company. All hazardous materials will therefore be stored in a designated area and protected from the elements by a waterproof tarp while awaiting loading and transport. In winter, it is recommended that containers be placed on pallets or storage tables. If the retention time exceeds 30 days, the storage area must include a waterproof shelter with at least three sides, a roof, and a waterproof floor forming a basin with a retention capacity equal to 110% of the volume of the largest container. The storage area for hazardous materials must be located away from vehicle traffic and at a reasonable distance from drainage ditches or sumps and any other sensitive elements, as well as at least 60 m from any watercourse. Reference: Hazardous Materials Regulation (R.S.Q., c. Q-2, r. 15.2).
NOR13		X	X	Implement the surface water quality monitoring program (final effluent) in accordance with the REMMMD and D019. The results of water quality monitoring at the effluent and in the receiving watercourse will be compared to the criteria in the regulations in force. Reference: D019, section 3.1.1, Metal and Diamond Mine Effluent Regulation, Appendix 5.
P01		X	X	Gradually restore the tailings pond in three stages to reduce areas susceptible to wind and runoff erosion.
P26	X	X	X	An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

4.7.1 Construction phase

No monitoring is currently planned during the construction phase for sediments, other than the monitoring of mitigation measures presented in Table 4-21.

4.7.2 Operation phase

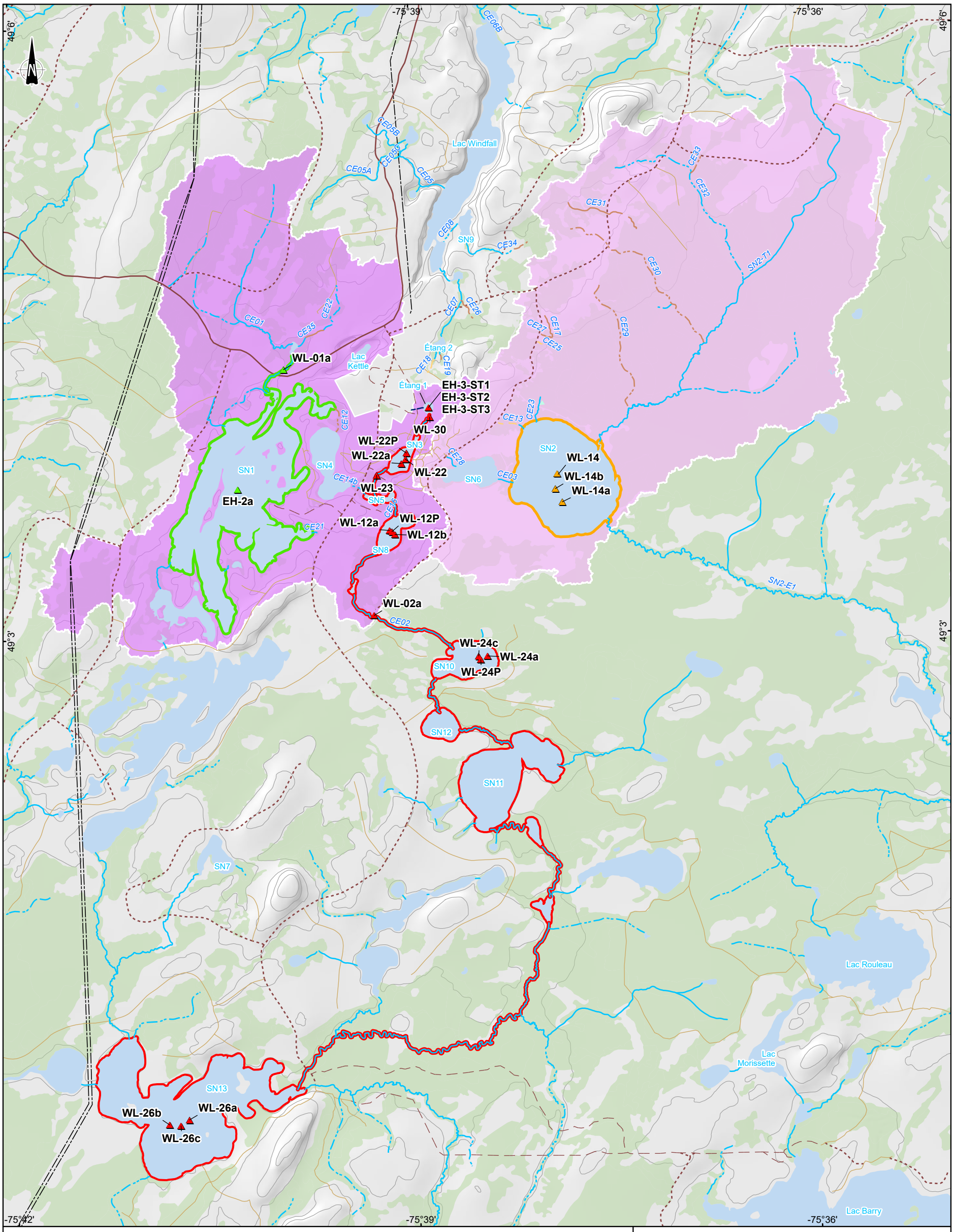
This program aims to detect and document any changes in the environment (whether related to the Project or not) compared to the baseline condition. Its purpose is to ensure the accuracy of the impact assessment and to evaluate the effectiveness of the mitigation measures provided for in the EIS.

Sediment and water samples must be taken at the same sampling stations and at the same time in order to determine the water quality of the environment, as well as the total organic carbon content and grain size distribution of the sediments. However, water samples must be collected before sediment samples to avoid resuspension in the water column.

In the exposed area, the stations are located in watercourses CE09, CE15, and CE02, and in water bodies Pond 1, SN3, SN8, and SN10 (Table 4-22, Map 4-4). As with surface water quality monitoring, the reference area is Lake SN1 and watercourse CE01. Although Lake SN2 is in a non-exposed area, it is included in the monitoring program because it is used by local communities for a number of activities. The stations are located in the lake basin.

Table 4-22 Sediment sampling stations by zone.

Zone Type	Lake or watercourse	Preliminary station name	Position in the lake
Reference area	Lake SN1	EH-2a	Center
	CE01	WL-01a	-
Lake not exposed	Lake SN2	WL-14	Center
		WL-14a	Southern section in the pit
		WL-14b	Northern section in the pit
Area exposed to mine effluent	Pond 1 (Core sampling)	EH-3-ST1	Central East
		EH-3-ST2	Center
		EH-3-ST3	Central West
	CE09	WL-30	-
	Lake SN3	WL-22a	Central South
		WL-22	Center
		WL-22p	Central North
	CE15	WL-23	-
	Lake SN8	WL-12	Central East
		WL-12a	Central West
		WL-12p	Center
	CE02	WL-02a	-
	Lake SN10	WL-24	Central North
		WL-24a	Central East
		WL-24P	Central West
	Lake SN13	WL-26b	Central West
		WL-26a	Central East
		WL-26c	Center



Cours d'eau / *Waterflow*

- Canal / *Channel*
- Cours d'eau intermittent / *Intermittent Watercourse*
- Cours d'eau intermittent partiellement souterrain / *Partially Underground Intermittent Watercourse*
- Cours d'eau intermittent souterrain / *Underground Intermittent Watercourse*
- Cours d'eau permanent / *Permanent Watercourse*
- Cours d'eau permanent partiellement souterrain / *Partially Underground Permanent Watercourse*
- Cours d'eau souterrain / *Underground Watercourse*
- Fossé de drainage / *Drainage ditch*
- Inexistant / *Inexistent*
- Plan d'eau / *Waterbody*

Infrastructures / *Infrastrutures*

- Ligne de transport d'énergie électrique / *Electric power transmission line*

Routes / *Roads*

- Route forestière secondaire / *Secondary forest road*
- Route forestière tertiaire / *Tertiary forest road*
- Sentier / *Trail*
- Chemin d'hiver / *Winter road*

Bassins versants / *Watersheds*

- CE02
- SN2

Milieux humides / *Wetlands*

- Milieux humides / *Wetlands*

Zones et stations d'échantillonnage / *Sampling areas and stations*

Exposée à l'effluent / Exposed to effluent

- Zone exposée / *Exposed to effluent*
- Station sédiments / *Sediment station*

Non exposée / *Not exposed*

- Non exposé / *Not exposed*
- Station sédiments / *Sediment station*

Référence / Reference

- Zone de référence / *Reference Area*
- Station sédiments / *Sediment station*

Gold Fields

Projet Windfall - Programme de surveillance et suivi / *Windfall Project - Monitoring and Supervision Program*

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte 4-4 / *Map 4-4*
Localisation des stations d'échantillonnage des sédiments / *Location of Sediment Sampling Stations*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
CanVec, 1/50 000, RNCan, 2012
AQréseau+, Réseau routier, MERN Québec, 2020-03
GRHQ, Réseau hydrique linéaire, 2023
SIEF, MRNF Québec, 2012
Photo-interprétation de la végétation / Photointerpretation of the vegetation, WSP, 2015 à 2021

0 350 700 m
MTM, Fuseau 9 / *Zone 9*, NAD83

2025-07-22

Préparation / Preparation : K. Cadoret
Dessin / Drawing : E. Kheiri
Vérifié par / Verification : M.-H. Brisson
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wsp

La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. / Boundary accuracy and measurements shown on this document are not to be used for engineering or land delineation purposes. No land analysis was carried out by a land surveyor.

4.7.2.1 Methodology

The methodology to be applied is detailed in Chapter 7 of the Technical Guide for Monitoring the Environmental Effects of Metal Mines (EC, 2012), and the analysis is based on the Guide to the Physicochemical and Toxicological Characterization of Sediments (MELCC, 2016).

In addition, the samples collected will be analyzed by a laboratory accredited by the Government of Quebec, according to the parameters in Table 4-23, using the methods recommended in the Technical Guide for the Follow-up Study of the Environmental Effects of Metal Mines.

Sampling and measurements in the effluent receiving environment and in the reference area will be carried out in accordance with the requirements mentioned above. In addition, the usual precautions will be taken to avoid contamination during sampling and transport of samples. Duplicates will be taken from 10% of the samples collected for quality control purposes.

Table 4-23 Parameters to be analyzed as part of sediment monitoring

Analytical parameters
Total organic carbon (TOC)
Moisture
Petroleum hydrocarbons C_{10}-C_{50}
Total phosphorus
Total cyanides
Total sulfur
Mercury
Ag, Al, As, Ba, Be, Bo, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Sb, Se, Sr, U, V, Zn
Total oils and fats
Particle size distribution/Sedimentology

4.7.2.2 Frequency and monitoring period

Sediment samples will be collected at the same sampling stations and during the same period as surface water samples.

During the operational phase, sediment sampling will be conducted every four years for environmental monitoring purposes. This will take place when river flow decreases but effluent is actively emptying the basins following snowmelt. Monitoring will continue until the post-restoration period.

4.7.2.3 Monitoring report

The monitoring report shall contain the results of sediment monitoring in the receiving environment. In addition, the following information shall be provided:

- The dates on which the samples were taken;
- The latitude and longitude of the sampling stations and sub-stations used and a description that allows the location of these areas to be identified;

- The methods used and their detection limits;
- A description of the quality assurance and control measures that were taken, as well as the data associated with their implementation.

4.7.2.4 Schedule and deliverables

This monitoring will be carried out during the operational phase every four years.

It should be noted that Cree users will be informed of the monitoring program and invited to participate in each field campaign. Their knowledge and traditional expertise will be taken into account and incorporated into the monitoring.

A monitoring report presenting the data collected in the field as part of the monitoring and their analysis will be produced after the data has been collected and processed. The report will contain the following elements:

- Description of the field activities carried out (campaign dates, instruments installed, location map, etc.).
- Data collected, in terms of water levels recorded by probes, measured flows, and recorded rainfall. Relevant photographs of watercourses will also be included (at the location of probes and major hydraulic controls, condition of banks in the area between Pond 1 and Lake SN5, for example).
- Analysis of the data collected: water level data will be correlated with rainfall data and field observations to draw conclusions about the project's impact on watercourses. In addition, if the data collected allows, level-flow relationships will be established at the probes (calibration curves) and the water levels recorded by the level probes will be converted into a hydrograph in order to obtain average flow values.
- Any relevant observations related to water levels and flows in the watercourse (creation or removal of obstacles or hydraulic control, drying up, erosion, apparent changes, etc.).
- Recommendations on adjustments to be made to the monitoring program or mitigation measures to be implemented, if necessary.

4.7.3 Closure phase

Under the REMMMD, sediment monitoring will continue during the closure phase at a rate of one monitoring session after the end of the operational phase. In addition to the frequency, water and sediment sampling will be carried out according to the method presented in section 4.8.2 during the operational phase.

4.8 Hydrogeology

The mitigation measures planned for the Hydrogeology component are presented in Table 4-24.

Table 4-24 Common and specific mitigation measures for the Hydrogeology component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA01	X			Stripping, clearing, excavation, backfilling, and leveling of work areas will be kept to a minimum.
QUA02	X			In the event that earthworks must be carried out in areas with steep slopes, the bottom of the trenches will be covered with granular drainage materials and/or rock fill to prevent erosion.
QUA03	X			In order to reduce the risk of erosion on sloping land, methods such as the installation of retaining embankments, channels, or diversion ditches perpendicular to the slope, or other methods will be used.
QUA04	X			The slopes of excavated material and embankments will be stabilized using techniques that blend in as much as possible with the natural environment, wherever erosion is likely to cause particulate matter to enter a watercourse (slope softened to 1.5 H: 1 V, plus other available techniques). Along steep slopes, sediment barriers (geotextile, straw, etc.) will be used at the foot of the embankments, as necessary, to reduce the volume of transported particles. Protective measures (straw, wood chips, mattresses) may also be used directly on the slope. Excavated material will not be placed on steep slopes. Fill material shall be adequately compacted.
QUA10	X			Where possible, carry out any development work that may affect the hydraulic conditions of permanent watercourses outside the snowmelt period. The installation of a culvert in a permanent watercourse should preferably be carried out during low water periods and as soon as possible. It must not impede water flow or contribute to the formation of ponds upstream during flood periods. Gradually restore temporarily disrupted flows after the work is completed to avoid sudden changes in flow rate. The end of the culvert must extend beyond the base of the embankment supporting the road by no more than 30 cm, and the embankment must be stabilized at both ends of the culvert. The material used for this embankment must not contain any organic matter.
QUA17	X	X	X	Within and in the 15-meter strip bordering the high-water line of a watercourse or body of water and within any wetland (pond, marsh, swamp, or bog), it will be prohibited to pile up temporary waste, debris, materials, or excavated material (e.g., organic matter from soil surface stripping). It will also be prohibited to pile up wood waste and debris. Runoff will be diverted to a vegetation area at least 30 m from the watercourse or wetland, or intercepted by sediment barriers or a sedimentation basin.
HYD01	X	X	X	Establish a network of wells around mining infrastructure to measure the lowering and rising of the water table in the mine area.
P26	X	X	X	An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

4.8.1 Construction phase

Where possible, monitoring wells will be installed during the construction phase. Monitoring during the operational phase may begin once these wells are operational. Current monitoring will continue using existing wells, provided they are not destroyed by construction.

4.8.2 Operation phase

A network of observation wells will be used to monitor piezometric levels. Continuous monitoring of piezometric variations will be carried out in these wells using level logger and/or barologger probes.

The probes will measure temperature, water pressure, and air column pressure in the case of barologgers. These probes will also be used to monitor the impact of underground mining operations on water level rises near surface watercourses. The probes will be programmed to take readings every hour.

The location of these wells is shown in Figure 4-1, together with the anticipated drawdown at the end of operations (green contours – drawdown in metres), and is also presented in Map 4-5 and Table 4-25. Two wells points (Pointe 2 and Pointe 3) have been installed, and an existing well (MW-22-02S) will be used to monitor variations in groundwater levels in the shallow aquifer within the wetland (Pointe 2 and Pointe 3 in Figure 4-1). Specific monitoring is also planned for the wetland located in the CE-13 watercourse sector. To enhance wetland monitoring, shallow wells and wells points will be installed upstream of Pond 2 (near Basin B; 26-PO-17S and Pointe 5) and downstream of the PAR2 basin (26-PO-18S and Pointe 6). Additional piezometers are also planned midway between well 25-PO-06 and the PAR1 basin (Pointe 1), as well as adjacent to well 25-PO-05 (Pointe 4). Monitoring carried out using the well points will focus solely on groundwater levels. The hydraulic regime in the peatland is primarily controlled by precipitation inputs. A reduction in water levels in the underlying aquifers will not necessarily result in drying of the wetland.

Table 4-25 Location of current and proposed wells and wells points for water level monitoring

Wells or Wells points	NAD83 (MTM 9)		NAD83 (DD)		Status
	X (in m)	Y (in m)	Latitude	Longitude	
Pointe 1	368086.11	5437197.3	-75.6338019	49.06970579	Proposed
Pointe 2	367823.34	5437077.9	-75.6374165	49.06865915	Current
Pointe 3	367827.54	5436967	-75.63737635	49.06766086	Current
Pointe 4	368363.64	5437426.2	-75.62996778	49.07173514	Proposed
Pointe 5	367205.97	5437467.9	-75.64580527	49.07222858	Proposed
Pointe 6	367353.67	5437892.6	-75.64371807	49.07603235	Proposed
Well MW-22-02S	367994.15	5437046.5	-75.63508393	49.06835871	Current
Well 25-PO-02R	367304.31	5437384.2	-75.6444723	49.0714654	Proposed
Well 25-PO-11 R-S	367859.16	5437350.5	-75.63688385	49.0711059	Proposed
Well 25-PO-10 R	367320.66	5437049	-75.64430031	49.06845001	Current

Wells or Wells points	NAD83 (MTM 9)		NAD83 (DD)		Status
	X (in m)	Y (in m)	Latitude	Longitude	
Well WIN-17-187S	367317.07	5436655.6	-75.64441	49.0649112	Current
Well WIN-17-186R	367842.94	5436850.2	-75.6371823	49.0666105	Current

Intervention criteria

Alert thresholds will be used to ensure that the predictive model has not underestimated the expected drawdowns in the loose deposit and rock units. Changes in water levels in these wells will be compared with the model predictions. Alert thresholds in observation wells are triggers that determine whether additional checks or corrective work are necessary. In this case, alert thresholds are set based on a deviation from predictions. Since water levels vary depending on weather conditions (rain, drought) and time of year (seasons), the annual average level will be used as the reference threshold for each year. A deviation of more than 30% from the predictive slope will be used as the alert threshold criterion (Figure 4-2). If this alert threshold is reached, the model will be revised to update the impacts on the environment. Some monitoring wells may be added, if necessary, based on the results obtained.

Specific intervention criteria will also be used for the wells points installed in the wetland (Pointe 1 to 6; Figure 4-1 and Map 4-5). A decrease in the average annual water level over more than two years will trigger a reassessment of the anticipated impacts and losses to the environment.

4.8.3 Closure phase

The monitoring planned for the operational phase will continue during the closure phase until water levels in the wells have been restored.

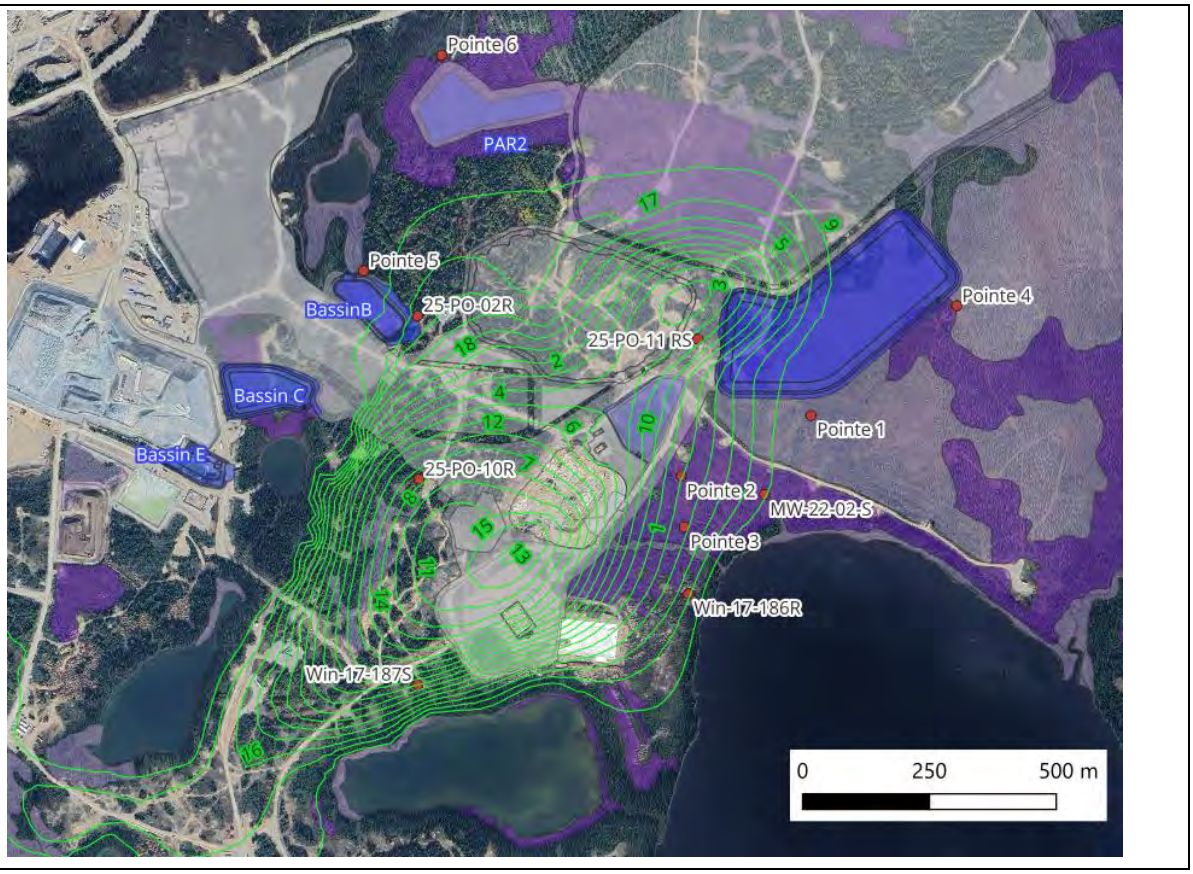


Figure 4-1 Location of wells and wells points proposed for monitoring and estimated drawdown

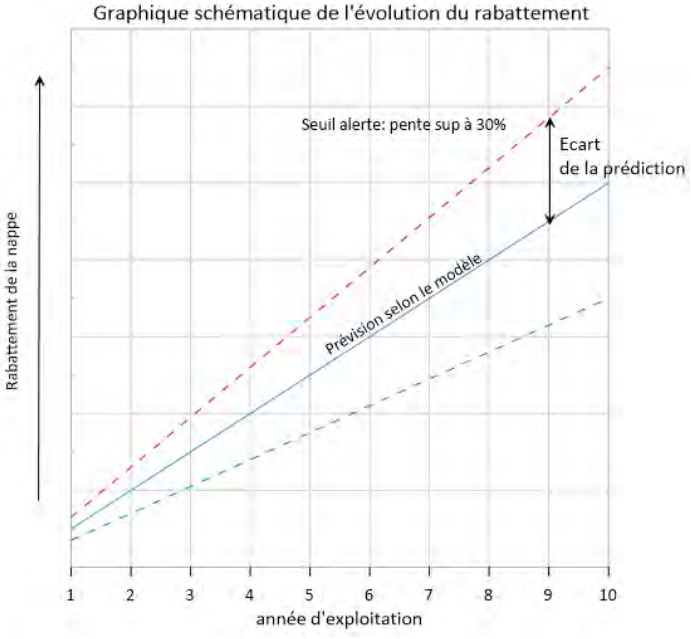
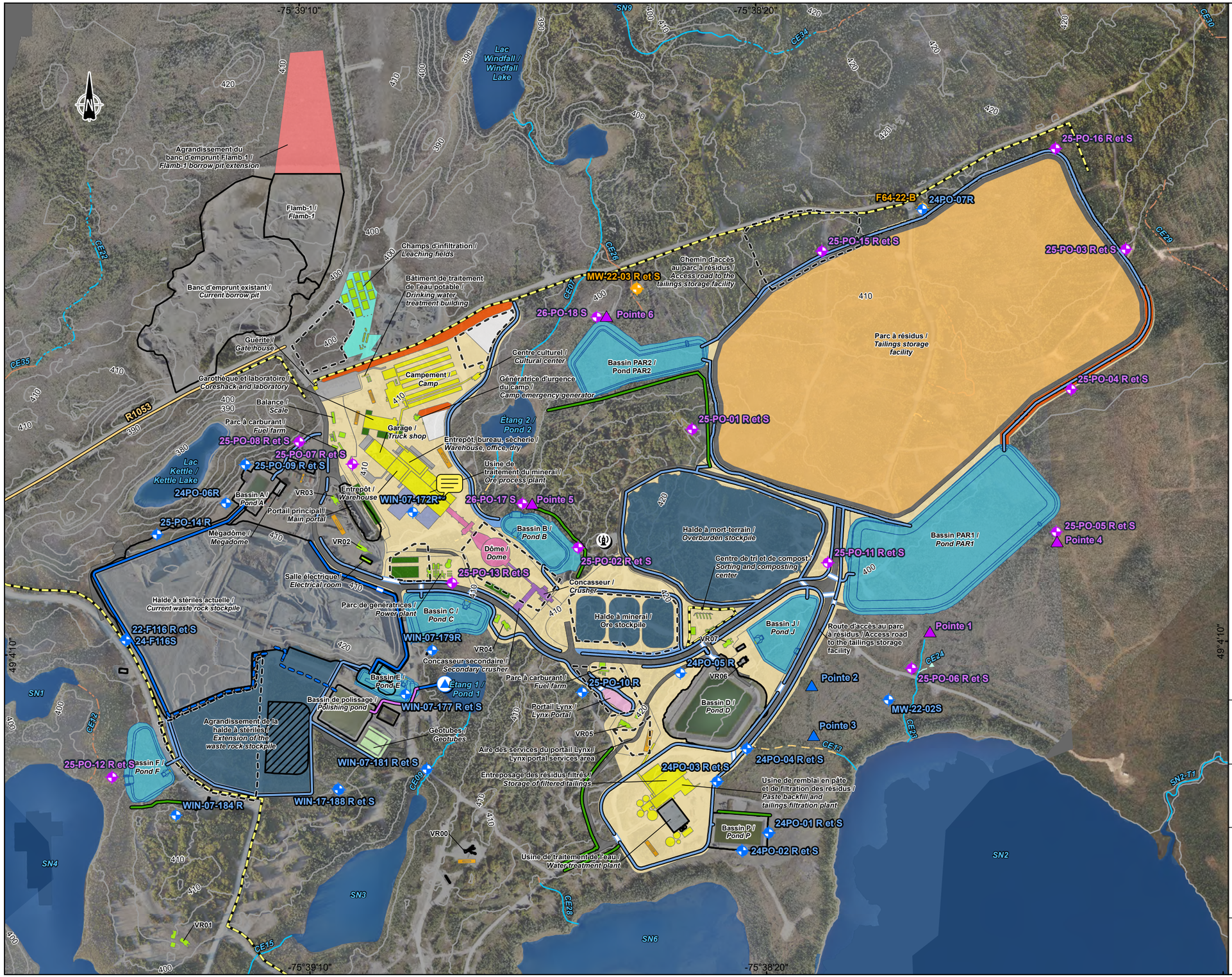


Figure 4-2 Schematic diagram of the evolution of the rebound



Composantes du projet / *Project Components*

Puits / *Well*

- Puits de suivi actuel / *Actual monitoring well*
- Puits de suivi proposé / *Proposed monitoring well*
- Puits existant proposé pour le programme de suivi / *Existing well proposed for the monitoring program*

Pointe filtrante / *Well Point*

- Pointe filtrante de suivi actuel / *Actual well point*
- Pointe filtrante de suivi proposé / *Proposed well point*

Infrastructures actuelles / *Current Infrastructures*

- Actuelle / *Current*
- Qui sera retirée / *To be removed*
- Fossé / *Ditch*
- Ponceau / *Culvert*
- Fossé qui sera retiré / *Ditch to be removed*
- Tour de télécommunication / *Telecommunication tour*

Infrastructures projetées / Planned Infrastructures

- Effluent final / *Final effluent*
- Fossé de déviation / *Deviation ditch*
- Autre fossé / *Other ditch*
- Ponceau / *Culvert*
- Conduite vers l'effluent final / *Final effluent pipe*
- Clôture / *Fence*
- Infrastructure temporaire (phase de construction) / *Temporary infrastructure (construction phase)*

Catégories d'infrastructures projetées / *Categories of Planned Infrastructures*

- Aire d'activité / *Activity area*
- Banc d'emprunt / *Borrow pit*
- Bassin / *Pond*
- Berme / *Berm*
- Géotube / *Geotube*
- Bâtiment / *Building*
- Champ d'infiltration / *Infiltration field*
- Concasseur / *Crusher*
- Dôme et composantes / *Dome and components*
- Entreposage / *Storage*
- Équipement / *Equipment*
- Confinement extérieur pour réservoirs / *Outdoor confinement for tanks*
- Fossé / *Ditch*
- Halde / *Stockpile*
- Parc à résidus / *Tailings storage facility*
- Portail Lynx / *Lynx portal*
- Réservoir de propane / *Propane reservoir*
- Route et chemins d'accès / *Road and access paths*
- Stationnement et accès / *Parking and access*
- Zone de dépôt de neige / *Snow deposit zone*

Hydrographie / *Hydrography*

- Canal / *Channel*
- Cours d'eau intermittent / *Intermittent Watercourse*
- Cours d'eau intermittent partiellement souterrain / *Partially Underground Intermittent Watercourse*
- Cours d'eau intermittent souterrain / *Underground Intermittent Watercourse*
- Cours d'eau permanent / *Permanent Watercourse*
- Cours d'eau permanent partiellement souterrain / *Partially Underground Permanent Watercourse*
- Cours d'eau souterrain / *Damaged Underground Watercourse*
- Fossé de drainage / *Drainage ditch*

Projet Windfall - Programme de surveillance et suivi /
Windfall Project - Monitoring and Supervision Program

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte 4-5 / *Map 4-5*
Localisation du réseau de surveillance des eaux souterraines / *Groundwater monitoring network location*

Sources :
AQréseau+, Réseau routier, MERN Québec, 2020-03
WSP, Infrastructures version CAWL-301-G-0602-AU, 2025
Groupe minier Windfall, Orthophotographie par drône (50 cm), 2024
Mosaïque d'orthophotographie de l'inventaire écoforestier, MRNF, 2023

0 85 170 m
NAD 1983 MTM 9

2026-05-13

Préparation / Preparation : M.-H. Brisson
Dessin / Drawing : S. Samson
Vérifié par / Verification : M.-H. Brisson
CA0023271_9538_su_ps_prog_surv_suivi_2025_S4_260513.aprx
CA0023271_9538_su_ps25_c4_5_084_eau_sout_260513

La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. / Boundary accuracy and measurements shown on this document are not to be used for engineering or land delineation purposes. No land analysis was carried out by a land surveyor.

4.9 Groundwater quality

The mitigation measures planned for the Groundwater Quality component are presented in Table 4-26.

Table 4-26 General and specific mitigation measures for the Groundwater Quality component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA05	X	X		Excavation, backfilling, and redevelopment work will be carried out in such a way as to minimize the need to borrow materials and crushed stone. The necessary backfill materials will be transported by truck from borrow pits located on or near the project site. Excavated soil will, depending on its characteristics, be used as backfill material on site or removed from the site if its quantity is deemed excessive or its quality unsuitable for engineering purposes, and transported and disposed of in accordance with applicable laws and regulations.
QUA07	X	X		In the event of temporary storage of contaminated excavated material, take all necessary measures to preserve the integrity of the surrounding soil and water and to ensure worker safety (e.g., pile material on a sealed or impermeable surface, cover piles, restrict access to piles, etc.).
QUA14	X	X		If calcium chloride-based dust suppressants are used, the product should not be disposed of or the equipment rinsed in or near a watercourse or on vegetation.
QUA15		X		Where possible, abrasives will be used instead of de-icing agents in winter and, where necessary, water will be used as a dust suppressant instead of a chemical solution.
QUA22	X	X		Ensure that emergency kits for recovering petroleum and chemical products are available in sufficient quantities and at sensitive locations. Petroleum products (hydrocarbons) will be handled in such a way as to prevent and control leaks and spills.
QUA23	X	X		Ensure that the machinery is in good condition (clean and free of any leaks of contaminating products) and that the fuel and lubricant tanks are completely leak-proof. Any leaks must be repaired immediately.
QUA24	X	X		During construction, vehicle and surface equipment maintenance will generally be carried out on site in an existing garage. Fuel will be supplied by appropriately equipped service trucks located more than 60 m from any watercourse or wetland. A drip tray will be positioned under the transfer points during refueling to prevent any dripping onto the ground.
QUA25		X		Equip all fixed equipment containing oil and/or fuel (e.g., light towers, generators, etc.) located within 60 m of a watercourse, body of water, or wetland with a leak-proof recovery system. The equipment must be equipped with absorbent material in order to respond quickly and effectively in the event of an accidental spill.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA26	X	X		Any accidental spills must be reported immediately. In the event of a spill of hydrocarbons or any other harmful substance, the MELCCFP alert network (1-866-694-5454) must be notified without delay. If the spill reaches a body of water, Environment Canada (1-866-283-2333) must also be notified. Any spill of contaminants must be dealt with immediately in order to contain and recover the products. Contaminated soil must be removed and disposed of at an authorized site, and a characterization must be carried out in accordance with the terms of the MELCCFP's Soil Protection and Contaminated Land Remediation Policy. The WMG response team (first responder and firefighter) will always respond to an emergency call in order to minimize the impact and rescue any injured persons, if necessary.
NOR10	X	X		Stop the leak as soon as it is detected during an accidental spill, contain the product and recover it using appropriate equipment (absorbent sheets, booms, drain covers, etc.). Notify the Minister immediately. Excavate contaminated soil, place it in leak-proof containers and dispose of it in accordance with the hazardous materials management program. Recommend rapid intervention to prevent deep infiltration. Reference: LQE, section 21, and Hazardous Materials Regulation, section 9.
NOR12	X	X		Hazardous materials will be managed in accordance with the Hazardous Materials Regulation (R.S.Q., c. Q-2, r. 15.2) using a management system that is separate from the one used for residual materials. If necessary, recovery will be carried out by a specialized company. All hazardous materials will therefore be stored in a designated area and protected from the elements by a waterproof tarp while awaiting loading and transport. In winter, it is recommended that containers be placed on pallets or storage tables. If the retention time exceeds 30 days, the storage area must include a waterproof shelter with at least three sides, a roof, and a waterproof floor forming a basin with a retention capacity equal to 110% of the volume of the largest container. The storage area for hazardous materials must be located away from vehicle traffic and at a reasonable distance from drainage ditches or sumps and any other sensitive elements, as well as at least 60 m from any watercourse. Reference: Hazardous Materials Regulation (R.S.Q., c. Q-2, r. 15.2).
NOR15	X	X	X	Implement a groundwater quality monitoring program. Install a minimum of three observation wells at selected locations around the mine dump to monitor groundwater quality upstream and downstream. Reference: D019, sections 3.3.4 and 3.3.4.1.
P26	X	X		An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

As part of the activities associated with the construction, operation, and closure phases of the Windfall mining project, WMG has implemented an environmental monitoring program. Within this program, groundwater quality monitoring aims to detect and document any changes in the environment relative to the baseline condition obtained during the preparation of the EIS. This program will also make it possible to verify the potential for significant degradation of groundwater quality during operation, ensure the accuracy of the assessment of impacts on groundwater quality, and evaluate the effectiveness of the mitigation measures provided for in the EIS.

Under D019, a groundwater quality monitoring program, including piezometric monitoring, must be established near any high-risk development such as an ore processing plant, a mine tailings storage facility, a petroleum or chemical storage area, etc. This monitoring is already underway and will continue until the post-remediation phase.

An action plan has also been prepared in case the environmental monitoring program reveals unexpected changes, such as a greater-than-expected drop in groundwater levels, higher drainage flows, and a deterioration in groundwater quality.

Methodology

A network of observation wells is currently in place on the site. This monitoring network will be upgraded to ensure that the hydraulic upstream and downstream areas of all high-risk developments are covered. The locations of the current and proposed wells are shown on Map 4-5 and their coordinates are listed in Table 4-27; but it may be adjusted as operations progress and new infrastructure is constructed. Typical development patterns for wells intercepting rock and loose deposits are shown in the figures below (Figures 4-3 and 4-4). Monitoring will consist of sampling and measuring groundwater elevation on a biannual basis, in the spring, following snowmelt when the water table is at its highest, and in the summer during the low water period. The general procedure will consist of:

- Identifying the observation well;
- Taking coordinates using a GPS (if previously surveyed);
- Measuring the height of the casing relative to the ground;
- Measuring the water elevation (static level) relative to the casing before sampling;
- Sampling the groundwater.

The micro-purge method with parameter stabilization will be used for sampling. This method allows sampling at low flow rates in order to obtain a representative sample of the aquifer while minimizing disturbance in the observation well. Samples will be taken once the physicochemical parameters have stabilized. The pH, electrical conductivity, temperature, ORP, and dissolved oxygen will be compiled regularly during the purge of each observation well using a multiparameter probe. When stabilization cannot be achieved in low-permeability wells, the minimal purge method will be used.

The procedures are described in the *Guide to Sampling for Environmental Analysis: Book 3 – Groundwater Sampling* (MDDEP, 2011). Water from wells is usually sampled using dedicated systems in each well to limit the risk of cross-contamination.

Table 4-27 Location of current and proposed wells

Well	NAD83 MTM Time Zone		WGS 1984		Status
	X (in m)	Y (in m)	Latitude (DD)	Longitude (DD)	
22-F116R	366 298,34	5 437 180,16	49,069742	-75,658274	Current
24-F116S	366 299,20	5 437 177,63	49,069719	-75,658262	Current
24PO-01R	367 727,82	5 436 749,31	49,065724	-75,638778	Current
24PO-01S	367 727,76	5 436 751,67	49,065745	-75,638778	Current
24PO-02R	367 667,66	5 436 710,41	49,065380	-75,639607	Current
24PO-02S	367 670,55	5 436 710,28	49,065379	-75,639567	Current
24PO-03R	367 612,05	5 436 863,44	49,066762	-75,640344	Current

Well	NAD83 MTM Time Zone		WGS 1984		Status
	X (in m)	Y (in m)	Latitude (DD)	Longitude (DD)	
24PO-03S	367 613.35	5 436 864.68	49.066773	-75.640326	Current
24PO-04R	367 679.92	5 436 938.39	49.067429	-75.639404	Current
24PO-04S	367 679.08	5 436 936.46	49.067411	-75.639415	Current
24PO-05R	367 531.47	5 437 105.45	49.068946	-75.641409	Current
24PO-06R	366 521.65	5 437 483.54	49.072448	-75.655171	Current
24PO-07R	368 069.31	5 438 135.87	49.078156	-75.633888	Current
WIN-07-172R	366 936.77	5 437 462.41	49.072216	-75.649493	Current
WIN-07-177R	366 920.58	5 437 058.54	49.068586	-75.649777	Current
WIN-07-177S	366 920.58	5 437 058.54	49.068586	-75.649777	Current
WIN-07-179R	366 979.80	5 437 155.78	49.069454	-75.648951	Current
WIN-07-181R	366 967.88	5 436 891.39	49.067078	-75.649155	Current
WIN-07-181S	366 967.88	5 436 891.39	49.067078	-75.649155	Current
WIN-07-184R	366 410.41	5 436 789.06	49.066214	-75.656799	Current
WIN-17-188R	366 770.23	5 436 848.10	49.066709	-75.651866	Current
WIN-17-188S	366 772.84	5 436 845.93	49.066689	-75.651831	Current
25-PO-01 R et S	367 557.53	5 437 647.19	49.073814	-75.640969	Proposed
25-PO-02 R et S	367 304.31	5 437 384.15	49.071475	-75.644475	Proposed
25-PO-03 R et S	368 521.34	5 438 046.99	49.077310	-75.627715	Proposed
25-PO-04 R et S	368 399.97	5 437 736.43	49.074531	-75.629425	Proposed
25-PO-05 R et S	368 363.64	5 437 426.20	49.071745	-75.629970	Proposed
25-PO-06 R et S	368 045.46	5 437 115.80	49.068986	-75.634374	Proposed
25-PO-07 R et S	366 802.47	5 437 569.43	49.073192	-75.651315	Proposed
25-PO-08 R et S	366 684.11	5 437 618.70	49.073647	-75.652927	Proposed
25-PO-09R	366 564.71	5 437 568.16	49.0731945	-75.654566	Current
25-PO-09S	366 564.71	5 437 568.16	49.0731945	-75.654566	Current
25-PO-10 R	367 313.49	5 437 062.43	49.0685716	-75.644396	Current
25-PO-11 R et S	367 859.16	5 437 350.46	49.071116	-75.636887	Proposed
25-PO-12 R et S	366 268.29	5 436 874.42	49.066996	-75.658731	Proposed
25-PO-13 R et S	367 023.90	5 437 305.87	49.070800	-75.648325	Proposed
25-PO-14 R	366 367.77	5 437 413.52	49.0718238	-75.657285	Current
25-PO-15 R et S	367 846.06	5 438 043.06	49.077345	-75.636958	Proposed
25-PO-16 R et S	368 365.29	5 438 271.21	49.079343	-75.629815	Proposed
F64-22-B	368 069.74	5 438 139.85	49.078192	-75.633881	Proposed
MW-22-03-R	367 435.41	5 437 958.90	49.076630	-75.642592	Proposed
MW-22-03-S	367 434.33	5 437 960.62	49.076645	-75.642606	Proposed

Analytical program

The parameters analyzed will be those required in Table 2.1 of Section 2.1.1.1 of D019, in addition to the parameters targeted for site-specific risks. Depending on the nature of the ore, process, or mine tailings, other parameters will be added to the groundwater quality monitoring program in the permits issued by government authorities.

The analytical parameters will therefore focus on the following elements in particular:

- C_{10}-C_{50} petroleum hydrocarbons;
- Major ions (bicarbonates, carbonates, calcium, chlorides, magnesium, potassium, sodium, sulfates);
- Dissolved metals (Ag, Al, As, Ba, B, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Se, Sb, Sn, Sr, U, Zn);
- Total and available cyanides;
- Sulfides, total phosphorus;
- Ammoniacal nitrogen, nitrites, and nitrates
- Radium.

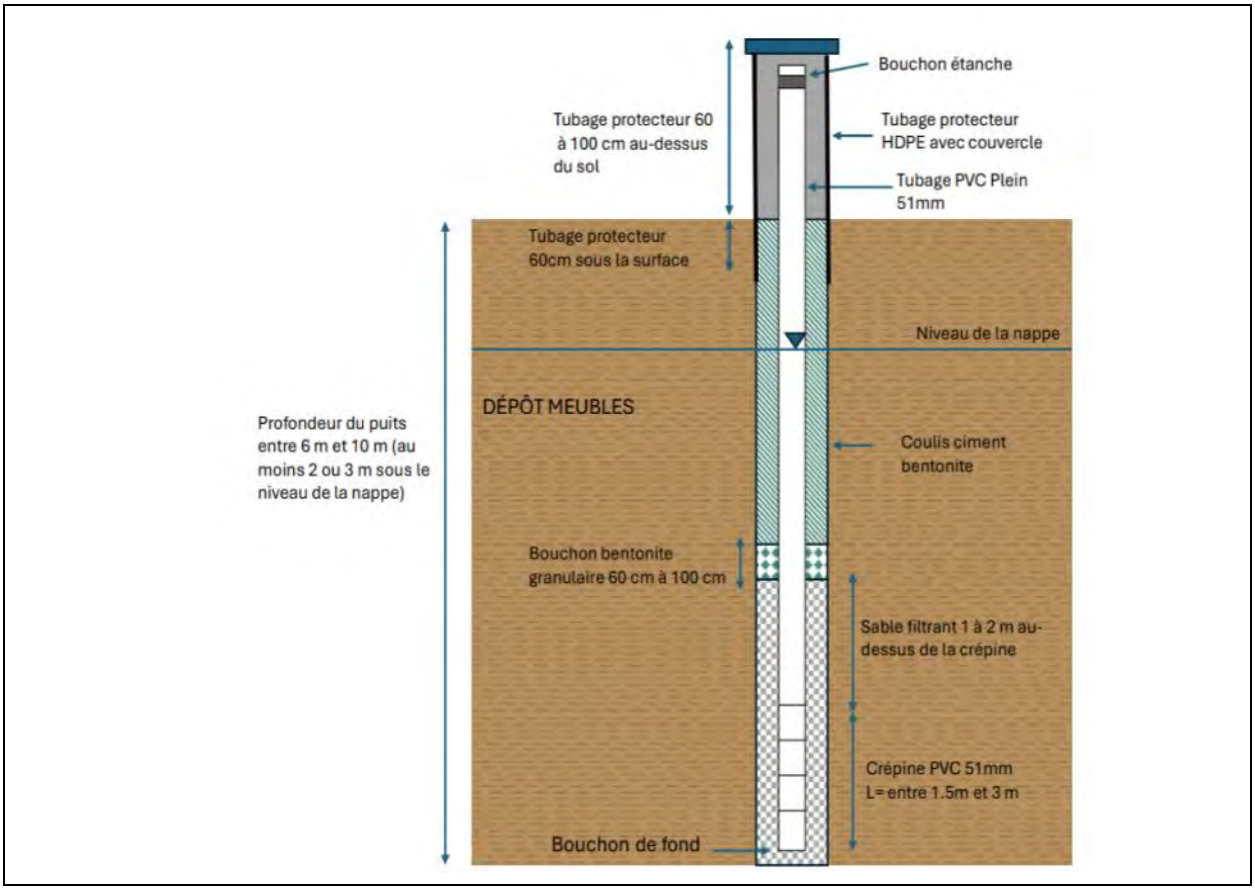


Figure 4-3 Layout diagram for a well in loose deposits

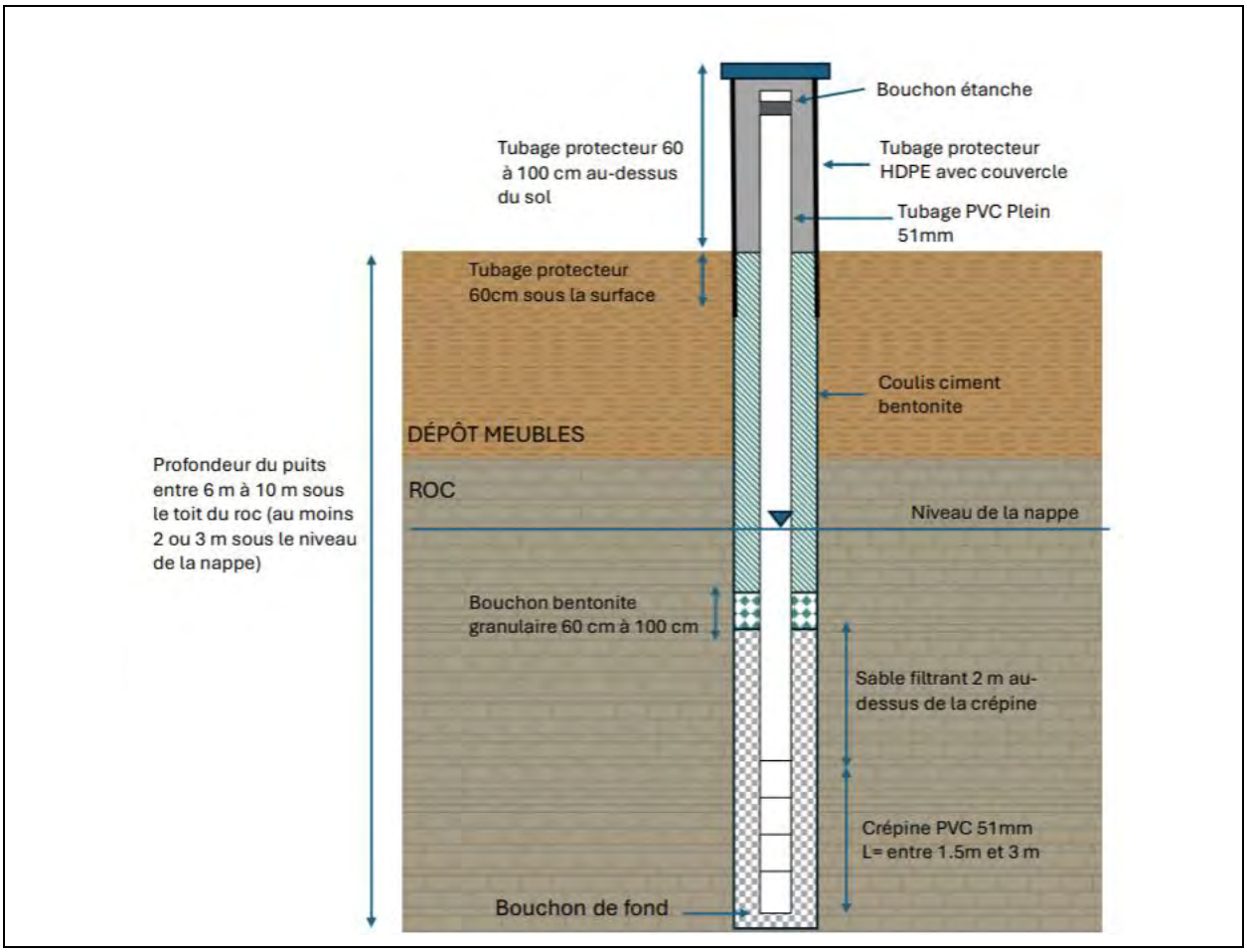


Figure 4-4 Layout plan for a well in rock

Quality control program

In order to confirm the validity of the methods used to measure the various parameters, a quality control program will be implemented. Duplicate samples will be taken during follow-up visits, corresponding to at least 10% of the samples taken. These samples will be sent to the laboratory for analysis and to verify that their results match those of the original samples. Field blanks and transport blanks will also be collected during each campaign and sent to the laboratory.

Interpretation of results

The results of the chemical analyses will be compared to the surface water resurgence criteria (RES) in the *Intervention Guide – Soil Protection and Contaminated Site Remediation in Beaulieu* (2021), the applicable drinking water criteria, and the adjusted regional background values determined in the natural groundwater background content study. In addition, the RES criteria for metals will be adjusted according to a hardness representative of the surrounding environment. Parameters without criteria will be compared to values obtained during previous monitoring to detect any significant trends or variations. The monitoring results will be analyzed in accordance with the Technical Guide for Groundwater Quality Monitoring (MDDELCC, 2017).

Monitoring report

A report presenting water level monitoring, trend analysis, and a piezometric map for each campaign will be produced. Trend analysis can be performed when sufficient data is available (minimum of 10 data points) and updated annually thereafter. The collected data will be submitted annually as part of the annual report to the MELCCFP.

5 Biological Environment – Protection of Wildlife and Flora

5.1 Vegetation and Wetlands

Mitigation measures planned for the Vegetation and Wetlands component are presented in Table 5-1.

Table 5-1 Standard and Specific Mitigation Measures for the Vegetation and Wetlands Component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA01			X	Stripping, clearing, excavation, backfilling, and leveling of work areas will be kept to a minimum.
QUA17	X	X	X	Within and in the 15-meter strip bordering the high-water line of a watercourse or body of water and within any wetland (pond, marsh, swamp, or bog), it will be prohibited to pile up waste, debris, materials, or temporary spoil (e.g., organic matter from topsoil removal). It shall also be prohibited to pile up wood waste and debris. Runoff shall be diverted to a vegetated area at least 30 m from the watercourse or intercepted by sediment barriers or a sedimentation basin.
QUA18	X		X	If required, temporary culverts and bank protections will be removed. The riverbed and banks will be restored.
QUA22	X	X	X	Ensure that emergency kits for recovering petroleum and chemical products are available in sufficient quantities and at sensitive locations. Petroleum products (hydrocarbons) will be handled in such a way as to prevent and control leaks and spills.
QUA23	X	X	X	Ensure that the machinery is in good condition (clean and free of any leaks of contaminating products) and that the fuel and lubricant tanks are completely leak-proof. Any leak detected must result in immediate repair of the tank in question.
QUA24	X	X	X	During construction, vehicle and surface equipment maintenance will generally be carried out on site in an existing garage. Fuel will be supplied by appropriately equipped service trucks located more than 60 m from any watercourse or wetland. A drip tray will be positioned under the transfer points during refueling to prevent any dripping onto the ground.
QUA25	X	X	X	Equip all fixed equipment containing oil and/or fuel (e.g., light towers, generators, etc.) located within 60 m of a watercourse, body of water, or wetland with a leak-proof recovery system. The equipment must be equipped with absorbent material in order to respond quickly and effectively in the event of an accidental spill.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA26	X	X	X	Any accidental spills must be reported immediately. In the event of a spill of hydrocarbons or any other harmful substance, the MELCCFP alert network (1-866-694-5454) must be notified without delay. If the spill reaches a body of water, Environment Canada (1-866-283-2333) must also be notified. Any spill of contaminants must be subject to immediate response measures to contain and recover the products. Contaminated soil must be removed and disposed of at an authorized site, and a characterization must be carried out in accordance with the terms of the MELCCFP's Soil Protection and Contaminated Land Remediation Policy. The WMG response team (first responder and firefighter) will always respond to an emergency call in order to minimize the impact and rescue the injured, if necessary.
VEG01	X		X	During deforestation, special attention will be paid to vegetation at the edge of work areas so as not to damage it. If trees accidentally fall, they will be removed with care not to disturb the environment.
VEG02	X	X	X	Require contractors to clean all construction equipment before arriving at the work site. This cleaning is intended to completely remove mud, plant fragments, and visible debris that could be contaminated with invasive alien plant species.
VEG03	X		X	If possible, carry out work in wetlands on frozen ground or during periods of low water flow.
VEG04	X		X	Keep vegetation intact along waterways, wetlands, and access roads.
PLA01	X		X	For temporary construction site facilities (site offices, access roads, etc.), prioritize sites that have already been deforested or disturbed.
NOR16			X	Restore construction sites and stockpiles by leveling surfaces, covering them with natural soil, scarifying them, or seeding them to promote vegetation regrowth. Stabilize reworked areas, embankment slopes, piles of loose deposits, etc., as work is completed. Reference: D019 for the restoration phase.
P01		X	X	Gradually restore the tailings pond in three stages to reduce areas susceptible to wind and runoff erosion.
P26	X	X	X	An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

5.1.1 Construction phase

During the construction phase, certain measures will be implemented to reduce the risk of spreading invasive alien plant species (IAPS) on the Project site, considering that the probability of introducing IAPS is highest during this phase.

To this end, environmental monitoring rounds will be carried out continuously during mine construction activities to ensure compliance with the mitigation measures presented in Table 5-1. As a preventive measure, contractors must clean construction equipment in the presence of the environmental supervisor before arriving on site in order to completely remove any visible mud, plant fragments, and debris that could be contaminated with AIS (VEG02).

If EVEE colonies are discovered within the site by the environmental supervisor, the following measures will be applied to eradicate them and prevent their spread:

- All machinery components must be free of mud and plant fragments before entering the site.
- Before work begins, the contractor must excavate the soil and colonies identified within the boundaries established by the site supervisor to a depth of 2 m and in such a way as to completely remove the root system.
- The contractor must bury the EVEE, as well as any related excavated soil, in a pit whose location will be approved by the environmental supervisor. The pit must be located at least 20 m from any watercourse, body of water, or wetland. This pit must be covered with a minimum of 2 m of backfill material free of EVEE or fragments thereof.
- Following the eradication of the colonies, all components of the machinery must be free of mud and EVEE fragments before undertaking any other activities on or off site. The cleaning of the machinery will be inspected and validated by the environmental supervisor.
- Cleaning must be carried out using water, high-pressure air, or other tools such as brushes, brooms, shovels, or vacuum cleaners. This operation must be carried out in a washing area that allows all solid residues to be contained (e.g., a gravel surface covered with a geotextile membrane).
- If cleaning is done with water, the location of the wash area must be approved in advance by the environmental supervisor. Solid residues resulting from the cleaning of machinery must be managed in accordance with compliance requirements.

In addition, an inspection will be carried out by a specialized technician in the excavated areas that contained EVEE and in the disposal areas to document their eradication. During these inspections, the following information will be recorded:

- List of species observed;
- Location and delimitation of EVEE observed;
- Abundance/density (low, medium, or high);
- Average plant size (with supporting photos).

At the same time, monitoring the metal content in certain plants, particularly blueberries and Labrador tea, will also help document the impacts of mining activities on plant species consumed by Cree communities (see section 6.4.2).

5.1.2 Operation phase

During the operation phase, the risks of introducing EVEE will be significantly reduced. The presence of EVEE will be an added element to the overall environmental monitoring of the site. The overburden dump, which may be a suitable area for vegetation growth, will be subject to regular visual inspection.

Considering that certain areas will be restored during operation, particularly the first two phases of the tailings pond, seeding work will be carried out to optimize vegetation establishment methods in anticipation of the restoration work planned at the end of the mine's life. Special attention will be paid during revegetation and restoration work to ensure that imported species or seeds do not contain EVEE.

Monitoring of metal content in certain plants (blueberry and Labrador tea) will also continue during the operational phase (see section 6.4.2).

With regard to wetlands, various compensation measures will be implemented, including the BNE59428 borrow pit and the Osborne-Bell access road. Monitoring of the integrity of these structures is also planned during the operational phase (see section 8.1).

In addition, probes installed in a network of observation wells will be used to monitor piezometric variation, taking into account the anticipated drawdown at the end of operations. Finally, the wetland located in the CE-13 watercourse sector will be monitored by tracking variations in the water table using filter tips (see section 4.8.2).

5.1.3 Closure phase

Monitoring of the wetland located in the CE-13 watercourse sector by tracking variations in the water table will continue until water levels in the wells have been restored (see section 4.8.3).

EVEE monitoring will be carried out more specifically during the restoration phase. The proposed restoration work at the Windfall site will consist in particular of revegetating all areas affected by mining activities, in accordance with the Guide (MERN, 2022). Agronomic monitoring of vegetated areas will also ensure that soil conditions are adequate for plant growth, verify the viability of the vegetation cover, and identify, if necessary, the need for additional corrective measures. The restoration plan for the Windfall site provides for annual agronomic monitoring for five years following the completion of restoration work.

Finally, the restoration of wetlands and water environments will be ensured through various compensation projects under the biodiversity program (see section 8.1).

5.2 Fish Fauna

The mitigation measures planned for the fish fauna component are presented in Table 5-2.

Table 5-2 General and specific mitigation measures for the fish fauna component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
AIR01	X	X	X	Use water or dust suppressants on traffic routes during activities to prevent, as much as possible, fugitive dust emissions associated with activities that may cause dust to be stirred up. The dust suppressant used shall comply with BNQ 2410-300.
AIR02	X	X	X	Restrict access to designated areas and limit vehicle speeds on various construction sites and during mining operations. Traffic signs will be installed at designated locations.
QUA01	X	X	X	Stripping, clearing, excavation, backfilling, and leveling of work areas will be limited to the absolute minimum.
QUA02	X	X	X	In the event that earthworks must be carried out in areas with steep slopes, the bottom of the trenches will be covered with granular drainage materials and/or rock fill to prevent erosion.
QUA03	X	X	X	In order to reduce the risk of erosion on sloping land, methods such as the installation of retaining embankments, channels, or diversion ditches perpendicular to the slope, or other methods, will be used.
QUA04	X	X	X	The slopes of excavated and backfilled areas will be stabilized using techniques that blend in as much as possible with the natural environment, wherever erosion is likely to cause particulate matter to enter a watercourse (slope softened to 1.5 H: 1 V, plus other available techniques). Along steep slopes, sediment barriers (geotextile, straw, etc.) will be used at the foot of the embankments, as necessary, to reduce the volume of transported particles. Protective measures (straw, wood chips, mattresses) may also be used directly on the slope. Excavated material will not be placed on steep slopes. Fill material shall be adequately compacted.
QUA07	X	X	X	In the event of temporary storage of contaminated excavated material, take all necessary measures to preserve the integrity of the surrounding soil and water and to ensure worker safety (e.g., pile material on a sealed or impermeable surface, cover piles, restrict access to piles, etc.).
QUA08	X	X	X	Where possible, trees and shrubs will be removed by cutting them down to ground level on embankment slopes. Their root systems will be preserved to promote runoff infiltration and natural soil stability.
QUA09	X	X	X	In order to detect any possibility of slippage, monitoring will be carried out during excavation and profiling work. Corrective measures will be put in place to prevent any slippage if a risk has been identified.
QUA10	X	X	X	Where possible, carry out any development work that may affect the hydraulic conditions of permanent watercourses outside the snowmelt period. The installation of a culvert in a permanent watercourse should preferably be carried out during low water periods and as soon as possible. It must not impede water flow or contribute to the formation of ponds upstream during flood periods. Gradually restore temporarily disrupted flows after the work is completed to avoid sudden changes in flow rate. The end of the culvert must extend beyond the base of the embankment supporting the road by no more than 30 cm, and the embankment must be stabilized at both ends of the culvert. The material used for this embankment must not contain organic matter.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA11	X			When installing or replacing a culvert, first confine the work area to prevent particulate matter from being carried into the water (e.g., partially or completely drain the area). The work techniques and materials used (e.g., diversion structures, geotextile, polyethylene, etc.) should not cause turbidity in the water as much as possible. The natural flow of the watercourse must be maintained continuously and the water must return immediately downstream of the work area. Where possible, the stream bed should not be narrowed by more than two-thirds during the work. If necessary, water accumulations in the work area must be pumped to a vegetation area at least 30 m from the stream or wetland.
QUA12	X	X	X	After installing a culvert, any other structures required for this work must be removed from the water. Ensure that the stream bed is properly stabilized at the inlet and outlet. The stream bed should then preferably be restored to its natural profile using materials similar to those previously used. The banks should be stabilized and, if necessary, revegetated.
QUA13	X	X	X	A runoff management system will be implemented during the construction phase. Depending on the situation, methods to control suspended solids emissions such as temporary water retention basins, sediment barriers, turbidity curtains, or slope stabilization will be used. These structures will be inspected and cleaned as needed. In addition, water will be pumped to a vegetated area at least 30 m from a watercourse or wetland.
QUA14	X	X	X	If calcium chloride-based dust suppressants are used, the product should not be disposed of or equipment rinsed in or near a watercourse or on vegetation.
QUA15	X	X	X	Where possible, abrasives will be used instead of de-icing agents in winter and, where necessary, water will be used as a dust suppressant instead of a chemical solution.
QUA16	X	X	X	During snow removal activities, snow will be kept, as far as possible, outside a 30-meter strip of a watercourse or wetland.
QUA17	X	X	X	Within and in the 15-meter strip bordering the high-water line of a watercourse or body of water and within any wetland (pond, marsh, swamp, or bog), it will be prohibited to pile up temporary waste, debris, materials, or excavated material (e.g., organic matter from topsoil removal). It will also be prohibited to pile up wood waste and debris. Runoff will be diverted to a vegetated area at least 30 m from the watercourse or wetland, or intercepted by sediment barriers or a sedimentation basin.
QUA20	X	X	X	The riparian strips damaged by the work will be restored to reproduce the natural banks of the watercourse, body of water, or wetland.
QUA22	X	X	X	Ensure that emergency kits for recovering petroleum and chemical products are available in sufficient quantities and at sensitive locations. Petroleum products (hydrocarbons) will be handled in such a way as to prevent and control leaks and spills.
QUA23	X	X	X	Ensure that the machinery is in good condition (clean and free of any leaks of contaminating products) and that the fuel and lubricant tanks are completely leak-proof. Any leaks must be repaired immediately.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA24	X		X	During construction, vehicle and surface equipment maintenance will generally be carried out on site in an existing garage. Fuel will be supplied by appropriately equipped service trucks located more than 60 m from any watercourse or wetland. A drip tray will be positioned under the transfer points during refueling to prevent any dripping onto the ground.
QUA25	X	X	X	Equip all fixed equipment containing oil and/or fuel (e.g., light towers, generators, etc.) located within 60 m of a watercourse, body of water, or wetland with a leak-proof recovery system. The equipment must be equipped with absorbent material in order to respond quickly and effectively in the event of an accidental spill.
QUA26	X	X	X	Any accidental spills must be reported immediately. In the event of a spill of hydrocarbons or any other harmful substance, the MELCCFP alert network (1-866-694-5454) must be notified without delay. If the spill reaches a body of water, Environment Canada (1-866-283-2333) must also be notified. Any spill of contaminants must be dealt with immediately in order to contain and recover the products. Contaminated soil must be removed and disposed of at an authorized site, and characterized in accordance with the MELCCFP's Soil Protection and Contaminated Land Remediation Policy. The WMG response team (first responder and firefighter) will always respond to an emergency call in order to minimize the impact and rescue the injured, if necessary.
NOR07	X	X	X	Install culverts or crossing structures designed to maintain free water flow (and free passage for fish). The construction of bridges or culverts must not reduce the width of the watercourse by more than 20%, measured from the LNHE. The base of the lower culvert must be sunk below the natural bed of the watercourse to a depth of at least 15 cm or 10% of the height of the structure, and its ends must extend beyond the base of the embankment by no more than 30 cm and be adequately stabilized. Reference: Regulation respecting the sustainable development of state-owned forests.
NOR08	X	X	X	All operators must seek to maximize the use of mine wastewater produced on the mine site and minimize liquid discharges (Reference: D019, section 3.2.2.1). Produce a management plan for surface water, whether natural or related to the treatment process (Reference: D019, section 3.2.8.5).
NOR09	X	X	X	Ensure that effluents from the site comply with standards. Reference: Metal and Diamond Mine Effluent Regulations, section 4 and Appendix 4, and D019, section 3.1.1.
NOR10	X	X	X	Stop the leak as soon as it is detected during an accidental spill, contain the product and recover it using appropriate equipment (absorbent sheets, booms, drain covers, etc.). Notify the Minister immediately. Excavate contaminated soil, place it in leak-proof containers and dispose of it in accordance with the hazardous materials management program. Recommend rapid intervention to prevent deep infiltration. Reference: LQE, section 21, and Hazardous Materials Regulation, section 9.
NOR11	X	X	X	Set aside overburden and segregate topsoil for reuse when reclaiming disturbed areas. Reference: D019, section 3.6.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
NOR12	X	X	X	Hazardous materials will be managed in accordance with the Hazardous Materials Regulation (R.S.Q., c. Q-2, r. 15.2) using a management system that is separate from the one used for residual materials. If necessary, recovery will be carried out by a specialized company. All hazardous materials will therefore be stored in a designated area and protected from the elements by a waterproof tarp while awaiting loading and transport. In winter, it is recommended that containers be placed on pallets or storage tables. If the retention time exceeds 30 days, the storage area must include a waterproof shelter with at least three sides, a roof, and a waterproof floor forming a basin with a retention capacity equal to 110% of the volume of the largest container. The storage area for hazardous materials must be located away from vehicle traffic and at a reasonable distance from drainage ditches or sumps and any other sensitive elements, as well as at least 60 m from any watercourse. Reference: Hazardous Materials Regulation (R.S.Q., c. Q-2, r. 15.2).
NOR13	X	X	X	Implement the surface water quality monitoring program (final effluent) in accordance with the REMMMD and D019. The results of water quality monitoring at the effluent and in the receiving watercourse will be compared to the criteria in the regulations in force. Reference: D019, section 3.1.1, Metal and Diamond Mine Effluent Regulation, Appendix 5.
NOR14	X	X	X	Implement a post-restoration monitoring and maintenance program (including monitoring of water quality in mine effluent) to verify the integrity of the structures and the effectiveness of the corrective measures applied in the field. This monitoring will be carried out during the first ten years following the closure of the mine, at a rate of eight sampling campaigns per year. Reference: D019, section 3.11
HYD01	X	X	X	Establish a network of wells around the periphery of mining infrastructure to measure the lowering and rising of the water table in the mine area.
FAU01	X	X	X	Carry out work in the water outside the various breeding periods of the species present, i.e., from July 1 to July 31 when brook trout are present, from July 1 to August 31 when lake whitefish are present, and from July 15 to April 15 for northern pike and walleye.
P01	X	X	X	Gradually restore the tailings pond in three stages to reduce areas susceptible to wind and runoff erosion.
P26	X	X	X	An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

5.2.1 Construction and operation phases

5.2.1.1 Sampling plan

Biological monitoring of fish fauna is required under the national program for monitoring the environmental effects (ESEE) of industrial activities (Government of Canada, 2012), pursuant to the REMMMD. A study plan is required to describe the biological monitoring process. It must contain information relevant to the characterization of the site, sampling methods and periods, analysis methods, quality assurance and control measures that will be taken to validate the study in question, as well as a summary of information from previous biological studies. The study plan must be approved by ECCC at least six months before the start of field work. Once the study plan is approved, biological monitoring can begin.

This biological monitoring involves developing a study plan for monitoring fish flesh contamination, followed by sampling, analysis of sentinel fish populations and, when required, analysis of metals in fish tissue in an area exposed to mine effluent (Lake SN11) and in an unexposed area (Lake SN2) (Map 5-1).

Fishing may be carried out using bourelle nets, experimental nets, verveux nets, and Alaska traps. The same types of gear must be used in both areas (Lake SN11 and SN2). The location of all fishing gear will be recorded using GPS. However, the study plan is subject to change following consultations with the federal government.

The study plan must be approved by ECCC at least six months before fieldwork begins.

5.2.1.2 Methodology

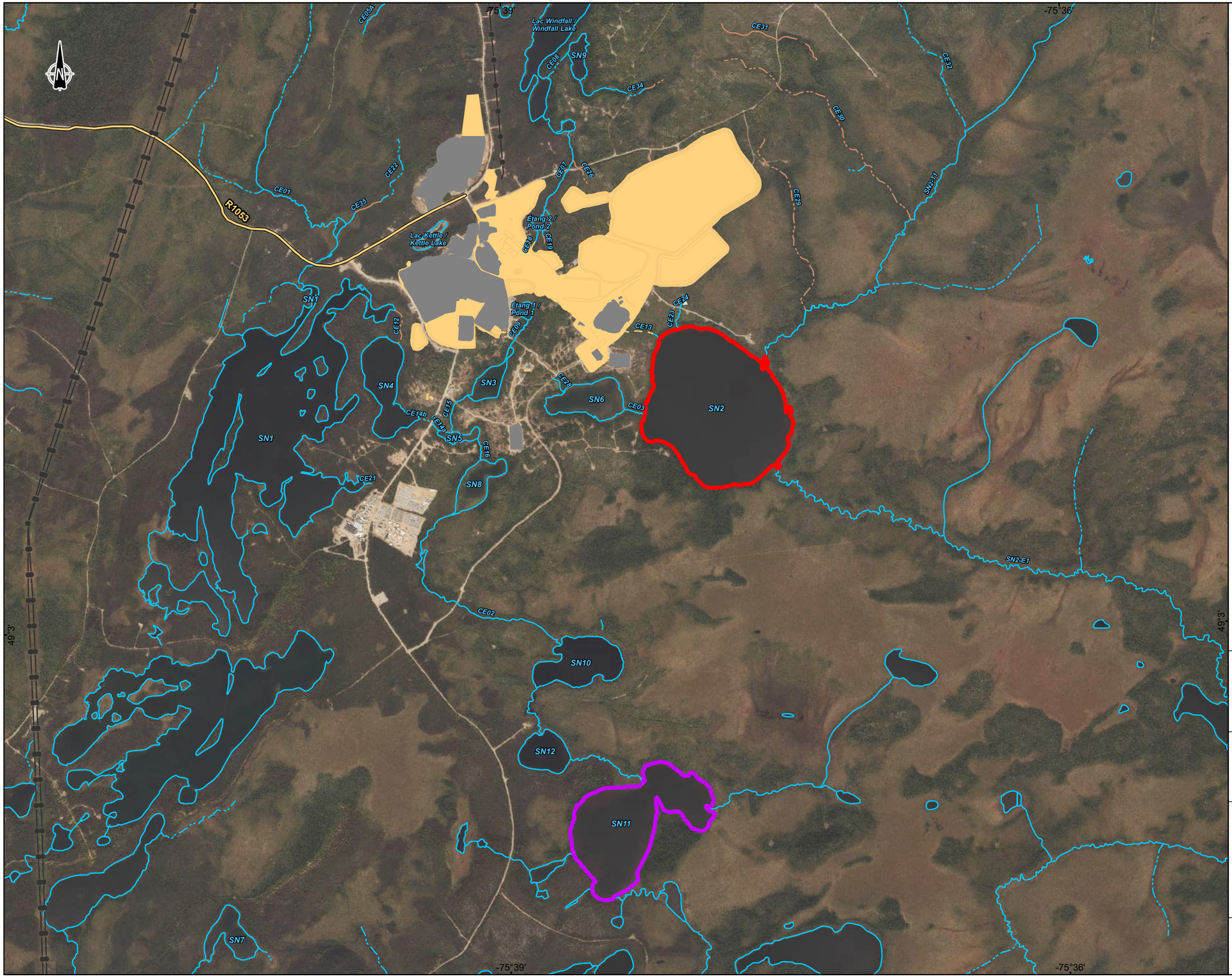
The sentinel species initially targeted were lake whitefish (*Coregonus clupeaformis*) and yellow perch (*Perca flavescens*). However, due to insufficient catches, they were replaced by walleye (*Sander vitreus*) and northern pike (*Esox lucius*). When caught, the fish will be counted, identified, sexed, measured, and weighed. In addition, their age will be calculated using bone structures according to standard protocols (Jearld in Nielsen et al., 1989; Chalanchuk, 1984; Beamish and Harvey, 1969; DeVries and Frie, 1996). In females, the stage of gonadal development will be assessed, while fertility and egg size will be assessed based on ovarian structures.

Covariance analysis (ANCOVA) and variance analysis (ANOVA), or their non-parametric equivalents if the conditions for application are not met, will be used to test for significant differences between fish populations in the reference area and the exposed area.

The methodology used to monitor fish flesh contamination will comply with the *Sampling Protocol for Monitoring Toxic Substances in Freshwater Sport Fish Flesh* (2017). In the event that there are few fish in the lakes, the sampling method may be adapted and replaced by a biopsy technique. Particular attention will be paid to the preparation of samples in order to avoid any cross-contamination or introduction of foreign substances.

5.2.1.3 Frequency and monitoring period

Sampling will be carried out during the fall. The second biological monitoring cycle was completed in June 2024 with the submission of the report to ECCC. This monitoring will continue as long as the mine effluent is subject to the REMMMD, every three or six years depending on the presence or absence of effects. In addition, a search for causes could be carried out in the presence of a confirmed effect, i.e., an effect of the same magnitude on the same parameter for two consecutive cycles. Monitoring of fish flesh contamination will be carried out at the same time as biological monitoring and repeated when required by the MMEMR. At each 36- or 72-month cycle, the program will be reviewed and adjusted as necessary to avoid overfishing of species of interest to sport fishing.



Infrastructures / *infrastructures*

- Infrastructure actuelle / *Current infrastructure*
- Infrastructure projetée / *Planned Infrastructure*

Échantillonnage du poisson / *Fish Sampling*

- Zone exposée pour l'échantillonnage du poisson (SN11) / *Exposed area for fish sampling (SN11)*
- Zone de référence pour l'échantillonnage du poisson (SN2) / *Reference area for fish sampling (SN2)*

Réseau routier / *Road Network*

- Route principale / *Main road*
- Chemin d'accès principal / *Main access road*

Cours d'eau / *Waterflow*

- Canal / *Channel*
- Cours d'eau intermittent / *Intermittent Watercourse*
- Cours d'eau intermittent partiellement souterrain / *Partially Underground Intermittent Watercourse*
- Cours d'eau intermittent souterrain / *Underground Intermittent Watercourse*
- Cours d'eau permanent / *Permanent Watercourse*
- Cours d'eau permanent partiellement souterrain / *Partially Underground Permanent Watercourse*
- Cours d'eau souterrain / *Underground Watercourse*
- Fossé de drainage / *Drainage ditch*
- Inexistant / *Inexistent*
- Plan d'eau / *Waterbody*

Projet Windfall - Programme de surveillance et suivi /
Windfall Project - Monitoring and Supervision Program

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte 5-1 / *Map 5-1*
Zone de référence et zone exposée pour l'échantillonnage du poisson / *Referenced Areas and Exposed Areas for Fish Sampling*

Sources :
AQréseau+, Réseau routier, MERN Québec, 2020-03
MRNF, Cartographie détaillée des feux 2023 provisoire, 2024
MRNF, Épidémie, chablis et verglas (depuis 1976), 2023

0 250 500 m
MTM, Fuseau 9 / *Zone 9*, NAD83

2025-07-23

Préparation / Preparation : K. Cadoret
Dessin / Drawing : E. Kheiri
Vérifié par / Verification : M.-H. Brisson
CA0023271_9538_su_ps_prog_surv_suivi_2025_S5_250723.aprx
CA0023271_9538_su_ps25_c5_1_098_EchantillonnagePoisson_250723

La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. / Boundary accuracy and measurements shown on this document are not to be used for engineering or land delineation purposes. No land analysis was carried out by a land surveyor.

5.2.1.4 Monitoring report

A detailed interpretation report, in accordance with Articles 12(1) or 15 of Appendix V of the MMDRM, will be produced. This report will include the results of analyses and statistical data from the monitoring, which will allow for a comparison between the condition of the exposed area and the condition of the unexposed area and provide an understanding of the extent of the effects on the overall health of fish in the area impacted by the effluent.

To this end, specimens will be collected from the exposed area of Lake SN11 and the unexposed area of Lake SN2 in order to statistically compare any significant differences in the following relationships or parameters:

- Age (survival);
- Body mass as a function of age (growth);
- Relative gonad mass (gonad mass as a function of body mass; energy use and reproduction);
- Body condition (body mass as a function of size; energy storage and condition);
- Relative liver mass (liver mass as a function of body mass; energy storage and condition).

In addition, analysis of fish tissue is only required if the mine has measured, during effluent characterization:

- An annual average concentration of total mercury equal to or greater than 0.10 µg/L in the effluent for a given calendar year, unless the results of the two previous biological monitoring studies show that there is no effect of mercury on fish tissue or if the detection limit of the method used for the analysis of at least two out of four samples for a given calendar year is equal to or greater than 0.10 µg/L.
- A total selenium concentration in the effluent equal to or greater than 10 µg/L or if an annual average total selenium concentration equal to or greater than 5 µg/L for a given calendar year or if the detection limit of the method used for any sample is equal to or greater than 10 µg/L, or equal to or greater than 5 µg/L for at least two out of four samples for a given calendar year.

5.2.1.5 Additional investigation at Lake SN13

The use of Lake SN13 by Indigenous and non-Indigenous users of this territory was verified once again during interviews conducted on May 8 and 9, 2025. The tallyman for trapping ground W25B and his wife have not fished in this lake for two years and do not use the water for domestic purposes. They also stated that they do not swim in the lake or drink its water. Only their eldest son fishes there three times a year. Consequently, the risk associated with these users' exposure to the contaminants identified in the effluent (nitrates, chloride, and selenium) was determined to be acceptable, as it is low or even non-existent. Therefore, no ecotoxicological monitoring of fish flesh will be carried out in Lake SN13.

However, due to the uncertainty associated with the risk calculation, particularly with regard to the concentrations predicted by the surface water and fish modeling for Lake SN13 (MESIC Inc., 2025), annual monitoring of selenium and nitrate concentrations in surface water will be carried out. This monitoring will confirm the dilution calculation assumptions and ensure that exposure, as well as the risk of exposure, remains low and insignificant for lake users. This monitoring is already integrated into the surface water quality program.

5.2.2 Phase fermeture

Au niveau fédéral, le site minier sera officiellement reconnu comme fermé trois ans après la réalisation de la dernière étude de suivi biologique, suivant un avis écrit à ECCC. Toutes autres exigences de suivi seraient aussi intégrées si des changements règlementaires ou des mises à jour de guides ou directives avaient lieu.

Comme mentionné précédemment, WMG est déjà engagé dans les suivis associés au REMMMD. Le suivi de l'ichtyofaune est réalisé conformément au *Guide technique pour l'étude de suivi des effets sur l'environnement des mines de métaux*. L'étude initiale a été effectuée en 2020 et un 2^{e} cycle de relevés a été réalisé à l'automne 2023. Un plan d'étude a été déposé en mars 2023 et le rapport final a été déposé en juin 2024.

5.3 Benthos

The mitigation measures planned for the benthos component are presented in Table 5-3.

Table 5-3 Common and specific mitigation measures for the benthos component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
AIR01	X	X	X	Use water or dust suppressants on traffic routes during activities to prevent, as much as possible, fugitive dust emissions associated with activities that may cause dust to be stirred up. The dust suppressant used shall comply with BNQ 2410-300.
AIR02	X	X	X	Restrict access to designated areas and limit vehicle speeds on various construction sites and during mining operations. Traffic signs will be installed at designated locations.
QUA01	X	X	X	Stripping, clearing, excavation, backfilling, and leveling of work areas will be limited to the absolute minimum.
QUA02	X	X	X	In the event that earthworks must be carried out in areas with steep slopes, the bottom of the ditches will be covered with granular drainage materials and/or rock fill to prevent erosion.
QUA03	X	X	X	In order to reduce the risk of erosion on sloping land, methods such as the installation of retaining embankments, channels, or diversion ditches perpendicular to the slope, or other methods will be used.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA04	X	X	X	The slopes of excavated material and embankments will be stabilized using techniques that blend in as much as possible with the natural environment, wherever erosion is likely to cause particulate matter to enter a watercourse (slope softened to 1.5 H: 1 V, plus other available techniques). Along steep slopes, sediment barriers (geotextile, straw, etc.) will be used at the foot of the embankments, as necessary, to reduce the volume of transported particles. Protective measures (straw, wood chips, mattresses) may also be used directly on the slope. Avoid placing excavated material on steep slopes. Fill material shall be adequately compacted.
QUA07	X	X	X	In the event of temporary storage of contaminated excavated material, take all necessary measures to preserve the integrity of the surrounding soil and water and to ensure worker safety (e.g., pile material on a sealed or impermeable surface, cover piles, restrict access to piles, etc.).
QUA08	X	X	X	Where possible, trees and shrubs will be removed by cutting them down to ground level on embankment slopes. Their root systems will be preserved to promote runoff infiltration and natural soil stability.
QUA09	X	X	X	In order to detect any possibility of slippage, monitoring will be carried out during excavation and profiling work. Corrective measures will be put in place to prevent any slippage if a risk has been identified.
QUA10	X	X	X	Where possible, carry out development work that may affect the hydraulicity of permanent watercourses outside the snowmelt period. The installation of a culvert in a permanent watercourse should preferably be carried out during low water periods and as soon as possible. It must not impede water flow or contribute to the formation of ponds upstream during flood periods. Gradually restore temporarily disrupted flows after the work is completed to avoid sudden changes in flow rate. The end of the culvert must extend beyond the base of the embankment supporting the road by no more than 30 cm, and the embankment must be stabilized at both ends of the culvert. The material used for this embankment must not contain organic matter.
QUA11	X			When installing or replacing a culvert, first confine the work area to prevent particulate matter from being carried into the water (e.g., partially or completely drain the area). The work techniques and materials used (e.g., diversion structures, geotextile, polyethylene, etc.) should not cause turbidity in the water as much as possible. The natural flow of the watercourse must be maintained continuously and the water must return immediately downstream of the work area. Where possible, the stream bed should not be narrowed by more than two-thirds during the work. If necessary, water accumulations in the work area must be pumped to a vegetation area at least 30 m from the stream or wetland.
QUA12	X	X	X	After installing a culvert, any other structures required for this work must be removed from the water. Ensure that the stream bed is well stabilized at the inlet and outlet. The stream bed should then preferably be restored to its natural profile using materials similar to those previously used. The banks should be stabilized and, if necessary, revegetated.
QUA13	X	X	X	A runoff management system will be implemented during the construction phase. Depending on the situation, methods to control suspended solids emissions such as temporary water retention basins, sediment barriers, turbidity curtains, or slope stabilization will be used. These structures will be inspected and cleaned as needed. In addition, water will be pumped to a vegetated area at least 30 m from a watercourse or wetland.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA14	X	X	X	If calcium chloride-based dust suppressants are used, do not dispose of the product or rinse equipment in or near a watercourse or on vegetation.
QUA15	X	X	X	Where possible, abrasives will be used instead of de-icing agents in winter and, where necessary, water will be used as a dust suppressant instead of a chemical solution.
QUA16	X	X	X	During snow removal activities, snow will be kept, as far as possible, outside a 30-meter strip of a watercourse or wetland.
QUA17	X	X	X	Within and in the 15-meter strip bordering the high-water line of a watercourse or body of water and within any wetland (pond, marsh, swamp, or bog), it will be prohibited to pile up temporary waste, debris, materials, or excavated material (e.g., organic matter from soil stripping). It will also be prohibited to pile up wood waste and debris. Runoff will be diverted to a vegetated area at least 30 m from the watercourse or wetland, or intercepted by sediment barriers or a sedimentation basin.
QUA20	X	X	X	The riparian strips damaged by the work will be restored to reproduce the natural banks of the watercourse, body of water, or wetland.
QUA22	X	X	X	Ensure that emergency kits for recovering petroleum and chemical products are available in sufficient quantities and at sensitive locations. Petroleum products (hydrocarbons) will be handled in such a way as to prevent and control leaks and spills.
QUA23	X	X	X	Ensure that machinery is in good condition (clean and free of any leaks of contaminating products) and that fuel and lubricant tanks are completely leak-proof. Any leaks must be repaired immediately.
QUA24	X		X	During construction, vehicle and surface equipment maintenance will generally be carried out on site in an existing garage. Fuel will be supplied by appropriately equipped service trucks located more than 60 m from any watercourse or wetland. A drip tray will be placed under the transfer points during refueling to prevent any dripping onto the ground.
QUA25	X	X	X	Equip all fixed equipment containing oil and/or fuel (e.g., light towers, generators, etc.) located within 60 m of a watercourse, body of water, or wetland with a leak-proof recovery system. The equipment must be equipped with absorbent material so that accidental spills can be dealt with quickly and effectively.
QUA26	X	X	X	Any accidental spills must be reported immediately. In the event of a spill of hydrocarbons or any other harmful substance, the MELCCFP alert network (1-866-694-5454) must be notified without delay. If the spill reaches a body of water, Environment Canada (1-866-283-2333) must also be notified. Any spill of contaminants must be subject to immediate response measures to contain and recover the products. Contaminated soil must be removed and disposed of at an authorized site, and a characterization must be carried out in accordance with the terms of the MELCCFP's Soil Protection and Contaminated Land Remediation Policy. The WMG response team (first responder and firefighter) will always respond to an emergency call in order to minimize the impact and rescue the injured, if necessary.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
NOR07	X	X	X	Install culverts or crossing structures designed to maintain free water flow (and free passage for fish). The construction of bridges or culverts must not reduce the width of the watercourse by more than 20%, measured from the LNHE. The base of the lower culvert must be sunk below the natural bed of the watercourse to a depth of at least 15 cm or 10% of the height of the structure, and its ends must extend beyond the base of the embankment by no more than 30 cm and be adequately stabilized. Reference: Regulation respecting the sustainable management of state-owned forests.
NOR08	X	X	X	All operators must seek to maximize the use of mine wastewater produced on the mine site and minimize liquid discharges (Reference: D019, section 3.2.2.1). Produce a management plan for surface water, whether natural or related to the treatment process (Reference: D019, section 3.2.8.5).
NOR09	X	X	X	Ensure that effluents from the site comply with standards. Reference: Metal and Diamond Mine Effluent Regulations, section 4 and Appendix 4, and D019, section 3.1.1.
NOR10	X	X	X	Stop the leak as soon as it is detected during an accidental spill, contain the product and recover it using appropriate equipment (absorbent sheets, booms, drain covers, etc.). Notify the Minister immediately. Excavate contaminated soil, place it in leak-proof containers and dispose of it in accordance with the hazardous materials management program. Recommend rapid intervention to prevent deep infiltration. Reference: LQE, s. 21 and Hazardous Materials Regulation, s. 9.
NOR11	X	X	X	Set aside overburden and segregate topsoil for reuse when reclaiming disturbed areas. Reference: D019, section 3.6.
NOR12	X	X	X	Hazardous materials will be managed in accordance with the Hazardous Materials Regulation (R.S.Q., c. Q-2, r. 15.2) using a management system that is separate from the one used for residual materials. If required, recovery will be carried out by a specialized company. All hazardous materials will therefore be stored in a designated area and protected from the elements by a waterproof tarp while awaiting loading and transport. In winter, it is recommended that containers be placed on pallets or storage tables. If the retention time exceeds 30 days, the storage area must include a waterproof shelter with at least three sides, a roof, and a waterproof floor forming a basin with a retention capacity equal to 110% of the volume of the largest container. The storage area for hazardous materials must be located away from vehicle traffic and at a reasonable distance from drainage ditches or sumps and any other sensitive elements, as well as at least 60 m from any watercourse. Reference: Hazardous Materials Regulation (R.S.Q., c. Q-2, r. 15.2).
NOR13	X	X	X	Implement the surface water quality monitoring program (final effluent) in accordance with the REMMMD and D019. The results of water quality monitoring at the effluent and in the receiving watercourse will be compared with the criteria set out in the regulations in force. Reference: D019, section 3.1.1, Metal and Diamond Mine Effluent Regulation, Appendix 5.
NOR14	X	X	X	Implement a post-restoration monitoring and maintenance program (including monitoring of water quality in mine effluent) to verify the integrity of the structures and the effectiveness of the corrective measures applied in the field. This monitoring will be carried out during the first ten years following the closure of the mine, at a rate of eight sampling campaigns per year. Reference: D019, section 3.11.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
HYD01	X	X	X	Establish a network of wells around mining infrastructure to measure the lowering and rising of the water table in the mine area.
FAU01	X	X	X	Carry out work in the water outside the various breeding periods of the species present, i.e., from July 1 to July 31 when brook trout are present, from July 1 to August 31 when lake whitefish are present, and from July 15 to April 15 for northern pike and walleye.
P01	X	X	X	Gradually restore the tailings pond in three stages to reduce areas susceptible to wind and runoff erosion.
P26	X	X	X	An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

5.3.1 Construction and operation phases

Biological monitoring of benthos is required under the national program for monitoring the environmental effects (ESEE) of industrial activities (Government of Canada, 2012), pursuant to the REMMMD. A study plan is required to describe the biological monitoring process. It must contain information relevant to site characterization, sampling methods and periods, analysis methods, quality assurance and control measures that will be taken to validate the study in question, as well as a summary of information from previous biological studies. The study plan must be approved by ECCC at least six months before the start of field work. Once the study plan is approved, biological monitoring can begin.

This biological monitoring involves developing a study plan for sampling benthic invertebrate communities in areas exposed to mine effluent and in a reference area, as well as analyzing these samples.

The stations in the exposed area will be those currently used in the ESEE monitoring study, which will normally be conducted every three years starting from the date the mine effluent becomes subject to regulation. However, these stations may be modified following discussions and consultations with the federal government.

Sampling for effluent toxicity testing will also be required. Whenever a benthic invertebrate community study is initiated, mine operators must collect sediment samples in accordance with the MMEMR. Sediment samples will be collected at the same sampling stations and at the same time as benthic invertebrate samples. This monitoring will be carried out on a triennial basis during the construction, operation, and closure phases.

As mentioned above, WMG is already engaged in monitoring associated with the REMMMD. The initial study was conducted in 2020, and a second round of surveys was conducted in the fall of 2023. A study plan was submitted on March 22, 2023, and the final report was submitted in May 2024.

Before conducting biological monitoring, a study plan must be submitted to and approved by ECCC at least six months before going into the field. Its purpose is to describe the biological monitoring study process. The study plan must contain relevant information for site characterization, sampling methods and periods, analysis methods, quality assurance and control measures that will be taken to validate the study in question, as well as a summary of information from previous biological studies. Once the study plan has been approved, biological monitoring can be carried out.

5.3.1.1 Benthos sampling plan

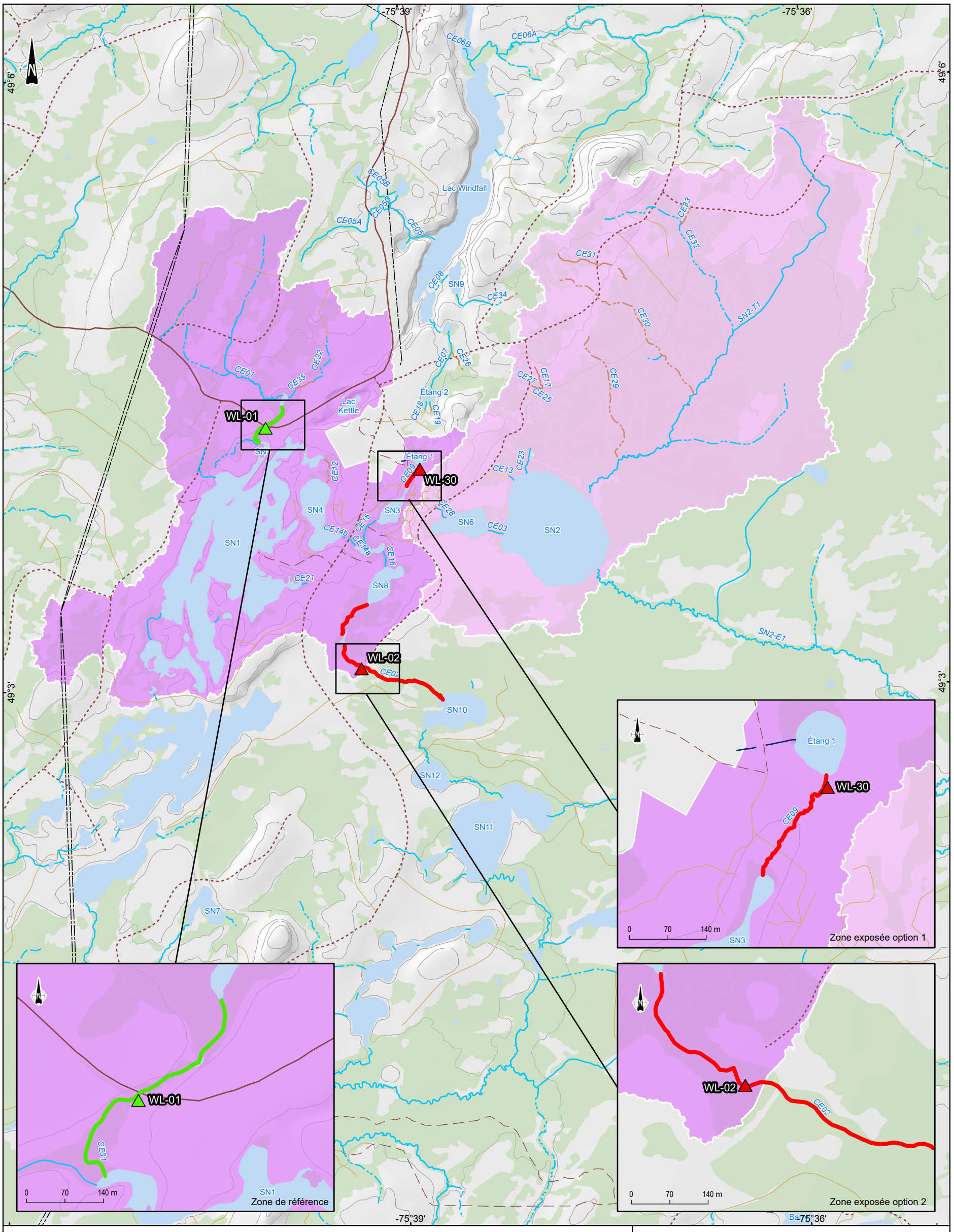
The sampling areas for benthic invertebrate communities had been previously established in the same areas as for fish population monitoring, but these areas were not suitable for the study due to excessive aquatic vegetation. Therefore, stations WL-30 and WL-31 used in the ESEE and located respectively in watercourses CE09 will be the exposed stations. The reference stations will be water body SN1 (WL-07) and watercourse CE01 (WL-01).

All stations can be viewed on Map 5-2.

5.3.1.2 Benthos methodology

A comprehensive sampling protocol was developed to limit sources of contamination between the environment, the specimens being sampled, and the samples during laboratory handling. The methodology involves the following steps:

1. Sample collection:
    - Use an Ekman or Ponar grab to collect three subsamples at each station (separated by approximately 20 m each).
    - Filter the samples through a 500 µm sieve.
    - Transfer the samples to airtight jars containing a 70% alcohol buffer solution (glycerine) until they are processed in the laboratory.
2. Collect additional information at each station:
    - Note the water depth, type of flow, current velocity, transparency, and physicochemical properties of the water (for lakes).
    - Observe forest cover, bank composition, presence of support infrastructure, substrate type, and substrate condition.
    - Take photographs of samples and habitat at each station.



Cours d'eau / *Waterflow*

- Canal / *Channel*
- Cours d'eau intermittent / *Intermittent Watercourse*
- Cours d'eau intermittent partiellement souterrain / *Partially Underground Intermittent Watercourse*
- Cours d'eau intermittent souterrain / *Underground Intermittent Watercourse*
- Cours d'eau permanent / *Permanent Watercourse*
- Cours d'eau permanent partiellement souterrain / *Partially Underground Permanent Watercourse*
- Cours d'eau souterrain / *Underground Watercourse*
- Fossé de drainage / *Drainage ditch*
- Inexistant / *Inexistent*
- Plan d'eau / *Waterbody*

Infrastructures / *Infrastrutures*

- Ligne de transport d'énergie électrique / *Electric power transmission line*
- Infrastructure du projet existante / *Project existing*

Routes / *Roads*

- Route forestière secondaire / *Secondary forest road*
- Route forestière tertiaire / *Tertiary forest road*
- Sentier / *Trail*
- Chemin d'hiver / *Winter road*

Bassins versants / *Watersheds*

- CE02
- SN2

Milieux humides / *Wetlands*

- Milieux humides / *Wetlands*

Zones et stations d'échantillonnage / *Sampling areas and stations*

Exposée à l'effluent / Exposed to effluent

- Zone exposée / *Exposed to effluent*
- Stations du benthos / *Benthos stations*

Référence / Reference

- Zone de référence / *Reference Area*
- Stations du benthos / *Benthos stations*

Projet Windfall - Programme de surveillance et suivi /
Windfall Project - Monitoring and Supervision Program

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte 5-2 / *Map 5-2*
Zones d'échantillonnage pour les communautés invertébrés benthiques / *Sampling Zones for Benthic Invertebrate Communities*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
CanVec, 1/50 000, RNCan, 2012
AQréseau+, Réseau routier, MERN Québec, 2020-03
GRHQ, Réseau hydrique linéaire, 2023
SIEF, MRNF Québec, 2012
Photo-interprétation de la végétation / Photointerpretation of the vegetation, WSP, 2015 à 2021

0 350 700 m
MTM, Fuseau 9 / *Zone 9*, NAD83

2025-07-22

Préparation / Preparation : K. Cadoret
Dessin / Drawing : E. Kheiri
Vérifié par / Verification : M.-H. Brisson
CA0023271_9538_su_ps_prog_surv_suivi_2025_S5_250722.aprx
CA0023271_9538_su_ps25_c5_2_104_com_invertebres_benthiques_250722

La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. / Boundary accuracy and measurements shown on this document are not to be used for engineering or land delineation purposes. No land analysis was carried out by a land surveyor.

3. Processing samples in the laboratory:
    - Sort the samples under a binocular microscope and identify them down to the family level.
    - Rinse the samples with water through stacked sieves with mesh sizes of 4,000, 2,000, 1,000, and 500 µm.
    - Count and group the organisms according to major taxonomic groups.
    - Preserve the organisms in 70% alcohol (glycerine) for later identification.

The following community descriptors are used to determine the potential effects of effluent on benthic communities:

- Total invertebrate density;
- Richness (number of taxa);
- Evenness.

5.3.1.3 Applicable criteria and quality control for benthos

A quality control check of the sorting will be carried out by the laboratory on one of the samples and will consist of sorting the residual organic matter by a person other than the original sorter. The taxonomic evaluation of benthic organisms will be carried out using the identification keys cited in Cummins et al. (2008) and Thorp and Covich (2010).

5.3.1.4 Frequency and period of benthos monitoring

Sampling will be carried out during the mine's operational phase, at the same time as for fish, during the period from September to October. This period corresponds to the time when the benthic community in the watercourse is most diverse. Regular monitoring is recommended for the study of benthic invertebrate communities and will continue as long as the mine effluent is subject to the REMMMD.

5.3.1.5 Benthos Monitoring Report

A detailed report presenting the results and statistical analyses comparing the condition of the exposed area to that of the reference area will be produced in accordance with the requirements of the ESIA. The purpose of this report is to understand the extent of the effects on the benthic invertebrate community in the area impacted by the effluent. In accordance with the REMMMD, the biological monitoring study plan must be submitted to ECCC at least six months before the start of the biological monitoring covered by this study plan. The interpretation report must then be submitted no later than 36 months after the date on which the previous interpretation report was submitted.

5.3.2 Closure phase

No monitoring is currently planned for benthos during the closure phase, apart from monitoring mitigation measures during dismantling work.

5.4 Herpetofauna

The mitigation measures planned for the herpetofauna component are presented in Table 5-4.

Table 5-4 Standard and specific mitigation measures for the herpetofauna component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
AIR01	X	X	X	Use water or dust suppressants on traffic routes during activities to prevent, as much as possible, fugitive dust emissions associated with activities that may cause dust to be stirred up. The dust suppressant used shall comply with BNQ 2410-300.
AIR02	X	X	X	Restrict access to designated areas and limit vehicle speeds on various construction sites and during mining operations. Traffic signs will be installed at designated locations.
AIR03	X	X	X	Rather than burning, shred tree trimmings and brush cuttings on site as much as possible, then spread them out.
AIR04	X	X	X	Where possible, use electricity from the Hydro-Québec grid as the primary source of energy.
QUA01	X		X	Stripping, clearing, excavation, backfilling, and leveling of work areas will be limited to the absolute minimum.
QUA02	X		X	In the event that earthworks must be carried out in areas with steep slopes, the bottom of the ditches will be covered with granular drainage materials and/or rock fill to prevent erosion.
QUA03	X		X	In order to reduce the risk of erosion on sloping land, methods such as the installation of retaining embankments, channels, or diversion ditches perpendicular to the slope, or other methods will be used.
QUA04	X		X	The slopes of excavated material and embankments will be stabilized using techniques that blend in as much as possible with the natural environment, wherever erosion is likely to cause particulate matter to enter a watercourse (slope softened to 1.5 H: 1 V, plus other available techniques). Along steep slopes, sediment barriers (geotextile, straw, etc.) will be used at the foot of the embankments, as necessary, to reduce the volume of transported particles. Protective measures (straw, wood chips, mattresses) may also be used directly on the slope. Avoid placing excavated material on steep slopes. Fill material shall be adequately compacted.
QUA06	X	X	X	An assessment of the environmental quality of the soil will be carried out in areas of the site where activities likely to have contaminated the soil have taken place. If contaminated soil is discovered, the land will be remediated.
QUA07	X	X	X	In the event of temporary storage of contaminated excavated material, take all necessary measures to preserve the integrity of the surrounding soil and water and to ensure worker safety (e.g., pile material on a sealed or impermeable surface, cover piles, restrict access to piles, etc.).
QUA08	X	X	X	Where possible, trees and shrubs will be removed by cutting them down to ground level on embankment slopes. Their root systems will be preserved to promote runoff infiltration and natural soil stability.
QUA09	X		X	In order to detect any possibility of slippage, monitoring will be carried out during excavation and profiling work. Corrective measures will be put in place to prevent any slippage if a risk has been identified.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA11	X		X	When installing or replacing a culvert, first confine the work area to prevent particulate matter from being carried into the water (e.g., partially or completely drain the area). The work techniques and materials used (e.g., diversion structures, geotextile, polyethylene, etc.) should not cause turbidity in the water as much as possible. The natural flow of the watercourse must be maintained continuously and the water must return immediately downstream of the work area. Where possible, the stream bed should not be narrowed by more than two-thirds during the work. If necessary, water accumulations in the work area must be pumped to a vegetation area at least 30 m from the stream or wetland.
QUA12	X		X	After installing a culvert, any other structures required for this work must be removed from the water. Ensure that the stream bed is properly stabilized at the inlet and outlet. The stream bed should then preferably be restored to its natural profile using materials similar to those previously used. The banks should be stabilized and, if necessary, revegetated.
QUA13	X		X	A runoff management system will be implemented during the construction phase. Depending on the situation, methods to control suspended solids emissions such as temporary water retention basins, sediment barriers, turbidity curtains, or slope stabilization will be used. These structures will be inspected and cleaned as needed. In addition, water will be pumped to a vegetated area at least 30 m from a watercourse or wetland.
QUA14	X		X	If calcium chloride-based dust suppressants are used, do not dispose of the product or rinse equipment in or near a watercourse or on vegetation.
QUA15	X		X	Where possible, abrasives will be used instead of de-icing agents in winter and, where necessary, water will be used as a dust suppressant instead of a chemical solution.
QUA16	X		X	During snow removal activities, snow will be kept, as far as possible, outside a 30-meter strip of a watercourse or wetland.
QUA17	X		X	Within and in the 15-meter strip bordering the high-water line of a watercourse or body of water and within any wetland (pond, marsh, swamp, or bog), it will be prohibited to pile up temporary waste, debris, materials, or excavated material (e.g., organic matter from soil stripping). It will also be prohibited to pile up wood waste and debris. Runoff will be diverted to a vegetated area at least 30 m from the watercourse or wetland, or intercepted by sediment barriers or a sedimentation basin.
QUA18	X		X	If required, temporary culverts and bank protections will be removed. The riverbed and banks will be restored.
QUA19	X		X	The granular materials used for the construction of structures may not come from the bed of a body of water or its banks, or from any source located less than 75 m from the aquatic environment, except for rock excavated from the area adjacent to the loading platforms and access road or from watercourses or bodies of water that will be directly affected by the project infrastructure.
QUA20	X		X	The riparian strips damaged by the work will be restored to reproduce the natural banks of the watercourse, body of water, or wetland.
QUA21	X		X	Temporary facilities (e.g., construction trailers, access roads, storage areas, waste disposal sites) must be located more than 60 m from a watercourse or wetland.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA22	X	X	X	Ensure that emergency kits for recovering petroleum and chemical products are available in sufficient quantities and at sensitive locations. Petroleum products (hydrocarbons) will be handled in such a way as to prevent and control leaks and spills.
QUA23	X	X	X	Ensure that machinery is in good condition (clean and free of any leaks of contaminating products) and that fuel and lubricant tanks are completely leak-proof. Any leaks must be repaired immediately.
QUA24	X		X	During construction, vehicle and surface equipment maintenance will generally be carried out on site in an existing garage. Fuel will be supplied by appropriately equipped service trucks located more than 60 m from any watercourse or wetland. A drip tray will be placed under the transfer points during refueling to prevent any dripping onto the ground.
QUA25	X	X	X	Equip all fixed equipment containing oil and/or fuel (e.g., light towers, generators, etc.) located within 60 m of a watercourse, body of water, or wetland with a leak-proof recovery system. The equipment must be equipped with absorbent material so that accidental spills can be dealt with quickly and effectively.
QUA26	X	X	X	Any accidental spills must be reported immediately. In the event of a spill of hydrocarbons or any other harmful substance, the MELCCFP alert network (1-866-694-5454) must be notified without delay. If the spill reaches a body of water, Environment Canada (1-866-283-2333) must also be notified. Any spill of contaminants must be subject to immediate response measures to contain and recover the products. Contaminated soil must be removed and disposed of at an authorized site, and a characterization must be carried out in accordance with the terms of the MELCCFP's Soil Protection and Contaminated Land Remediation Policy. The WMG response team (first responder and firefighter) will always respond to an emergency call in order to minimize the impact and rescue the injured, if necessary.
NOR01	X	X	X	Ensure that vehicle and machinery exhaust systems are in good condition and operating optimally to minimize air contaminant emissions, and ensure that the same applies to dust collection systems for equipment and machinery equipped with them. Reference: Clean Air Regulation, Section 6.
NOR02	X	X	X	The noise level assessment of a fixed source associated with mining activity must be evaluated in accordance with the requirements of Instruction Note 98-01. Reference: D019, section 3.4.1.
NOR07	X		X	Install culverts or crossing structures designed to maintain free water flow (and free passage for fish). The construction of bridges or culverts must not reduce the width of the watercourse by more than 20%, measured from the LNHE. The base of the lower culvert must be sunk below the natural bed of the watercourse to a depth of at least 15 cm or 10% of the height of the structure, and its ends must extend beyond the base of the embankment by no more than 30 cm and be adequately stabilized. Reference: Regulation respecting the sustainable management of state-owned forests.
NOR10	X	X	X	Stop the leak as soon as it is detected during an accidental spill, contain the product and recover it using appropriate equipment (absorbent sheets, booms, drain covers, etc.). Notify the Minister immediately. Excavate contaminated soil, place it in leak-proof containers and dispose of it in accordance with the hazardous materials management program. Recommend rapid intervention to prevent deep infiltration. Reference: LQE, s. 21 and Hazardous Materials Regulation, s. 9.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
VEG01	X		X	During deforestation, special attention will be paid to vegetation at the edge of work areas so as not to damage it. If trees accidentally fall, they will be removed with care not to disturb the environment.
VEG02	X		X	Require contractors to clean all construction equipment before arriving at the work site. This cleaning is intended to completely remove mud, plant fragments, and visible debris that could be contaminated with invasive alien plant species.
VEG03	X		X	If possible, carry out work in wetlands on frozen ground or during periods of low water flow.
VEG04	X		X	Keep vegetation intact along waterways, wetlands, and access roads.
FAU02	X			Carry out deforestation activities outside the general bird nesting period, which runs from May 1 to August 15, or an equivalent measure will be validated with the ministry and applied.
FAU03	X			Carry out deforestation activities outside the general bird nesting period, which runs from May 1 to August 15, or an equivalent measure will be validated with the ministry and applied.
FAU08	X	X	X	Limit light emission into the sky by using luminaires that produce sober, uniform lighting that meets actual lighting needs and directs the light flux toward the surface to be illuminated.
FAU09	X	X	X	Pay particular attention to the direction of portable lights and those used to illuminate mobile sources.
PLA01	X		X	For temporary construction site facilities (site offices, access roads, etc.), prioritize sites that have already been deforested or disturbed.
PLA02	X		X	At the end of the work, the work areas will be cleared of equipment, machinery parts, materials, temporary installations, waste, scrap, debris, and spoil from the work. These work areas will be redeveloped and restored so that they blend into the natural landscape (leveling and loosening the soil, softening slopes). If sections of roads or paths have been abandoned, they will be scarified and revegetated. The slopes of the project right-of-ways will be seeded to stabilize them quickly. All areas that will not be used for future projects will be revegetated.
P26	X		X	An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

5.4.1 Construction, operation, and closure phases

No monitoring is currently planned for herpetofauna, other than the monitoring of mitigation measures presented in Table 5-4.

5.5 Avian fauna

The mitigation measures planned for the avian fauna component are presented in Table 5-5.

Table 5-5 Common and specific mitigation measures for the avian wildlife component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
AIR01	X	X	X	Use water or dust suppressants on traffic routes during activities to prevent, as much as possible, fugitive dust emissions associated with activities that may cause dust to be stirred up. The dust suppressant used shall comply with BNQ 2410-300.
AIR02	X	X	X	Restrict access to designated areas and limit vehicle speeds on various construction sites and during mining operations. Traffic signs will be installed at designated locations.
AIR03	X	X	X	Rather than burning, shred tree trimmings and brush cuttings on site as much as possible, then spread them out.
AIR04	X	X	X	Where possible, use electricity from the Hydro-Québec grid as the primary source of energy.
QUA01	X		X	Stripping, clearing, excavation, backfilling, and leveling of work areas will be limited to the absolute minimum.
QUA02	X		X	In the event that earthworks must be carried out in areas with steep slopes, the bottom of the ditches will be covered with granular drainage materials and/or rock fill to prevent erosion.
QUA03	X		X	In order to reduce the risk of erosion on sloping land, methods such as the installation of retaining embankments, channels, or diversion ditches perpendicular to the slope, or other methods will be used.
QUA04	X		X	The slopes of excavated material and embankments will be stabilized using techniques that blend in as much as possible with the natural environment, wherever erosion is likely to cause particulate matter to enter a watercourse (slope softened to 1.5 H: 1 V, plus other available techniques). Along steep slopes, sediment barriers (geotextile, straw, etc.) will be used at the foot of the embankments, as necessary, to reduce the volume of transported particles. Protective measures (straw, wood chips, mattresses) may also be used directly on the slope. Avoid placing excavated material on steep slopes. Fill material shall be adequately compacted.
QUA06	X	X	X	An assessment of the environmental quality of the soil will be carried out in areas of the site where activities likely to have contaminated the soil have taken place. If contaminated soil is discovered, the land will be remediated.
QUA07	X	X	X	In the event of temporary storage of contaminated excavated material, take all necessary measures to preserve the integrity of the surrounding soil and water and to ensure worker safety (e.g., pile material on a sealed or impermeable surface, cover piles, restrict access to piles, etc.).
QUA08	X	X	X	Where possible, trees and shrubs will be removed by cutting them down to ground level on embankment slopes. Their root systems will be preserved to promote runoff infiltration and natural soil stability.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA09	X		X	In order to detect any possibility of slippage, monitoring will be carried out during excavation and profiling work. Corrective measures will be put in place to prevent any slippage if a risk has been identified.
QUA11	X			When installing or replacing a culvert, first confine the work area to prevent particulate matter from being carried into the water (e.g., partially or completely drain the area). The work techniques and materials used (e.g., diversion structures, geotextile, polyethylene, etc.) should not cause turbidity in the water as much as possible. The natural flow of the watercourse must be maintained continuously and the water must return immediately downstream of the work area. Where possible, the stream bed should not be narrowed by more than two-thirds during the work. If necessary, water accumulations in the work area must be pumped to a vegetation area at least 30 m from the stream or wetland.
QUA12	X		X	After installing a culvert, any other structures required for this work must be removed from the water. Ensure that the stream bed is well stabilized at the inlet and outlet. The stream bed should then preferably be restored to its natural profile using materials similar to those previously used. The banks should be stabilized and, if necessary, revegetated.
QUA13	X		X	A runoff management system will be implemented during the construction phase. Depending on the situation, methods to control suspended solids emissions such as temporary water retention basins, sediment barriers, turbidity curtains, or slope stabilization will be used. These structures will be inspected and cleaned as needed. In addition, water will be pumped to a vegetated area at least 30 m from a watercourse or wetland.
QUA14	X		X	If calcium chloride-based dust suppressants are used, do not dispose of the product or rinse equipment in or near a watercourse or on vegetation.
QUA15	X		X	Where possible, abrasives will be used instead of de-icing agents in winter and, where necessary, water will be used as a dust suppressant instead of a chemical solution.
QUA16	X		X	During snow removal activities, snow will be kept, as far as possible, outside a 30-meter strip of a watercourse or wetland.
QUA17	X		X	Within and in the 15-meter strip bordering the high-water line of a watercourse or body of water and within any wetland (pond, marsh, swamp, or bog), it will be prohibited to pile up temporary waste, debris, materials, or excavated material (e.g., organic matter from soil stripping). It will also be prohibited to pile up wood waste and debris. Runoff will be diverted to a vegetated area at least 30 m from the watercourse or wetland, or intercepted by sediment barriers or a sedimentation basin.
QUA18	X		X	If required, temporary culverts and bank protections will be removed. The riverbed and banks will be restored.
QUA19	X		X	The granular materials used for the construction of structures may not come from the bed of a body of water or its banks, or from any source located less than 75 m from the aquatic environment, except for rock excavated from the area adjacent to the loading platforms and access road or from watercourses or bodies of water that will be directly affected by the project infrastructure.
QUA20	X		X	The riparian strips damaged by the work will be restored to reproduce the natural banks of the watercourse, body of water, or wetland.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA21	X		X	Temporary facilities (e.g., construction trailers, access roads, storage areas, waste disposal sites) must be located more than 60 m from a watercourse or wetland.
QUA22	X	X	X	Ensure that emergency kits for recovering petroleum and chemical products are available in sufficient quantities and at sensitive locations. Petroleum products (hydrocarbons) will be handled in such a way as to prevent and control leaks and spills.
QUA23	X	X	X	Ensure that machinery is in good condition (clean and free of any leaks of contaminating products) and that fuel and lubricant tanks are completely leak-proof. Any leaks must be repaired immediately.
QUA24	X	X	X	During construction, vehicle and surface equipment maintenance will generally be carried out on site in an existing garage. Fuel will be supplied by appropriately equipped service trucks located more than 60 m from any watercourse or wetland. A drip tray will be placed under the transfer points during refueling to prevent any dripping onto the ground.
QUA25	X	X	X	Equip all fixed equipment containing oil and/or fuel (e.g., light towers, generators, etc.) located within 60 m of a watercourse, body of water, or wetland with a leak-proof recovery system. The equipment must be equipped with absorbent material so that accidental spills can be dealt with quickly and effectively.
QUA26	X	X	X	Any accidental spills must be reported immediately. In the event of a spill of hydrocarbons or any other harmful substance, the MELCCFP alert network (1-866-694-5454) must be notified without delay. If the spill reaches a body of water, Environment Canada (1-866-283-2333) must also be notified. Any spill of contaminants must be subject to immediate response measures to contain and recover the products. Contaminated soil must be removed and disposed of at an authorized site, and a characterization must be carried out in accordance with the terms of the MELCCFP's Soil Protection and Contaminated Land Remediation Policy. The WMG response team (first responder and firefighter) will always respond to an emergency call in order to minimize the impact and rescue the injured, if necessary.
NOR01	X	X	X	Ensure that vehicle and machinery exhaust systems are in good condition and operating optimally to minimize air contaminant emissions, and ensure that the same applies to dust collection systems for equipment and machinery equipped with them. Reference: Clean Air Regulation, Section 6.
NOR02	X	X	X	The acoustic level of a fixed source associated with mining activity must be assessed in accordance with the requirements of Instruction Note 98-01. Reference: D019, section 3.4.1.
NOR07	X		X	Install culverts or crossing structures designed to maintain free water flow (and free passage for fish). The construction of bridges or culverts must not reduce the width of the watercourse by more than 20%, measured from the LNHE. The base of the lower culvert must be sunk below the natural bed of the watercourse to a depth of at least 15 cm or 10% of the height of the structure, and its ends must extend beyond the base of the embankment by no more than 30 cm and be adequately stabilized. Reference: Regulation respecting the sustainable management of state-owned forests.
NOR17	X	X	X	Create an exclusion zone around active migratory bird nests discovered during the nesting period.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
VEG01	X		X	During deforestation, special attention will be paid to vegetation at the edge of work areas so as not to damage it. If trees accidentally fall, they will be removed with care not to disturb the environment.
VEG02	X		X	Require contractors to clean all construction equipment before arriving at the work site. This cleaning is intended to completely remove mud, plant fragments, and visible debris that could be contaminated with invasive alien plant species.
VEG03	X		X	If possible, carry out work in wetlands on frozen ground or during periods of low water flow.
VEG04	X		X	Keep vegetation intact along waterways, wetlands, and access roads.
FAU02	X	X	X	Carry out deforestation activities outside the general bird nesting period, which runs from May 1 to August 15, or an equivalent measure will be validated with the ministry and applied.
FAU06	X	X	X	Raise awareness among workers not to leave food lying around so as not to attract wild animals near work areas and prohibit feeding them.
FAU07		X	X	Provide for scare measures in the event that birds use the runoff management basins from waste rock and ore dumps, the tailings pond, and process water.
FAU08	X	X	X	Limit light emission into the sky by using luminaires that produce sober, uniform lighting that meets actual lighting needs and directs the light flux toward the surface to be illuminated.
FAU09	X	X	X	Pay particular attention to the direction of portable lights and those used to illuminate mobile sources.
PLA01	X		X	For temporary construction site facilities (site offices, access roads, etc.), prioritize sites that have already been deforested or disturbed.
PLA02	X		X	At the end of the work, the work areas will be cleared of equipment, machinery parts, materials, temporary installations, waste, scrap, debris, and spoil from the work. These work areas will be redeveloped and restored so that they blend into the natural landscape (leveling and loosening the soil, softening slopes). If sections of roads or paths have been abandoned, they will be scarified and revegetated. The slopes of the project right-of-ways will be seeded to stabilize them quickly. All areas that will not be used for future projects will be revegetated.
P26	X		X	An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

The bird monitoring program aims to detect and document any changes in the environment (whether related to the Project or not) compared to the baseline established in 2016, 2021, and 2024. It will also verify the accuracy of the impact assessment and evaluate the effectiveness of the mitigation measures outlined in the EIS.

The species targeted by this monitoring program are those that are present or potentially present in the biophysical study area and could therefore be impacted by the Project.

These species are: the Northern Nighthawk (*Chordeiles minor*), the Olive-sided Flycatcher (*Contopus cooperi*), the Canada Warbler (*Cardellina canadensis*), and the Rusty-backed Grackle (*Euphagus carolinus).*

This document also outlines the procedure to be followed in the event of bird nests being discovered.

5.5.1 Construction and operation phases

5.5.1.1 American Whiptail

Sampling plan

The sampling plan was developed so that the inventory stations would cover habitats potentially used by this species. As shown in Map 5-3, six twilight listening stations were set up in the biophysical environment study area. These stations are located along access roads, near open areas. Table 5-6 shows the inventory stations that will be monitored for biological purposes.

It should be noted that some stations may be moved or replaced during the exploitation phase if a safety risk is identified.

Methodology

Nighttime surveys at listening stations will be conducted according to the Birds Canada protocol (2023) and its subsequent versions. Stations will be inventoried in the species' potential habitat located on the outskirts of the mine, but also near infrastructure where the species could nest or feed.

Applicable criteria and quality control

The abundance of American whippoorwills, estimated by the number of pairs, is the quantitative parameter that will be used to assess the levels of change relative to the baseline condition. Trends in Canadian bird populations will also be compared to the results obtained (Government of Canada, 2024).

Frequency and monitoring period

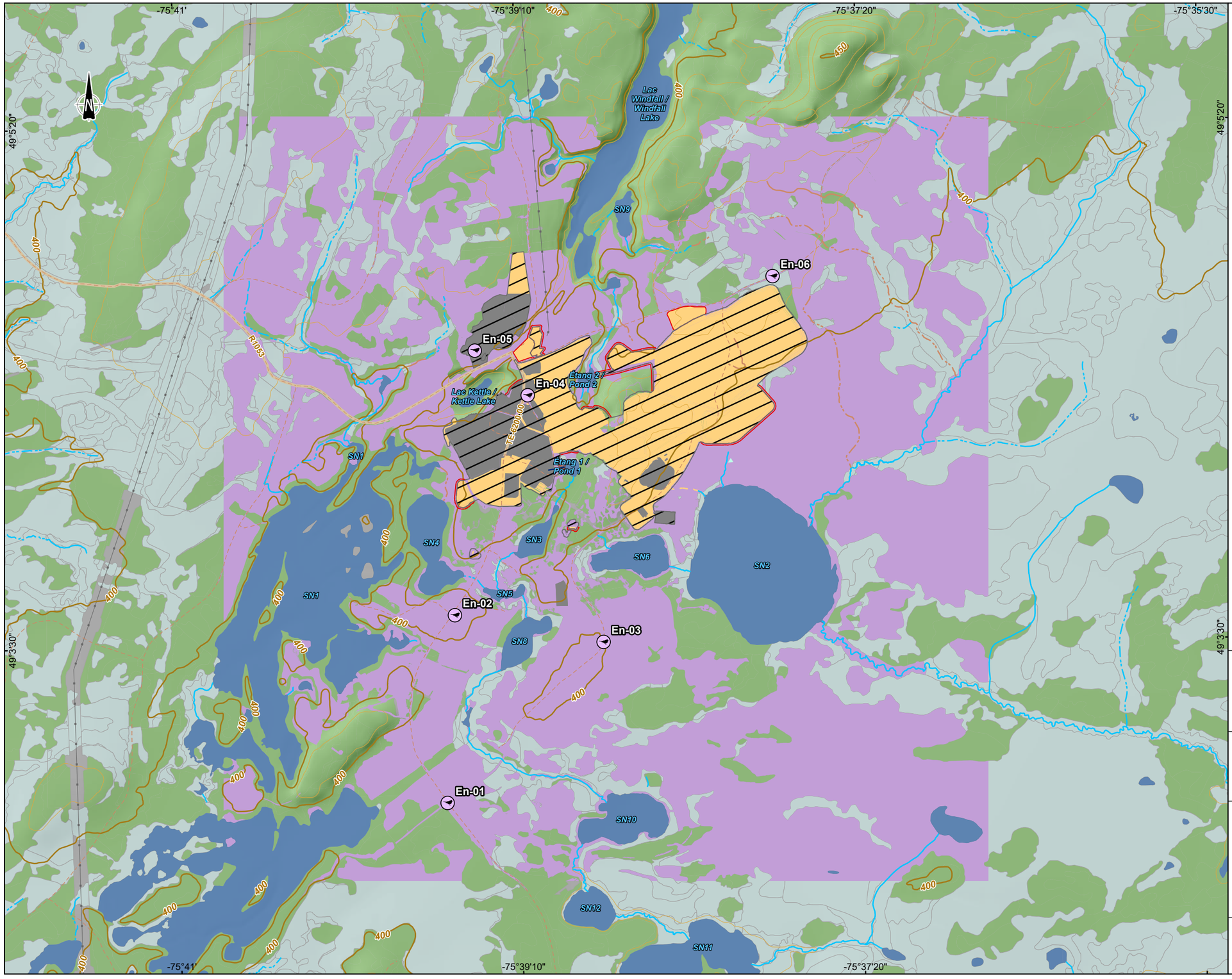
In accordance with the Birds Canada protocol (2023), nighttime surveys will be conducted between June 15 and July 15 to monitor the Northern Nighthawk. Listening points, at a rate of two three-minute periods per station, will begin no earlier than 30 minutes before sunset and end at dark. Optimal inventory conditions are mild weather, little or no wind, and clear skies. It should be noted that, since inventories are conducted during daylight hours, i.e., between 30 minutes before sunset and darkness, they do not have to be conducted on nights when there is a full moon.

Inventories will be conducted during the construction and operation phases of the mine, i.e., every three years starting in year 1 of construction.

Follow-up report

Each observation will be noted on a field sheet containing the following information:

- The name(s) of the observer(s);
- The date and time of the visit;
- The listening point number.



Hydrographie / *Hydrography*

- Canal / *Channel*
- Cours d'eau intermittent / *Intermittent Watercourse*
- Cours d'eau intermittent partiellement souterrain / *Partially Underground Intermittent Watercourse*
- Cours d'eau permanent / *Permanent Watercourse*
- Cours d'eau permanent partiellement souterrain / *Partially Underground Permanent Watercourse*
- Cours d'eau souterrain / *Damaged Underground Watercourse*
- Fossé de drainage / *Drainage ditch*
- Plan d'eau / *Waterbody*

Infrastructure du projet / *Project Infrastructure*

- Infrastructure actuelle / *Current infrastructures*
- Infrastructure projetée / *Planned infrastructure*
- Empietement permanent / *Permanent encroachment*
- Empiètement temporaire /*Temporary encroachment*

Infrastructure / *Infrastructure*

- Ligne de transport d'énergie électrique / *Electric power line*
- Route forestière / *Forest road*
- Route d'accès / *Access road*

Topographie / *Topography*

- Courbe de niveau maîtresse (m) / *Master contour line (m)*
- Courbe de niveau secondaire (m) / *Secondary contour line (m)*

Végétation / *Vegetation*

- Milieu forestier / *Forest Environment*
- Milieux humide et hydrique / *Wetlands and Hydrous Environment*
- Non forestier

Faune aviaire / *Avian Fauna*

- Station d'inventaire / *Inventory station*
- Habitat potentiel de l'engoulevent d'Amérique / *Common Nighthawk Potential Habitat* (1 375,1 ha)

Projet Windfall - Programme de surveillance et suivi /
Windfall Project - Monitoring and Supervision Program

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte 5-3 / *Map 5-3*
Plan d'inventaire de la faune aviaire – Engoulevent d'Amérique / *Avian fauna inventory plan – Common Nighthawk*

Sources :
AQréseau+, Réseau routier, MERN Québec, 2020-03
WSP, Infrastructures version CAWL-301-G-0602-AU, 2025
Groupe minier Windfall, Orthophotographie par drône (50 cm), 2024
Mosaïque d'orthophotographie de l'inventaire écoforestier, MRNF, 2023

0 250 500 m
NAD 1983 MTM 9

2025-07-23

Préparation / Preparation : E. D'astous
Dessin / Drawing : E. Kheiri
Vérifié par / Verification : M.-H. Brisson
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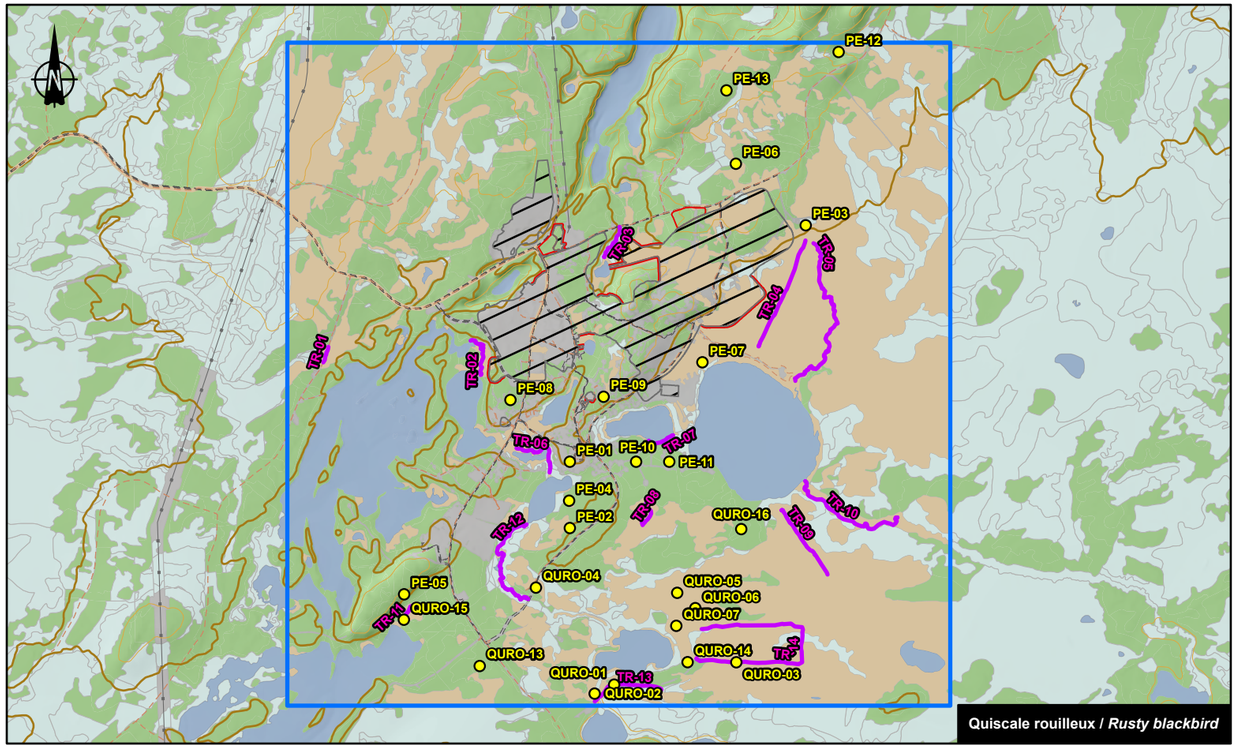
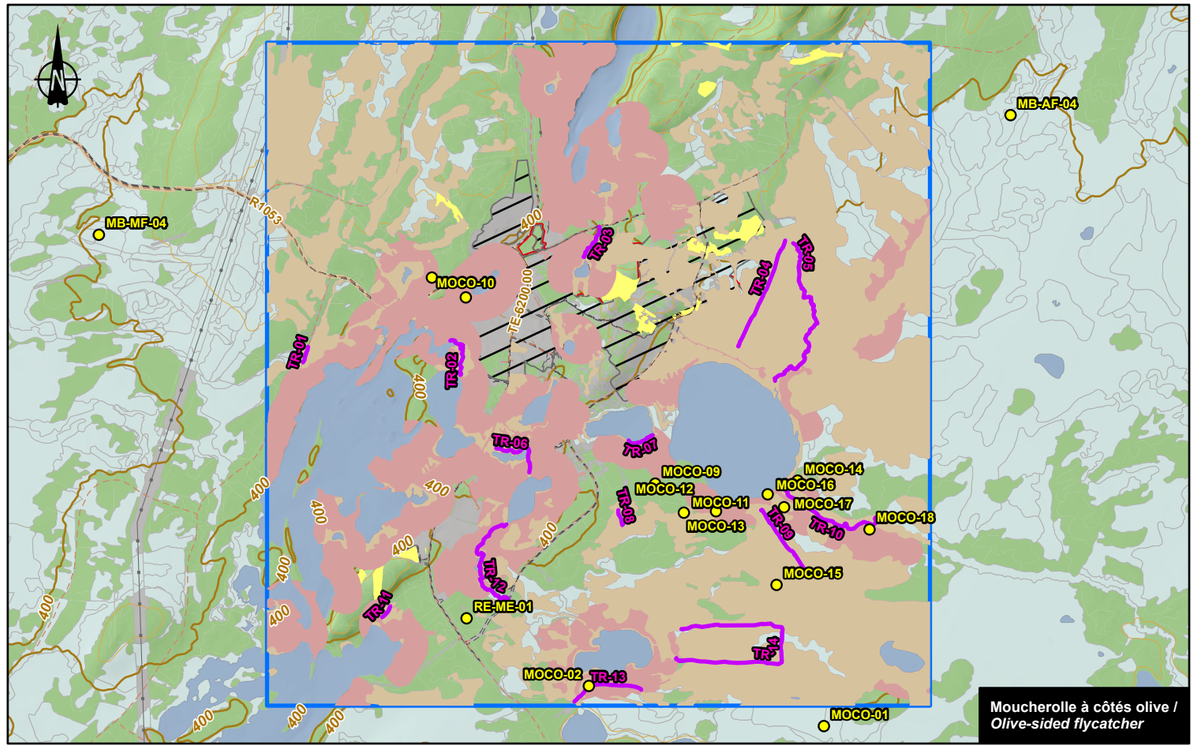
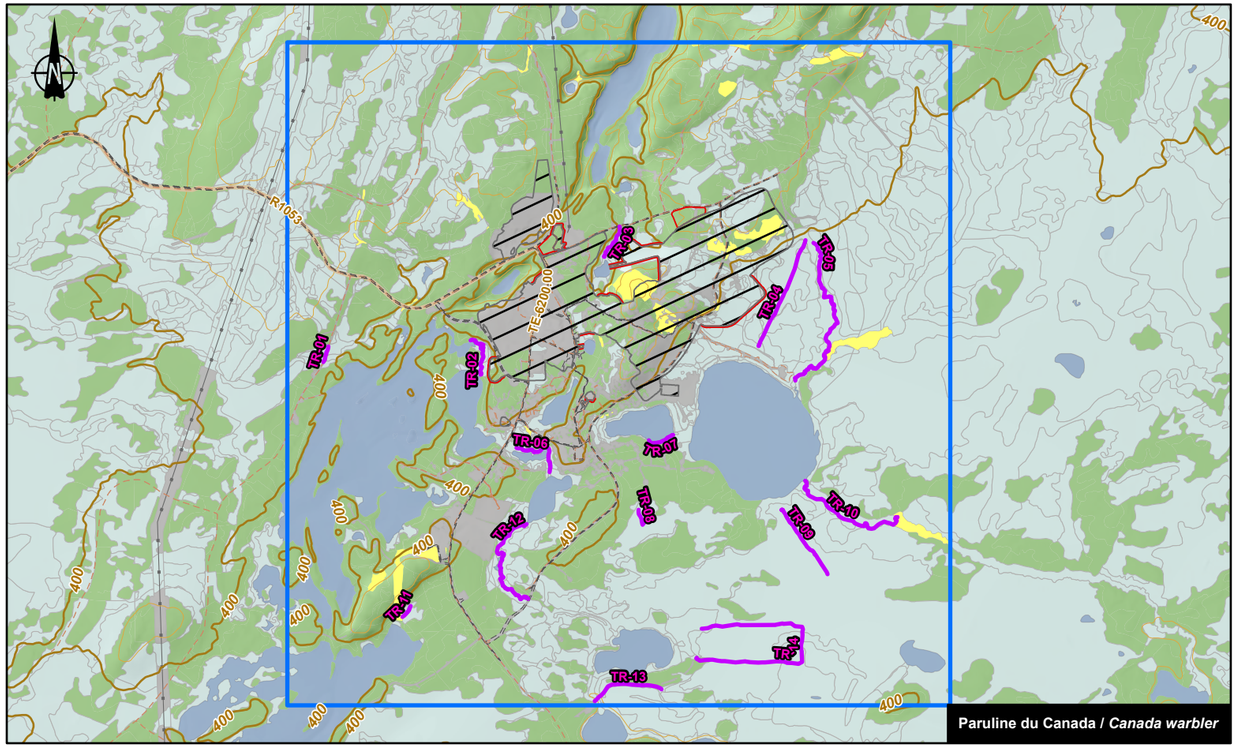
CA0023271_9538_su_ps25_c5_3_085_avi_engoulevent_250723

La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. / Boundary accuracy and measurements shown on this document are not to be used for engineering or land delineation purposes. No land analysis was carried out by a land surveyor.







Hydrographie / *Hydrography*

- Cours d'eau permanent / *Permanent watercourse*
- Cours d'eau permanent partiellement souterrain / *Partially undeground permanent watercourse*
- Cours d'eau intermittent / *Intermittent watercourse*
- Cours d'eau intermittent partiellement souterrain / *Partially undeground intermittent watercourse*
- Cours d'eau souterrain / *Underground watercourse*
- Fossé de drainage / *Drainage ditch*
- Canal / *Canal*
- Plan d'eau / *Waterbody*

Infrastructure / *Infrastructure*

- Ligne de transport d'énergie électrique / *Electric power line*
- Route d'accès / *Access road*

Empiètement du projet / *Project Encroachment*

- Empietement permanent / *Permanent encroachment*
- Empiètement temporaire /*Temporary encroachment*

Végétation / *Vegetation*

- Milieu forestier / *Forest Environment*
- Milieux humide et hydrique / *Wetlands and Hydrous Environment*
- Non forestier

Faune aviaire / *Avian fauna*

- Station d'inventaire / *Inventory Station*
- Transect d'inventaire / *Inventory transect*

Habitat potentiel de l'espèce / *Specie's potential habitat*

- Quiscale rouilleux / *Rusty blackbird*
- Moucherolle à côtés olive / *Olive-sided flycatcher*
- Paruline du Canada / *Canada warbler*

GOLD FIELDS

Projet Windfall - Programme de surveillance et suivi /
Windfall Project - Monitoring and Supervision Program

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte 5-4 / *Map 5-4*
Plan d'inventaire de la faune aviaire – Quiscale rouilleux, moucherolle à côtés olive et paruline du Canada / *Avian fauna inventory plan – Rusty Blackbird, Olive-sided Flycatcher and Canada Warbler*

Sources :
BDAT, 1/250 000, MRN Québec, 2002
BDTQ, 1/20 000, MRNF Québec, 2007
CanVec, 1/1 000 000, RNCan, 2020
CanVec Plus, 1/50 000, RNCan, 2015
SDA, 1/20 000, MERN Québec, 2020
Google Earth, Satellite Airbus, 2023

0 450 900 m
NAD 1983 MTM 9

2025-07-17

Préparation / Preparation : E. D'astous
Dessin / Drawing : E. Kheiri
Vérifié par / Verification : M.-H. Brisson
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wsp

If one or more individuals were heard, the following information will be recorded:

- The name of the species;
- The number of individuals heard;
- The age class of the individuals (adult, immature, or juvenile);
- The time of the hearing;
- Weather conditions;
- The type of detection (“wing boom,” call, seen or undetected);
- Any other relevant information.

The results of these surveys will be forwarded to the competent authorities.

5.5.1.2 Olive-sided Flycatcher, Canada Warbler, and Rusty Blackbird

Sampling Plan

The sampling plan was developed to ensure that the inventory stations covered the potential habitats of these species. As shown in Map 5-4, 13 daytime listening stations and 14 transects were set up in the biophysical environment study area. Table 5-6 lists the inventory stations and transects that will be monitored for biological purposes.

The inventory plan was designed based on the availability of potential habitat in the biophysical environment study area. It may also be subject to change before and during fieldwork. To ensure the independence of the data collected, all stations are located at least 250 meters apart.

Where possible, monitoring stations established as part of the environmental impact assessment were selected. Stations and transects established in 2016 and 2021 were given priority in the development of the inventory plan, in addition to areas where species of conservation concern were detected during the same period. It turns out that most of these areas were not burned in 2023. However, it should be noted that the data collected in 2024 (and subsequent years) as part of the biodiversity program will also be used for comparison purposes.

It should be noted that the number of stations being monitored may be revised during the exploitation phase depending on changes in available habitats, particularly those resulting from the gradual restoration of the various sites. In addition, natural habitats and those outside the work area may also change during the monitoring period.

Table 5-6 List of stations and transects being monitored for avian fauna

Stations / transects	Target species	Type of inventory	Geographical location[1]	
			Latitude	Longitude
En-01	American Nightjar	Station - Twilight inventory	49,04910’N	75,65942’O
En-02			49,06014’N	-75,65858’O
En-03			49,05847’N	-75,64531’O
En-04			49,07302’N	-75,65185’O
En-05			49,07568’N	-75,65655’O
En-06			49,07987’N	-75,62982’O
Tr-01	Rusty-backed flycatcher Olive-sided flycatcher	Transect - Daytime inventory	49,06845’N	-75,67513’O

Stations / transects	Target species	Type of inventory	Geographical location[1]	
			Latitude	Longitude
Tr-02	Rusty-backed flycatcher Olive-sided flycatcher	Transect - Daytime inventory	49,06819'N	-75,65893'O
Tr-03	Olive-sided flycatcher	Transect - Daytime inventory	49,07580'N	-75,64533'O
Tr-04	Rusty-backed flycatcher Olive-sided flycatcher	Transect - Daytime inventory	49,07218'N	-75,62783'O
Tr-05	Rusty-backed flycatcher Olive-sided flycatcher Canada Warbler	Transect - Daytime inventory	49,07138'N	-75,62271'O
Tr-06	Rusty-backed flycatcher Olive-sided flycatcher	Transect - Daytime inventory	49,06165'N	-75,65337'O
Tr-07	Rusty-backed flycatcher Olive-sided flycatcher	Transect - Daytime inventory	49,06228'N	-75,64059'O
Tr-08	Rusty-backed flycatcher Olive-sided flycatcher	Transect - Daytime inventory	49,05710'N	-75,64206'O
Tr-09	Rusty-backed flycatcher Olive-sided flycatcher	Transect - Daytime inventory	49,05537'N	-75,62610'O
Tr-10	Rusty-backed flycatcher Olive-sided flycatcher Canada Warbler	Transect - Daytime inventory	49,05676'N	-75,62124'O
Tr-11	Rusty-backed flycatcher Olive-sided flycatcher	Transect - Daytime inventory	49,05090'N	-75,66704'O
Tr-12	Rusty-backed flycatcher Olive-sided flycatcher	Transect - Daytime inventory	49,05364'N	-75,65739'O
Tr-13	Olive-sided flycatcher	Transect - Daytime inventory	49,03091'N	-75,67114'O
Tr-14	Rusty-backed flycatcher Olive-sided flycatcher	Transect - Daytime inventory	49,03415'N	-75,66334'O
PE-01	Olive-sided flycatcher	Station - Daytime inventory	49,06099'N	-75,65011'O
PE-02	Rusty-backed flycatcher Olive-sided flycatcher	Station - Daytime inventory	49,05834'N	-75,65023'O
PE-03	Rusty-backed flycatcher Olive-sided flycatcher	Station - Daytime inventory	49,06091'N	-75,63985'O
PE-04	Rusty-backed flycatcher Olive-sided flycatcher	Station - Daytime inventory	49,06763'N	-75,63631'O
PE-05	Canada Warbler	Station - Daytime inventory	49,08107'N	-75,63262'O
PE-06	Rusty Quiscale	Station - Daytime inventory	49,06094'N	-75,64327'O
PE-07	Rusty-backed flycatcher Olive-sided flycatcher	Station - Daytime inventory	49,07684'N	-75,62548'O
PE-08	Olive-sided flycatcher	Station - Daytime inventory	49,06537'N	-75,64655'O
PE-09	Rusty-backed flycatcher Olive-sided flycatcher	Station - Daytime inventory	49,06522'N	-75,65617'O
PE-10	Olive-sided flycatcher	Station - Daytime inventory	49,05649'N	-75,65019'O
PE-11	Olive-sided flycatcher	Station - Daytime inventory	49,05212'N	-75,66736'O
PE-12	Canada Warbler	Station - Daytime inventory	49,08856'N	-75,621876'O
PE-13	Canada Warbler	Station - Daytime inventory	49,08604'N	-75,633504'O

1 For transects, the central location is shown.

Methodology

Listening points

For these three species, daytime listening point surveys will be one of the approaches used (Environment Canada, 1997) to obtain quantitative data on the breeding pair densities of the target species (Blondel et al., 1981; Bibby et al., 1992; Ralph et al., 1995).

When moving between stations, observations of new species, rare species, or species with precarious status will also be noted. Mentions of species with special status will be georeferenced. Particular attention will also be paid to bird behavior in order to determine their nesting status according to the codes of the Atlas des oiseaux nicheurs du Québec (AONQ, 2024).

The data collected will be analyzed to establish the number of equivalent pairs per hectare (EP/ha), a measure of density, of the target species and other species inventoried in their habitat and across the study area, for comparison between different years of monitoring. Abundance (number of EP per listening station) will also be analyzed.

Transects

The transect survey method involves walking through the wetland in a straight line, as far as possible, and noting down all observations. A GPS point will be taken at the start and end of the route and the routes will be recorded using a GPS device. This will enable the area of habitat covered in the field to be calculated.

Other parameters will also be noted, such as the species, the distance and location of the observation (either inside or outside the wetland), the sex and age of the individuals when possible, their nesting status, and their behavior. Each nest observed will be located using GPS. Its status (under construction, presence of eggs, young, etc.) and any other relevant remarks will be recorded on the field sheet.

Applicable criteria and quality control

Density (number of pairs per hectare) and abundance (number of pairs) are the quantitative parameters that will be used to assess the levels of change relative to the baseline. Bird Canada population trends will also be compared to the results obtained (Government of Canada, 2023a).

Frequency and monitoring period

A single inventory per listening point and transect is planned per monitoring year, between June 12 and July 5. This approach will not significantly limit the interpretation of results for early and late nesting species, as the breeding season is relatively short at this latitude.

According to the nesting calendar query tool for the ecoregion covering the study area, the nesting period for forest and wetland-associated terrestrial birds is between June 12 and July 5 (Bird Canada, 2024). Thus, the inventory period covers the entire nesting period of the special status species targeted in the monitoring program.

During the inventories, birds will be counted for 15 minutes at each station, starting half an hour before sunrise until 10 a.m. at the latest, on days when weather conditions are optimal, i.e., no rain and no or light wind. In addition, at the end of each listening period, song playback will be used to increase the probability of detecting the target species.

In order to document the effect of the different phases of the mine on the presence of nesting birds, five-year inventories will be conducted before construction and up to the fifth year after its permanent closure.

The monitoring years are detailed as follows:

- Baseline: 2016, 2021, and 2024;
- Construction: 2026;
- Operation: 2029 and 2032.

Monitoring report

For each station surveyed, the following information will be noted on a field sheet:

- The listening point number;
- The date and time of the visit;
- The name(s) of the observer(s);
- The weather conditions;
- Any other relevant information.

In addition, for each individual observed, the following information will be recorded:

- The species;
- The number of individuals;
- The sex (male, female, or undetermined);
- The age class (adult, immature, or juvenile);
- The behavior (singing, flying, calling, etc.);
- The distance(s) from the observer.

If an issue involving an endangered bird species arises during monitoring, proposed corrective measures will be presented in the monitoring report and may be discussed within the monitoring committee and with the relevant authorities.

5.5.1.3 1.1.1.1 Procedure in the event of nest discovery

In the event of a bird's nest being discovered during the course of **construction** work, the procedure to be followed consists of the following five steps:

- Step 1: Recording of a nest;
- Step 2: Establishment of the protection zone;
- Step 3: Marking of the protection zone;
- Step 4: Monitoring of nests and work carried out in the vicinity;
- Step 5: Monitoring report.

These are presented below.

Step 1: Nest registration

Once the nest has been located, the species, location (GPS coordinates), habitat, and stage of nest development will be recorded. Clearing and construction activities will be reevaluated to determine whether the work can be relocated, delayed, or modified so as not to impact the birds, eggs, or nest.

Step 2: Establishing a protection zone

If activities cannot be relocated, delayed, or modified so as not to impact the birds, eggs, or nest, an appropriate protection zone (buffer zone) will be established to protect the nest location. This protection zone will be determined by a qualified person, based on the species and habitat, as well as the type, level, and duration of the disturbance. The guidelines established by the Government of Canada (2023b) to avoid harming migratory birds will be followed.

The protection zones used as examples are presented in Table 5-7. It should be noted that these distances are used as a guide and will be adjusted based on various factors, such as the birds' previous exposure to disturbances, the intensity of the disturbance, and the type of habitat.

Table 5-7 Recommended protection zones (buffer zones) around bird nests

Species	Protection Zone (m)
Whooping Crane	100 m, up to 1 000 m
Birds of Prey – Active	1 000 m
Birds of Prey – Inactive	50 to 1,000 m (depending on the level of interference)
Species with Special Status	Up to 100 m
Waterfowl and Shorebirds	Up to 100 m
Waterfowl	10 to 30 m, up to 50 m
Swallow Colonies	10 to 25 m, up to 50 m
Most passerines and other small birds	1 to 5 m up to 10 to 50 m

1 The shortest distances are often associated with urban or industrial environments, while the longest distances are associated with urban environments.

Step 3: Marking the protection zone

The buffer zone will be marked out using painted survey stakes, marking tape, or any other marking material, in order to clearly delineate the boundaries of the buffer zone. The nest itself will not be identified or marked, as this would increase the risk of predation.

The coordinates of the nest will be indicated on the marking, as will its direction. Markers and other markings will not be left in the immediate vicinity of the nest in order to reduce the risk of predation. Once the buffer zone is in place, a qualified environmental supervisor will regularly monitor the nest from a distance to detect any signs of disturbance. If necessary, work will cease immediately and the buffer zone will be reassessed. In addition, the work in question will be reassessed in order to reduce the level of disturbance and, if necessary, postponed until the chicks have left the nest.

Step 4: Monitoring nests and work carried out nearby

None of the buffer zones established may be cleared or built on until a qualified person has confirmed that the birds have left the nest and the surrounding area (mobile young).

This will be determined based on the stage of development observed during the first observation and estimates based on the species' biological cycle (specific incubation and fledging period), as well as observations made in the field. It should be noted that it is prohibited to damage, destroy, remove, or disturb migratory bird nests when they contain a live bird or viable egg (Government of Canada, 2022b).

If a nest is located near a path or road, vehicles may drive through with caution. However, they will not be allowed to stop within the recommended buffer zone. Areas where stopping is prohibited will be clearly marked.

Step 5: Monitoring Report

The presence of migratory bird nests and endangered species, as well as the actions taken to ensure their protection, will be documented in environmental monitoring reports.

5.5.1.4 Report

A report summarizing the results observed will be produced at the end of each year in which work is carried out in connection with the monitoring or surveillance of birdlife. The report will address, but not be limited to, the following:

- The accuracy of the environmental assessment, including an assessment of the effectiveness of the mitigation measures implemented by WMG with respect to the negative environmental effects of the Project on migratory and/or endangered bird species, including their nests and eggs.
- The levels of environmental change relative to the baseline conditions established in the EIS that require the implementation of modified or additional mitigation measures.
- Based on the results obtained during the year from bird monitoring and surveillance, the technically and economically feasible mitigation measures that WMG will implement to reduce the levels of change to below the target levels if the monitoring and surveillance show that the levels of change have been reached or exceeded.
- The status of specific and measurable endpoints that must be achieved before the end of the monitoring program, all while putting the findings into perspective with the accuracy of the environmental assessment and/or the effectiveness of the mitigation measures.
- The review of monitoring and surveillance programs and, if necessary, their update to ensure consistency between the objectives pursued and the nature of the results obtained.

5.5.2 Closure phase

No specific monitoring is currently planned during the closure phase for avian wildlife, other than the mitigation measures presented in Table 5.5.

5.6 Mammals

The mitigation measures planned for the Mammal component are presented in Table 5-8.

Table 5-8 General and specific mitigation measures for the Mammal component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
AIR01	X	X	X	Use water or dust suppressants on traffic routes during activities to prevent, as much as possible, fugitive dust emissions associated with activities that may cause dust to be stirred up. The dust suppressant used shall comply with BNQ 2410-300.
AIR02	X	X	X	Restrict access to designated areas and limit vehicle speeds on various construction sites and during mining operations. Traffic signs will be installed at designated locations.
AIR03	X	X	X	Rather than burning, shred tree trimmings and brush cuttings on site as much as possible, then spread them out.
AIR04	X	X	X	Where possible, use electricity from the Hydro-Québec grid as the primary source of energy.
QUA01	X		X	Stripping, clearing, excavation, backfilling, and leveling of work areas will be limited to the absolute minimum.
QUA02	X		X	In the event that earthworks must be carried out in areas with steep slopes, the bottom of the ditches will be covered with granular drainage materials and/or rock fill to prevent erosion.
QUA03	X		X	In order to reduce the risk of erosion on sloping land, methods such as the installation of retaining embankments, channels, or diversion ditches perpendicular to the slope, or other methods will be used.
QUA04	X		X	The slopes of excavated material and embankments will be stabilized using techniques that blend in as much as possible with the natural environment, wherever erosion is likely to cause particulate matter to enter a watercourse (slope softened to 1.5 H: 1 V, plus other available techniques). Along steep slopes, sediment barriers (geotextile, straw, etc.) will be used at the foot of the embankments, as necessary, to reduce the volume of transported particles. Protective measures (straw, wood chips, mattresses) may also be used directly on the slope. Avoid placing excavated material on steep slopes. Fill material shall be adequately compacted.
QUA06	X	X	X	An assessment of the environmental quality of the soil will be carried out in areas of the site where activities likely to have contaminated the soil have taken place. If contaminated soil is discovered, the land will be remediated.
QUA07	X	X	X	In the event of temporary storage of contaminated excavated material, take all necessary measures to preserve the integrity of the surrounding soil and water and to ensure worker safety (e.g., pile material on a sealed or impermeable surface, cover piles, restrict access to piles, etc.).
QUA08	X	X	X	Where possible, trees and shrubs will be removed by cutting them down to ground level on embankment slopes. Their root systems will be preserved to promote runoff infiltration and natural soil stability.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA09	X		X	In order to detect any possibility of slippage, monitoring will be carried out during excavation and profiling work. Corrective measures will be put in place to prevent any slippage if a risk has been identified.
QUA11	X		X	When installing or replacing a culvert, first confine the work area to prevent particulate matter from being carried into the water (e.g., partially or completely drain the area). The work techniques and materials used (e.g., diversion structures, geotextile, polyethylene, etc.) should not cause turbidity in the water as much as possible. The natural flow of the watercourse must be maintained continuously and the water must return immediately downstream of the work area. Where possible, the stream bed should not be narrowed by more than two-thirds during the work. If necessary, water accumulations in the work area must be pumped to a vegetation area at least 30 m from the stream or wetland.
QUA12	X		X	After installing a culvert, any other structures required for this work must be removed from the water. Ensure that the stream bed is well stabilized at the inlet and outlet. The stream bed should then preferably be restored to its natural profile using materials similar to those previously used. The banks should be stabilized and, if necessary, revegetated.
QUA13	X		X	A runoff management system will be implemented during the construction phase. Depending on the situation, methods to control suspended solids emissions such as temporary water retention basins, sediment barriers, turbidity curtains, or slope stabilization will be used. These structures will be inspected and cleaned as needed. In addition, water will be pumped to a vegetated area at least 30 m from a watercourse or wetland.
QUA14	X		X	If calcium chloride-based dust suppressants are used, do not dispose of the product or rinse equipment in or near a watercourse or on vegetation.
QUA15	X		X	Where possible, abrasives will be used instead of de-icing agents in winter and, where necessary, water will be used as a dust suppressant instead of a chemical solution.
QUA16	X		X	During snow removal activities, snow will be kept, as far as possible, outside a 30-meter strip of a watercourse or wetland.
QUA17	X		X	Within and in the 15-meter strip bordering the high-water line of a watercourse or body of water and within any wetland (pond, marsh, swamp, or bog), it will be prohibited to pile up temporary waste, debris, materials, or excavated material (e.g., organic matter from soil stripping). It will also be prohibited to pile up wood waste and debris. Runoff will be diverted to a vegetated area at least 30 m from the watercourse or wetland, or intercepted by sediment barriers or a sedimentation basin.
QUA18	X		X	If required, temporary culverts and bank protections will be removed. The riverbed and banks will be restored.
QUA19	X		X	The granular materials used for the construction of structures may not come from the bed of a body of water or its banks, or from any source located less than 75 m from the aquatic environment, except for rock excavated from the area adjacent to the loading platforms and access road or from watercourses or bodies of water that will be directly affected by the project infrastructure.
QUA20	X		X	The riparian strips damaged by the work will be restored to reproduce the natural banks of the watercourse, body of water, or wetland.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA21	X		X	Temporary facilities (e.g., construction trailers, access roads, storage areas, waste disposal sites) must be located more than 60 m from a watercourse or wetland.
QUA22	X	X	X	Ensure that emergency kits for recovering petroleum and chemical products are available in sufficient quantities and at sensitive locations. Petroleum products (hydrocarbons) will be handled in such a way as to prevent and control leaks and spills.
QUA23	X	X	X	Ensure that machinery is in good condition (clean and free of any leaks of contaminating products) and that fuel and lubricant tanks are completely leak-proof. Any leaks must be repaired immediately.
QUA24	X	X	X	During construction, vehicle and surface equipment maintenance will generally be carried out on site in an existing garage. Fuel will be supplied by appropriately equipped service trucks located more than 60 m from any watercourse or wetland. A drip tray will be placed under the transfer points during refueling to prevent any dripping onto the ground.
QUA25	X	X	X	Equip all fixed equipment containing oil and/or fuel (e.g., light towers, generators, etc.) located within 60 m of a watercourse, body of water, or wetland with a leak-proof recovery system. The equipment must be equipped with absorbent material so that accidental spills can be dealt with quickly and effectively.
QUA26	X	X	X	Any accidental spills must be reported immediately. In the event of a spill of hydrocarbons or any other harmful substance, the MELCCFP alert network (1-866-694-5454) must be notified without delay. If the spill reaches a body of water, Environment Canada (1-866-283-2333) must also be notified. Any spill of contaminants must be subject to immediate response measures to contain and recover the products. Contaminated soil must be removed and disposed of at an authorized site, and a characterization must be carried out in accordance with the terms of the MELCCFP's Soil Protection and Contaminated Land Remediation Policy. The WMG response team (first responder and firefighter) will always respond to an emergency call in order to minimize the impact and rescue the injured, if necessary.
NOR01	X	X	X	Ensure that vehicle and machinery exhaust systems are in good condition and operating optimally to minimize airborne contaminant emissions, and ensure that the same applies to dust collection systems for equipment and machinery equipped with them. Reference: Clean Air Regulation, section 6.
NOR03	X	X	X	Observe distances and maximum loads when blasting in order to comply with D019 criteria and guideline thresholds for the use of explosives in or near Canadian fishing waters. Reference: D019, section 3.4.2 and Fisheries Act, subsection 35(2) and Guidelines for the Use of Explosives in or Near Canadian Fishing Waters, p. 6, paragraphs 8 and 9.
NOR04	X	X	X	Manage excavated material according to its degree of contamination and in accordance with the requirements of the Soil Protection and Contaminated Land Remediation Policy. (Reference: Q-2, r. 37 - Regulation respecting the protection and rehabilitation of land: Appendices I and II and Intervention Guide - Soil Protection and Rehabilitation of Contaminated Land: Table 5 - Methods of soil recovery authorized in Quebec)

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
NOR05	X	X	X	Dispose of contaminated excavated material in accordance with the contaminated soil management grid in the Intervention Guide. If disposal in a landfill is a viable option, the proponent will apply to the Ministry for authorization and will not proceed until authorization has been obtained. Reference: Q-2, r. 18 - Regulation respecting the disposal of contaminated soil: Appendix I and Intervention Guide - Soil Protection and Contaminated Land Rehabilitation: Appendix 5 - Excavated Soil Management Grid; Section 6.4.3.1 List of Authorized Treatment Centers.
NOR07	X		X	Install culverts or crossing structures designed to maintain free water flow (and free passage for fish). The construction of bridges or culverts must not reduce the width of the watercourse by more than 20%, measured from the LNHE. The base of the lower culvert must be sunk below the natural bed of the watercourse to a depth of at least 15 cm or 10% of the height of the structure, and its ends must extend beyond the base of the embankment by no more than 30 cm and be adequately stabilized. Reference: Regulation respecting the sustainable management of state-owned forests.
NOR10	X	X	X	Stop the leak as soon as it is detected during an accidental spill, contain the product and recover it using appropriate equipment (absorbent sheets, booms, drain covers, etc.). Notify the Minister immediately. Excavate contaminated soil, place it in leak-proof containers and dispose of it in accordance with the hazardous materials management program. Recommend rapid intervention to prevent deep infiltration. Reference: LQE, s. 21 and Hazardous Materials Regulation, s. 9.
VEG01	X		X	During deforestation, special attention will be paid to vegetation at the edge of work areas so as not to damage it. If trees accidentally fall, they will be removed with care not to disturb the environment.
VEG02	X		X	Require contractors to clean all construction equipment before arriving at the work site. This cleaning is intended to completely remove mud, plant fragments, and visible debris that could be contaminated with invasive alien plant species.
VEG03	X		X	If possible, carry out work in wetlands on frozen ground or during periods of low water flow.
VEG04	X		X	Keep vegetation intact along waterways, wetlands, and access roads.
FAU04	X	X	X	Indicate and mark areas with the highest risk of collision with large wildlife using appropriate signage.
FAU06	X	X	X	Raise awareness among workers not to leave food lying around so as not to attract wild animals to work areas, and prohibit feeding them.
FAU08	X	X	X	Limit light emission into the sky by using luminaires that produce sober, uniform lighting that meets actual lighting needs and directs the light flux toward the surface to be illuminated.
FAU09	X	X	X	Pay particular attention to the direction of portable lights and those used to illuminate mobile sources.
PLA01	X		X	For temporary construction site facilities (site offices, access roads, etc.), prioritize sites that have already been deforested or disturbed.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
PLA02	X		X	At the end of the work, the work areas will be cleared of equipment, machinery parts, materials, temporary installations, waste, scrap, rubble, and debris from the work. These work areas will be redeveloped and restored so that they blend into the natural landscape (leveling and loosening the soil, softening slopes). If sections of roads or paths were abandoned, they will be scarified and revegetated. The slopes of the project right-of-ways will be seeded to stabilize them quickly. All areas that will not be useful for future projects will be revegetated.
P02	X			WMG will undertake, during the induction training, to raise awareness among employees of the species that can be observed at the Windfall site. As part of the procedure for traveling on forest roads, the reporting of large wildlife will be added.
P26	X		X	An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

5.6.1 Construction and operation phases

5.6.1.1 Large wildlife

Due to their large size and weight, certain wildlife species are more likely to be involved in major road accidents. The consequences for the animals can be severe (e.g., serious injury, death, orphaned offspring), but they can also be more severe for road users. Consequently, WMG will maintain a preliminary log compiling, among other things (see section 6.6.1), road collisions with large wildlife occurring within the Windfall site (including borrow pits) and on forest road R0853. All road collision events involving the following species will be recorded: woodland caribou (*Rangifer tarandus caribou*), moose (*Alces alces*), black bear (*Ursus americanus*), and gray wolf (*Canis lupus*). Any injured individuals must be reported to the appropriate authorities. The following data must be recorded in the register:

- The species involved;
- The number of animals involved;
- The date and time of the incident;
- The precise location where the collision occurred;
- The condition of the animal (or animals) after the incident (i.e., immobilized or still moving).

WMG will maintain a second log compiling observations of the same species (i.e., woodland caribou, moose, black bear, and gray wolf) within the Windfall site (including borrow pits).

The following data will be recorded in the log:

- The species observed;
- The number of animals observed;
- The date of the observation;
- The precise location where the animal was observed.

The information collected in these registers will enable the assessment of potential problems and, where necessary, the design of appropriate corrective measures. By integrating this data, WMG will be able to implement targeted protection strategies, particularly during critical periods or in areas that are more heavily used by animals. Such interventions will promote better coexistence with animals by reducing the impact of project activities on animal populations, while improving the safety of workers and road users.

Woodland caribou

WMG is currently documenting the presence of woodland caribou, a subpopulation detached from the Assinica herd, which has been recorded south of the project site. WMG and the MELCCFP entered into a partnership agreement in 2024 allowing the use of data from four caribou telemetry collars located in the area. During the caribou migration period, data is collected at shorter intervals, every three hours, to better understand the routes taken between this group and the Assinica herd, which will also allow real-time visualization of the woodland caribou's use of the territory over a three-year period.

A follow-up report at the end of the three years will be prepared and sent to the MELCCFP on a confidential basis. Given the sensitive nature of the data collected, the results will not be published.

Black bear

Black bears are very common at the Windfall mine site, with individuals and signs of their presence frequently observed. The presence of bears near mining activities is not considered a problem in itself, especially if these animals feed on vegetation naturally present in the surrounding habitat. However, anthropogenic food resources must remain inaccessible to wild animals at all times, particularly black bears. To this end, WMG has implemented a waste management system in accordance with the 3RV-E principles, which includes:

- A fully fenced sorting center (underground fence with a motorized gate);
- A composter located within the sorting center;
- Waste containers equipped with bear-proof devices;
- A variable daily schedule for collecting waste from the containers.

This waste management system will be maintained throughout the construction and operational phases of the mine. These measures will limit the risk of black bears becoming accustomed to human presence. Despite this, bears may be attracted by the odors emitted by waste—even if it is not accessible—as well as by odors emanating from kitchens or other food storage areas. Bears searching for food may thus prowl around buildings or even attempt to enter them, posing a public safety issue.

In cases where WMG believes that worker safety could be compromised by the presence of a bear, WMG will immediately notify the local MELCCFP Wildlife Protection office so that officers can assess whether action needs to be taken. If it is decided to kill the animal, a master trapper may be called in if the kill can be carried out safely, allowing the edible meat to be recovered.

Mitigation measure FAU06 (see Table 5-8) indicates that workers will be made aware of the effect of not feeding wild animals, whether deliberately or by leaving food waste outside where it is freely accessible to wildlife. This measure will be particularly important in promoting better coexistence with black bears and limiting impacts on their populations.

5.6.1.2 Other species

Although unlikely, any sightings of beaver dams (*Castor canadensis*) within the site must be reported immediately. A beaver dam that interferes with mining activities may require intervention by WMG. In this case, preventive measures may be evaluated depending on the situation. If preventive measures do not prevent the dam from interfering with mining activities, its removal may be considered. Under sections 26 and 67 of the *Act respecting the conservation and development of wildlife*, a permit for scientific, educational, or wildlife management purposes (SEG) issued by the MELCCFP may be required for the dismantling of a beaver dam, as well as for trapping beavers outside the periods authorized by the regulations in force.

Monitoring signs of snowshoe hare (Lepus americanus) presence by counting droppings and assessing browsing will make it possible to compare the use of sites by this species according to the severity of fires and over the years (see section 7.5.1.3). In addition, ecotoxicological monitoring of the flesh of hares captured by trappers will detect any changes in the metal content measured in certain anatomical parts of the animals (see section 6.4.3).

Monitoring of mine effluent and surface water (see section 4.6) will ensure compliance with applicable water quality standards, limiting impacts on surrounding water environments and the semi-aquatic mammals that live there, such as beavers and muskrats (Ondatra zibethicus).

5.6.2 Closure phase

5.6.2.1 Large wildlife

WMG will continue to maintain a log of roadkill incidents involving woodland caribou, moose, black bears, and gray wolves that occur within the Windfall site and on Highway R0853.

WMG will also continue to maintain the log compiling animal sightings within the site (see section 5.6.1.1). These logs will be maintained until the facilities are dismantled.

In addition, the waste management system (see section 5.6.1.1) will be maintained until the site is closed so that these alternative food sources remain inaccessible to wildlife, particularly black bears.

5.6.2.2 Other species

As presented in section 5.6.1.2, monitoring of mine effluent and surface water until the facilities are dismantled will limit adverse impacts on semi-aquatic mammals.

5.7 Chiroptera

The mitigation measures planned for the Chiroptera component are presented in Table 5-9.

Table 5-9 General and specific mitigation measures for the Chiroptera component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
AIR01	X	X	X	Use water or dust suppressants on traffic routes during activities to prevent, as much as possible, fugitive dust emissions associated with activities that may cause dust to be stirred up. The dust suppressant used shall comply with BNQ 2410-300.
AIR02	X	X	X	Restrict access to designated areas and limit vehicle speeds on various construction sites and during mining operations. Traffic signs will be installed at designated locations.
AIR03	X	X		Rather than burning, shred tree trimmings and brush cuttings on site as much as possible, then spread them around.
QUA01	X		X	Stripping, clearing, excavation, backfilling, and leveling of work areas will be kept to a minimum.
QUA02	X		X	In the event that earthworks must be carried out in areas with steep slopes, the bottom of the ditches will be covered with granular drainage materials and/or rock fill to prevent erosion.
QUA03	X		X	In order to reduce the risk of erosion on sloping land, methods such as the installation of retaining walls, channels, or diversion ditches perpendicular to the slope, or other methods will be used.
QUA04	X		X	The slopes of excavated and backfilled areas will be stabilized using techniques that blend in as much as possible with the natural environment, wherever erosion is likely to cause particulate matter to enter a watercourse (slope softened to 1.5 H: 1 V, plus other available techniques). Along steep slopes, sediment barriers (geotextile, straw, etc.) will be used at the foot of the embankments, as necessary, to reduce the volume of transported particles. Protective measures (straw, wood chips, mattresses) may also be used directly on the slope. Excavated material will not be placed on steep slopes. Fill material shall be adequately compacted.
QUA06	X	X	X	An assessment of the environmental quality of the soil will be conducted in areas of the site where activities likely to have contaminated the soil have taken place. If contaminated soil is discovered, the land will be remediated.
QUA07	X	X	X	In the event of temporary storage of contaminated excavated material, take all necessary measures to preserve the integrity of the surrounding soil and water and to ensure worker safety (e.g., pile material on a sealed or impermeable surface, cover piles, restrict access to piles, etc.).
QUA10	X			Where possible, carry out any development work that may affect the hydraulic conditions of permanent watercourses outside the snowmelt period. The installation of a culvert in a permanent watercourse should preferably be carried out during low water periods and as soon as possible. It must not impede water flow or contribute to the formation of ponds upstream during flood periods. Gradually restore temporarily disrupted flows after the work is completed to avoid sudden changes in flow rate. The end of the culvert must extend beyond the base of the embankment supporting the road by no more than 30 cm, and the embankment must be stabilized at both ends of the culvert. The material used for this embankment must not contain any organic matter.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA11	X			When installing or replacing a culvert, first confine the work area to prevent particulate matter from being carried into the water (e.g., partially or completely drain the area). The work techniques and materials used (e.g., diversion structures, geotextile, polyethylene, etc.) should not generate turbidity in the water as much as possible. The natural flow of the watercourse must be maintained continuously and the water must return immediately downstream of the work area. Where possible, the stream bed should not be narrowed by more than two-thirds during the work. If necessary, water accumulations in the work area must be pumped to a vegetation area at least 30 m from the stream or wetland.
QUA12	X			After installing a culvert, any other structures required for this work must be removed from the water. Ensure that the stream bed is well stabilized at the inlet and outlet. The stream bed should then preferably be restored to its natural profile using materials similar to those previously used. The banks should be stabilized and, if necessary, revegetated.
QUA13	X		X	A runoff management system will be implemented during the construction phase. Depending on the situation, methods to control suspended solids emissions such as temporary water retention basins, sediment barriers, turbidity curtains, or slope stabilization will be used. These structures will be inspected and cleaned as needed. In addition, water will be pumped to a vegetated area at least 30 m from a watercourse or wetland.
QUA14	X	X	X	If calcium chloride-based dust suppressants are used, do not dispose of the product or rinse equipment in or near waterways or vegetation.
QUA15	X	X	X	Where possible, abrasives will be used instead of de-icing agents in winter and, where necessary, water will be used as a dust suppressant instead of a chemical solution.
QUA16	X	X	X	During snow removal activities, snow will be kept, as far as possible, outside a 30-meter strip of a watercourse or wetland.
QUA17	X	X	X	Within and in the 15-meter strip bordering the high-water line of a watercourse or body of water and within any wetland (pond, marsh, swamp, or bog), it will be prohibited to pile up temporary waste, debris, materials, or excavated material (e.g., organic matter from soil stripping). It will also be prohibited to pile up wood waste and debris. Runoff will be diverted to a vegetated area at least 30 m from the watercourse or wetland, or intercepted by sediment barriers or a sedimentation basin.
QUA18	X		X	If required, temporary culverts and bank protection will be removed. The riverbed and banks will be restored.
QUA19	X			The granular materials used for the construction of the structures may not come from the bed of a body of water or its banks, or from any source located less than 75 m from the aquatic environment, except for rock excavated from the area adjacent to the loading platforms and access road or from watercourses or bodies of water that will be directly affected by the project infrastructure.
QUA20	X		X	The riparian strips damaged by the work will be restored to reproduce the natural banks of the watercourse, body of water, or wetland.
QUA21	X	X	X	Temporary facilities (e.g., construction trailers, access roads, storage areas, waste disposal sites) must be located more than 60 m from a watercourse or wetland.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA22	X	X	X	Ensure that emergency response kits for petroleum and chemical products are available in sufficient quantities and at sensitive locations. Petroleum products (hydrocarbons) will be handled in such a way as to prevent and control leaks and spills.
QUA23	X	X	X	Ensure that machinery is in good condition (clean and free of any leaks of contaminating products) and that fuel and lubricant tanks are completely leak-proof. Any leaks must be repaired immediately.
QUA24	X		X	During construction, vehicle and surface equipment maintenance will generally be carried out on site in an existing garage. Fuel will be supplied by appropriately equipped service trucks located more than 60 m from any watercourse or wetland. A drip tray will be placed under the transfer points during refueling to prevent any dripping onto the ground.
QUA25	X	X	X	Equip all fixed equipment containing oil and/or fuel (e.g., light towers, generators, etc.) located within 60 m of a watercourse, body of water, or wetland with a leak-proof recovery system. The equipment must be equipped with absorbent material so that it can be used quickly and effectively in the event of an accidental spill.
QUA26	X	X	X	Any accidental spills must be reported immediately. In the event of a spill of hydrocarbons or any other harmful substance, the MELCCFP alert network (1-866-694-5454) must be notified without delay. If the spill reaches a body of water, Environment Canada (1-866-283-2333) must also be notified. Any spill of contaminants must be dealt with immediately in order to contain and recover the products. Contaminated soil must be removed and disposed of at an authorized site, and a characterization must be carried out in accordance with the terms of the MELCCFP's Soil Protection and Contaminated Land Remediation Policy. The WMG response team (first responder and firefighter) will always respond to an emergency call in order to minimize the impact and rescue any injured persons, if necessary.
NOR01	X	X	X	Ensure that vehicle and machinery exhaust systems are in good condition and operating optimally to minimize air contaminant emissions, and ensure that the same applies to dust collection systems for equipment and machinery equipped with them. Reference: Clean Air Regulation, Section 6.
NOR02	X	X		The noise level assessment of a fixed source associated with mining activity must be evaluated in accordance with the requirements of Instruction Note 98-01. Reference: D019, section 3.4.1
NOR03	X	X		Observe distances and maximum loads when blasting in order to comply with D019 criteria and guideline thresholds for the use of explosives in or near Canadian fishing waters. Reference: D019, section 3.4.2 and Fisheries Act, subsection 35(2) and Guidelines for the Use of Explosives in or Near Canadian Fishing Waters, p. 6, paragraphs 8 and 9.
NOR04	X	X	X	Manage excavated material according to its degree of contamination and in accordance with the requirements of the Soil Protection and Contaminated Land Remediation Policy. (Reference: Q-2, r. 37 - Regulation respecting the protection and rehabilitation of land: Appendices I and II and Intervention Guide - Soil Protection and Rehabilitation of Contaminated Land: Table 5 - Methods of soil recovery authorized in Quebec).

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
NOR05	X	X	X	Dispose of contaminated soil in accordance with the contaminated soil management grid in the Intervention Guide. If disposal in a landfill is a viable option, the proponent will apply to the Ministry for authorization and will not proceed until authorization has been obtained. Reference: Q-2, r. 18 - Regulation respecting the disposal of contaminated soil: Appendix I and Intervention Guide - Soil Protection and Contaminated Land Rehabilitation: Appendix 5 - Excavated Soil Management Grid; Section 6.4.3.1 List of Authorized Treatment Centers.
NOR06	X	X	X	Dispose of excess or unusable excavated material (clay, silt, gravel, rock) with the usual precautions and in accordance with the **Regulation respecting activities in wetlands, water environments, and sensitive areas** and D019 to ensure sufficient spacing from water environments.
NOR07	X		X	Install culverts or crossing structures designed to maintain free water flow (and free passage for fish). The construction of bridges or culverts must not reduce the width of the watercourse by more than 20%, measured from the LNHE. The base of the lower culvert must be sunk below the natural bed of the watercourse to a depth of at least 15 cm or 10% of the height of the structure, and its ends must extend beyond the base of the embankment by no more than 30 cm and be adequately stabilized. Reference: Regulation respecting the sustainable development of state-owned forests.
NOR08	X	X	X	All operators must seek to maximize the use of mine wastewater produced on the mine site and minimize liquid discharges (Reference: D019, section 3.2.2.1). Produce a management plan for surface water, whether natural or related to the treatment process (Reference: D019, section 3.2.8.5).
NOR10	X	X	X	Stop the leak as soon as it is detected during an accidental spill, contain the product and recover it using appropriate equipment (absorbent sheets, booms, drain covers, etc.). Notify the Minister immediately. Excavate contaminated soil, place it in leak-proof containers and dispose of it in accordance with the hazardous materials management program. Recommend rapid intervention to prevent deep infiltration. Reference: LQE, section 21, and Hazardous Materials Regulation, section 9.
VEG01	X			During deforestation, special attention will be paid to vegetation at the edge of work areas so as not to damage it. If trees accidentally fall, they will be removed with care so as not to disturb the environment.
VEG02	X		X	Require contractors to clean all construction equipment before arriving at the work site. This cleaning is intended to completely remove mud, plant fragments, and visible debris that could be contaminated with invasive alien plant species.
VEG03	X		X	If possible, carry out work in wetlands on frozen ground or during periods of low water flow.
VEG04	X		X	Keep vegetation intact along waterways, wetlands, and access roads.
FAU02	X			Carry out deforestation activities outside the general bird nesting period, which runs from May 1 to August 15, or an equivalent measure will be validated with the ministry and applied.
FAU03	X		X	Carry out deforestation activities outside the period when bats give birth and raise their young, which runs from approximately June 1 to August 15.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
FAU04	X	X	X	Indicate and mark areas with a higher risk of collision with large wildlife using appropriate road signs.
FAU05	X		X	Prior to dismantling a building or other facility, conduct an inspection (construction voids) to check whether it is being used as a maternity roost or shelter by bats. If so, protective measures will be taken to ensure the survival of the bats.
FAU06	X	X	X	Raise awareness among workers not to leave food lying around so as not to attract wild animals near work areas and prohibit feeding them.
FAU08	X	X	X	Limit light emission into the sky by using luminaires that produce sober, uniform lighting that meets actual lighting needs and directs the light flux toward the surface to be illuminated.
FAU09	X	X	X	Pay particular attention to the direction of portable lights and those used to illuminate mobile sources.
PLA01	X		X	For temporary construction site facilities (site offices, access roads, etc.), prioritize sites that have already been deforested or disturbed.
PLA02	X		X	At the end of the work, the work areas will be cleared of equipment, machinery parts, materials, temporary installations, waste, scrap, rubble, and debris from the work. These work areas will be redeveloped and restored so that they blend into the natural landscape (leveling and loosening the soil, softening slopes). If sections of roads or paths were abandoned, they will be scarified and revegetated. The slopes of the project right-of-ways will be seeded to stabilize them quickly. All areas that will not be useful for future projects will be revegetated.
P03	X		X	If an active resting or maternity roost used by bats is discovered, a 100-meter buffer zone, free of human activity, will be established around the habitat and maintained until a biologist has confirmed that the bats have left.
P04	X		X	If one or more natural cavities or old galleries are discovered that are not flooded, check whether they are used as hibernacula by bats and, if so, establish a 500-meter buffer zone free of human activity around the entire underground network that constitutes the habitat used.
P26	X	X	X	An environmental supervisor will conduct regular visits to work areas, ensure strict compliance by stakeholders with various commitments, obligations, measures, and other requirements, evaluate the quality and effectiveness of the measures implemented, and note any non-compliance observed.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

5.7.1 Construction phase

The bat monitoring program presented in this section aims to limit disturbances that could harm bats and to detect and document the effects of light and noise on their activities during the various phases of the project.

All bat species present on the site are covered by this biological monitoring program. Acoustic surveys conducted in 2016, 2017, and 2021 confirmed the presence of six bat species on the site, including the silver, red bat, and gray bat, migratory species listed on the List of Vulnerable Wildlife Species (red bat) or likely to be designated as threatened or vulnerable (silver and gray bats) in Quebec (Government of Quebec, 2025). In addition, these three species are considered endangered in Canada by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC, 2023), although they are not yet included in Schedule 1 of the *Species at Risk Act* (SARA; Government of Canada, 2025). These inventories also confirmed the use of the study area by two species of the genus *Myotis*, namely the little brown bat and the northern bat, which are also considered endangered in Canada and have been listed in Schedule 1 of SARA since 2014 (Government of Canada, 2025). The big brown bat was also detected at the site, although it does not have a special status at either the provincial or federal level.

5.7.1.1 Monitoring of maternity and roosting sites

During the **various phases of the Project,** particular attention will be paid to signs of bat presence in anthropogenic and natural structures that may be located near the mine. These signs may include noises (scratching or vocalization), the presence of guano (feces similar to those of mice, but longer, tapered, and segmented) on walls or on the ground, or even a smell of damp earth (“old damp cellar”) (MELCCFP, 2023a). These signs of presence should be monitored particularly during the bat breeding season, which in this latitude runs from June 15th to August 14th (MELCCFP, 2023b).

With regard to potential anthropogenic sites, this opportunistic monitoring will target buildings or other structures with potential entry points for bats, such as cavities in the exterior cladding, poorly fitted metal sheets, and unmeshed ventilation, which are likely to provide access to potential building voids. For natural structures, attention will be focused on snags or trees with cavities that have a fairly large diameter at breast height (DBH) (30 cm and above), which could be used by bats (Tremblay and Jutras, 2010).

If the presence of a maternity colony, i.e., a colony of female bats gathering to give birth and raise their young, is suspected, the MELCCFP will be notified immediately.

Procedure in the event of discovery of an occupied maternity colony

Step 1: Establishment of the protection zone

If a maternity colony or roost occupied by bats is identified during the breeding season, which runs from June 15th to August 14th at this latitude, and the activities cannot be moved, delayed or modified so as not to affect the maternity or roost, a protection zone with a radius of 100 m (buffer zone) will be established to ensure protection throughout the breeding season.

Where appropriate, particularly in the case of certain activities that generate a significant level of noise disturbance (such as blasting), the establishment of a buffer zone could be replaced by the installation of an acoustic barrier (vertically erected insulating panels).

Step 2: Marking the protection zone

The protection zone will be marked out using painted survey stakes, marking tape, or any other marking material. The maternity site itself will not be identified, and no markings will be placed in its immediate vicinity so as not to increase the risk of predation. The site coordinates will be indicated on the marker, along with the direction and distance from the site.

Step 3: Monitoring the maternity roost and nearby construction work

Once the buffer zone is in place, a qualified person will carefully monitor the site for any signs of disturbance, such as individuals emerging from the maternity roost or flying around it during the day. If necessary, construction activities will be stopped immediately and the buffer zone will be reevaluated. The activity in question will then be postponed until the end of the bat breeding season (August 15th) or until the young bats have left the site.

No buffer zone that has been established may be cleared or built on before the end of the bat breeding season (August 15th), or until a biologist or wildlife technician has confirmed that the young bats have left the site following regular monitoring of bat activity (visual and acoustic).

If a maternity site is located near a path or road, vehicles may drive through with caution. However, they will not be allowed to stop in the recommended buffer zone. Areas where stopping is prohibited will be clearly marked.

Step 4: Monitoring report

WMG will document, through monitoring reports, the possible presence of bat maternity sites and the actions taken to ensure their protection. The monitoring reports will be included in WMG's annual environmental report.

5.7.2 Operation phase

At the same time, two artificial roosts (sleeping quarters) will be set up in the Project area to compensate for the project's impact in terms of habitat loss for bats. These roosts will provide bats with alternative shelter for the summer season.

The installation of roosts could therefore be suitable for males and non-reproductive females that use the site as a resting place in summer, or provide alternative habitat for potential maternity colonies (females and young of the year).

The artificial roost model that will be used is the passively heated roost (Figure 5-1), which was developed by the MFFP in collaboration with an architectural firm to recreate conditions conducive to maternity colonies. Thanks to a heating concept powered by sunlight and adapted insulation, the interior temperature rises quickly and remains higher for longer than in traditional roosts. During in situ testing, these roosts proved to be effective and housed maternity colonies of both small and large brown bats.

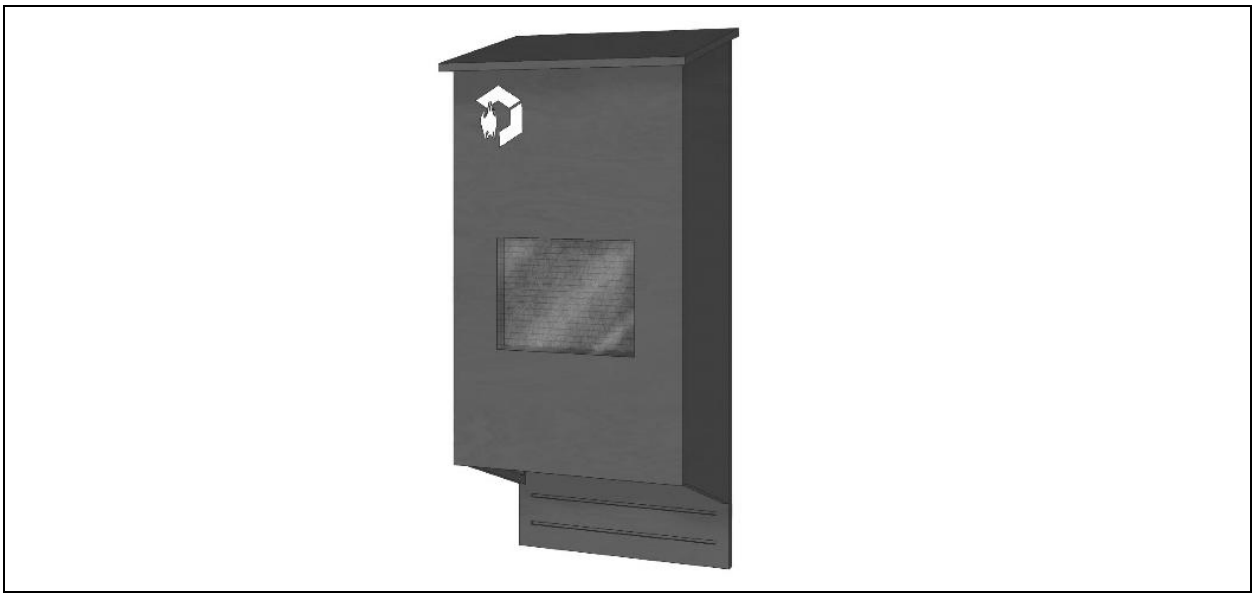


Figure 5-1 Passive heating dormitory (image credit: CCM2)

These roosts will ideally be installed in areas where acoustic surveys of bats have revealed significant bat activity. In this regard, the areas around Lake SN2 and the SN2-T1 watercourse appear to be of interest. In fact, station CS-09 recorded significant bat activity in 2021, particularly during the breeding season, and this was also the case in 2017 for station CS-03 on the edge of Lake SN2 (EIS, Vol. 8, Appendix 7-6). In addition, this area was spared by the 2023 forest fires, and habitats suitable for bats are therefore still present. The roosts will be installed between the end of the road northeast of Lake SN2 and the SN2-T1 watercourse.

Once the roosts have been installed (year 0), their integrity will be checked annually each spring throughout the project. Their occupancy by bats during the breeding season will also be monitored: during each monitoring year (1, 3, and 5), the roosts will be visited twice, at the beginning of June and in mid-July, by a biologist or wildlife technician to verify their use by bats and document the species present, as well as the possible presence of juveniles. During each monitoring visit, the interior temperature of the roost will be measured using a laser thermometer.

During the monitoring years (1, 3, and 5), the annual verification of the integrity of the artificial roosts will be combined with the first follow-up visit to check for bat occupancy in early June. In other years, this annual verification will be carried out in mid-May, before the bat breeding season.

In order to monitor the effectiveness of mitigation measures, three sampling stations will be set up during the operational phase. These stations will be strategically positioned to assess the effect of noise and nighttime light pollution on bat activity in the area. Sampling will take place during the bat breeding season, which generally runs from June 15th to August 14th, at different times during the project's lifetime.

Sampling plan

The sampling plan was developed to assess potential losses of peripheral habitats that could be associated with the disturbance of bats by ambient noise or nighttime light. The station locations will cover the different sound levels likely to disturb bats, according to the sound modeling carried out during the impact study. Given the northern location of the project and the relatively low diversity of habitats, three stations will be sufficient for this program. Map 5-5 shows the location of the sampling stations.

The location of these three new stations (WSCS-01, WSCS-02, and WSCS-03) is not the same as during the acoustic inventory. For safety reasons, given that data will have to be collected at night, the former CS-07 and CS-09 stations have been moved closer to the road. They are now named WSCS-01 and WSCS-02. It should also be noted that, over time, some environments have disappeared or been modified, requiring the last station (WSCS-03) to be repositioned.

Sampling method

At each sampling station, bat activity will be measured using ultrasonic detectors (SM4 *Wildlife Acoustics*) as in acoustic surveys. At the same time, we propose to monitor the following parameters at each sampling station: ambient noise and nighttime brightness (intrusive light). These parameters are, in fact, the main components that could have a disturbing effect on bats.

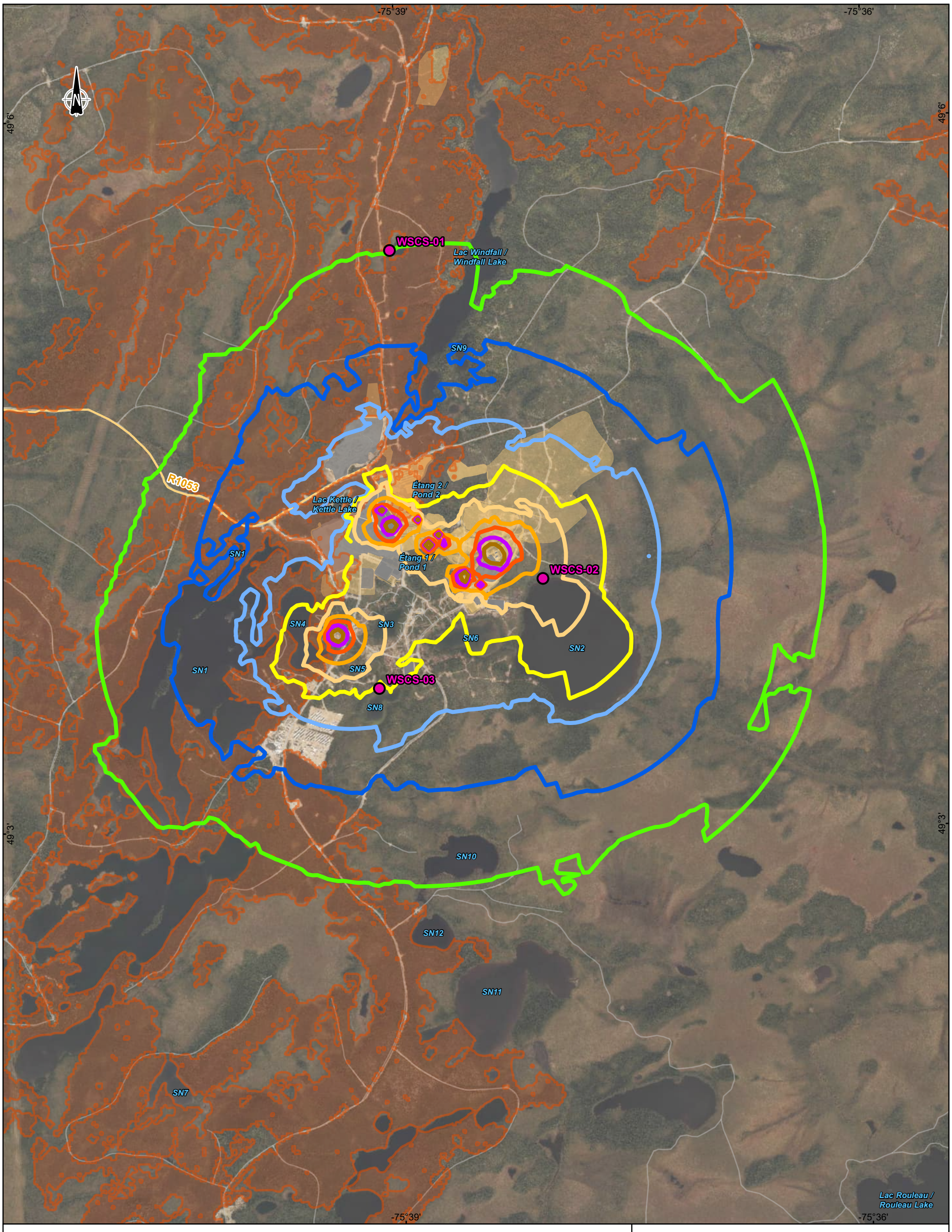
In addition, for each sampling station, the habitat will be briefly characterized (main species, canopy height, etc.).

Frequency and monitoring period

For each year of monitoring, the nocturnal activity of bats will be measured continuously during the breeding season, from June 15th to August 14th. However, only data from five nights, under favorable weather conditions, for a total of 20 nights/station, will be used for the analysis of bat calls. Ambient noise and nighttime brightness measurements will be taken twice a month during this period, with two visits between June 15th and July 14th and two visits between July 15th and August 14th. Visits will take place in the evening after sunset (civil). Measurements will be taken using portable devices. The evenings selected for noise and light measurements must correspond to weather conditions conducive to bat inventory, namely:

- Wind speed below 20 km/h.
- No precipitation. If there are no better nights, a small amount of precipitation may be tolerated (< 3 mm), i.e., light drizzle or a limited shower.
- Warm temperature (> 10 °C).

This monitoring will cover the construction phase, year one of the operational phase, and every five years thereafter.



Niveau sonore simulé à 1,5m avec le logiciel CadnaA 2023 / *Simulated noise level at 1.5m with CanadanaA 2023 software*

- Leq(1h) 40 dB(A)
- Leq(1h) 45 dB(A)
- Leq(1h) 50 dB(A)
- Leq(1h) 55 dB(A)
- Leq(1h) 60 dB(A)
- Leq(1h) 65 dB(A)
- Leq(1h) 70 dB(A)
- Leq(1h) 75 dB(A)
- Leq(1h) 40 dB(A)

Propagation sonore phase d'exploitation. Scénario 1- Nuit / *Sound propagation during the operational phase. Scenario 1 – Night*

- Station d'inventaire acoustique des chiroptères (2025) / *Chiroptera Acoustic Survey Station (2025)*
- Feux de forêt (WSP, 2023) / *Wildfires (WSP, 2023)*

Infrastructures / *infrastructures*

- Infrastructure actuelle / *Current infrastructure*
- Infrastructure projetée / *Planned Infrastructure*

Réseau routier / *Road Network*

- Route principale / *Main road*
- Chemin forestier principal / *Main forestry road*
- Chemin forestier secondaire / *Secondary forestry path*

Projet Windfall - Programme de surveillance et suivi / *Windfall Project - Monitoring and Supervision Program*

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte 5-5 / *Map 5-5*
Localisation des stations de suivi des chiroptères / *Location of Bat Monitoring Stations*

Sources :
CanVec 1M, Réseau hydrographique, 2019
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
WSP, Sévérité des feux 2023 par télédétection, 2023
MRNF, Mosaïque d'orthophotographies aériennes de l'inventaire écoforestier, 2024

0 0,3 0,6 km
MTM, Fuseau 9 / *Zone 9*, NAD83

2025-07-23

Préparation / Preparation : R. Duhamel
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La précision des limites et les mesures montrées sur ce document ne doivent pas servir à des fins d'ingénierie ou de délimitation foncière. Aucune analyse foncière n'a été effectuée par un arpenteur-géomètre. / Boundary accuracy and measurements shown on this document are not to be used for engineering or land delineation purposes. No land analysis was carried out by a land surveyor.

Applicable criteria and quality control

The information collected during monitoring should enable the actual effects of the project on bat activity to be assessed. Bat activity at the monitoring stations will also be compared with the overall level of activity recorded during acoustic surveys in 2016, 2017, and 2021.

Monitoring report

A detailed report presenting the results will be produced for each year of monitoring. This report will correlate bat activity (number of passages per night) with the noise and light levels recorded at each sampling station during monitoring visits. The report will also highlight changes in bat activity and noise and light levels recorded on the site over the years by comparing the results obtained with the baseline or previous monitoring years.

5.7.3 Closure phase

No specific monitoring of bats is planned for the closure phase, apart from visual inspection of structures to be dismantled, as described above.

5.8 Wildlife and plant species with special status

The various species with special status that are present or potentially present in the local study area of the project, as well as the components to which they relate in the previous sections, are presented in Table 5-10. The reference column in the monitoring program refers to the sections of this document in which information related to this species can be found.

Table 5-10 Species with special status present or potentially present in the local study area

French Name	Scientific Name	Status		Confirmed presence in the local study area (Yes/No)	Reference in the monitoring program
		Québec[1]	Canada[2]		
Modest aster	*Canadanthus modestus*	SDMV	–	No	Vegetation and wetlands (section 5.1)
American calypso	*Calypso bulbosa* var. *americana*	SDMV	–	No	
Striped coralroot	*Corallorhiza striata* var. *striata*	SDMV	–	No	
Ojibway Lake elatin	*Elatine ojibwayensis*	SDMV	–	No	
Nipple-shaped Eleocharis	*Eleocharis mamillata* subsp. *mamillata*	SDMV	–	No	
James's Mimulus	*Erythranthe geyeri*	M	–	No	
Purple Pigamon	*Thalictrum dasycarpum*	SDMV	–	No	
McCalla Willow	*Salix maccalliana*	SDMV	–	No	
Northern tree frog	*Pseudacris maculata*	SDMV	–	No	Herpetofauna (section 5.4)
Four-toed salamander	*Hemidactylium scutatum*	SDMV	–	No	
Snake-necked turtle	*Chelydra serpentina*	–	P	No	
Wood turtle	*Glyptemys insculpta*	V	M	No	

French Name	Scientific Name	Status		Confirmed presence in the local study area (Yes/No)	Reference in the monitoring program
		Québec[1]	Canada[2]		
Golden eagle	*Aquila chrysaetos*	V	NEP	No	Birdlife (section 5.5)
Harlequin diver	*Histrionicus histrionicus*	V	P	No	
Red knot *rufa*	*Calidris canutus rufa*	M	– (COSEPAC: P)	No	
Rufous sandpiper	*Tryngites subruficollis*	–	P	No	
American Whip-poor-will	*Chordeiles minor*	SDMV	P	Yes	
Rufous-tailed Swallow	*Antrostomus vociferus*	SDMV	M (COSEPAC: P)	No	
Peregrine Falcon *anatum*	*Falco peregrinus anatum*	V	NEP	Yes	
Peregrine Falcon *tundrius*	*Falco peregrinus tundrius*	SDMV	NEP		
Icelandic Grouse (Eastern population)	*Bucephala islandica*	V	P	No	
Meadow Pipit	*Dolichonyx oryzivorus*	–	M (COSEPAC: P)	No	
Slavonian Grebe	*Podiceps auritus*	M	– (COSEPAC: P)	No	
Wandering grosbeak	Coccothraustes vespertinus	–	P	Yes	
Sedge owl	*Asio flammeus*	SDMV	P (COSEPAC: M)	No	
Bank swallow	*Riparia riparia*	–	M	No	
Barn swallow	Hirundo rustica	–	M (COSEPAC: P)	Yes	
Olive-sided Flycatcher	*Contopus cooperi*	V	P	Yes	
American Robin	*Cardellina canadensis*	SDMV	M (COSEPAC: P)	Yes	
Red-necked Phalarope	*Phalaropus lobatus*	–	P	No	
Bald Eagle	*Haliaeetus leucocephalus*	V	NEP	Yes	
Rusty squirrel	*Euphagus carolinus*	SDMV	P	Yes	
Rock vole	*Microtus chrotorrhinus*	SDMV	–	No	Mammifères (section 5.6)
Cooper's lemming	*Synaptomys cooperi*	SDMV	–	No	
Woodland caribou	*Rangifer tarandus caribou*	V	M	Yes	
Pygmy shrew	*Mustela nivalis*	SDMV	NEP	No	
Little brown bat	*Myotis lucifugus*	M	EVD	Yes	Chiroptères (section 5.7)
Northern bat	*Myotis septentrionalis*	M	EVD	Yes	
Silver bat	*Lasionycteris noctivagans*	SDMV	– (COSEPAC: EVD)	Yes	
Ash-colored bat	*Lasiurus cinereus*	SDMV	– (COSEPAC: EVD)	Yes	
Eastern red bat	*Lasiurus borealis*	V	– (COSEPAC: EVD)	Yes	

Note: Species potentially present in the local study area were identified through documentary research conducted as part of the impact assessment carried out in 2023 (WSP, 2023). This documentary research consisted of a literature review and consultation of geospatial databases within a 100 km radius of the study area's centroid.
1: Species status in Quebec (July 2025): SDMV: likely to be designated as threatened or vulnerable; V: Vulnerable; M: Threatened.
2: Status of the species in Canada (SARA) (July 2025): C: Conservation Concern, T: Threatened, EHD: Endangered, NEP: Not at Risk

6 Social Environment

As part of the activities associated with the construction, operation, and closure phases of the Windfall mining project, WMG has implemented an environmental and social monitoring program to monitor and minimize the project's impact on host communities, primarily land users. The overall objectives of this project impact monitoring program are as follows:

- Verify that the measures planned by the project to mitigate negative impacts have been implemented by WMG.
- Verify the accuracy of the impact assessment and evaluate the effectiveness of the mitigation measures.
- Identify stakeholder concerns;
- Determine whether modified or additional mitigation measures are necessary;
- Maintain a dynamic of constant dialogue with the community;
- Implement awareness-raising activities on Cree culture developed in collaboration with Cree workers and the Community Liaison Officer;
- Monitor and measure the economic benefits for local communities;
- Document all community information and consultation activities in detailed reports, highlighting the comments and concerns raised and the measures taken by WMG to respond to them as appropriately as possible;
- Ensure the health and safety of land users by maintaining effective transportation management around the project, monitoring water bodies, and tracking metal content in traditional plants used by land users.
- Report results and any adaptive measures to the monitoring committee that will be set up for the project.

Thus, beyond measuring the project's impact and the effectiveness of WMG's commitments, the environmental and social monitoring program identifies potential solutions and adjusts to the needs of local communities with a view to continuous improvement.

This monitoring program focuses primarily on activities planned for the construction and operational phases of the project.

The social monitoring program involves the use of several methods and tools, including regular and ongoing dialogue with communities. Each component of the program has its own monitoring method or tool, but ongoing dialogue with communities is an approach that can be applied to all components, allowing methods to be adjusted over time according to their effectiveness.

The tools that will be used in implementing this monitoring program are as follows:

- Summary table presenting qualitative and quantitative data on economic impacts;
- Complaint management mechanism procedure;
- Interview grids on land use;
- Transportation management plan, record of traffic accidents leading to the project site, and road safety awareness training for employees;
- Record of traffic collisions involving large wildlife;

- Overall monitoring report:
  - Summary table and map of traffic accidents and wildlife collisions;
  - Summary table of meetings held with land users on traditional food consumption habits;
  - Summary table of complaints and the process leading to their resolution.
- Detailed minutes of each monitoring committee meeting.

6.1 Population, Economy, and Employment

The mitigation measures planned for the Population, Economy, and Employment component are presented in Table 6-1.

Table 6-1 General and Specific Mitigation Measures for the Population, Economy, and Employment Component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
POP01	X	X		Continue with existing mechanisms to promote diversity and inclusion in hiring, onboarding, and skills development processes.
POP02	X	X	X	Regularly update the mine's lifespan and inform workers and neighboring municipalities in advance of the planned closure date.
POP03			X	Establish a mechanism enabling the workforce to reposition itself and support measures for employees during the transition to mine closure.
P05	X	X	X	When qualifications are equal, prioritize the hiring of women and local and Indigenous workers, with priority given to members of the Waswanipi Cree First Nation, members of other Cree communities in Eeyou Istchee, residents of Northern Quebec, residents of Abitibi-Témiscamingue, residents of Quebec, and residents of Canada, in accordance with the existing hiring policy.
P06	X	X		Continue to promote and ensure the visibility of job opportunities in local communities by participating in various local and regional initiatives (e.g., career day).
P07	X	X	X	Continue local purchasing and the participation of local suppliers of goods and services in supply chain opportunities, applying the existing Responsible Procurement Policy.
P08	X	X		Encourage the development of local businesses aligned with WMG's needs and requirements, particularly Indigenous-owned businesses, as outlined in the Responsible Procurement Policy.
P09	X	X		In partnership with local training institutes, continue to collaborate on the development of training programs tailored to the mining industry and the regional context.
P10	X	X		Continue to develop employees' specific and transferable skills by supporting professional development activities that are consistent with employees' roles and Osisko's needs, as outlined in the Professional Development Policy.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
P11	X	X		Participate in the establishment of a committee on business opportunities, training, and employment governed by the potential Impact and Benefit Agreement (IBA) with the Waswanipi Cree First Nation and the Cree Nation Government.
P12	X	X	X	Continue to hold regular information sessions with local entrepreneurs from the Cree community of Waswanipi to inform them about future service needs related to mining activities.
P13			X	Prioritize reassigning local employees to mine closure activities.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

6.1.1 Construction phase

No specific monitoring is planned during the construction phase in relation to the population, economy, and employment component. WMG documents the origin of workers and their First Nations affiliations for internal use. This activity will continue during the construction phase. The data will be shared regularly during meetings with stakeholders.

6.1.2 Operation phase

At the request of the COMEX, monitoring of the economic benefits of the Windfall project has been added for the operations phase. This economic benefits report will first present the direct investments made in Eeyou Istchee, including capital expenditures, contracts awarded, and local purchases. The report will then detail the distribution of contracts, distinguishing between Cree suppliers and non-Cree Jamésian companies.

Employment data will also be broken down by worker origin (Cree, Jamesians, other regions) and will include direct jobs only. The report will also present local workforce training and development initiatives, as well as cultural and linguistic adaptation measures implemented at the Windfall site. This report will be produced every three years, the first after year 1 of operation, then in years 4, 7, and 10.

6.1.3 Closure phase

No specific monitoring is planned during the closure phase in relation to the population, economy, and employment component, apart from monitoring the origin of workers associated with the camp reservation system.

6.2 Quality of life and well-being

The mitigation measures planned for the quality of life and well-being component are presented in Table 6-2.

Table 6-2 General and specific mitigation measures for the quality of life and well-being component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
AIR01		X		During activities, use water or dust suppressants on traffic routes to prevent, as much as possible, fugitive dust emissions associated with activities that may cause dust to be stirred up. The dust suppressant used shall comply with BNQ 2410-300.
AIR02	X	X		Restrict access to designated areas and limit vehicle speeds on various construction sites and during mining operations. Traffic signs will be installed at designated locations.
AIR03	X	X		Rather than burning, shred tree trimmings and brush cuttings on site as much as possible, then spread them around.
NOR01	X	X		Ensure that vehicle and machinery exhaust systems are in good condition and operating optimally to minimize air contaminant emissions, and ensure that the same applies to dust collection systems for equipment and machinery equipped with them. Reference: Clean Air Regulation, Section 6.
NOR02	X	X		The noise level assessment of a fixed source associated with mining activity must be evaluated in accordance with the requirements of Instruction Note 98-01. Reference: D019, section 3.4.1
FAU04	X	X		Indicate and mark areas with the highest risk of collisions with large wildlife using appropriate signage.
FAU08	X	X		Limit light emission into the sky by using luminaires that produce sober, uniform lighting that meets actual lighting needs and directs the light flux toward the surface to be illuminated.
FAU09	X	X		Pay particular attention to the direction of portable lights and those used to illuminate mobile sources.
POP01	X	X	X	Continue with existing mechanisms to promote diversity and inclusion in hiring, onboarding, and skills development processes.
POP02			X	Regularly update the mine's lifespan and inform workers and neighboring municipalities in advance of the planned closure date.
VIE01	X	X	X	Continue to maintain constant dialogue with the targeted stakeholders and the population of the identified local communities.
VIE02	X	X	X	Raise awareness among workers, subcontractors, and carriers of the need to comply with traffic regulations and WMG's traffic policy during the orientation session.
VIE03	X	X	X	WMG will establish a mechanism for managing complaints, comments, and concerns. This mechanism will be designed to ensure formal and transparent management of feedback from users of the territory.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
VIE04	X	X	X	Maintain the assistance program for employees and their families.
UTT01	X	X		Raise awareness among workers about traditional practices of Indigenous communities and the activities of Indigenous users of the land.
UTT02	X	X		Maintain a collaborative communication approach to inform key users of the territory about the start and progress of the work.
UTT03	X	X	X	Continue to prohibit hunting and recreational fishing by mine site workers.
P14	X	X	X	Continue to inform the public about the progress of the project, upcoming major works, environmental impacts and preventive measures to mitigate them, as well as the safety measures in place.
P15	X	X		Continue to raise awareness among all immigrant workers and subcontractors about Cree culture and traditional practices during the orientation session and subsequent training activities for supervisors.
P16	X	X		Continue to organize cultural activities to promote intercultural exchange and a respectful work culture.
P17	X	X		Continue to raise awareness among workers about the different forms of harassment and implement mechanisms for handling complaints. Ensure that the Workplace Harassment Policy is enforced and take appropriate corrective measures when a report is found to be justified.
P18	X	X		Continue to assist users in the area near the Windfall site in the event of road safety issues.
P19	X	X	X	Establish a new environmental monitoring committee, the terms of which will be specified in the ERA, to discuss and develop solutions to various issues that may arise during the different phases of the mine's operation.
P20	X	X		Establish a new environmental monitoring committee, the terms of which will be specified in the ERA, to discuss and develop solutions to various issues that may arise during the different phases of the mine's operation.
P21	X	X		Continue the psychosocial support program to assist Cree and non-Cree workers in balancing work and family life. WMG will first conduct a diagnosis/inventory of psychosocial risks (PSRs) for all its employees. Special care was taken to select a partner with experience working with First Nations, specifically with the Cree, to assist WMG with its assessment. An action plan will then be rolled out, followed by the implementation of a PSR prevention program. A working committee will be created at a later date.
P22			X	Ensure that reliable means of communication are available at the work camp to facilitate communication between workers and their families.
P27	X	X	X	Implement the Project's transportation management plan. The seven road safety measures, communication plan, emergency measures, and incident monitoring are detailed in the transportation management plan presented in Appendix RQC22.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
P28		X		"Obtain the contact details of permanent or regular users of the sector in order to set up a notification system to reach them in the event of an accident and inform them of safety instructions enabling their evacuation to a safe location. " Details: WMG is committed to obtaining the contact information of permanent or regular users in the area, setting up a notification system to reach them in the event of an accident, and informing them of safety instructions for their safety (containment or evacuation). WMG also undertakes to document the alert mechanism in place and the safety instructions in the Windfall Mine Emergency Response Plan (ERP).
P32	X	X	X	Implement the Monitoring and Follow-up Program.

6.2.1 Construction and operation phases

Complaint management mechanism

The monitoring associated with the quality of life and well-being component is that of the complaint management mechanism. The quality of life and well-being component of the Windfall mining project aims to assess and mitigate the potential effects of mining activities on the comfort, tranquility, and perceptions of local communities, both Cree and non-Cree. It encompasses elements such as noise, dust, traffic, social interactions, and changes in the immediate environment that may influence residents' sense of well-being. To ensure rigorous and transparent monitoring, WMG proposes a mechanism based on annual analysis of complaints received, allowing concerns expressed by citizens to be documented and mitigation measures to be adjusted accordingly. This monitoring is integrated into a broader approach to community dialogue, illustrated in particular by WMG's commitments to promoting harmonious coexistence around the site.

WMG will therefore develop a mechanism for managing complaints, comments, and concerns. This mechanism will be designed to ensure formal and transparent management of feedback from users of the territory. Through this formal mechanism, users will be able to report incidents and submit their concerns, complaints, or comments in several ways, including electronically or by contacting Windfall site staff directly (by phone, email, or in person). When a complaint or comment is recorded in the mechanism, the relevant parties will be notified. A resolution process will then be initiated, including analysis of the complaint or comment and formulation of an appropriate response. Each case will be tracked and documented to ensure transparency and efficiency in its handling.

Users who have filed a complaint or comment will be kept informed throughout the process, including the measures taken and resolutions reached. The mechanism will be operational from the start of the mining project's construction phase and will be fully integrated by the operational phase. In addition, the mechanism will remain in place until the end of the restoration phase. This continuity will ensure that stakeholder feedback is always taken into account and dealt with appropriately throughout the project's life cycle.

In short, this mechanism will aim to ensure proactive and effective management of concerns, incidents, complaints, and comments, thereby strengthening communication and transparency between the developer and users of the territory.

If the complaint concerns noise, the minimum information required in D019 will be collected, namely:

- Contact details of the complainant (if available and with their consent);
- Date of receipt of the complaint;
- Location where the irritating noise is perceived;
- Description of the noise perceived;
- Period covered by the complaint or time of day when the noise is perceived;
- Wind direction reported by the complainant at the time the noise is perceived (if available);
- Wind direction reported by the nearest available weather stations;
- Corrective actions taken by the operator to reduce the noise level.

The monitoring committee will play a key role in providing feedback on complaints related to the Windfall project. It will act as a structured channel for dialogue between stakeholders, allowing concerns expressed by local communities, particularly Cree and non-Indigenous communities, to be raised. This committee, which will meet in person or by videoconference, will be able to make recommendations to the project to improve its social acceptability and positive impacts. Annual monitoring of complaints is one of the concrete tools used to fuel committee discussions and guide adjustments to practices in the field.

The complaint monitoring report will be produced annually during the construction phase and then in years 1, 4, 7, and 10 of the operational phase. It will contain a summary table of complaints and the measures taken to resolve them.

Cree culture awareness activity

As mentioned in the project measures, WMG is committed to continuing to raise awareness of Cree culture and traditional practices among all non-Indigenous workers and subcontractors during the orientation session and subsequent training activities for supervisors. In addition, cultural activities will continue to be organized to promote intercultural exchange and a respectful work culture.

To this end, a review will be produced in years 1, 4, 7, and 10 of the operational phase. It will contain a summary table of the number of workers who have received orientation training and more advanced awareness activities for supervisors. A summary of the awareness activities will also be produced, featuring photographs of the events held and the content of the activities.

6.2.2 Closure phase

No specific monitoring is planned during the closure phase other than the complaint management mechanism described above.

6.3 Land and Natural Resource Use

The mitigation measures planned for the Land and Natural Resource Use by Non-Indigenous People component are presented in Table 6-3.

Table 6-3 General and Specific Mitigation Measures for the Land and Natural Resource Use by Non-Indigenous People Component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
AIR01		X		During activities, use water or dust suppressants on traffic routes to prevent, as much as possible, fugitive dust emissions associated with activities that may cause dust to be stirred up. The dust suppressant used shall comply with BNQ 2410-300.
AIR02		X		Restrict access to designated areas and limit vehicle speeds on various construction sites and during mining operations. Traffic signs will be installed at designated locations.
AIR09		X		Produce and implement a dust management plan that includes the different phases of the project.
NOR02		X		The noise level of a fixed source associated with mining activity must be assessed in accordance with Instruction Note 98-01. Reference: D019, section 3.4.1.
NOR03		X		Observe distances and maximum loads when blasting in order to comply with D019 criteria and guideline thresholds for the use of explosives in or near Canadian fishing waters. Reference: D019, section 3.4.2 and Fisheries Act, subsection 35(2) and Guidelines for the Use of Explosives in or Near Canadian Fishing Waters, p. 6, paragraphs 8 and 9.
QUA01		X		Stripping, clearing, excavation, backfilling, and leveling of work areas will be kept to a minimum.
QUA02		X		In the event that earthworks must be carried out in areas with steep slopes, the bottom of ditches will be covered with granular drainage materials and/or rock fill to prevent erosion.
QUA03		X		In order to reduce the risk of erosion on sloping land, methods such as the installation of retaining walls, channels, or diversion ditches perpendicular to the slope, or other methods will be used.
QUA04		X		The slopes of excavated and backfilled areas will be stabilized using techniques that blend in as much as possible with the natural environment, wherever erosion is likely to cause particulate matter to enter a watercourse (slope softened to 1.5 H: 1 V, plus other available techniques). Along steep slopes, sediment barriers (geotextile, straw, etc.) will be used at the foot of the embankments, as necessary, to reduce the volume of transported particles. Protective measures (straw, wood chips, mattresses) may also be used directly on the slope. Excavated material will not be placed on steep slopes. Fill material shall be adequately compacted.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA05		X		Excavation, backfilling, and redevelopment work will be carried out in such a way as to minimize the need to borrow materials and crushed stone. The necessary backfill materials will be transported by truck from borrow pits located on or near the project site. Excavated soil will, depending on its characteristics, be used as backfill material on site or removed from the site if its quantity is deemed excessive or its quality unsuitable for engineering purposes, and transported and disposed of in accordance with applicable laws and regulations.
QUA06		X		An assessment of the environmental quality of the soil will be carried out in areas of the site where activities likely to have contaminated the soil have taken place. If contaminated soil is discovered, the land will be remediated.
QUA07		X		In the event of temporary storage of contaminated excavated material, take all necessary measures to preserve the integrity of the surrounding soil and water and to ensure worker safety (e.g., pile material on a sealed or impermeable surface, cover piles, restrict access to piles, etc.).
QUA08		X		Where possible, trees and shrubs will be removed by cutting them down to ground level on embankment slopes. Their root systems will be preserved to promote runoff infiltration and natural soil stability.
QUA09		X		In order to detect any possibility of slippage, monitoring will be carried out during excavation and profiling work. Corrective measures will be put in place to prevent any slippage if a risk has been identified.
QUA10		X		Where possible, carry out any development work that may affect the hydraulic conditions of permanent watercourses outside the snowmelt period. The installation of a culvert in a permanent watercourse should preferably be carried out during low water periods and as soon as possible. It must not impede the flow of water or contribute to the formation of ponds upstream during flood periods. Gradually restore temporarily disrupted flows after the work is completed to avoid sudden changes in flow rate. The end of the culvert must extend beyond the base of the embankment supporting the road by no more than 30 cm, and the embankment must be stabilized at both ends of the culvert. The material used for this embankment must not contain organic matter.
QUA11		X		When installing or replacing a culvert, first confine the work area to prevent particulate matter from being carried into the water (e.g., partially or completely drain the area). The work techniques and materials used (e.g., diversion structures, geotextile, polyethylene, etc.) should not cause turbidity in the water as much as possible. The natural flow of the watercourse must be maintained continuously and the water must return immediately downstream of the work area. Where possible, the stream bed should not be narrowed by more than two-thirds during the work. If necessary, water accumulations in the work area must be pumped to a vegetation area at least 30 m from the stream or wetland.
QUA12		X		After installing a culvert, any other structures required for this work must be removed from the water. Ensure that the stream bed is properly stabilized at the inlet and outlet. The stream bed should then preferably be restored to its natural profile using materials similar to those previously used. The banks should be stabilized and, if necessary, revegetated.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA13		X		A runoff management system will be implemented during the construction phase. Depending on the situation, methods to control suspended solids emissions such as temporary water retention basins, sediment barriers, turbidity curtains, or slope stabilization will be used. These structures will be inspected and cleaned as needed. In addition, water will be pumped to a vegetated area at least 30 m from a watercourse or wetland.
QUA14		X		If calcium chloride-based dust suppressants are used, do not dispose of the product or rinse equipment in or near waterways or vegetation.
QUA15		X		Where possible, abrasives will be used instead of de-icing agents in winter and, where necessary, water will be used as a dust suppressant instead of a chemical solution.
QUA16		X		During snow removal activities, snow will be kept, as far as possible, outside a 30-meter strip of a watercourse or wetland.
QUA17		X		Within and in the 15-meter strip bordering the high-water line of a watercourse or body of water and within any wetland (pond, marsh, swamp, or bog), it will be prohibited to pile up temporary waste, debris, materials, or spoil (e.g., organic matter from topsoil stripping). It will also be prohibited to pile up wood waste and debris. Runoff will be diverted to a vegetated area at least 30 m from the watercourse or wetland, or intercepted by sediment barriers or a sedimentation basin.
QUA18				If required, temporary culverts and bank protections will be removed. The riverbed and banks will be restored.
QUA19				The granular materials used for the construction of structures may not come from the bed of a body of water or its banks, or from any source located less than 75 m from the aquatic environment, except for rock excavated from the area adjacent to the loading platforms and access road or from watercourses or bodies of water that will be directly affected by the project infrastructure.
QUA20				The riparian strips damaged by the work will be restored to reproduce the natural banks of the watercourse, body of water, or wetland.
QUA21				Temporary facilities (e.g., construction trailers, access roads, storage areas, waste disposal sites) must be located more than 60 m from a watercourse or wetland.
QUA22		X		Ensure that emergency response kits for petroleum and chemical products are available in sufficient quantities and at sensitive locations. Petroleum products (hydrocarbons) will be handled in such a way as to prevent and control leaks and spills.
QUA23		X		Ensure that machinery is in good condition (clean and free of any leaks of contaminating products) and that fuel and lubricant tanks are completely leak-proof. Any leaks must be repaired immediately.
QUA24				During construction, vehicle and surface equipment maintenance will generally be carried out on site in an existing garage. Fuel will be supplied by appropriately equipped service trucks located more than 60 m from any watercourse or wetland. A drip tray will be positioned under the transfer points during refueling to prevent any dripping onto the ground.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA25		X		Equip all fixed equipment containing oil and/or fuel (e.g., light towers, generators, etc.) located within 60 m of a watercourse, body of water, or wetland with a leak-proof recovery system. The equipment must be equipped with absorbent material so that it can be used quickly and effectively in the event of an accidental spill.
QUA26	X	X	X	Any accidental spills must be reported immediately. In the event of a spill of hydrocarbons or any other harmful substance, the MELCCFP alert network (1-866-694-5454) must be notified without delay. If the spill reaches a body of water, Environment Canada (1-866-283-2333) must also be notified. Any spill of contaminants must be subject to immediate response measures to contain and recover the products. Contaminated soil must be removed and disposed of at an authorized site, and a characterization must be carried out in accordance with the terms of the MELCCFP's Soil Protection and Contaminated Land Rehabilitation Policy. The WMG response team (first responder and firefighter) will always respond to an emergency call in order to minimize the impact and rescue the injured, if necessary.
PLA01	X			For temporary construction site facilities (site offices, access roads, etc.), prioritize sites that have already been deforested or disturbed.
PLA02	X			At the end of the work, the work areas will be cleared of equipment, machinery parts, materials, temporary installations, waste, scrap, rubble, and debris from the work. These work areas will be redeveloped and restored so that they blend into the natural landscape (leveling and loosening the soil, softening slopes). If sections of roads or paths were abandoned, they will be scarified and revegetated. The slopes of the project right-of-ways will be seeded to stabilize them quickly. All areas that will not be useful for future projects will be revegetated.
VIE01		X		Continue to maintain constant dialogue with the targeted stakeholders and the population of the identified local communities.
VIE03	X	X	X	WMG will establish a mechanism for managing complaints, comments, and concerns. This mechanism will be designed to ensure formal and transparent management of feedback from users of the territory.
UTT03		X		Continue to prohibit hunting and recreational fishing by mine site workers.
P14		X		Continue to inform the public about the progress of the project, upcoming major works, environmental impacts and preventive measures to mitigate them, as well as the safety measures in place.
P23		X		~~Continue discussions with the leaseholder on the shores of Lake SN1.~~ ~~*WMG took possession of the lease in 2023.~~
P27	X	X	X	Implement the Project's transportation management plan. The seven road safety measures, communication plan, emergency measures, and incident monitoring are detailed in the transportation management plan presented in Appendix RQC22.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
P28		X		“Obtain the contact details of permanent or regular users of the sector in order to set up a notification system to reach them in the event of an accident and inform them of safety instructions enabling their evacuation to a safe location.” Details: WMG is committed to obtaining the contact details of permanent or regular users in the area, setting up a notification system to reach them in the event of an accident, and informing them of safety instructions for their safety (containment or evacuation). WMG also undertakes to document the alert mechanism in place and the safety instructions in the Windfall Mine Emergency Response Plan (ERP).
P32	X	X	X	Implement the Monitoring and Follow-up Program presented.

Interviews on land use and natural resources will be conducted throughout the project's lifetime. Minutes from meetings held with Jamésian stakeholders will be provided in the follow-up report prepared for the following component: Aboriginal land use. This report will include the measures put forward by WMG in response to the comments made. It will cover the three phases of the project.

6.4 Aboriginal land use

The mitigation measures planned for the Aboriginal land use component are presented in Table 6-4.

Table 6-4 Common and specific mitigation measures for the Indigenous land use component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
AIR01	X	X	X	Utiliser de l'eau ou des suppresseurs de poussière sur les voies de circulation pendant les activités afin de prévenir, dans la mesure du possible, les émissions de poussière fugitive associées aux activités susceptibles de soulever de la poussière. Le suppresseur de poussière utilisé doit être conforme à la norme BNQ 2410-300.
AIR02	X	X	X	Restrict access to designated areas and limit vehicle speeds on various construction sites and during mining operations. Traffic signs will be installed at designated locations.
AIR03	X	X	X	Rather than burning, shred tree trimmings and brush cuttings on site as much as possible, then spread them out.
AIR04			X	Where possible, use electricity from the Hydro-Québec grid as the primary source of energy.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
AIR05			X	Continue to evaluate energy-saving initiatives on an ongoing basis in order to reduce GHG emissions and regulated pollutants in equipment selection, construction methods, and operating modes.
AIR06			X	Raise awareness among workers about factors that influence fuel consumption, including effective management of acceleration and deceleration, as well as bringing the vehicle to a complete stop, when possible, during periods of waiting (“idling”).
AIR07			X	Validate the feasibility of using biofuels, such as biodiesel, in accordance with machinery manufacturers' recommendations.
AIR08			X	Establish mechanisms for monitoring fuel and electricity consumption in operations management and for fleet maintenance.
AIR09	X	X	X	Produce and implement a dust management plan that includes the different phases of the project.
NOR01	X	X	X	Ensure that vehicle and machinery exhaust systems are in good condition and operating optimally to minimize air contaminant emissions, and ensure that the same applies to dust collection systems for equipment and machinery equipped with them. Reference: Clean Air Regulation, Section 6.
NOR02	X	X	X	The noise level of a fixed source associated with mining activity must be assessed in accordance with Instruction Note 98-01. Reference: D019, section 3.4.1
NOR03	X	X	X	Observe distances and maximum loads when blasting in order to comply with D019 criteria and guideline thresholds for the use of explosives in or near Canadian fishing waters. Reference: D019, section 3.4.2 and Fisheries Act, subsection 35(2) and Guidelines for the Use of Explosives in or Near Canadian Fishing Waters, p. 6, paragraphs 8 and 9.
NOR06		X		Dispose of excess or unusable excavated material (clay, silt, gravel, rock) with the usual precautions and in accordance with the Regulations respecting activities in wetlands, water environments, and sensitive areas and D019 to ensure sufficient spacing from wetlands and water environments.
NOR13		X	X	Implement the surface water quality monitoring program (final effluent) in accordance with the REMMMD and D019. The results of water quality monitoring at the effluent and in the receiving watercourse will be compared to the criteria in the regulations in force. Reference: D019, section 3.1.1, Metal and Diamond Mine Effluent Regulation, Appendix 5.
NOR16	X		X	Restore construction sites and stockpiles by leveling surfaces, covering them with natural soil, scarifying them, or seeding them to promote vegetation regrowth. Stabilize reworked areas, embankment slopes, piles of loose deposits, etc., as work is completed. Reference: D019 for the restoration phase.
VEG01	X	X	X	During deforestation, special attention will be paid to vegetation at the edge of work areas so as not to damage it. If trees accidentally fall, they will be removed with care not to disturb the environment.
VEG02	X	X	X	Require contractors to clean all construction equipment before arriving at the work site. This cleaning is intended to completely remove mud, plant fragments, and visible debris that could be contaminated with invasive alien plant species.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
VEG03	X	X	X	If possible, carry out work in wetlands on frozen ground or during periods of low water flow.
VEG04	X	X	X	Keep vegetation intact along waterways, wetlands, and access roads.
FAU01	X	X	X	Carry out work in the water outside the various breeding periods of the species present, i.e., from July 1 to July 31 when brook trout are present, from July 1 to August 31 when lake whitefish are present, and from July 15 to April 15 for northern pike and walleye.
FAU02	X	X	X	Carry out deforestation activities outside the general bird nesting period, which runs from May 1 to August 15, or an equivalent measure will be validated with the ministry and applied.
FAU03	X	X	X	Carry out deforestation activities outside the period when bats give birth and raise their young, which runs from approximately June 1 to August 15.
FAU04	X	X	X	Indicate and mark areas with the highest risk of collision with large wildlife using appropriate signage.
FAU05	X	X	X	Prior to dismantling a building or other facility, conduct an inspection (construction voids) to check whether it is being used as a maternity roost or shelter by bats. If so, protective measures will be taken to ensure the survival of the bats.
FAU06	X	X	X	Raise awareness among workers not to leave food lying around so as not to attract wild animals to the work areas, and prohibit feeding them.
FAU07	X	X	X	Provide for scare measures in the event that birds use the runoff management ponds from waste rock and ore dumps, the tailings pond, and process water.
FAU08	X	X	X	Limit light emission into the sky by using luminaires that produce sober, uniform lighting that meets actual lighting needs and directs the light flux toward the surface to be illuminated.
FAU09	X	X	X	Porter une attention particulière à l'orientation des lumières portables et à celles de l'éclairage des sources mobiles.
VIE01	X	X	X	Continue to maintain constant dialogue with the relevant stakeholders and the population of the identified local communities.
VIE02	X	X	X	Raise awareness among workers, subcontractors, and carriers of the need to comply with traffic regulations and WMG's traffic policy during the orientation session.
VIE03	X	X	X	WMG will establish a mechanism for managing complaints, comments, and concerns. This mechanism will be designed to ensure formal and transparent management of feedback from users of the territory.
UTT01	X	X	X	Raise awareness among workers about traditional practices of Indigenous communities and the activities of Indigenous users of the land.
UTT02	X	X	X	Maintain a collaborative communication approach to inform key users of the territory about the start and progress of the work.

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
UTT03	X	X	X	Continue to prohibit hunting and recreational fishing by mine site workers.
P19	X	X	X	Establish a new environmental monitoring committee, the terms of which will be specified in the ERA, to discuss and develop solutions to various issues that may arise during the different phases of the mine's operation.
P20	X			Establish a new environmental monitoring committee, the terms of which will be specified in the ERA, to discuss and develop solutions to various issues that may arise during the different phases of the mine's operation.
P24			X	Collaborate with trap masters W25B and W25A in rehabilitation, restoration, revegetation, and return of the site to its natural state.
P27	X	X	X	Implement the Project's transportation management plan. The seven road safety measures, communication plan, emergency measures, and incident monitoring are detailed in the transportation management plan presented in Appendix RQC22.
P28		X		"Obtain the contact details of permanent or regular users of the sector in order to set up a notification system to reach them in the event of an accident and inform them of safety instructions enabling their evacuation to a safe location." Details: WMG is committed to obtaining the contact details of permanent or regular users in the area, setting up a notification system to reach them in the event of an accident, and informing them of safety instructions for their safety (containment or evacuation). WMG also undertakes to document the alert mechanism in place and the safety instructions in the Windfall Mine Emergency Response Plan (ERP).
P32	X	X	X	Implement the Monitoring and Follow-up Program.

Interviews on land use and natural resource use will be conducted on an ongoing basis with the users concerned. In addition, the monitoring program for the land use component is mainly associated with issues of major concern previously identified by land users to ensure the integrity of the receiving environment and the continuation of traditional or recreational activities. The program therefore covers the following areas:

- Fish health;
- Valued plant species;
- Valued game;
- Integrity of Lake SN2.

It documents the impacts for the construction, operation, and closure phases.

6.4.1 Fish flesh

As mentioned in section 5.2 on fish fauna, fish communities are monitored every three years as part of the ESEE until after the mine closes. The purpose of this study is to verify whether mine effluent has an impact on fish fauna. The water bodies studied will be those determined by ECCC, which are currently Lake SN2 (unexposed water body) and Lake SN11 (exposed water body). The sentinel species previously selected for the project were walleye and northern pike, as no other species were caught in sufficient numbers. This selection is also currently being reviewed with ECCC. Nevertheless, monitoring will determine whether there are differences in the growth, reproduction, survival, and condition of populations exposed to mine effluent and will monitor mercury and selenium concentrations in fish tissue, if required (an indicator of fish consumption potential).

A study of metals in fish flesh will be conducted only if the REMMMD thresholds are exceeded. As part of the monitoring of fish flesh contamination, only one species will be analyzed and on a limited number of individuals, considering the small populations in the lakes. In addition to analyzing mercury in the flesh (muscle), a metal scan will be performed on the flesh (muscle) of the fish. Section 5.2.1 summarizes the additional monitoring at Lake SN13 associated with the potential toxicological risk calculated for the project.

6.4.2 Plants valued by the Cree

The main users of the W25B trapping area harvest and consume certain plants in the area, including wild blueberries and Labrador tea. Monitoring plants traditionally valued by Cree users of the territory will make it possible to assess the metal content in the parts of the plants that are consumed. This monitoring aims to detect and document any changes in the environment compared to the baseline established in 2024 (whether related to the project or not). This monitoring will also make it possible to verify the accuracy of the impact assessment and evaluate the effectiveness of the mitigation measures provided for in the EIS. Based on consultations with trappers and their families as part of the EIS, the two species or groups of species that have been targeted are blueberries (*Vaccinium spp*) and Labrador tea (*Rhododendron groenlandicum*).

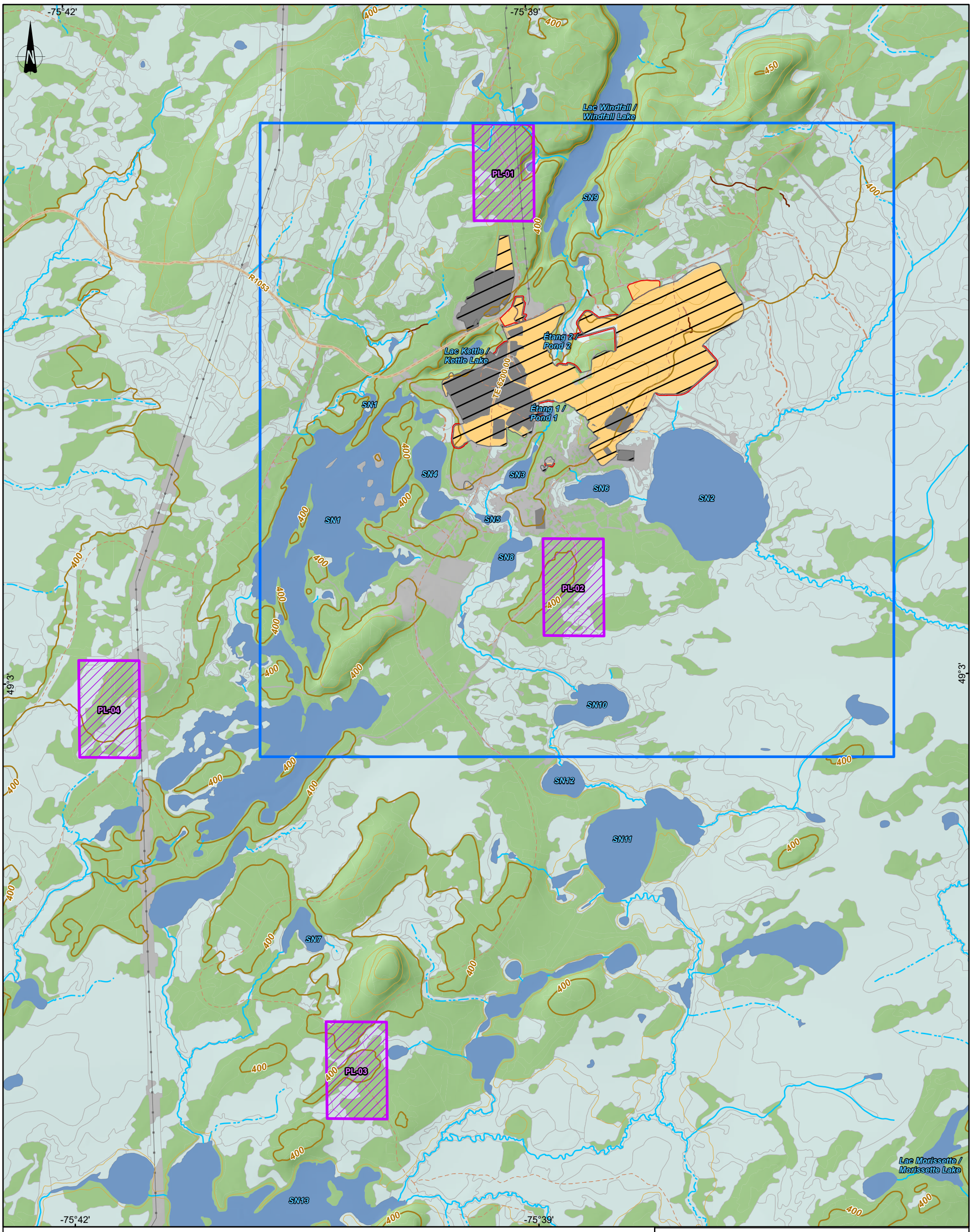
Sampling plan

Samples taken in certain areas exposed and unexposed to project activities will be part of the environmental monitoring program. Four sampling plots were selected after consultation with the family of tallyman W25B to measure metal concentrations in vegetation (Map 6-1).

Two of the plots are located in the local biophysical study area and are within the radius of influence of project activities, while the other two are located outside this area, i.e., outside the area of influence of particle concentrations emitted according to atmospheric dispersion modeling.

According to this model, plots PL-01 and PL-02 are located in areas prone to the dispersion of the main contaminants near the project. Among the dispersed particles is arsenic, which could bioaccumulate in certain plant tissues, such as those of Labrador tea and blueberries.

In each zone, one plot was not affected by forest fires, while the second was impacted. Since the fires occurred naturally during the summer of 2023, the plots impacted by the fires represent the new reality (reference condition) for these types of environments, which are now ubiquitous in the vicinity of the project. Cree users of the territory continue to harvest despite the presence of burn areas.



Zone d'étude locale du milieu biophysique / *Biophysical environment local study area*

Hydrographie / *Hydrography*

- Canal / *Channel*
- Cours d'eau intermittent / *Intermittent Watercourse*
- Cours d'eau intermittent partiellement souterrain / *Partially Underground Intermittent Watercourse*
- Cours d'eau permanent / *Permanent Watercourse*
- Cours d'eau permanent partiellement souterrain / *Partially Underground Permanent Watercourse*
- Cours d'eau souterrain / *Damaged Underground Watercourse*
- Fossé de drainage / *Drainage ditch*
- Plan d'eau / *Waterbody*

Infrastructure du projet / *Project Infrastructure*

- Infrastructure actuelle / *Current infrastructures*
- Infrastructure projetée / *Planned infrastructure*
- Route d'accès / *Access road*

Infrastructure / *Infrastructure*

- Ligne de transport d'énergie électrique / *Electric power line*
- Route forestière / *Forest road*

Topographie / *Topography*

- Courbe de niveau maîtresse (m) / *Master contour line (m)*
- Courbe de niveau secondaire (m) / *Secondary contour line (m)*

Empiètement du projet / *Project Encroachment*

- Empietement permanent / *Permanent encroachment*
- Empiètement temporaire /*Temporary encroachment*

Programme de suivi environnemental et social / *Environmental and social monitoring program*

- Placette d'inventaire pour l'écotoxicologie des plantes / *Inventory plot for plant ecotoxicology*

Végétation / *Vegetation*

- Milieu forestier / *Forest Environment*
- Milieux humide et hydrique / *Wetlands and Hydrous Environment*
- Anthropique / *Anthropogenic*

GOLD FIELDS

Projet Windfall - Programme de surveillance et suivi / *Windfall Project - Monitoring and Supervision Program*

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte 6-1 / *Map 6-1*
Localisation des placettes d'échantillonnage des plantes par type de milieu / *Location of plant sampling plots by habitat type*

Sources :
BDAT, 1/250 000, MRN Québec, 2002
BDTQ, 1/20 000, MRNF Québec, 2007
CanVec, 1/1 000 000, RNCan, 2020
CanVec Plus, 1/50 000, RNCan, 2015
SDA, 1/20 000, MERN Québec, 2020
Google Earth, Satellite Airbus, 2023

0 300 600 m
MTM, fuseau 9, NAD83

2025-07-23

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CA0023271_9538_su_ps_prog_surv_suivi_2025_S6_250723.aprx
CA0023271_9538_su_ps25_c6_1_089_veg_ecotox_plante_250723

wsp

A total of 72 structural tissue samples (leaves or fruits), or nine samples per plot for each plant species, will be collected and sent to the laboratory for analysis. A quality control program will be prepared to validate the sampling methods. This program will include the analysis of duplicate samples. As part of this project, it is planned to collect one duplicate field sample per species for each plot (eight duplicates in total). These represent at least 10% of the total samples submitted for analysis for each species.

Table 6-5 shows the distribution of plots by habitat type.

Table 6-5 Distribution of plant sampling plots by habitat type

Study area	Name of plot	Latitude	Longitude	Plot in areas affected by the mine	Slash-and-burn farming (2023)
Zone d'étude locale du milieu biophysique	PL-01	49,081944'N	75,649722'O	Oui	Oui
	PL-02	49,053611'N	75,648333'O	Oui	Non
Hors de la zone d'étude locale du milieu biophysique	PL-03	49,050000'N	75,684444'O	Non	Oui
	PL-04	49,048333'N	75,695278'O	Non	Non

Methodology

The tissues targeted for sampling vary depending on the species and traditional consumption by members of the Waswanipi Cree First Nation (WCFN). Leaves will be collected for Labrador tea and fruits for blueberry plants.

A sampling protocol will be used to limit sources of contamination between the environment, the specimens being sampled, and the samples during laboratory handling. Nitrile gloves will be used for sampling and changed between each plot.

In order to be as representative as possible of traditional harvesting conditions, no cutting instruments will be used. A separate bag will be used for each sample within each plot.

Samples will be frozen within 24 hours of collection for metal analysis. Samples will be stored in airtight Ziploc-type bags or equivalent and kept at a minimum of -20°C. Within this time frame, tissues will be kept cool, ideally at 4°C in a cooler.

The analyses will be performed in a laboratory approved by the Government of Quebec. A laboratory quality assurance and control program will be implemented in accordance with best practices. The parameters to be analyzed are presented in Table 6-6.

Table 6-6 List of parameters to be analyzed for leaf and berry tissue samples

Analytical parameters		
Aluminium (Al)	Cobalt (Co)	Lead (Pb)
Antimony (Sb)	Copper (Cu)	Selenium (Se)b
Silver (Ag)	Tin (Sn)	Strontium (Sr)
Arsenic (As)	Iron (Fe)	Titanium (Ti)
Baryum (Ba)	Lithium (Li)	Uranium (U)
Beryllium (Be)	Manganese (Mn)	Vanadium (V)
Boron (B)	Mercury (Hg)	Zinc (Zn)
Cadmium (Cd)	Molybdenum (Mo)	
Chromium (Cr)	Nickel (Ni)	

Applicable criteria and quality control

For statistical processing, it is suggested that concentrations below the reported detection limit (DL) be converted to half of this limit. The means, maximum and minimum values, and standard deviation must be calculated for each parameter analyzed.

It should be noted that there are no thresholds (criteria) to be met for the parameters analyzed in the case of these plants. In fact, there are currently no standards established by the Canadian Council of Ministers of the Environment (CCME) or the MELCCFP for the presence of metals in vegetation. In the current case, the analyses are therefore used solely to document the concentrations of metals present in the leaves and fruits of the two species sampled and to assess whether forest fires can influence these concentrations.

The documents available on the MELCCFP website concerning ecotoxicology and risk assessment were taken into account in the preparation of this report. In addition, several guides and guidelines were consulted for the characterization, assessment, and presentation of results:

- Procedure for Ecotoxicological Risk Assessment for the Remediation of Contaminated Sites (CEAEQ, 1998);
- *Supplementary Guide on the Assessment of Risks to Human Health Related to Locally Sourced Food (ÉRSHaliments) – Risk Assessment for Federal Contaminated Sites in Canada* (Health Canada, 2010);
- *Guidelines for Conducting Environmental Toxicological Risk Assessments in Quebec* (INSP, 2012).

Frequency and monitoring period

The timing of the vegetation sampling program depends mainly on blueberry production, as this is the only plant species whose fruit will be harvested. Consequently, plant collection is scheduled to take place once the fruit has been produced, i.e., toward the end of summer (August). Monitoring will be carried out during the construction and operation phases of the mine, as follows:

- 2024 at baseline;
- 2026 during construction;
- 2029 during operation;
- 2032 during operation.

Follow-up report

A follow-up report will be produced after each year of monitoring and will be submitted as part of the annual report submitted by WMG to the MELCCFP. This report will include the methodology (collection effort, plant location, summary description of plants), results obtained, and recommendations.

6.4.3 Game valued by the Cree

The main users of the W25B trapping area trap, hunt, and consume game in their trapping area. Monitoring the game valued by Cree users of the territory will make it possible to assess the metal content in certain parts of the game that are consumed. This program aims to detect and document any changes in the environment relative to the baseline condition that will be established in the winter of 2026 (whether related to the project or not).

This program will also verify the accuracy of the impact assessment and evaluate the effectiveness of the mitigation measures provided for in the EIS.

The snowshoe hare is the game species selected for monitoring. This species was chosen because it is the main game trapped and consumed in the study area of the biophysical environment. In addition, as the species has a short life cycle, it allows for the validation of short-term bioaccumulation and thus captures the potential impacts of the project on the species.

Sampling plan

Individuals will be captured and samples collected in collaboration with the master trapper and his family. Trapping will be carried out in winter, during the period when the species is consumed by members of the community.

The target areas are within the project's zone of influence in the fine particle deposition areas according to atmospheric modeling. The main target area is located south of the planned infrastructure (Map 6-2). If there are not enough individuals in this area, a second area could be monitored. This area is located north of the planned infrastructure (Map 6-2).

The target number of individuals is 12 (six captures per trapping zone). Given the cyclical nature of snowshoe hare populations, the number of captures could be revised downward or upward. It should also be noted that the home range of snowshoe hares varies between 1.4 and 17 ha if conditions are suboptimal, which could have an impact on the number of captures per sector (Godbout *et al*., 2001). The final positioning of the capture areas and the number of individuals targeted will also be assessed based on the harvest planned by the tallyman and his family.

Methodology

Choice of organs

The choice of organs to be monitored was made based on available information concerning the consumption of snowshoe hares by Cree users of the territory and available literature. Two tissues that can accumulate metals will therefore be used for monitoring: flesh (muscle) and liver. In a study conducted by Bordeleau (2016), the liver and flesh (muscle) of snowshoe hares were harvested to assess the risk of heavy metal exposure associated with consumption of the species in four Anicinapek (Algonquin) communities in Abitibi-Témiscamingue. The liver was chosen because it is the organ most likely to bioaccumulate heavy metals.

Capture of individuals

In order to comply with all the terms and conditions of the permit issued by the Ministry for the capture of wild animals for scientific, educational, or wildlife management purposes (SEG permit), field sheets will be used to collect the following information:

- When setting traps, for each trap: date, time, type of trap installed, location coordinates, habitat type, and description of the trap site.
- For each capture, a unique identification number will be given to the snowshoe hare and the following information will be noted: sex, approximate age, measurements (total length with and without tail, and weight), and any special characteristics if relevant.

If a snowshoe hare is caught, one of the following two options will be implemented:

- Leave the trap in place if it is believed that there may be another snowshoe hare nearby, or remove the trap and relocate it.
- If no capture is made after a night of trapping, the trap will be left in place or moved.

Sampling method

A sampling protocol will be used to limit sources of contamination between the environment, the specimens being sampled, and the samples during handling. The following elements will be taken into consideration:

- To ensure the safety of field personnel when handling nitric acid (10%) and thus limit accidents that could lead to environmental releases, nitrile gloves must be worn and protective eyewear must be worn. Gloves must be changed between each capture.

Laboratory instruments (scalpels, forceps, scissors, etc.) shall be washed with 10% nitric acid and rinsed with demineralized water before proceeding with sampling. This procedure shall be repeated between each type of sample.

- A separate bag will be used for each type of sample and each carcass. The bags will be sealed and labeled according to the following nomenclature: [Year] — [Location] — [Snowshoe Hare ID] — [Tissue].
- In order to perform quality control on the sampling procedures, a replicate sample is taken in the field. Regardless of the total number of captures, which is subject to change, replicate samples must be taken. The specimens selected for replicate samples will be adult snowshoe hares whose organs are large enough to allow two samples of at least 20 g to be taken. The same procedures and precautions mentioned above will be applied for the collection of replicates. However, their identification will vary according to the following nomenclature: REP— [Year] — [Location] — [Snowshoe Hare ID] — [Tissues].

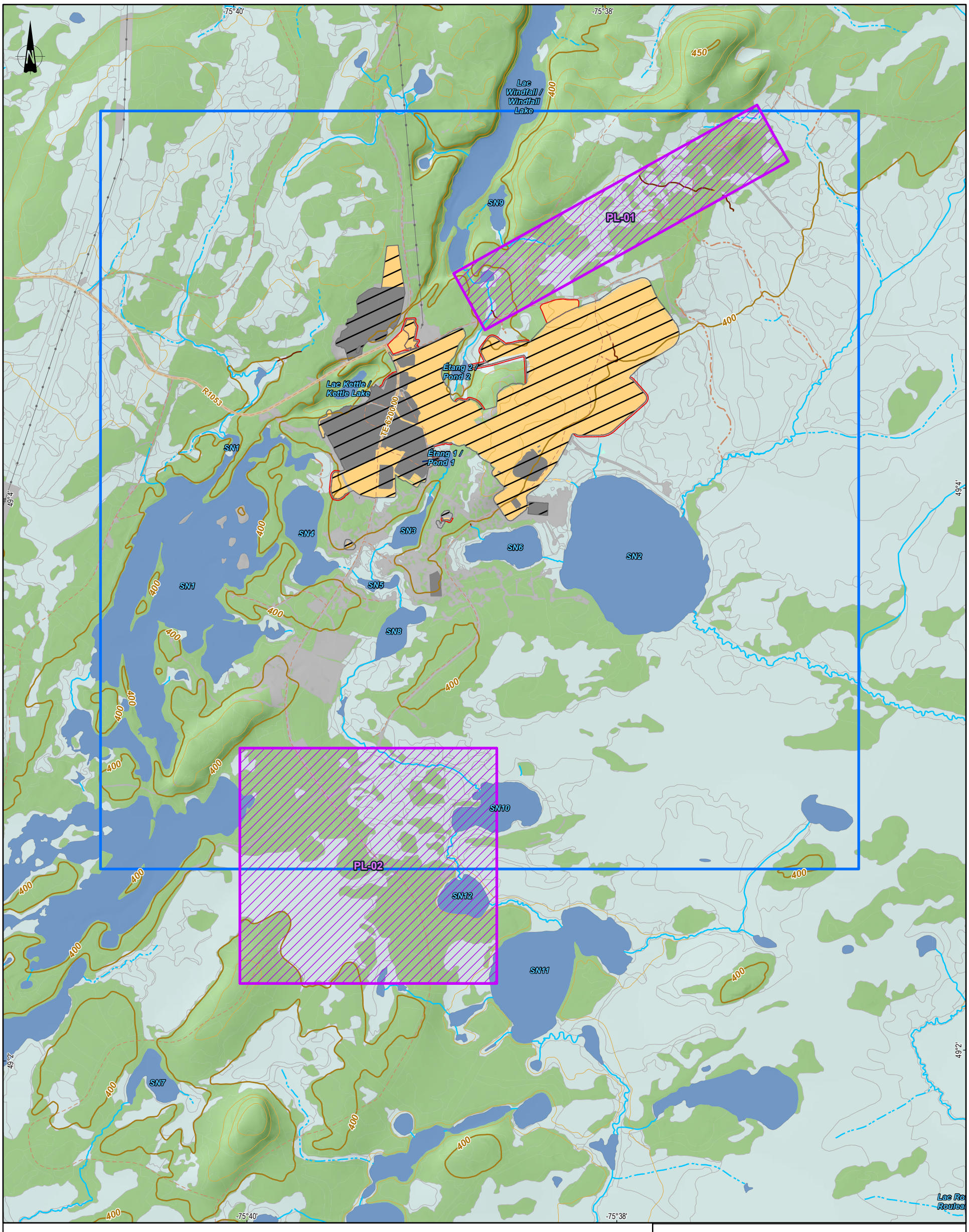
It should be noted that snowshoe hares captured according to the culture and methods of the Cree family of the master trapper may be skinned before tissue samples are taken, as the tissues are not exposed. Once the skin has been removed, an incision will be made in the carcass to allow the muscle and liver to be removed using previously disinfected dissection equipment. Each organ will then be placed in a sealed bag.

Storage method

To ensure the integrity of the tissue samples collected, they will be frozen at -4°C within 24 hours of collection. Within this time frame, the tissues will be kept cool, ideally at 4°C in a cooler. The cooler used for transport will be equipped with ice packs to maintain this temperature.

Laboratory and analytical parameters

The analyses will be performed in a laboratory approved by the Government of Quebec. A laboratory quality assurance and control program is applied in accordance with best practices. The parameters analyzed are presented in Table 6-7.



Zone d'étude locale du milieu biophysique / *Biophysical environment local study area*

Hydrographie / *Hydrography*

- Canal / *Channel*
- Cours d'eau intermittent / *Intermittent Watercourse*
- Cours d'eau intermittent partiellement souterrain / *Partially Underground Intermittent Watercourse*
- Cours d'eau permanent / *Permanent Watercourse*
- Cours d'eau permanent partiellement souterrain / *Partially Underground Permanent Watercourse*
- Cours d'eau souterrain / *Damaged Underground Watercourse*
- Fossé de drainage / *Drainage ditch*
- Plan d'eau / *Waterbody*

Topographie / *Topography*

- Courbe de niveau maîtresse (m) / *Master contour line (m)*
- Courbe de niveau secondaire (m) / *Secondary contour line (m)*

Infrastructure / *Infrastructure*

- Ligne de transport d'énergie électrique / *Electric power line*
- Route forestière / *Forest road*
- Route d'accès / *Access road*

Empiètement du projet / *Project Encroachment*

- Empietement permanent / *Permanent encroachment*
- Empiètement temporaire /*Temporary encroachment*

Programme de suivi environnemental et social / *Environmental and Social Monitoring Program*

- Placette d'inventaire pour l'exotoxicologie du lièvre d'Amérique / *Inventory plot for exotoxicology of the snowshoe hare*

Végétation / *Vegetation*

- Milieu forestier / *Forest Environment*
- Milieux humide et hydrique / *Wetlands and Hydrous Environment*
- Non forestier

GOLD FIELDS

Projet Windfall - Programme de surveillance et suivi / *Windfall Project - Monitoring and Supervision Program*

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte 6-2 / *Map* 6-2
Plan d'inventaire – Écotoxicologie du lièvre d'Amérique / *Inventory Plan – Ecotoxicology of the Snowshoe Hare*

Sources :
WSP, Caractérisation du milieu naturel, photo-interprétation et validations, 2022
AQréseau+, Réseau routier, MERN Québec, 2020-03
World Hillshade, ESRI

0 250 500 m
MTM, fuseau 9, NAD83

2025-07-23

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CA0023271_9538_su_ps25_c6_2_090_mam_ecotox_lievre_250723

wsp

Table 6-7 List of parameters to be analyzed for biological samples from the snowshoe hare

Analytical parameters		
Aluminium (Al)	Cobalt (Co)	Lead (Pb)
Antimony (Sb)	Copper (Cu)	Selenium (Se)b
Silver (Ag)	Tin (Sn)	Strontium (Sr)
Arsenic (As)	Iron (Fe)	Titanium (Ti)
Baryum (Ba)	Lithium (Li)	Uranium (U)
Beryllium (Be)	Manganese (Mn)	Vanadium (V)
Boron (B)	Mercury (Hg)	Zinc (Zn)
Cadmium (Cd)	Molybdenum (Mo)	
Chromium (Cr)	Nickel (Ni)	

Applicable criteria and quality control

In the event that a significant increase in concentrations is detected in an individual being monitored, all samples from that specimen will be reanalyzed to ensure that it is not external contamination or a laboratory artifact. The flesh will be stored for six months after collection. The term “significant increase” is used in this case to cover any increase in contamination levels in snowshoe hare tissue that may pose a risk to human health.

In the event that the confirmed results exceed the environmental assessment predictions, WMG will implement any modified or additional mitigation measures based on the results obtained.

Frequency and monitoring period

A survey of contaminants of potential concern in snowshoe hare tissue will be conducted in the winter of 2026, prior to project construction. Monitoring of contaminants of potential concern in game tissue will be conducted during the construction and operation phases of the mine, as follows:

- First year (winter 2026): baseline status;
- Second year (winter 2027): construction;
- Fifth year (winter 2030): operation;
- Ninth year (winter 2033): operation.

Monitoring report

A monitoring report will be produced upon receipt of the laboratory results. This report will include the methodology (trapping effort, location of captures, summary description of individuals). In addition, the results obtained will be interpreted in relation to the potential risk to human health and recommendations will be made, if necessary. The follow-up report will be included in the following year's annual report, considering that samples will be taken in the winter.

6.4.4 Integrity of Lake SN2

During interviews on land use conducted in 2022 as part of the impact study, the trap master for Lot W25B reported that his son fishes there during the summer season. Lake SN2 is also valued by land users, and its integrity must be ensured. Consequently, several follow-ups will be conducted at Lake SN2:

Construction phase:

- If the reference zone is maintained in Lake SN2, studies on sentinel fish species (walleye and northern pike) will be conducted using individual morphometric parameters and measurements (see section 5.2 Ichthyofauna).
- Parameters relating to benthos communities (identification of taxonomic groups, water depth, type of flow, current velocity, water transparency and physicochemistry, forest cover, bank composition, presence of support infrastructure, type and condition of substrate) (see section 7.5.1.4 Benthos).
- Installation and monitoring of the occupation of artificial bat roosts around Lake SN2 (and watercourse SN2-T1) (see section 5.7 Bats).
- Physicochemical parameters of the water (temperature, dissolved oxygen concentration, conductivity, and pH) (see section 7.5.1.1 Surface water).

Operational phase:

- Water flows and levels between spring and fall (see section 4.5.2.1 Monitoring water flows and levels).
- Monitoring of ambient air near the lake, including instruments to measure particle levels in the air and dust jars to quantify fallout (see section 4.2.1 Ambient Air).
- Various surface water parameters (temperature, conductivity, pH and dissolved oxygen, microbiology, basic physicochemistry and nutrients, anions and cations, and trace metals) (see section 4.6.2.1 Surface water monitoring).
- Total organic carbon content and sediment grain size distribution (see section 4.7 Sediments).
- If the reference area is maintained in Lake SN2, studies on sentinel fish species (walleye and northern pike) will be conducted using individual morphometric parameters and measurements (see section 5.2 Ichthyofauna).
- Parameters relating to benthic communities (identification of taxonomic groups, water depth, type of flow, current velocity, water transparency and physicochemistry, forest cover, bank composition, presence of support infrastructure, type and condition of substrate) (see section 7.5.1.4 Benthic fauna).
- Installation and monitoring of the occupation of artificial bat roosts near Lake SN2 (and the SN2-T1 watercourse) (see section 5.7 Bats).
- Monitoring of groundwater quality near Lake SN2 to validate water integrity and ensure that any resurgences resulting from mining operations are contained (see section 4.9 Groundwater Quality).
- Physicochemical parameters of water (temperature, dissolved oxygen concentration, conductivity, and pH) (see Section 7.5.1.1 Surface Water).

6.5 Infrastructure and public utilities

The mitigation measures planned for the Infrastructure and Public Utilities component are presented in Table 6-8.

Table 6-8 General and specific mitigation measures for the Infrastructure component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
AIR02	X			Restrict access to designated areas and limit vehicle speeds on various construction sites and during mining operations. Traffic signs will be installed at designated locations.
FAU04	X			Indicate and mark areas with a higher risk of collision with large wildlife using appropriate signage.
VIE02	X			Raise awareness among workers, subcontractors, and carriers of the need to comply with traffic regulations and WMG's traffic policy during the orientation session.
INF01	X			Continue to ensure that public roads are maintained throughout the duration of activities in order to remove any accumulation of loose materials or other debris.
P14	X			Continue to inform the public about the progress of the project, upcoming major works, environmental impacts and preventive measures to mitigate them, as well as the safety measures in place.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

Monitoring for the infrastructure and public utility services component is divided into two parts:

- Monitoring of road traffic on forest roads leading to the Windfall site;
- Monitoring of collisions with wildlife.

The following sections detail the monitoring elements. They concern the construction and operational phases. No specific monitoring is planned during the closure phase.

6.5.1 Traffic and road safety

In the EIS and the response document to the first set of questions, it was mentioned that during the construction phase, WMG estimated that there would be an average of 14 truck trips per day and during the operational phase, 10 trucks per day (large carriers only). It should be noted that the values extracted from the count survey conducted on forest roads show that there would be an average of 17 truck trips per day on forest roads, with a maximum of four per hour. Of this number, based on data from the Windfall site gatehouse, between seven and ten would have been attributable to deliveries to the site. Thus, the marginal daily increase, as assessed above, was considered minor for road users.

In any case, WMG proposed implementing several measures to ensure effective traffic management and road safety as part of the project:

- The development of a transportation management plan detailing the measures put forward to ensure road safety, emergency measures, the communication plan, and transportation planning;
- Raising awareness among workers during induction training on road safety issues, in particular coexistence with other users;
- The establishment of a register compiling all road accidents, which will list data on road collisions in order to ensure user safety;
- The creation of a map illustrating the locations of road accidents.

This information will make it possible to assess whether certain sectors are more likely to lead to road accidents and, if necessary, to design corrective measures to ensure the safety of road users. The proposed traffic monitoring program will be carried out annually during the construction phase and then in years 2, 5, and 8 of the operational phase. It will include a summary table of road accidents and wildlife collisions (see next section). It will document the measures put in place to mitigate the impact of increased traffic as part of the project, as well as their effectiveness.

6.5.2 Collisions with large wildlife

Keeping a record of road collisions involving large wildlife (see section 5.6.1.1) and creating a map showing the locations of collisions will make it possible to identify areas with a higher risk of collisions with animals. This data will enable corrective measures to be designed, where necessary, to limit the risk of collisions with animals and, consequently, to ensure the safety of road users.

6.6 Heritage and Archaeology

Mitigation measures planned for the Heritage and Archaeology component are presented in Table 6-9.

6.6.1 Construction, operation, and closure phases

In the event of the discovery of a significant archaeological site, two options will be considered: conducting a supplementary inventory or carrying out a targeted excavation to sample the site before it is destroyed by construction work. The main users of the land will be consulted on the recommended approach. In all cases, the areas of archaeological potential that were identified during the initial study were excavated in 2024. Although these areas were outside the project's infrastructure footprint, they were declassified since no remains were found during the fieldwork.

If such remains are found during work at the Windfall site, follow-up will be initiated. It will be ad hoc and associated with a chance discovery.

Table 6-9 General and Specific Mitigation Measures for the Heritage and Archaeology Component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
ARC01	X			Conduct an archaeological survey with manual excavations spaced 10 m apart in areas of archaeological potential that have not been surveyed and are located within the construction site. This work must be carried out before the start of the construction phase, to allow for flexibility in the event of a significant discovery. Where applicable, recommendations will be made on mitigation measures to be implemented before or during the development work.
ARC02	X			If an important archaeological site is discovered, a “rescue archaeological intervention” will be required, i.e., a supplementary inventory or targeted excavation will be carried out to sample the site before it is destroyed by the construction work.
ARC03	X			In cases where work must be carried out in areas with identified archaeological potential and no archaeological inventory with manual probing has been conducted beforehand, archaeological monitoring is recommended. If excavations have already been carried out, monitoring would not be required.
ARC04	X			In the event that archaeological remains are discovered during construction work outside of designated archaeological sites, work must be halted pending evaluation by an archaeologist, and the regional office of the Ministry of Culture and Communications must be contacted in the event of a chance discovery (Outaouais, Abitibi-Témiscamingue, and Nord-du-Québec Directorates, Abitibi-Témiscamingue and Nord-du-Québec Office).
P32	X	X	X	Implement the Monitoring and Follow-up Program.

6.7 Landscape

The mitigation measures planned for the Landscape component are presented in Table 6-10.

6.7.1 Construction, operation, and closure phases

No monitoring is planned in relation to the landscape component of the project.

Table 6-10 General and specific mitigation measures for the Landscape component

Measure code or commitment number	Work Phase			Description of mitigation measure
	Construction	Operation	Closure	
QUA01	X	X	X	Stripping, clearing, excavation, backfilling, and leveling of work areas will be kept to a minimum.
QUA04	X	X	X	The slopes of excavated and backfilled areas will be stabilized using techniques that blend in as much as possible with the natural environment, wherever erosion is likely to cause particulate matter to enter a watercourse (slope softened to 1.5 H: 1 V, plus other available techniques). Along steep slopes, sediment barriers (geotextile, straw, etc.) will be used at the foot of the embankments, as necessary, to reduce the volume of transported particles. Protective measures (straw, wood chips, mattresses) may also be used directly on the slope. Excavated material will not be placed on steep slopes. Fill material shall be adequately compacted.
QUA08	X	X	X	Where possible, trees and shrubs will be removed by cutting them down to ground level on embankment slopes. Their root systems will be preserved to promote runoff infiltration and natural soil stability.
QUA17	X	X	X	Within and in the 15-meter strip bordering the high-water line of a watercourse or body of water and within any wetland (pond, marsh, swamp, or bog), it will be prohibited to pile up temporary waste, debris, materials, or excavated material (e.g., organic matter from topsoil stripping). It will also be prohibited to pile up wood waste and debris. Runoff will be diverted to a vegetated area at least 30 m from the watercourse or intercepted by sediment barriers or a sedimentation basin.
QUA18	X	X	X	If required, temporary culverts and bank protection will be removed. The riverbed and banks will be restored.
QUA20			X	The riparian strips damaged by the work will be restored to reproduce the natural banks of the watercourse or body of water.
VEG01	X	X	X	During deforestation, special attention will be paid to vegetation at the edge of work areas so as not to damage it. If trees accidentally fall, they will be removed with care not to disturb the environment.
VEG04	X	X	X	Keep vegetation intact along waterways, wetlands, and access roads.
NOR16	X	X	X	Restore construction sites and stockpiles by leveling surfaces, covering them with natural soil, scarifying them, or seeding them to promote vegetation regrowth. Stabilize reworked areas, embankment slopes, piles of loose deposits, etc., as work is completed. Reference: D019 for restoration phase.
PLA01	X	X	X	For temporary construction site facilities (site offices, access roads, etc.), prioritize sites that have already been deforested or disturbed.
PLA02			X	At the end of the work, the work areas will be cleared of equipment, machinery parts, materials, temporary installations, waste, scrap, debris, and spoil from the work. These work areas will be redeveloped and restored so that they blend into the natural landscape (leveling and loosening the soil, softening slopes). If sections of roads or paths have been abandoned, they will be scarified and revegetated. The slopes of the project right-of-ways will be seeded to stabilize them quickly. All areas that will not be used for future projects will be revegetated.
PAY01			X	To the extent possible, in order to ensure the stability of accumulation areas, shape the top of the tailings pond to blend it into the landscape.
P25	X	X	X	Where possible, preserve the forest cover along the road and revegetate bare areas after completion of the work with native vegetation.
P32	X	X	X	Implement the Monitoring and Follow-up Program.

6.8 Monitoring Committee

WMG will establish a monitoring committee that will enable the continuous involvement of the relevant stakeholders in the implementation and monitoring of the project.

Once the committee is in place, its members will define a number of elements such as the rules governing the committee's ethics, independence of its members, and confidentiality, its mandate and objectives, expected results, the responsibilities of members towards the committee and, where applicable, towards the organizations they represent, external communications and feedback procedures, as well as the name of the committee.

The mandate will be defined in consultation with all members and should reflect the issues, expectations, concerns, challenges, or questions raised by the local community, as well as the maturity of the project. The monitoring committee's mandate must be broad enough to give the committee the necessary leeway to make changes, as needed, throughout its activities, but it must also be sufficiently well defined to promote a common understanding among members of its scope and limitations.

At least once a year, during the committee's statutory meeting, the nature of the complaints, their number, and their resolution process will be presented to the members. The process will be defined collectively by the committee members.

With regard to the Cree community, a monitoring committee, the terms and conditions of which will be specified in the ERA, will discuss and establish solutions to the various issues that may arise during the different phases of the mining project.

7 Biodiversity Program

Biodiversity loss is an important societal issue for responsible project developers, who must develop measures to ensure a balance between economic development and the inevitable losses associated with the very nature of development. Among the issues identified in the EIA (Section 4.8.1 and chapter 14 of the EIA) is the preservation of biodiversity. Indeed, it has been demonstrated that the project will result in a loss of area and habitat degradation (chapter 1 of Addendum 1). This loss will result from the conversion of the natural environment (initial state) to a mining environment. As habitats are lost, fragmented, or degraded, they will lose their ability to ensure the survival of all the species that depend on them. In addition to these losses directly associated with the project, the cumulative impact assessment presented in Chapter 11 of the EIA reports on the possible cumulative alterations that the project could have on other past, present, and future activities in the surrounding environment and on the overall quality of the valued components of the environment.

Based on the impact assessments (Chapter 10 of the EIS) and project issues (Chapter 14 of the EIS) presented, WMG understands that the greatest impacts of the project will be on certain wildlife groups, as it involves habitat loss and potentially the displacement of species valued for hunting by the Cree.

In return, WMG developed a biodiversity program whose principles and objectives were defined in consultation with members of the Cree community of Waswanipi and the residents of Quévillon (Appendix 9-1 of Addendum 1). Meetings were held to incorporate their interests, comments, questions, and concerns regarding the territory, which helped define the approach of the proposed program. WMG is committed to ensuring that the program is based on the real needs identified by the community.

Consultations with the local population were part of the strategy to identify interesting projects, document and analyze them, and then finalize the selection of the project(s) to be pursued.

The biodiversity program takes the form of a research project on the impact of forest fires on species that are sensitive or valued by communities and authorities. Such a project will improve knowledge about the effects of forest fires on wildlife habitats.

With the various phases of the project and the planning of the site closure from the outset, the aim is to cover the construction and operation period, which corresponds to the period when habitat loss will be felt.

7.1 Forest fire situation in Northern Quebec

In July 2023, the area of forest affected by fires in Canada was more than 10 times greater than the average number of hectares burned per decade (Bergeron and Martel, 2023). At that time, Quebec was the Canadian province most affected by forest fires. June was the driest month in Quebec in the last 100 years, with 49 mm of rain (MELCCFP, 2023). The Windfall site was even drier, with less than 30 mm of rain at the site's weather station, including 20 mm in the last three days of the month. These unusual periods of drought created conditions conducive to severe forest fires. In northern Quebec, millions of hectares of forest were ravaged by fires during the summer of 2023.

The area surrounding the town of Lebel-sur-Quévillon and the Cree community of Waswanipi has been severely affected by large-scale forest fires. A fire near the eastern border of the town of Lebel-sur-Quévillon was considered out of control for several weeks, forcing residents to evacuate twice, as well as the community of Waswanipi, which was affected by smoke from the fires.

In total, this fire affected more than 480,000 hectares (ha) of forest (SOPFEU, 2023). A significant proportion of the natural and anthropogenic environments along the forest road leading to the Project (road R1050 [R1000] to kilometer 12, road R0853 [R5000] to kilometer 66, then road R1053 [R6000] to kilometer 112 - Windfall) was disrupted. Several camps and vacation spots were ravaged by the flames, including approximately 28 camps belonging to members of the Waswanipi Cree First Nation (WCFN) (personal communication, 2023).

The Project was also at the heart of a forest fire covering a total area of more than 110,000 ha that started north of the site on June 1, 2023 (SOPFEU, 2023). In addition to causing a shutdown of activities for several weeks, even months, this fire significantly disrupted the natural environment throughout the western portion of the site. Some of the Project's equipment was damaged (dome fabric, container contents, etc.), but the main buildings used for advanced exploration work (bulk sampling) remained intact (camp, core storage, storage domes, water treatment unit, garage, etc.).

The overall rise in temperatures, changes in precipitation patterns, longer periods of drought, and changes in the composition and distribution of plant species that characterize climate change are among the factors responsible for the increase in the frequency and severity of forest fires. In this context, where climate change is likely to influence the forest fire regime and contribute to the frequency and severity of forest fires, it seems relevant to identify the main effects of these fires on natural environments with the aim of advancing knowledge on the subject and mitigating impacts where possible.

This program was developed in consultation with community members who communicated with the WMG team during the fires. Some Cree people were concerned about the impact of the fires on wildlife and on the “return to normal,” i.e., how long it will take for nature to recover from this event. Given the lack of rigorous inventories detailing pre-fire conditions in the area, comparative analysis was virtually impossible. Therefore, it was proposed to use knowledge gathered in previous years at the Windfall site to identify differences between the situation before and after the fires.

7.2 Objectives of the biodiversity program

The WMG biodiversity program is intended to compensate for the loss that the Project will cause to the natural environment. Although the project is not subject to the *Regulation respecting compensation for damage to wetlands and water environments* (R.S.Q. c. Q-2, r. 9.1), WMG is committed to doing its part by compensating through scientific research while proposing ways to help nature recover from this devastating event for biodiversity.

The main objective of the biodiversity program is to compensate for the loss of wetlands and water environments, as well as indirect losses of fish habitat caused by the Project, through a program that is aligned with the current context and responds to the concerns of the Indigenous community affected by the Project. Its specific objectives are as follows:

- Improve understanding of the effect of forest fires on terrestrial and aquatic wildlife habitats in the vicinity of the Project.
- Document the main effects of forest fires on natural environments and biodiversity through a literature review.
- Identify the short- and medium-term effects of forest fires on the physical environment, natural habitats, and terrestrial and aquatic wildlife (e.g., alteration of water physicochemistry, changes in plant and wildlife species composition, etc.) in an expanded study area, i.e., one slightly larger than the local study area of the biophysical environment.

- Integrate the interests and concerns of trappers and their families, as well as local populations such as members of the PNCW and Quévillonnais, into the development of the biodiversity program.

The biodiversity program is being developed through ongoing consultation with PNCW members and Quévillonnais residents and will therefore be adapted based on feedback from the local population.

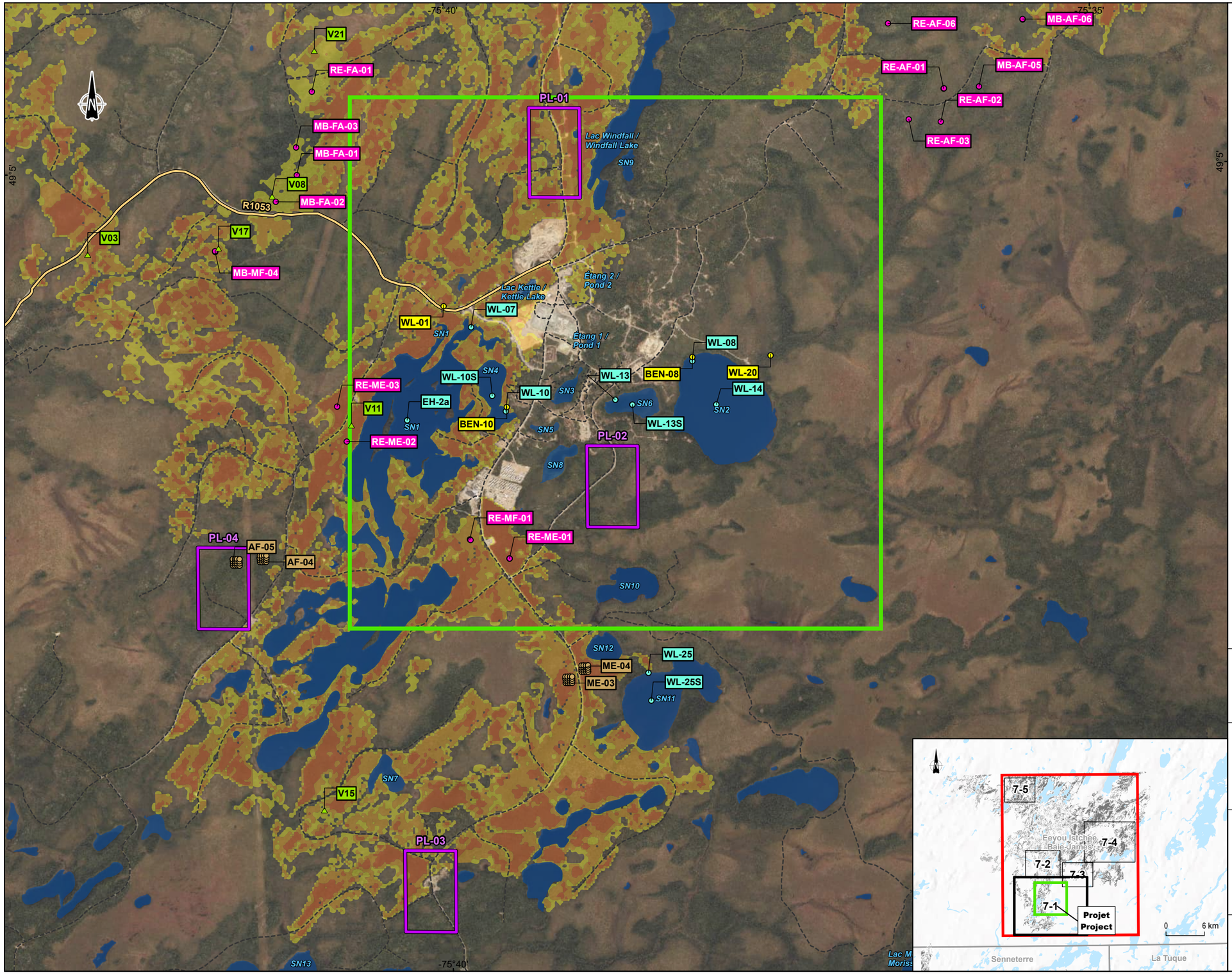
On the one hand, it proposes additional studies to document the effects of changes in terrestrial, wetland, and aquatic environments on wildlife and, on the other hand, seeks to address the concerns raised by the Indigenous community affected by the Project.

The three main components of the biodiversity program are as follows:

1. Literature review on the effects of forest fires on natural environments (Appendix A).
2. Additional environmental studies on components where effects are expected and/or valued by PNCW members:
   a. Surface water;
   b. Vegetation and wetlands (ecotoxicology, diversity and evolution of forest stands);
   c. Terrestrial fauna (avian fauna, snowshoe hare [Lepus americanus] and caribou [Rangifer tarandus]);
   d. Benthos.
3. Summary of consultations with local populations (Appendix B).

7.3 Expanded study area

The expanded study area selected to document the effects of forest fires on the targeted biophysical components covers an area of approximately 53,560 ha (535.6 km^2). It encompasses the local biophysical study area used to establish the baseline condition during the EIA, but also covers areas not impacted by forest fires outside the area of influence of the Project's advanced exploration activities (outside the prevailing wind axis). Maps 7-1 to 7-5 show the biophysical environment characterization plan within the expanded study area.



Stations d'échantillonnage pour le programme de biodiversité / *Sampling Stations for the Biodiversity Program*

- Faune aviaire / *Avian Fauna*
- Lièvre d'Amérique / *Snowshoe Hare*
- Eau de surface / *Surface water*
- Benthos / *Benthos*
- Végétation / *Vegetation*

Écotoxicologie / *Ecotoxicology*

- Placette d'échantillonnage / *Sample plot*

Zones d'études / *Study Areas*

- Zone d'étude locale du milieu biophysique
- Zone d'étude élargie du milieu biophysique

Indice de sévérité des feux de 2023 / *2023 Fires Severity Index*

- Faible / *Low*
- Moyen-faible / *Moderate-low*
- Moyen-élevé / *Moderate-high*

Réseau routier / *Road Network*

- Chemin forestier principal / *Main forestry road*
- Chemin forestier secondaire / *Secondary forestry road*

Projet Windfall - Programme de surveillance et suivi / *Windfall Project - Monitoring and Supervision Program*

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Québec)*

Carte 7-1 / *Map 7-1*
Plan d'inventaire du milieu biophysique et localisation des mentions d'espèces à statut précaire – Secteur du site Windfall / *Inventory Plan of the Biophysical Environment and Species at Risk Location – Windfall Site Sector*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
CanVec, 1/1M, RN Can, 2014
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
WSP, Télédétection des feux 2023, 2023
MRNF, Mosaïque d'orthophoto. inventaire écoforestier, 2023
ESRI, World Hillshade

0 350 700 m
MTM, Fuseau 9 / *Zone 9*, NAD83

2025-07-23

Préparation / Preparation : K. Cadoret
Dessin / Drawing : E. Kheiri
Vérifié par / Verification : K. Cadoret
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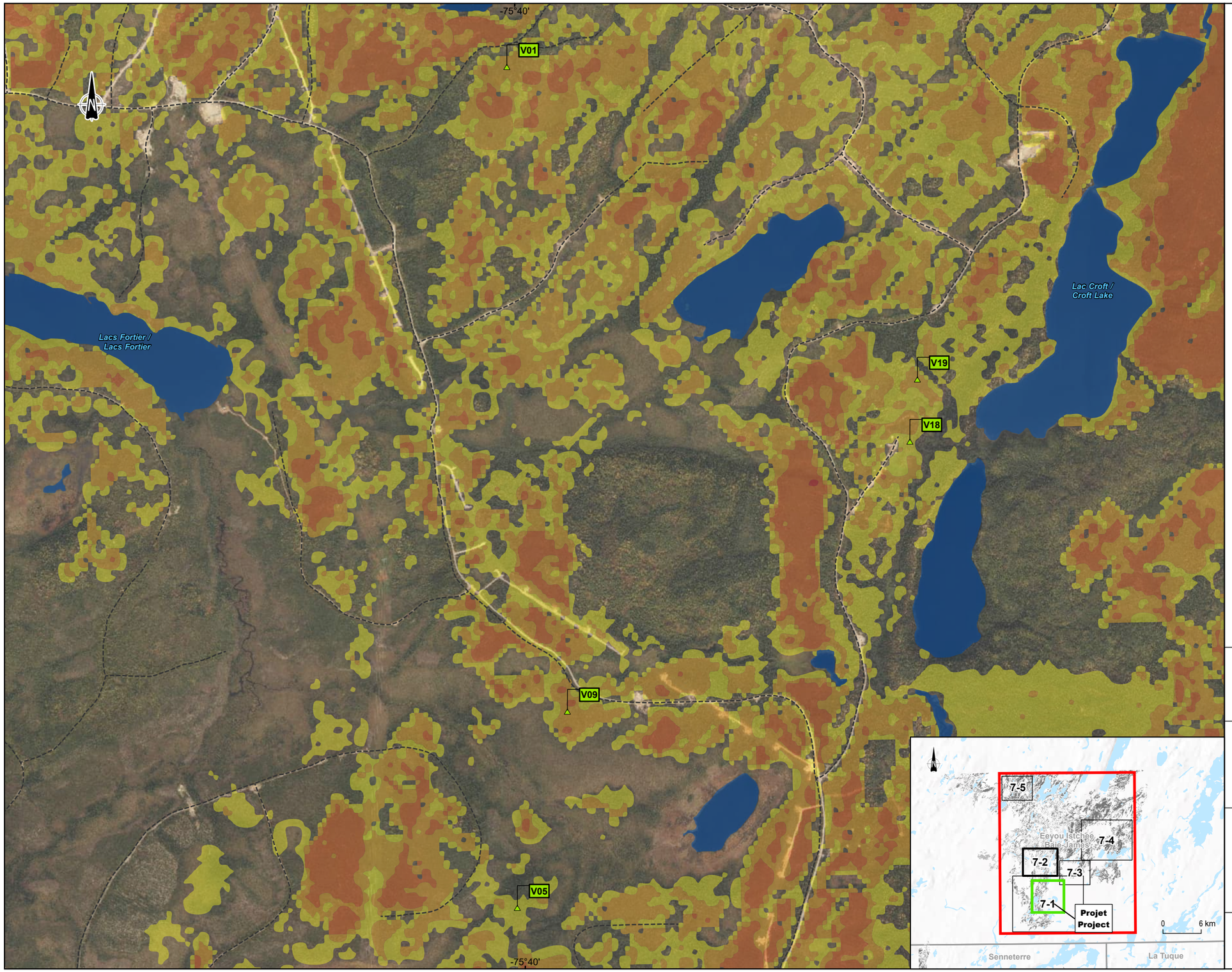

Stations d'échantillonnage pour le programme de biodiversité / *Sampling Stations for the Biodiversity Program*

- Végétation / *Vegetation*

Zones d'études / *Study Areas*

- Zone d'étude locale du milieu biophysique
- Zone d'étude élargie du milieu biophysique

Indice de sévérité des feux de 2023 / *2023 Fires Severity Index*

- Faible / *Low*
- Moyen-faible / *Moderate-low*
- Moyen-élevé / *Moderate-high*
- Élevé / *High*

Réseau routier / *Road Network*

- Chemin forestier secondaire / *Secondary forestry road*

Projet Windfall - Programme de surveillance et suivi /
Windfall Project - Monitoring and Supervision Program

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte 7-2 / *Map 7-2*
Plan d'inventaire du milieu biophysique et localisation des mentions d'espèces à statut précaire – Nord du site Windfall / *Inventory Plan of the Biophysical Environment and Species at Risk Location – North of the Windfall Site*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
CanVec, 1/1M, RN Can, 2014
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
WSP, Télédétection des feux 2023, 2023
MRNF, Mosaïque d'orthophoto. inventaire écoforestier, 2023
ESRI, World Hillshade

0 160 320 m
MTM, Fuseau 9 / *Zone 9*, NAD83

2025-07-23

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Dessin / Drawing : E. Kheiri
Vérifié par / Verification : K. Cadoret
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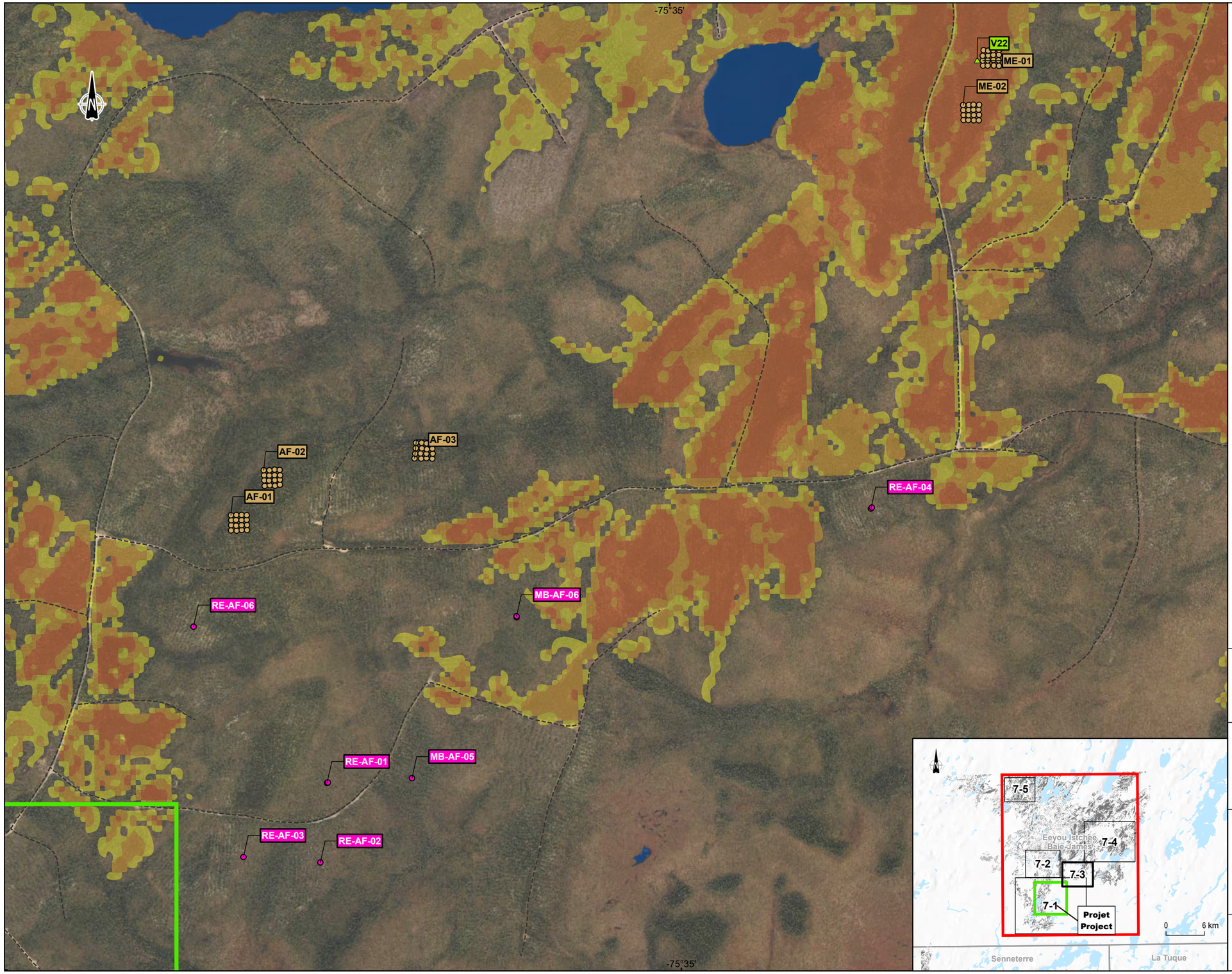

Stations d'échantillonnage pour le programme de biodiversité / *Sampling Stations for the Biodiversity Program*

- Faune aviaire / *Avian Fauna*
- Lièvre d'Amérique / *Snowshoe Hare*
- Végétation / *Vegetation*

Zones d'études / *Study Areas*

- Zone d'étude locale du milieu biophysique
- Zone d'étude élargie du milieu biophysique

Indice de sévérité des feux de 2023 / *2023 Fires Severity Index*

- Faible / *Low*
- Moyen-faible / *Moderate-low*
- Moyen-élevé / *Moderate-high*

Réseau routier / *Road Network*

- Chemin forestier secondaire / *Secondary forestry road*

Gold Fields

Projet Windfall - Programme de surveillance et suivi /
Windfall Project - Monitoring and Supervision Program

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte 7-3 / *Map 7-3*
Plan d'inventaire du milieu biophysique et localisation des mentions d'espèces à statut précaire – Nord-est du site Windfall / *Inventory Plan of the Biophysical Environment and Species at Risk Location – Northeast of the Windfall Site*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
CanVec, 1/1M, RN Can, 2014
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
WSP, Télédétection des feux 2023, 2023
MRNF, Mosaïque d'orthophoto. inventaire écoforestier, 2023
ESRI, World Hillshade

0 140 280 m
MTM, Fuseau 9 / *Zone 9*, NAD83

2025-07-23

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Vérifié par / Verification : K. Cadoret
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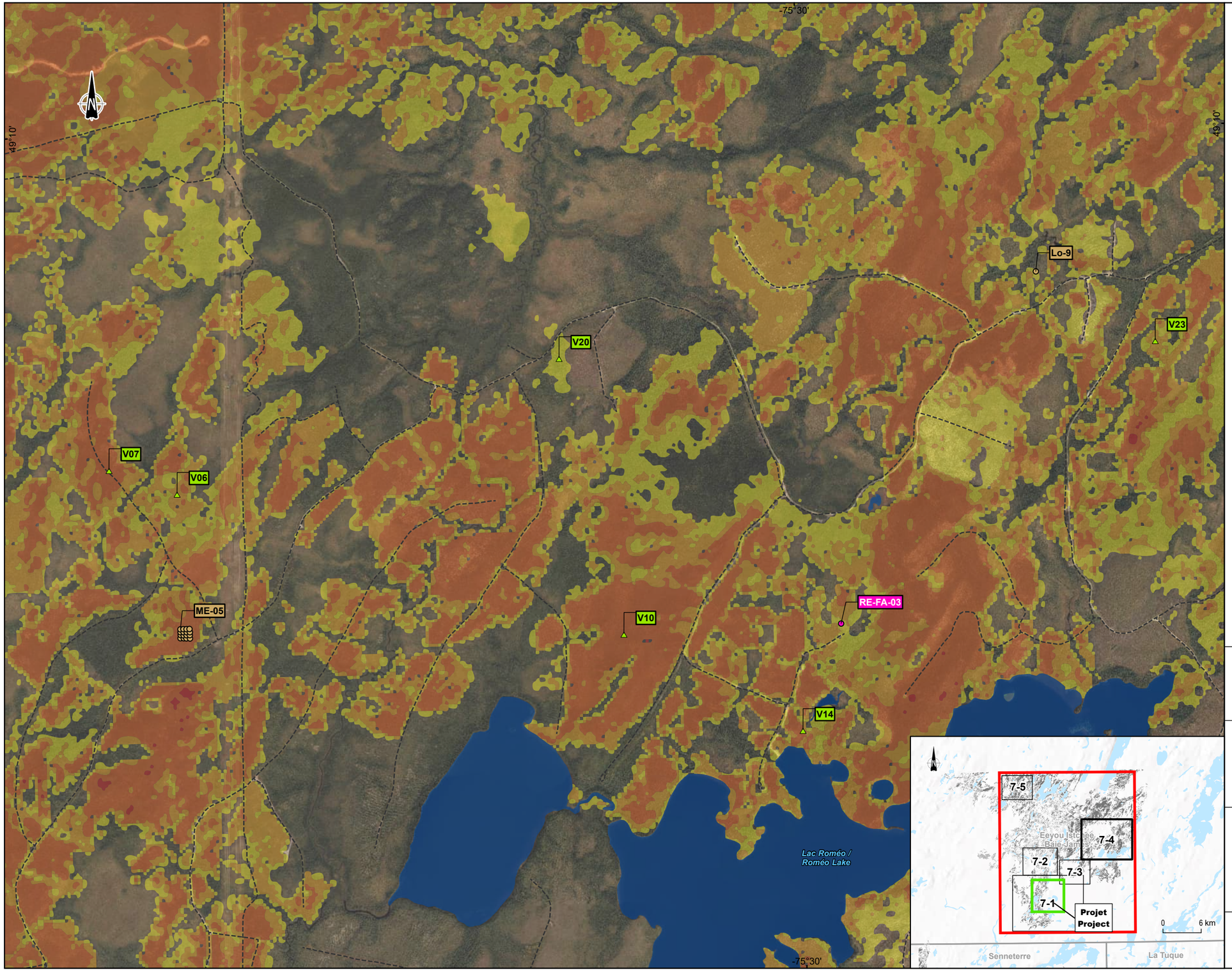

Stations d'échantillonnage pour le programme de biodiversité / *Sampling Stations for the Biodiversity Program*

- Faune aviaire / *Avian Fauna*
- Lièvre d'Amérique / *Snowshoe Hare*
- Végétation / *Vegetation*

Zones d'études / *Study Areas*

- Zone d'étude locale du milieu biophysique
- Zone d'étude élargie du milieu biophysique

Indice de sévérité des feux de 2023 / *2023 Fires Severity Index*

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- Moyen-faible / *Moderate-low*
- Moyen-élevé / *Moderate-high*
- Élevé / *High*

Réseau routier / *Road Network*

- Chemin forestier secondaire / *Secondary forestry road*

Projet Windfall - Programme de surveillance et suivi /
Windfall Project - Monitoring and Supervision Program

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte 7-4 / *Map 7-4*
Plan d'inventaire du milieu biophysique et localisation des mentions d'espèces à statut précaire – Est de la zone d'étude élargie / *Inventory Plan of the Biophysical Environment and Species at Risk Location – East of the Extended Study Area*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
CanVec, 1/1M, RN Can, 2014
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
WSP, Télédétection des feux 2023, 2023
MRNF, Mosaïque d'orthophoto. inventaire écoforestier, 2023
ESRI, World Hillshade

0 240 480 m
MTM, Fuseau 9 / *Zone 9*, NAD83

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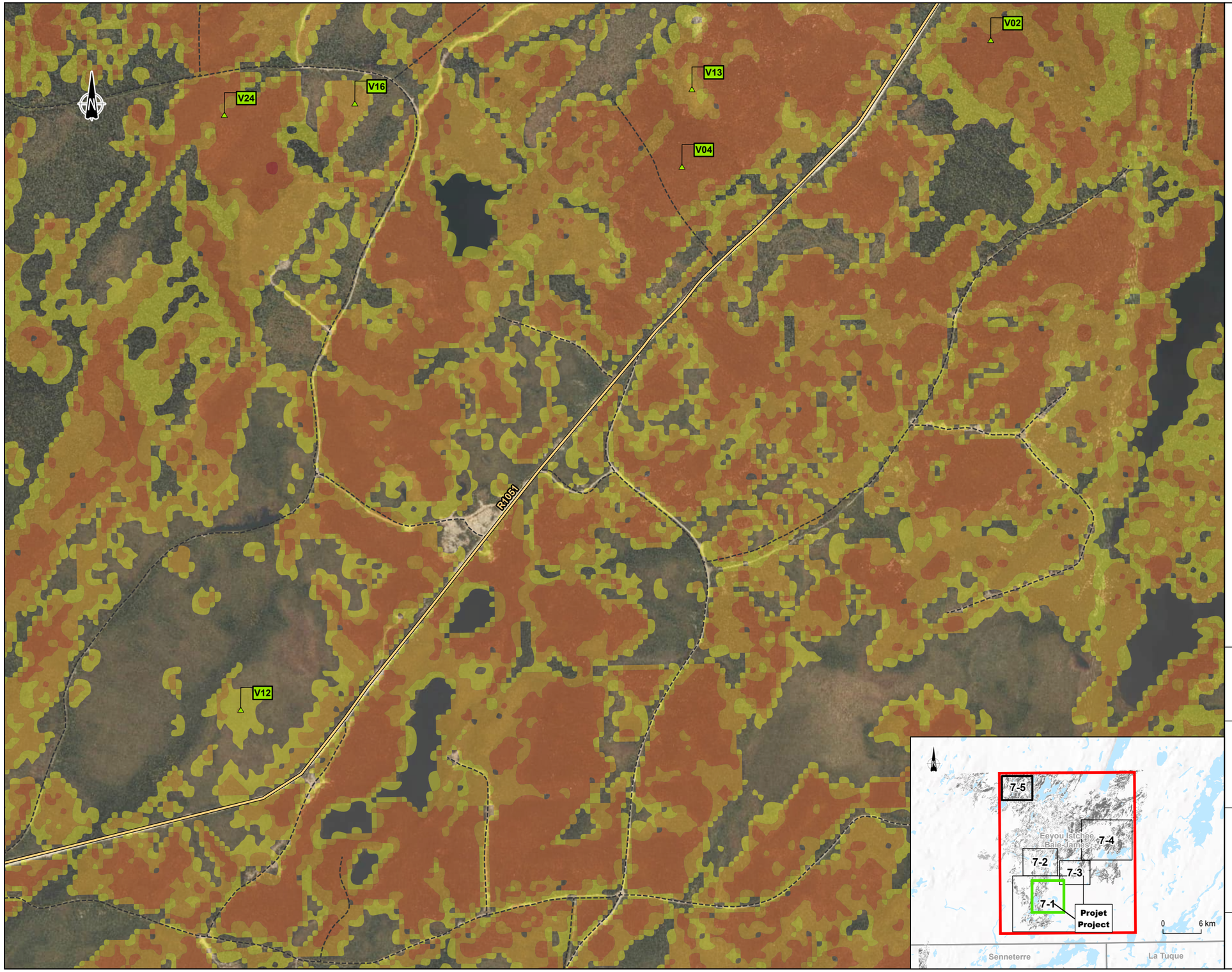

Stations d'échantillonnage pour le programme de biodiversité / *Sampling Stations for the Biodiversity Program*

- Végétation / *Vegetation*

Zones d'études / *Study Areas*

- Zone d'étude locale du milieu biophysique
- Zone d'étude élargie du milieu biophysique

Indice de sévérité des feux de 2023 / *2023 Fires Severity Index*

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- Moyen-faible / *Moderate-low*
- Moyen-élevé / *Moderate-high*
- Élevé / *High*

Réseau routier / *Road Network*

- Chemin forestier principal / *Main forestry road*
- Chemin forestier secondaire / *Secondary forestry road*

Projet Windfall - Programme de surveillance et suivi /
Windfall Project - Monitoring and Supervision Program

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte 7-5 / *Map 7-5*
Plan d'inventaire du milieu biophysique et localisation des mentions d'espèces à statut précaire – Nord-ouest de la zone d'étude élargie / *Inventory Plan of the Biophysical Environment and Species at Risk Location – Northwest of the Extended Study Area*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
CanVec, 1/1M, RN Can, 2014
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
WSP, Télédétection des feux 2023, 2023
MRNF, Mosaïque d'orthophoto. inventaire écoforestier, 2023
ESRI, World Hillshade

0 140 280 m
MTM, Fuseau 9 / *Zone 9*, NAD83

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7.4 Literature review on the effects of forest fires on natural environments

Climate change is likely to increase the frequency and severity of forest fires due to global warming, longer periods of drought, and changes in plant species composition. The Northern Quebec region, particularly the Lebel-sur-Quévillon area, was severely affected by large-scale forest fires in the summer of 2023. Given that this region, dominated by boreal forest, is likely to be increasingly affected by fires, it is important to identify the main effects of forest fires on natural environments in order to better understand the context in which the Project is being implemented. This literature review is the first step in WMG's biodiversity program, which aims to document these effects in order to identify the components that should be the subject of additional environmental studies in the vicinity of the Project site.

According to the literature consulted, the extent of the effects of forest fires varies greatly depending on the initial conditions of the environment (vegetation, fauna, geology and soil structure, previous disturbances, etc.) and the severity and intensity of the fires. However, the trends observed make it possible to identify general effects on soil, surface water, vegetation, and terrestrial and aquatic wildlife.

Forest fires can alter the physical, chemical, and biological properties of soils. Soil denudation and ash deposition can contribute to soil impermeability and compaction, exacerbating runoff and erosion. The deposition of a layer of ash, as well as the combustion of vegetation and organic matter, can also lead to an increase in pH, changes in nutrient reserves (N, P, K, K_2O) and an increase in the concentration of heavy metals (Cd, Cr, Cu, Mn, Mg, Zn, Fe, Al, Si, Ni, Co, As) in the soil.

Increased runoff is likely to increase flood flows and average flows in watercourses in the affected areas. Runoff, combined with soil erosion and the input of ash and wood debris, can also alter surface water quality. The effects identified include increases in suspended solids and turbidity, heavy metal concentrations, pH, dissolved organic carbon, and certain nutrients, as well as decreases in dissolved oxygen. Forest fires can also cause an increase in the temperature of watercourses and water bodies in the short term after the fire has passed, and in the medium term due to the reduction in vegetation cover. The extent of the effects on surface water depends on the size of the watershed and the importance of the hydrographic network.

The effects of forest fires on vegetation are strongly linked to the severity of the fires. The first effects observed are a reduction in tree density and canopy cover, as well as changes in species abundance and diversity. Some pioneer species can quickly recolonize burned sites, while other species are less resilient and will take longer to regenerate (e.g., lichens). In the boreal forest, the early stages of succession are dominated by hardwoods (trembling aspen and birch). In a context of increasingly intense and severe forest fires and drier and warmer conditions, a transition from conifer dominance to hardwood dominance is being observed in North America. Some studies indicate a loss of resilience in black spruce in this regard. Finally, increased concentrations and bioavailability of metals in the soil can increase the adsorption and absorption of metals by plants.

Habitat modification affects terrestrial fauna according to different succession cycles. In general, an overall decrease in the number of species is observed in the first two years. As with vegetation, habitat alteration leads to changes in species composition. In the first few years after a fire, the abundance of small mammals and moose is higher. Small mammals benefit in particular from the rapid regrowth of herbaceous plants and the shelter provided by woody debris. Moose quickly return to disturbed sites (a few months later) to take advantage of the abundant food supply.

However, a decrease in the richness and abundance of birds, bats, hares, canids, mustelids, and caribou is observed in the first few years after the fire. The diversity and abundance of bird life generally increase 3 to 5 years after the fire. The abundance of hares increases as the shrub layer vegetation recovers and adequate cover is restored. Caribou tend to abandon burned sites because of the long recovery time of lichen, their main food source.

The effects on aquatic fauna are more pronounced in the months following the fire, particularly due to increases in temperature and suspended solids (SS) and decreases in dissolved oxygen. However, it is the changes that persist over time that will have the greatest impact on the recovery capacity of aquatic communities. Due to increased nutrient inputs, rapid growth of algae and benthic communities is generally observed. This high benthic density can persist for 15 to 20 years.

The entire literature review on the effects of forest fires on wildlife habitats is included in the wetland and water compensation program.

7.5 Environmental studies on the effects of forest fires

7.5.1 Construction and operation phases

The complementary environmental studies in the biodiversity program aim to document the effects of forest fires on valued or potentially affected environmental components in the vicinity of the Project site. The selected components were discussed with members of the PNCW, as well as with municipal councilors from Lebel-sur-Quévillon. Comments, interests, suggestions, and concerns were heard and considered during a meeting with the PCNW in Waswanipi on November 6, 2023, and during participation in an expanded municipal council meeting in Lebel-sur-Quévillon on November 8, 2023.

During consultations with the Waswanipi community, some members mentioned the value of studying lynx in parallel with snowshoe hares. Considering that the lynx is one of the hare's main predators, the hare inventory will make it possible to indirectly assess the potential presence of lynx in the various environments studied. It was therefore decided not to include a specific inventory for lynx at this time, but to reassess the relevance of doing so when the biodiversity program is implemented.

7.5.1.1 Surface water

Some of the documented effects of wildfires on surface water include increased turbidity, temperature, pH, and certain metals, as well as decreased dissolved oxygen, caused by runoff, soil erosion, and ash deposition in streams and water bodies. Considering that water quality was analyzed in several water bodies in the local study area of the biophysical environment for the baseline condition of the EIA, additional analyses following forest fires are suggested to determine whether disturbances have occurred. The analysis of changes in the physicochemical parameters of surface water will make it possible, in particular, to assess whether a deterioration in the quality of the aquatic wildlife habitat is observable and how long it will take for the initial conditions of the surface water to be restored.

Sampling plan

Four sampling stations have been established in the local study area of the biophysical environment. The stations were selected based on the availability of previous data, the area of influence of the Project's mine effluent, and the areas affected or unaffected by forest fires. The selected water bodies are all located outside the network impacted by the effluent in order to distinguish the effects of the fire from those resulting from Project activities. Two stations are located in areas affected by the fires, while the other two are in unaffected areas. Table 7-1 presents the geographic coordinates and previous sampling years for the surface water stations. They are also shown on Map 7-1.

Table 7-1 Location of sampling stations and year of surface water sampling

Station Name	Lake Name	Latitude	Longitude	Area affected by fire	Inventoried as part of the impact study
WL-07	SN1	49,070057	-75,663483	Yes	2016, 2017
WL-10	SN4	49,062909	-75,659127	Yes	2017, 2021
WL-13	SN6	49,063772	-75,644786	No	2021
WL-08	SN2	49,066980	-75,635028	No	2016

Methodology

The basic physicochemical parameters, namely temperature (°C), dissolved oxygen concentration (% and mg/L), conductivity (µS/cm), and pH, will be measured in situ at each station using a multiparameter probe (YSI ProPlus or equivalent).

For laboratory analysis, surface water will be collected at each station using a large bottle without preservatives to fill the various bottles provided by the laboratory. For trace metals, water will be collected directly into bottles that have been acidified by the laboratory using nitric acid and hydrochloric acid. A duplicate and a field blank will be collected at one of the stations.

Measurements will be taken on the shore of the target lakes, approximately 30 cm below the surface (or in the center of the water column if the depth is insufficient). Precautions will be taken to avoid contamination of the samples. The inside of the bottles and caps will not be touched directly, the caps will be screwed on tightly, large particles such as leaves or debris will not be collected with the water samples, and the bottom of the watercourses will not be touched with the bottles to avoid stirring up sediment. Once sampling is complete, the bottles will be quickly transported to the field vehicle to be stored in coolers at approximately 4°C. The samples will be sent to an accredited laboratory on the day of collection or the following day.

Frequency and monitoring period

As with the baseline assessment, monitoring of basic physicochemical parameters (*in situ*) will be carried out six times a year, on a monthly basis outside the ice period, for the years specified. Monitoring over a six-month period will allow for seasonal variability to be taken into account.

In addition to these basic parameters, a complete annual sampling of surface water will be carried out at each station, with laboratory analysis (once per monitoring year).

In order to determine the temporal effects of forest fires on surface water and to assess the time required for conditions to return to normal (if applicable), monitoring will be carried out during the construction and operation phases of the mine according to the following schedule:

- Year 1: 2024;
- Year 3: 2026;
- Year 5: 2028.

Applicable criteria

For informational purposes and to consider potential impacts on fish habitat quality, the results of the analyses will be compared to the following surface water quality criteria proposed by the Ministry of the Environment, Climate Change, Wildlife and Parks (MELCCFP) (MELCC, 2022):

- Prevention of contamination, water and aquatic organisms (CPC[O]);
- Protection of aquatic life, chronic effect (CVAC);
- Protection of aquatic life, acute effect (CVAA).

7.5.1.2 Vegetation and wetlands

Ecotoxicology of plants valued by land users

After a forest fire, increased metal concentrations in the soil and increased bioavailability to plants can lead to increased metal concentrations in plants. The ecotoxicological study of plants traditionally valued by Cree land users will make it possible to assess the metal content in the parts that are consumed. Based on consultations with trappers and their families as part of the EIA, the two target species are blueberries (*Vaccinium spp)* and Labrador tea (*Rhododendron groenlandicum*).

Sampling plan

Sampling plots were selected, after consultation with the W25B trap master and his spouse, to measure metal concentrations in vegetation. Two plots were established in the local biophysical environment study area and two plots in the expanded study area (Map 7-1). One plot in the local biophysical environment study area was not affected by forest fires, while the second was impacted. They are located within the radius of influence of the Project's activities. The two plots outside the local biophysical environment study area are located outside the prevailing wind axis. One plot is affected by fire, while the other is undisturbed. Table 7-2 shows the distribution of plots by environment type.

Table 7-2 Distribution of plant sampling plots by environment type

Study Area	Name of plot	Latitude	Longitude	Plot in the path of prevailing wind	Plot affected by fire
Local study area of the biophysical environment	PL-01	49,081944	-75,649722	Yes	Yes
	PL-02	49,053611	-75,648333	No	No
Outside the local study area of the biophysical environment	PL-03	49,050000	-75,684444	No	Yes
	PL-04	49,048333	-75,695278	No	No

A total of 72 structural tissue samples (leaves or fruits), i.e., 9 samples per plot for each plant species, will be collected and sent to the laboratory for analysis.

In order to validate the sampling methods, a quality control program will be prepared. This program will include the analysis of duplicate samples. As part of this project, it is recommended that one duplicate field sample be collected per species for each plot (8 duplicates in total). These duplicates will thus represent at least 10% of the total samples submitted for analysis for each species.

Methodology

The tissues targeted for sampling vary depending on the species and traditional consumption by PNCW members. Leaves will be collected for Labrador tea and fruits for blueberry plants.

A sampling protocol will be used to limit sources of contamination between the environment, the specimens from which the samples are taken, and the samples during laboratory handling. Nitrile gloves will be used for sampling and changed between each plot. In order to be as representative as possible of traditional harvesting conditions, no cutting instruments will be used. A separate bag will be used for each sample within each plot.

Samples will be frozen within 24 hours of collection for metal analysis. Samples will be stored in airtight Ziploc-type bags or equivalent and kept at a minimum temperature of -20°C. Within this time frame, tissues will be kept cool, ideally at 4°C in a cooler.

The analyses will be performed in a laboratory approved by the Quebec government. A laboratory quality assurance and control program will be implemented in accordance with best practices. The parameters to be analyzed are presented in Table 7-3. These parameters are the same as those selected for a toxicological risk assessment study for human health conducted as part of another mining project (Sanexen, 2018), with the addition of iron, given that it may alter the taste of the flesh (Sanexen, 2022).

Table 7-3 List of parameters to be analyzed for leaf tissue and berry samples

Analytical parameters		
Aluminium (Al)	Cobalt (Co)	Lead (Pb)
Antimony (Sb)	Copper (Cu)	Selenium (Se)b
Silver (Ag)	Tin (Sn)	Strontium (Sr)
Arsenic (As)	Iron (Fe)	Titanium (Ti)
Baryum (Ba)	Lithium (Li)	Uranium (U)
Beryllium (Be)	Manganese (Mn)	Vanadium (V)
Boron (B)	Mercury (Hg)	Zinc (Zn)
Cadmium (Cd)	Molybdenum (Mo)	
Chromium (Cr)	Nickel (Ni)	

Frequency and monitoring period

The timing of the vegetation sampling program depends mainly on blueberry production, as this is the only plant species whose fruit will be harvested. Consequently, plant collection is scheduled to take place once the fruit has been produced, i.e., in late summer (August).

In order to assess changes in metal concentrations in plants and to define the extent of the effects of forest fires over time, monitoring will be carried out during the construction and operation phases of the mine, according to the following schedule:

- Year 1: 2024;
- Year 2: 2025;
- Year 5: 2028;
- Year 9: 2032.

Applicable criteria and quality control

For statistical processing, it is suggested that concentrations below the reported detection limit (DL) be converted to half of this limit. The means, maximum and minimum values, and standard deviation should be calculated for each parameter analyzed.

It should be noted that there are no thresholds to be met (criteria) for the parameters analyzed in the case of these plants. In fact, there are currently no standards established by the Canadian Council of Ministers of the Environment (CCME) or the MELCCFP for the presence of metals in vegetation. In the current case, the analyses are therefore used solely to document the concentrations of metals present in the leaves and fruits of the two species sampled and to assess whether forest fires may have an influence on these concentrations.

Evolution of forest stands

Given the importance of forests in terms of wildlife and plant biodiversity, the evolution of tree and shrub cover in the various forest stands found in the local landscape that have been affected by fires will be studied.

Sampling plan

Within the area affected by the fires and within a radius of approximately 15 km around the local biophysical study area, 24 vegetation monitoring plots have been preliminarily established. These plots, consisting of homogeneous polygons with a minimum area of approximately 1 ha, were selected to represent all ecological types (potential vegetation) found at the local level, in areas where the fires had low, medium, or high severity. The ecological types targeted are: white birch-fir forest, black spruce-moss or heath forest, black spruce-lichen forest, black spruce-sphagnum forest, black spruce-fir forest, and black spruce-fir-sphagnum forest, which are the most abundant stands in the area. Among these, plots were selected to represent the diversity of the physical environment (based on drainage and surface deposition), i.e., terrestrial and wetland environments, also taking into account the initial condition (age of the stand before the fire). Where possible, the plots were also chosen to coincide with the bird monitoring plots.

The vegetation monitoring plots were selected through cartographic analysis of available data (natural environment mapping, ecoforestry maps, aerial/satellite images, fire severity index [using the spectral index]). These are presented in Table 7-4 and Map 7-1. A field visit is planned to validate the location of the selected plots, either to confirm the expected habitat type and site condition based on the assigned fire severity index or to find suitable alternative habitats, if necessary.

Table 7-4 Characteristics and location of vegetation monitoring plots

Vegetation Type	Name of plot	Latitude	Longitude	Fire severity index	Drainage	Age
White birch spruce forest	V01	49,13226	-75,667194	Low-Medium	Moderate	Young
	V02	49,236119	-75,688313	Medium-High	Good	Int.
Black spruce forest with lichens	V03	49,076192	-75,712788	Low-Medium	Moderate	Old
	V04	49,231759	-75,705061	Medium-High	Moderate	Old
Black spruce forest with mosses or heath plants	V05*	49,098543	-75,667118	Low	Moderate	Old
	V06*	49,145352	-75,556032	Low-Medium	Moderate	Old
	V07	49,146802	-75,562119	Medium-High	Moderate	Old
	V08*	49,080961	-75,688943	Low	Imperfect	Old
	V09*	49,10639	-75,66393	Low-Medium	Imperfect	Old
	V10*	49,136765	-75,51605	Medium-High	Imperfect	Old
	V11*	49,061518	-75,679036	Medium-High	Imperfect	Young
Open black spruce forest with sphagnum mosses	V12	49,212722	-75,729185	Low	Very bad	Old
	V13	49,234495	-75,704478	Low-Medium	Very bad	Old
	V14*	49,130957	-75,500079	Medium-High	Very bad	Old
Black spruce forest with sphagnum mosses	V15	49,028962	-75,68305	Low	Bad	Old
	V16	49,234117	-75,72269	Low-Medium	Very bad	Old
	V17*	49,076613	-75,695925	Low-Medium	Bad	Int.
Black spruce forest with fir trees	V18	49,117059	-75,642836	Low	Moderate	Old
	V19	49,119547	-75,642336	Low-Medium	Moderate	Old
	V20*	49,153074	-75,521562	Low	Moderate	Young
	V21*	49,093253	-75,683309	Low-Medium	Moderate	Young
	V22*	49,1148820	-75,566848	Medium-High	Bon	Young
Black spruce forest with fir trees and sphagnum mosses	V23	49,153659	-75,46797	Low-Medium	Bad	Int.
	V24	49,233758	-75,729741	Medium-High	Bad	Young

* : Plot corresponding to a wildlife monitoring station

Methodology

For the first year of monitoring and at the level of each plot, 3D photo interpretation, coupled with a field control point, will be used to assess the following parameters:

- Ecological variables: slope, surface deposit, drainage, ecological type;
- Fire severity class (more detailed scale);
- Original and partial disturbance (taking fires into account);
- Terrestrial stand type or wetland class;
- Forest stratification: dominant shrub and/or tree species;
- Determination of indicator species groups and cover (which will enable the evolution of the stand to be monitored and anticipated);
- Density class;
- Height class;
- Age class (variable depending on the severity of the initial fire);
- Stand structure;
- Habitat elements for wildlife (e.g., snags (%), habitat quality rating for large wildlife [food, shelter]).

All data will be entered and structured in a geographic information system (ArcGIS). For monitoring years 2 and 5, monitoring will consist of updating the parameters studied based on information collected in the field (section 3.2.3). In the final monitoring year (year 9), 3D photo interpretation will supplement the data collected in the field in order to detail the evolution of the stand within the same plot since year 1 and to predict its future evolution.

Frequency and period of monitoring

- Year 1: 2024;
- Year 2: 2025;
- Year 5: 2028;
- Year 9: 2032.

Plant species diversity

According to the literature consulted, forest fires can lead to changes in plant species diversity depending on pioneer species and initial environmental conditions, the severity of the fires, and the stages of succession. Studying plant species diversity will enable short- and medium-term effects to be assessed by recording changes in recolonization by the plant species that make up the different strata of the canopy (tree, shrub, herbaceous, moss) of the forest stands being monitored.

Inventory plan

Field inventory stations will be positioned in each of the 24 selected vegetation study plots (section 3.2.2.1). The positioning of the stations will take into account certain elements of the physical environment, including the site's exposure to the south, as well as aspects related to topography, the location of the station, and the proximity/nature of the surrounding environment (e.g., location on a slope, inclination, micro-relief, proximity to the edge, etc.). These stations will be fixed for all years of monitoring. The inventory data collected as part of the EIA will serve as a reference (control).

Methodology

At each station, a characterization plot will be established to describe the vegetation, soil, and physical environment. A variable inventory radius will be applied depending on the vegetation being inventoried: a 10-meter radius for the inventory of trees and shrubs and a 5-meter radius for the inventory of non-woody strata (herbaceous and muscinous). A data collection form (Survey 123 application) will be developed, as well as a report template that will allow the data collected in the field to be collated and presented. The Field Map application, installed on a tablet coupled with a sub-meter precision DGPS, will be used to guide staff in the field and to collect geolocated information.

Vegetation

The following data will be collected regarding vegetation:

- Census of all plant species present.
- Absolute coverage for each species.
- Total cover for each vegetation stratum: tree, shrub, ericaceous, herbaceous, moss (mosses, lichens, and sphagnum recorded separately).
- Cover of indicator species group.
- Average height of low shrub stratum (ericaceous, deciduous, and coniferous, 0-1 m).
- Average height of the upper shrub layer (ericaceous, deciduous and coniferous, 1-4 m).
- Average height of the tree layer (deciduous and coniferous, > 4 m).
- Average DBH (diameter at breast height) of trees (deciduous and coniferous, > 4 m).

Soil characteristics

Since soil characteristics can influence vegetation recovery, the soil will be described using the following parameters:

- Litter thickness;
- Humus thickness;
- Thickness and type of organic horizon;
- Soil horizons and texture;
- Drainage class.

The texture of soil horizons will be determined in the field by tactile evaluation of soil samples taken from the surface using a hand auger, according to the texture classes of the Ecological Observation Point (MRNF, 1994). Drainage will be assessed based on the classes detailed in the guide Identification et délimitation des milieux humides du Québec méridional (Identification and Delimitation of Wetlands in Southern Quebec), taken from the Ecological Observation Point (MRNF, 1994), namely:

- Class 0 (excessive);
- Class 1 (rapid);
- Class 2 (good);
- Class 3 (moderate);
- Class 4 (impaired);
- Class 5 (poor);
- Class 6 (very poor).

Other data

Other information, mainly concerning the physical environment, will also be collected at the plot level (5 m radius), including:

- Primary and secondary hydrological and biophysical indicators (wetlands);
- Presence of litter on the ground (%);
- Presence of bare soil (%);
- Presence of water (%);
- Presence of rocks and outcrops (%);
- Topographic situation, slope inclination, orientation, micro-relief.

Frequency and monitoring period

Each year of monitoring, a summer inventory campaign will be carried out (August).

In order to assess changes in the diversity of plant and moss communities over time, monitoring will be carried out during the construction and operation phases of the mine according to the following schedule:

- Year 1: 2024;
- Year 2: 2025;
- Year 5: 2028;
- Year 9: 2032.

7.5.1.3 Terrestrial fauna

Avian fauna

One of the documented effects of forest fires on avian fauna is a decrease in species richness and abundance during the first few years. Species diversity may also differ depending on habitat changes and species preferences (e.g., preference for open habitats and snags).

Two options are presented to meet the main objective, which is to validate the effect of forest fires that occurred in the territory in 2023 on avian fauna communities. These inventory methods are described in this section.

Inventory plan

A total of 48 plots will be laid out in the study area, i.e., 24 plots per habitat type (Table 7-5). In each of these habitats, six plots per fire severity index will be surveyed. Control plots will also be surveyed in habitats not affected by fire.

Methodology

The main objective of the terrestrial bird inventory is to determine the composition and abundance of birds nesting in the inventoried areas. To do so, two counting methods are used: limited radius counting (LRC) and point abundance index (PAI) (Environment Canada, 1997), based on traditional listening methodology.

Bird inventories will be conducted between June 10 and July 4, inclusive, as far as possible.

Limited radius count (LRC)

The BRC method consists of counting all birds seen and heard from a fixed point, within a certain radius and during a given period (Ralph et al., 1995; Bibby and Burgess, 1992). In this study, it is recommended that birds be counted for 15 minutes within a radius of 75 m. This is the same method used in the Project's EIA. In addition, to ensure the independence of the data collected, each station must be at least 250 m apart, and ideally 300 m apart. Stations will be surveyed only once, between 30 minutes before sunrise and approximately 10:30 a.m. To mitigate the observer's effect on bird activity, each count will be preceded by a two-minute pause. In addition, since weather conditions influence bird detection, counts will be conducted on days when conditions are optimal, i.e., without rain and with light winds.

During counts, two individuals of the same species are considered different when they are seen or heard simultaneously, if they respond to each other, or if they can be distinguished by morphological characteristics. In addition, at the end of each listening period, song playback will be used to increase the probability of detecting rare or discreet species, species with special status, or new nesting behaviors. When moving between stations, all observations of new species, rare species, or species with a precarious status will also be noted. Before, during, and after the counts, as well as during travel, observers will pay particular attention to bird behavior in order to determine their nesting status according to the codes of the *Atlas des oiseaux nicheurs du Québec* (AONQ, 2025).

Table 7-5 Distribution of inventory plots by habitat type for avian fauna

Habitat Type	Plot Name	Latitude	Longitude	Fire severity index
Wooded area	MB-AF-01	49,153031	-75,540230	No fire
	MB-AF-02	49,156917	-75,541878	No fire
	MB-AF-03	49,162611	-75,546614	No fire
	MB-AF-04	49,084141	-75,602114	No fire
	MB-AF-05	49,089940	-75,597678	No fire
	MB-AF-06	49,095567	-75,591956	No fire
	MB-FA-01	49,083088	-75,685727	Low
	MB-FA-02	49,080855	-75,688475	Low
	MB-FA-03	49,085431	-75,685779	Low
	MB-FA-04	49,100258	-75,685455	Low
	MB-FA-05	49,098485	-75,667276	Low
	MB-FA-06	49,153374	-75,504418	Low
	MB-MF-01	49,141997	-75,510461	Low-Medium
	MB-MF-02	49,142836	-75,555418	Low-Medium
	MB-MF-03	49,145427	-75,555819	Low-Medium
	MB-MF-04	49,076655	-75,696337	Low-Medium
	MB-MF-05	49,106353	-75,663673	Low-Medium
	MB-MF-06	49,135561	-75,498478	Low-Medium
	MB-ME-01	49,138742	-75,513288	Medium-High
	MB-ME-02	49,136523	-75,516718	Medium-High
	MB-ME-03	49,143526	-75,516567	Medium-High
	MB-ME-04	49,151244	-75,503566	Medium-High
	MB-ME-05	49,131176	-75,500485	Medium-High
	MB-ME-06	49,134017	-75,503819	Medium-High
Regeneration	RE-AF-01	49,089802	-75,602242	No fire
	RE-AF-02	49,087003	-75,60265	No fire
	RE-AF-03	49,087227	-75,606777	No fire
	RE-AF-04	49,099251	-75,572855	No fire
	RE-AF-05	49,099780	-75,611404	No fire

Habitat Type	Plot Name	Latitude	Longitude	Fire severity index
	RE-AF-06	49,095374	-75,609313	No fire
	RE-FA-01	49,090139	-75,683673	Low
	RE-FA-02	49,15299	-75,521548	Low
	RE-FA-03	49,137488	-75,496526	Low
	RE-FA-04	49,107653	-75,654686	Low
	RE-FA-05	49,112651	-75,66737	Low
	RE-FA-06	49,122398	-75,648954	Low
	RE-MF-01	49,052096	-75,663935	Low-Medium
	RE-MF-02	49,101959	-75,573848	Low-Medium
	RE-MF-03	49,093314	-75,683395	Low-Medium
	RE-MF-04	49,123276	-75,670192	Low-Medium
	RE-MF-05	49,148863	-75,543602	Low-Medium
	RE-MF-06	49,125449	-75,666172	Low-Medium
	RE-ME-01	49,050442	-75,658859	Medium-High
	RE-ME-02	49,060496	-75,679663	Medium-High
	RE-ME-03	49,063458	-75,680854	Medium-High
	RE-ME-04	49,097778	-75,580551	Medium-High
	RE-ME-05	49,097272	-75,585435	Medium-High
	RE-ME-06	49,103093	-75,578197	Medium-High

Point abundance index (PAI)

The PAI method will be used concurrently with the DRL method (Blondel et al., 1981). Unlike the previous method, this one does not impose any limits on counting distance. Its advantage is that it covers much more space than the DRL method, making it possible to count species that have a larger territory or are rarer or more discreet.

Frequency and monitoring period

The proposed frequency of inventories is as follows:

- Year 1: 2024;
- Year 2: 2025;
- Year 5: 2028;
- Year 9: 2032.

This frequency will allow for an accurate picture of the communities impacted by fires, particularly in the early years of forest regeneration.

Applicable criteria and quality control

Density will be the main value used to assess the evolution of communities over time. Specific diversity (number of species per station and per habitat type) is another parameter that will be used.

Snowshoe Hare

As with birdlife, forest fires can lead to a decline in the abundance of snowshoe hares in the first few years after the fire. The main objective of the snowshoe hare study is to assess the extent of this effect based on the severity of the fire.

Inventory plan

The 20 inventory plots (5 plots per fire severity class) will be visited to determine their use by snowshoe hares (Table 7-6). The location of the plots was determined based on potential habitats for the species in the area. Priority areas are those with disturbed forests, particularly those that have been logged within the last 10 to 30 years. Forest regeneration after logging usually generates food for snowshoe hares. Plantations were excluded from the section, as they generally lead to the creation of homogeneous stands that are not conducive to the presence of snowshoe hares due to a lack of food in the understory (Cheveau et al., 2021). Snowshoe hare habitat areas targeted by the Cree community were also prioritized whenever possible, i.e., when there were contiguous stands allowing for the establishment of an inventory plot in a homogeneous environment (habitat or fire severity class).

Table 7-6 Distribution of inventory plots by habitat type for the snowshoe hare

Plot Name	Latitude	Longitude	Fire severity index
AF-01	49,099118	-75,606666	No fire
AF-02	49,100698	-75,604881	No fire
AF-03	49,101671	-75,596981	No fire
AF-04	49,050543	-75,690748	No fire
AF-05	49,050288	-75,694207	No fire

Plot Name	Latitude	Longitude	Fire severity index
FA-01	49,130999	-75,567053	Low
FA-02	49,130892	-75,565585	Low
FA-03	49,133405	-75,564505	Low
FA-04	49,128084	-75,642208	Low
FA-05	49,115162	-75,644041	Low
MF-01	49,038276	-75,650844	Low-Medium
MF-02	49,048454	-75,662587	Low-Medium
MF-03	49,047746	-75,659462	Low-Medium
MF-04	49,041985	-75,653112	Low-Medium
MF-05	49,114202	-75,645850	Low-Medium
ME-01	49,115196	-75,565973	Medium-High
ME-02	49,113090	-75,567359	Medium-High
ME-03	49,040018	-75,651554	Medium-High
ME-04	49,041144	-75,649172	Medium-High
ME-05	49,137482	-75,555323	Medium-High

Methodology

The methodology used is based on several studies conducted in Quebec on the snowshoe hare (Cusson et al., 2001; Godbout et al., 2001; Blanchette et al., 2003; Hodson, 2011). To this end, two methods will be used: searching for and counting droppings, and assessing browsing. Habitat assessment will also be carried out.

At each inventory plot, 16 stations spaced 20 m apart will be arranged in a grid pattern (Figure 7-1). At all stations, droppings will be counted within a 1-meter radius. Measurements of browsing and habitat variables specific to the snowshoe hare will be taken at half of the stations, according to the pattern shown in Figure 7-1. To do this, four variables will be studied: dominant vegetation height (11.28 m radius), vertical cover density (11.28 m radius), lateral cover obstruction (15 m radius), and browsing (1.13 m radius).

The counting of feces and browsing and the evaluation of habitat will be carried out at the beginning of June of each monitoring year. The sampled area will also be cleaned of hare feces in the fall to remove any feces that may have been produced during the summer.

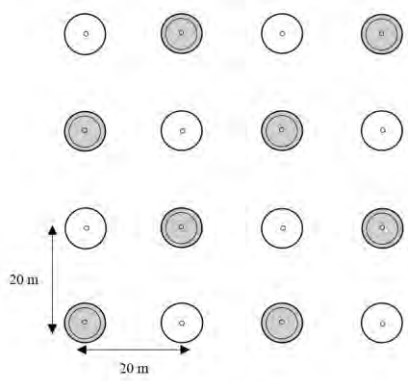
During the consultation with the PNCW, one participant suggested conducting hare inventories during the winter period, as this is the best time for tracking. Considering that the purpose of the hare inventory is to study the abundance of the species in relation to the severity of fires rather than to identify movements, the methods proposed above (in the spring-summer period) were preferred.

Frequency and monitoring period

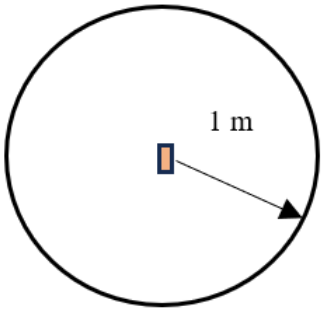
The proposed frequency of inventories is as follows:

- Year 1: 2025;
- Year 2: 2026;
- Year 5: 2028.

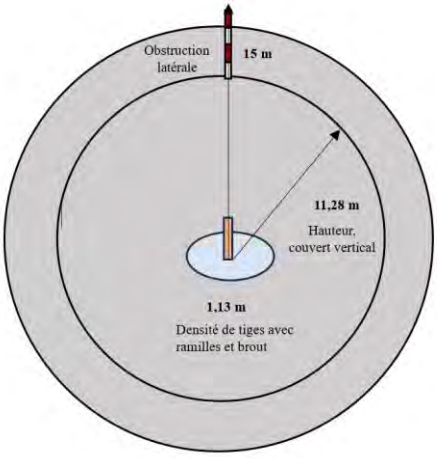
This frequency will allow for the assessment of the impact of forest fires on the snowshoe hare, particularly in the early years of forest regeneration. The relevance of conducting an additional inventory will be evaluated in Year 5 based on the quality of the results collected during these three years of monitoring.



a) Localisation des stations d'inventaires pour chaque placette



b) Dénombrement de crottins et de brout sur toutes les stations



c) Mesure de variables de l'habitat (une station sur deux)

Figure 7-1 Arrangement of sampling stations for counting droppings and describing the habitat

Applicable criteria and quality control

This study will compare fecal density between stations according to fire severity and across years. This value will be compared with grazing rates and habitat-specific values (number of stems/ha, plant species coverage, lateral obstruction, etc.).

Caribou

WMG is currently in discussions with the MELCCFP to participate in a more in-depth study of the movement of caribou for a detached group from the Assinaca herd that has been identified south of the Project site.

The monitoring program under discussion could include the addition of telemetry collars with data collection at shorter intervals to better understand the routes taken between this group and the Assinica herd. However, given the sensitive nature of the data collected, the results will not be published.

7.5.1.4 Benthos

Forest fires can increase the density and alter the composition of benthic macroinvertebrate communities (benthos). Changes in benthos communities have repercussions on the food chain, particularly on aquatic fauna. As with surface water, samples have already been taken at the Project site to establish the baseline for the EIA. For the biodiversity program, it is suggested that sampling be conducted at stations where data has already been collected. Samples collected from areas affected and unaffected by fire can then be compared with the baseline results.

Sampling plan

Four sampling stations were selected in the local study area of the biophysical environment. The stations were chosen based on the availability of previous data, the area of influence of the Project's mine effluent, and areas affected or unaffected by forest fires. The selected water bodies are all located outside the network impacted by the effluent in order to distinguish the effects of fire from those resulting from mining activities. Two stations are located in areas affected by fires, while the other two are in unaffected areas. Table 7-7 shows the geographic coordinates and previous sampling years for the benthos stations. They are also shown on Map 7-1.

Table 7-7 Location of measurement stations and year of benthos sampling

Station Name	Name of lake or watercourse	Latitude	Longitude	Area affected by fire	Inventoried as part of the EIA
BEN-10	SN4	49,062778	-75,659167	Yes	2017
WL-01	CE-01	49,071389	-75,666944	Yes	NA
WL-ST01	SN2-E1	49,058889	-75,625556	No	2021
BEN-08	SN2	49,066944	-75,635000	No	2017

Methodology

A comprehensive sampling protocol will be developed to limit sources of contamination between the environment, the specimens from which samples are taken, and the samples during laboratory handling. The main features of the methodology used are presented in the following paragraphs.

Three subsamples will be collected at each station using an Ekman or Ponar grab. Once collected, the samples will be filtered through a 500 µm sieve, transferred to sealed jars identified with the station number, and stored in a 70% alcohol (glycerine) buffer solution until they are processed in the laboratory. The sample analyzed in the laboratory will be a composite of the three subsamples collected.

The laboratory work will consist mainly of sorting the samples under a binocular microscope and identifying the organisms down to the family level. In the laboratory, the samples will be rinsed with water in stacked sieves with mesh sizes of 4,000, 2,000, 1,000, and 500 µm. The organisms will be counted and grouped according to major taxonomic groups. They will be preserved in 70% alcohol (glycerine) for later identification.

In addition, the following information will be collected for each station: water depth, type of flow, current velocity, water transparency and physicochemistry (profile for lakes), forest cover, bank composition, presence of support infrastructure, substrate type, and substrate condition. Photographs of samples and habitat will be taken at each station.

Frequency and monitoring period

Sampling will be carried out during the period from September to October. This period corresponds to the time when the benthic community in the watercourse is most diverse. In order to define the temporal effects of forest fires on benthos and to assess the time required for conditions to return to their initial state (if applicable), monitoring will be carried out during the construction and operation phases of the mine according to the following schedule:

- Year 1: 2024;
- Year 2: 2025;
- Year 5: 2028.

The relevance of additional sampling will be assessed in Year 5, based on the quality of the results collected during these three years of monitoring.

Applicable criteria and quality control

A quality control check of the sorting will be carried out by the laboratory on one of the samples and will consist of sorting the residual organic matter by a person other than the original sorter. The taxonomic evaluation of benthic organisms will be carried out using the identification keys cited in Cummins et al. (2008) and in Thorp and Covich (2010)

7.5.2 Closure phase

No specific monitoring is currently planned during the closure phase for biodiversity.

8 Other follow-ups

8.1 Wetland and water compensation

Given the strong support from the community, WMG wishes to maintain the biodiversity program as the main measure to compensate for the loss of wetlands and water. The details of this program were presented in the previous chapter. In addition to this program, an additional project is also proposed, namely the borrowing pit or the restoration of Osborne Road.

The details of these projects are not yet available. Once the project has been developed in more detail, a monitoring program will be proposed, but it should be in years 1, 3, and 5.

8.2 Fish habitat compensation

The James Lake compensation project details all of the activities planned for the project. Anticipated monitoring would be carried out in years 1, 3, and 5 after the work is completed in order to validate the integrity of the work and ensure that the objectives have been achieved. The baseline condition of the site was established during the search for compensation projects in July and August 2024. The physical characteristics of the developments and the conditions for the free movement of fish will be assessed considering the following parameters:

- Description of the general condition of the developments (signs of instability, erosion, silting, scouring, etc.);
- Condition of the riparian strip and rockfill embankments;
- Photographs (upstream view, downstream view, view of the banks, etc.) for comparison with the baseline condition;
- Description and measurement of the culvert:
  - Wet surface area in the culvert;
  - Substrate of the reconstructed bed;
  - Watertightness of the reconstructed bed (presence of seepage);
  - Drop height;
  - Type of jet at the culvert outlet, if present;
  - Water depth at the upstream and downstream ends;
  - Flow velocity in the culvert;
  - Description of the downstream pool (depth, current velocity).
- Use by fish fauna if possible (visual observations)

These measurements will be taken at each monitoring session for comparison purposes. The effectiveness of the improvements will also be assessed through visual observations. The results will be presented in a report after each monitoring session.

9 Annual Monitoring and Follow-up Report

The annual report, as required by D019, is a key environmental accountability tool for all mining operators in Quebec. It aims to provide the ministry with a comprehensive, transparent, and up-to-date overview of mining activities, their environmental management, and the measures taken to ensure regulatory compliance. This report not only demonstrates compliance with legal requirements, but also documents efforts toward continuous improvement and responsible management of the environmental impacts associated with mining operations.

The report provides a summary of mining activities carried out during the year. This summary must include the tonnage extracted and processed, the number of production days, and any periods of temporary shutdown. It is also essential to report any incidents or problems that may have an impact on the environment, such as accidental spills, specifying the corrective measures taken to remedy them. This section aims to provide an overview of operations and highlight proactive environmental risk management.

The report must mention any changes made to the spill response plan, as well as measures taken to strengthen incident prevention and management. Finally, the report must include a summary of the restoration work carried out during the year, including progressive restoration work, the location and areas restored, and the monitoring measures put in place. This section demonstrates the operator's commitment to the rehabilitation of mining sites.

The content of the annual report is structured around several major themes, each of which meets specific requirements of D019.

9.1 Calculation of annual loads and flow measurements

The report presents the calculation of annual loads for each regular monitoring parameter for each final effluent, in accordance with the methods detailed in D019. The monthly loads are added together to obtain the annual load (expressed in kg/year) for each parameter monitored, such as arsenic, copper, iron, nickel, lead, zinc, cyanides, suspended solids, radium 226, etc.

The report must contain the initial or annual verification report on the accuracy of the flow measurement systems, as prescribed by D019. This report must include recommendations and an action plan for corrective measures, if applicable, as well as follow-up on the completion of corrective work. This requirement allows for greater certainty in calculating loads.

9.2 Mining waste management

The annual report must include the annual quantity, in metric tons, of all mining waste produced, as well as its distribution by management method (underground backfill, disposal in accumulation areas, reuse, etc.). It is also required to indicate the area, in hectares, affected by mine waste accumulation areas and treatment ponds. This information is used to assess the environmental footprint of operations and the performance of waste management.

The report also includes the annual physical stability inspection report for tailings storage facilities and associated structures, as well as recommended corrective measures and their status. The follow-up of corrective work carried out following the safety review must be detailed, including the schedule for implementing corrective measures. This requirement is intended to ensure that the recommendations resulting from inspections and safety reviews are effectively implemented.

9.3 Monitoring of piezometry and groundwater quality

The report contains a specific section on groundwater quality monitoring, including analysis results, interpretation of trends, and a description of any corrective or mitigation measures implemented, where applicable. Analysis certificates must be kept in an accessible register and made available upon request. This requirement is intended to ensure the protection of water resources and prevent any contamination related to mining activities.

Piezometric monitoring, i.e., measuring groundwater levels, must also be included in the annual report. Measurements must be taken at locations where observation wells have been installed, at least twice a year, generally in the spring and summer. The report must present the results of these measurements and their interpretation.

9.4 Water balance

The report presents a detailed balance of water used and discharged at the mining site, including the mining wastewater utilization rate and the mining wastewater utilization efficiency rate, calculated according to the prescribed formulas. All data necessary for these calculations, such as the annual volume of reused mine wastewater, the annual volume of fresh water used, and the annual volume of final effluent, must be provided. This balance sheet makes it possible to evaluate the effectiveness of water management and efforts to reduce fresh water consumption.

For each tailings storage area on the site, the report must include the results of the percolation rate calculation, as well as all data necessary for this calculation. This requirement is intended to ensure that tailings management infrastructure does not pose a risk of groundwater contamination.

9.5 Transmission and retention procedures

The annual report shall be submitted to the Department by June 1 of each year until the end of the transition period leading to the complete restoration of the site. All reports submitted, as well as the documents, information, and data necessary for their production, will be retained by WMG throughout the activities and until the post-restoration monitoring program is discontinued.

9.6 Annual review and monitoring

The annual report must demonstrate compliance with the requirements. The annual report is a key environmental management and accountability tool. It will enable the Department to verify WMG's compliance and monitor the evolution of environmental impacts. In addition to the content presented above, the monitoring reports that will be produced during the year will be included as appendices. Thus, all commitments made for a given year will be reported according to the monitoring schedule presented in the following chapter.

10 Monitoring Schedule

Table 10-1 presents a schedule for all monitoring planned under this environmental monitoring program throughout the various phases of the Windfall project.

Windfall Project

Preliminary Environmental Monitoring Program - Monitoring Schedule

#	Monitoring	Legal or regulatory requirements	Follow-up report	Bulk sampling phase			Construction phase		Operational phase									Closure phase (post-exploitation)		Closure phase (post-restoration)	Details/comments
				2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041-2050	
3	**Mining operations**																					
3.1	**Geochemistry of ore, waste rock, and tailings**																					
	Geochemical characterization of waste rock and tailings (solid-phase metal composition, acid-base balance, and leaching tests) and visual inspection of rocks, tailings, and signs of acid rock drainage	MELCCFP	Annual monitoring					Annual														
		MRNF	Full report every 5 years								Once					Once						
3.2	**Cyanide destruction operations** (no monitoring planned)																					
3.3	**Water management structures and accumulation areas**																					
	Inspection of accumulation areas and water management infrastructure and equipment						Daily															
	Inspection of accumulation areas, related ditches, and basins	D019	Post-inspection factual report				Seasonal (4 times per year)															
	Comprehensive inspection	D019					Annual															
	Visual inspection of the integrity of accumulation areas	D019																			Once	
3.4	**Environmental incidents and accidents**																					
	Parameters to be recorded in the event of an incident (types of products released, state (solid, liquid, or gaseous), and receiving environment)	D019	Annual follow-up report D019 as of June 1				Ongoing															
3.5	**Residual and hazardous waste management**																					
	Volumes and nature of residual materials and MDR	D019 and RMD	Follow-up report						Ongoing													
3.6	**Drinking water distribution network**																					
	Drinking water analyses	RQEP (Q-2, r.40)	Annual follow-up report D019 as of June 1				Ad hoc															
3.7	**Sanitary water**																					
	Monitoring of the sanitary water treatment system (parameters to be determined)	MELCCFP					Frequency to be determined															
3.8	**Atmospheric emissions from mining operations**																					
	Emissions analyses at chimneys, ore processing plant ventilation (cyanide) and roasting facilities	RAA (Q-2, r. 4.1)	Monitoring report within 120 days of the end of the campaign						Annual			Annual			Annual			Annual				Within one year of the start of operation, then every three years during the operational phase.
	Visual inspection and maintenance of a record of spills for fugitive emissions	MELCCFP							Ongoing													
4	**Physical environment**																					
4.1	**Ambient air**																					
	Calibration of the weather station	MELCCFP and LQE (Q-2)	Annual follow-up report D019 as of June 1						Annual													Monitoring will continue until the buildings on the site are dismantled.
	Total suspended particles, metals, and fine particles								Continuous (every 6 days)													
	Analysis for crystalline silica								Continuous (every 12 days)													
	Dust fallout (jars)								Monthly during the snow-free period (every 30 days)													
4.2	**Greenhouse gases**																					
	Amount of fossil fuel consumed	RDOCECA (Q-2, r.15), PDGES and INRP	Annual monitoring report (May 31 for RDOCECA and June 1 for PDGES and INRP)				Quarterly															
	Electricity consumption						Monthly															
	Verification of the technical and economic feasibility of new substitution technologies to reduce emissions, and of alternative fuels and energy sources to reduce emissions Review of operating procedures aimed at reducing emissions	MELCCFP	Monitoring integrated into the D019 annual report every three years								Annual			Annual			Annual					
4.3	**Noise and vibrations**																					
	Complaints from local communities (section 6.2)	D019	Annual follow-up report D019 as of June 1				Ongoing															
4.4	**Soil**																					
	Characterization of mining site soils	D19, LQE (Q-2) and RPRT (Q-2, r.37)	Follow-up report no later than 6 months after the end of operations																1X before restoration work is carried out			
4.5	**Hydrology**																					
	Water levels between spring and fall and precipitation amounts between spring and fall	MELCCFP	Annual follow-up report D019 as of June 1						Annual	Annual			Annual	Annual								
	Inspection of erosion and documentation of the condition of the watercourse, particularly the banks, and inspection of changes in hydraulic conditions (e.g., construction or breakage of a beaver dam, vegetation log jams, etc.)								Annual	Annual			Annual	Annual								
4.6	**Mine effluent and surface water**																					
	Flow rate and pH	D019	Monthly monitoring report no later than 30 days after the end of the month (SENV) Annual monitoring report D019 as of June 1				Ongoing												Weekly (0 to 6 months after the end of operations), then bi-monthly until the end of restoration work (a minimum interval of 4, 7, and 15 days is required between each weekly, bi-monthly, and monthly sampling, respectively)		8 times per year (for a minimum of 10 years until the requirements of D019 are met, at least one sample each spring and fall, with a 20-day interval between each sampling)	
	Suspended solids						3X / week															
	As, Cu, Fe, Ni, Pb, Zn, total cyanides, and ammoniacal azone						1X / week															
	Acute toxicity						1X / month															
	Petroleum hydrocarbons ($_{C10-C50}$, radium 226), chronic toxicity to invertebrates (Ceriodaphnia dubia) and algae (Raphidocelis subcapitata) and complementary monitoring (groups 1 to 4)						1X / quarter															
	Temperature, pH, As, Cu, Ni, Pb, radium 226, total cyanides, suspended solids, and non-ionized ammonia	REMMMD	Quarterly monitoring report (ECCC, SDEM) 45 days after the end of the quarter						1X / week										1X/week (for 3 years following closure notice)			Possibility of reducing the frequency for radium 226, arsenic, copper, cyanide, lead, nickel, zinc, or non-ionized ammonia to at least once per calendar quarter, with each test performed at least one month apart, in accordance with REMMMD provisions.
	Acute lethality								1X / month										Once per month (for three years following the closure notice)			The frequency may be reduced to once per calendar quarter at a final discharge point if, for 12 consecutive months, the effluent at that final discharge point does not exhibit acute lethality according to this test.
	Hardness, alkalinity, conductivity, nitrate, chloride, sulfate, phosphorus, Al, Cd, Cr, Co, Fe, Hg, Mn, Mo, Se, Tl, U								4 times per year										4X/year (for 3 years following closure notice)			
	Sublethal toxicity of *Lmena minor*								2X/year										2X/year (for 3 years following the closure notice)			
	pH, hardness, alkalinity, conductivity, temperature, and dissolved oxygen, harmful substances mentioned in Article 3 and paragraph 4(1)								≥ 4X/year										4X/year (for 3 years following closure notice)			
	Surface water sampling and analysis (Table 4-18)	MELCCFP	Annual follow-up report D019 as of June 1						1X/year (after flooding)													This program will be updated if a final effluent is added or moved, or if changes are made to the parameters to be analyzed.
	Sampling of OERs in effluent	MELCCFP	Follow-up report after 3 years and then every 5 years (MELCCFP)						Quarterly (at least 60 days between samples)													Excluding the running-in period.
4.7	**Sediments**																					
	TOC, moisture, petroleum hydrocarbons ($_{C10-C50}$), total phosphorus, total cyanides, total sulfur, mercury, Ag, Al, As, Ba, Be, Bo, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Sb, Se, Sr, U, V, Zn, total oils and fats, and granulometry/sedimentology	REMMMD - ESEE	Annual follow-up report D019 as of June 1						Annual (every 4 years)				Annual (every 4 years)			Annual (every 4 years)					1X after complete cessation of mining activities	Sampling will be carried out when the flow of the watercourses decreases, but the effluent is active to empty the basins following the snowmelt.
4.8	**Hydrogeology**																					
	Piezometric variation, temperature, water pressure, and pressure in the air column	D019	Annual follow-up report D019 as of June 1						Ongoing										Continuously until water levels in the wells are restored			
	Variations in water levels in the surface water table of the wetland with filter points	D019							Ongoing										Continuously until water levels in the wells are restored			
4.9	**Groundwater quality**																					
	Piezometric variation (groundwater elevation)	D019	Annual follow-up report D019 as of June 1				Twice a year (spring after snowmelt and summer during low water period)															
	pH, electrical conductivity, temperature, ORP and dissolved oxygen, petroleum hydrocarbons (C10-C50), major ions (bicarbonates, carbonates, calcium, chlorides, magnesium, potassium, sodium, sulfates), dissolved metals (Ag, Al, As, Ba, B, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Se, Sb, Sn, Sr, U, Zn), total and available cyanides, sulfides, total phosphorus, ammoniacal nitrogen, nitrites and nitrates, and radium						Twice a year (spring after snowmelt and summer during low water period)															
5	**Biological environment - Protection of fauna and flora**																					
5.1	**Vegetation and wetlands**																					
	Monitoring of environmental impact assessments	MELCCFP					Annual	Annual														
	Agronomic inspection of vegetated areas	MRNF	Annual follow-up report D019 as of June 1																		Annual (first 5 years)	Annual agronomic monitoring for 5 years following the completion of restoration work.
5.2	**Ichthyofauna**																					
	Analysis of metal contamination in the flesh of sentinel species (required under certain conditions) Morphometric parameters and measurements (length, mass, sex, gonadal development stage, age, and fertility)	REMMMD - ESEE	Follow-up report no later than 36 months after the date on which the previous interpretation report was due				Fall			Fall			Fall			Fall			Fall			Monitoring every 3 or 6 years depending on the presence or absence of effects. Monitoring as soon as effluent is present, until the mine is considered closed. Program review every 36 or 72 months.
5.3	**Benthos**																					
	Water sampling (identification of taxonomic groups, total invertebrate density, number of taxa, and evenness)	REMMMD - ESEE	Follow-up report no later than 36 months after the date on which the previous interpretation report was submitted				Fall			Fall			Fall			Fall			Fall			Monitoring as soon as effluent is present (at least one month after the mine has begun regular operations), and then every three years until the mine is considered closed.
	Characterization of the water body (water depth, type of flow, current velocity, transparency, and physicochemistry of the water) Characterization of the surrounding habitat (forest cover, composition of the banks, presence of support infrastructure, type and condition of the substrate, photographs of the habitat)						Fall			Fall			Fall			Fall			Fall			
5.4	**Herpetofauna** (no monitoring planned)																					
5.5	**Avian fauna**																					
	Acoustic surveys of American whippoorwills (number of individuals heard, age class, etc.)	MELCCFP	Post-inventory report (2024) and follow-up report after each inventory	Monthly (June and July)			Annual (between June 15 and July 15)			Annual (between June 15 and July 15)			Annual (between June 15 and July 15)									
	Observations of individuals and nests (olive-sided flycatcher, Canada warbler, and rusty blackbird; location of observation, sex, age, nesting status, and behavior. Nests; GPS coordinates, status) and acoustic surveys	MELCCFP		Monthly (June and July)			Annual (between June 12 and July 5)			Annual (between June 12 and July 5)			Annual (between June 12 and July 5)									
	Presence of nests of species with status	MELCCFP	Monitoring report (if nest observed)				Ongoing															
5.6	**Mammals**																					
	Road collisions with large wildlife (included in the road accident registry) and observations of large wildlife (woodland caribou, moose, black bear, and gray wolf)	MELCCFP							Ongoing													
	Presence of beaver dams	MELCCFP							Ongoing													
	Telemetric monitoring of woodland caribou	MELCCFP	Confidential monitoring report		Ongoing																	
5.7	**Chiroptera**																					
	Signs of presence (noises, guano, and odors)	MELCCFP	Monitoring report (if maternity observed)				Continuous (particularly from June 15 to August 14)															
	Inspection of buildings and other relevant structures prior to demolition						Ongoing															
	Inspection of the integrity of artificial shelters	MELCCFP							Annual													
	Inspection of artificial nesting site occupancy	MELCCFP	Annual follow-up report D019 as of June 1						Twice (early June and mid-July)		Twice (early June and mid-July)		Twice (early June and mid-July)									
	Ambient noise, nighttime brightness, and characterization of habitat and vocalizations of bats	MELCCFP	Annual follow-up report D019 as of June 1						Twice between June 15 and July 14 Twice between July 15 and August 14		Twice between June 15 and July 14 Twice between July 15 and August 14		Twice between June 15 and July 14 Twice between July 15 and August 14									
5.8	**Wildlife and plant species with special status** (no monitoring required)																					
6	**Social environment**																					
6.1	**Population, economy, and employment**																					
	Data on direct investments made in Eeyou Istchee (mobilization expenses, contracts awarded, and local purchases), direct jobs broken down by worker origin, local workforce training and development initiatives, and cultural or linguistic adaptation measures applied	MELCCFP	Annual follow-up report D019 as of June 1						Construction review and year 1			Three-year review			Three-year review							
6.2	**Quality of life and well-being**																					
	Complaints, comments, and concerns	MELCCFP	Annual follow-up report D019 as of June 1					Annual	Construction review and year 1			Three-year review			Three-year review							
	Awareness-raising activities on Cree culture and traditional practices and cultural activities	MELCCFP	Annual follow-up report D019 as of June 1						Construction review and year 1			Three-year review			Three-year review							
6.3	**Land and natural resource use**																					
	Interviews on land use and natural resource use	MELCCFP					Ongoing															
6.4	**Land use by Indigenous peoples**																					
	Metal content in plants consumed by the Cree (blueberries and Labrador tea)	MELCCFP	In operation in the annual monitoring report D019 as of June 1	Annual (August)			Annual (August)			Annual (August)			Annual (August)									
	Metal content in game consumed by the Cree (snowshoe hare)	MELCCFP	In operation in the annual monitoring report D019 as of June 1 of the following year				Annual (winter)	Annual (winter)			Annual (winter)			Annual (winter)								
6.5	**Infrastructure and public services**																					
	Data on traffic accidents	MELCCFP	Annual monitoring report during construction, then in years 2, 5, and 8 of operation				Annual	Annual		Annual			Annual			Annual						
6.6	**Heritage and archaeology**																					
	Incidental discovery of an archaeological site	MELCCFP	Ad hoc monitoring in the event of discovery				Ongoing															
6.7	**Landscape** (no monitoring planned)																					
6.8	**Monitoring committee**																					
	Statutory meetings	MRNF					Annual (or as needed)															
7	**Biodiversity program**																					
7.1	**Forest fire situation in Northern Quebec** (no monitoring planned)																					
7.2	**Biodiversity program objectives** (no monitoring planned)																					
7.3	**Expanded study area** (no follow-up planned)																					
7.4	**Literature review on the effects of forest fires on natural environments** (no follow-up planned)																					
7.5	**Environmental studies on the effects of forest fires**																					
	Physicochemical parameters of surface water (temperature, dissolved oxygen concentration, conductivity, and pH)	Compensation		6X / year	6X / year				6X / year													
	Surface water sampling	Compensation		Annual	Annual				Annual													
	Ecological variables (slope, surface deposit, drainage, ecological type), fire severity class, original and partial disturbance, terrestrial stand type or wetland class, forest stratification (dominant shrub and/or tree species), determination of indicator species group and cover, density class, height class, age class, stand structure and habitat elements for wildlife	Compensation		Annual					Annual													
	3D photo interpretation	Compensation		Annual									Annual									
	Vegetation: census of all plant species present, absolute cover for each species, total cover for each vegetation stratum, cover of indicator species group, average height of upper and lower shrub strata and tree strata, and average DBH of trees Soil characteristics: litter thickness, humus thickness, thickness and type of organic horizon, soil horizons and texture, and drainage class Other data: primary and secondary hydrological and biophysical indicators (wetlands), presence of litter on the ground, bare soil, water, rocks and outcrops, topographical situation, slope inclination and micro-relief	Compensation		Annual (August)					Annual (August)					Annual (August)									
	Composition and abundance of birds nesting in the environment (limited radius count and point abundance index)	Compensation		Annual (between June 10 and July 4)					Annual (between June 10 and July 4)					Annual (between June 10 and July 4)								
	Signs of snowshoe hare presence (counting droppings and assessing grazing) and habitat assessment (dominant vegetation height, vertical cover density, lateral cover obstruction)	Compensation		Annual (early June)					Annual (early June)												The possibility of conducting an additional inventory will be assessed in 2028.	
	Cleaning of snowshoe hare feces	Compensation		Annual (fall)					Annual (fall)													
	Water sampling (identification of taxonomic groups, total invertebrate density, number of taxa and equitability) Characterization of the water body (water depth, type of flow, current velocity, transparency and physicochemistry of the water) Characterization of the surrounding habitat (forest cover, composition of the banks, presence of support infrastructure, type and condition of the substrate, photographs of the habitat)	Compensation		Annual (September to October)					Annual (September to October)												The possibility of conducting an additional inventory will be assessed in 2028.	
8	**Other monitoring**																					
8.1	**Wetland and water compensation**																					
	Monitoring the integrity of the selected project layout (structural stability)	Compensation	Annual follow-up report D019 as of June 1					Annual		Annual		Annual										
8.2	**Fish habitat compensation**																					
	Redevelopment of culverts at James Lake: monitoring of the integrity of the development (stability of structures)	Compensation	Annual follow-up report D019 as of June 1					Annual		Annual		Annual										
9	**Annual monitoring and follow-up report**																					
	Calculation of annual loads and flow measurements Management of mining residues Monitoring of piezometry and groundwater quality Water balance	D019	Report submitted before June 1 each year until the end of the transition period leading to full restoration of the site						Annual													

Legend	
	Follow-up period

11 References

Ambient air

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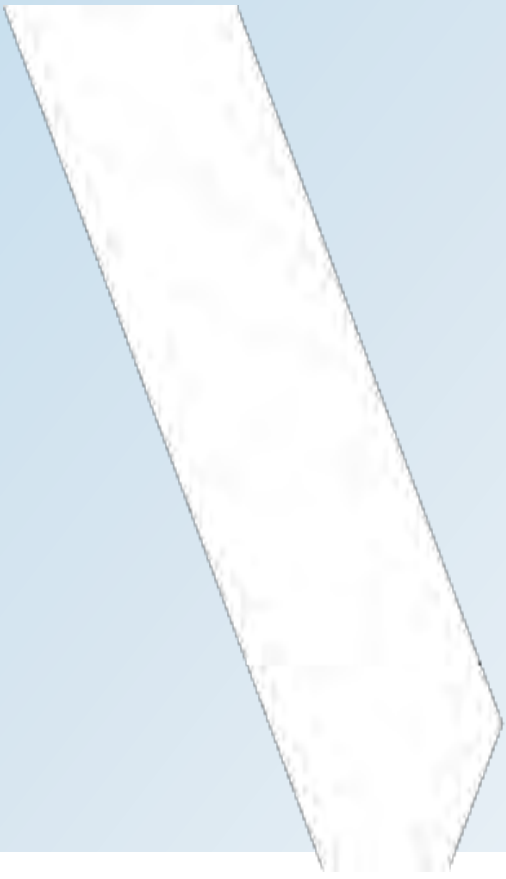
APPENDIX

A DUST MANAGEMENT PLAN



Plan de gestion des poussières

Rapport technique

Groupe minier Windfall

Groupe minier Windfall

Windfall – Études et optimisation

Site Windfall, QC

Rapport technique

Plan de gestion des poussières

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15 décembre 2023

FINAL

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R01	Final	2023-12-15
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ACRONYMES ET ABRÉVIATIONS

CEAEQ	Centre d'expertise en analyse environnementale du Québec
ÉIE	Étude d'impact sur l'environnement
GES	Gaz à effet de serre
GMW	Groupe minier Windfall
LQE	Loi sur la qualité de l'environnement
MDDLECC	Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques
MDDEFP	Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs
MELCCFP	Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs
MERN	Ministère de l'Énergie et des Ressources naturelles
MP	Matière particulaire
PGP	Plan de gestion des poussières
$PM_{2,5}$	Particules ayant un diamètre aérodynamique inférieur ou égal à 2,5 µm
RAA	Règlement sur l'assainissement de l'atmosphère (Q-2, r. 4.1)
UFR	Usine de filtration des résidus
UTM	Usine de traitement du minerai

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1. Introduction

1.1. Mise en contexte

En tant que société d'exploration minière et de mise en valeur de propriétés de ressources de métaux précieux au Canada, le Groupe minier Windfall (GMW) souhaite mettre en exploitation un complexe minier comprenant une mine souterraine afin d'y extraire de l'or et de procéder à son traitement sur place. Le projet est soumis à la procédure provinciale d'évaluation et d'examen des impacts sur l'environnement en vertu de l'article 153 du chapitre II de la *Loi sur la qualité de l'environnement* (LQE; L.R.Q., c. Q 2), qui documente les dispositions applicables à la région de la Baie-James et du Nord québécois en lien avec la convention du même nom. Le projet n'est pas assujetti à une évaluation environnementale fédérale sous la *Loi sur l'évaluation d'impact* (L.C., 2019, ch. 28, art. 1) en application du *Règlement sur les activités concrètes* (art. 18, alinéa c), puisque la production prévue de cette nouvelle mine d'or est de moins de 5 000 tonnes par jour (t/ jour).

Le projet Windfall consistera en l'exploitation d'une mine d'or souterraine située dans la région administrative du Nord-du-Québec sur des terres de la catégorie III du territoire d'Eeyou Istchee Baie-James. Le site Windfall se trouve à environ 270 km par la route de la ville de Val-d'Or et à 115 km à l'est de la ville de Lebel-sur-Quévillon (voir Figure 1). La capacité moyenne prévue de production de la mine est de 3 400 tonnes de minerai par jour et a une durée de vie estimée de 10 ans. Le projet comporte, en plus de la mine souterraine, deux portails, une usine de traitement du minerai, une halde à stériles, une halde à mort-terrain, une halde à minerai, un parc à résidus, des structures de gestion des eaux (conduites, fossés, bassins et pompes), une usine de traitement de l'eau avec un effluent minier, une usine de filtration des résidus, une usine de remblai en pâte, un garage d'entretien, une carothèque, un entrepôt et des surfaces d'entreposage extérieur, un complexe de génératrices et un parc à carburant, une aire de gestion des matières résiduelles, le campement et des bureaux.

L'étude d'impact sur l'environnement (EIE) ainsi que son addenda réalisés pour le projet incluent une étude de modélisation de la dispersion des émissions atmosphériques[1]. Cette modélisation couvrait de multiples substances, dont les poussières totales, les particules fines ($PM_{2,5}$), les métaux et certains gaz, comme les NOx et le CO. Les résultats de la modélisation ont été comparés à des valeurs limites spécifiques (normes ou critères), et ce, sur une grille de près de 3 250 récepteurs, dont certains récepteurs jugés sensibles. Les conclusions de cette étude de

[1] WSP. 2023. PROJET MINIER WINDFALL. RAPPORT SECTORIEL - MODÉLISATION DES ÉMISSIONS ATMOSPHÉRIQUES (RÉVISION 1). RAPPORT PRODUIT POUR GROUPE MINIER WINDFALL.

modélisation permettent d'identifier les sources, substances et zones pour lesquelles une attention particulière doit être portée en lien avec la qualité de l'air ambiant.

Pour répondre aux exigences des autorités gouvernementales, le Groupe minier Windfall a préparé le présent plan de gestion des poussières (PGP). Ce PGP sera mis à jour lors des différentes phases d'exploitation de la mine. Notons en terminant qu'un programme de suivi de la qualité de l'air présentant les procédures et équipements d'échantillonnage de l'air ambiant sera présenté dans un document distinct.

01

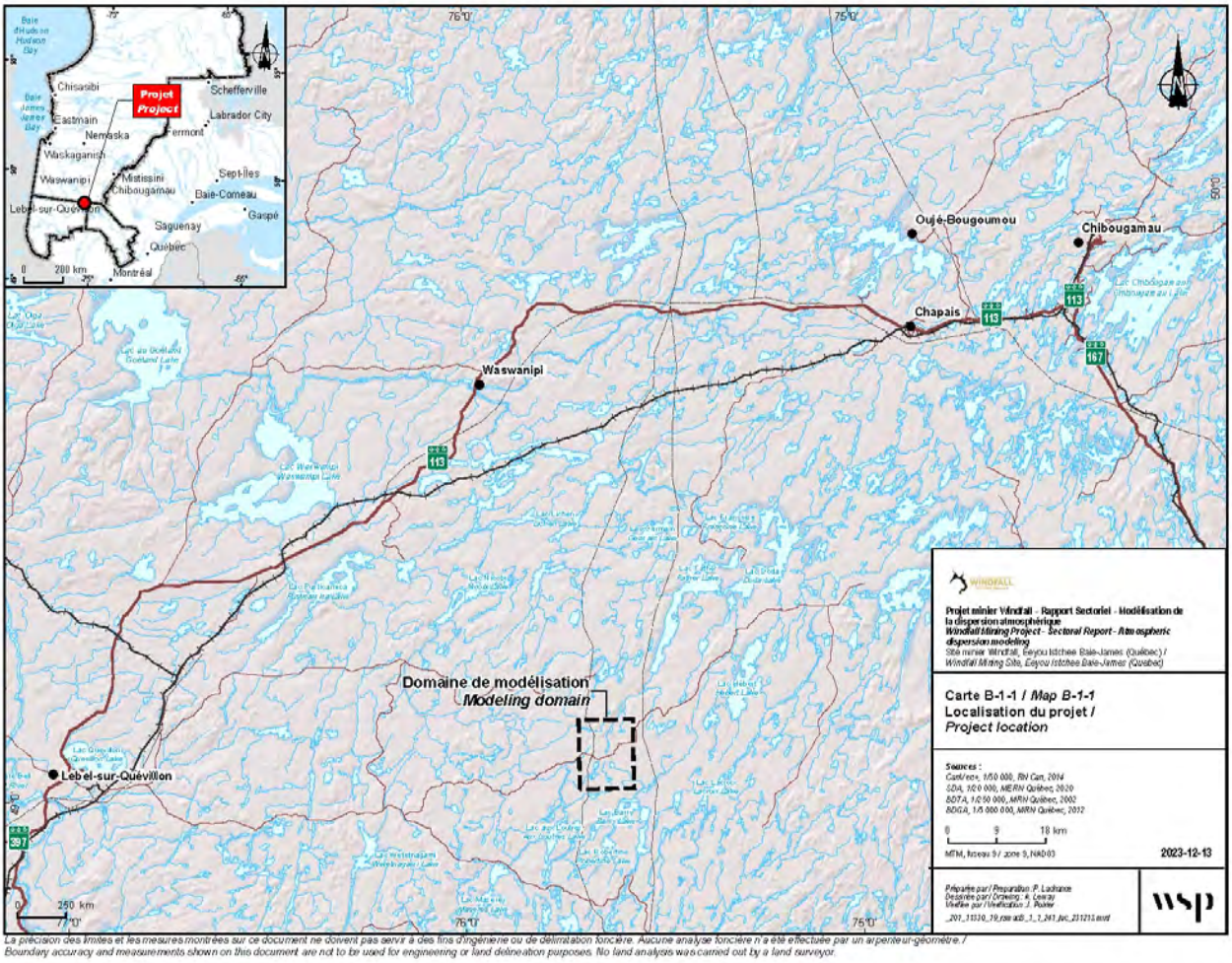

Figure 1 : Localisation du projet

1.2. Objectifs généraux du plan de gestion des poussières

Les objectifs généraux de ce plan de gestion des poussières (PGP) sont de :

- Lister les sources d'émissions de poussières associées aux activités de la mine;
- Décrire les mesures d'atténuation prévues pour contrôler les émissions de poussières;
- Décrire la structure organisationnelle ainsi que les responsables de la mise en œuvre du PGP;
- Proposer les méthodes de surveillance pour vérifier et documenter la conformité continue avec le plan.

Pour favoriser la clarté, ce plan suit la structure suivante :

- La section 2 fournit une description sommaire des installations potentiellement génératrices de poussières, des sources d'émissions de poussières et de l'environnement de la zone d'étude.
- La section 3 documente les mesures d'atténuation qui sont mises en place pour les trois phases de projet : construction, exploitation et fermeture. Les mesures identifiées dans ce PGP sont cohérentes avec celles présentées dans l'EIE et des références y sont faites.
- Les sections 5 à 9 documentent le programme de gestion de l'arrosage des routes et des haldes; le suivi des émissions à la source; le programme de maintenance et d'entretien; les mesures d'atténuation adaptatives; et le programme de suivi de la qualité de l'air.

Finalement, des informations complémentaires sont aussi incluses en annexe.

1.2.1. Plan de suivi de la qualité de l'air

Un plan de suivi de la qualité de l'air sera préparé dans un document distinct. Ce plan de suivi inclura des éléments tels que la méthodologie d'échantillonnage, les équipements, la localisation, la fréquence, etc. Ce plan inclura un suivi des poussières dans l'air ambiant et possiblement d'autres contaminants (à confirmer). Il est prévu que la rédaction du plan de suivi de la qualité de l'air débutera à la suite de l'approbation des résultats de modélisation de la dispersion atmosphérique de l'EIE et d'autres échanges avec le MELCCFP.

1.3. Responsabilité de la mise en application

Un membre du personnel de GMW sera responsable du PGP. Bien que les responsables de chaque département aient la charge de l'application des mesures de ce plan, le responsable du plan aura pour mandat de leur communiquer les mesures prévues dans ce plan. De plus, il

devra veiller à la mise à jour du plan selon l'évolution du projet et des constatations faites en cours de mise en œuvre. Le programme sera intégré au système de gestion du site.

Le personnel de GMW et ses sous-traitants seront informés et sensibilisés aux contenus de ce plan de gestion de manière à mettre en application les bonnes pratiques permettant de réduire les émissions atmosphériques sur le site de la mine. Des formations sur les différentes procédures utilisées seront données au personnel et aux sous-traitants concernés.

Ce qui suit identifie les responsabilités détenues par chacun des niveaux d'emploi au site, car ils se rapportent à ce PGP.

1.3.1. Représentant de la haute direction : Vice-présidente – Environnement et relations communautaires

La représentante de la haute direction, ou sa personne désignée, est responsable de :

- Constater l'efficacité des mesures de contrôle de la poussière à l'installation; et
- Assurer que les ressources nécessaires sont en place pour exécuter le plan.

1.3.2. Représentants responsables du site : Directeur général et adjoint, Directeur Construction, Surintendant Service Surface, Surintendant Environnement

Les représentants responsables du site, ou leurs délégués, doivent s'assurer de :

- Examiner l'efficacité des mesures de contrôle de la poussière au site;
- Planifier et coordonner la mise en œuvre des mesures de contrôle des poussières;
- Tenir à jour la documentation nécessaire au suivi de la qualité de l'air; et
- Communiquer au personnel du site et aux entrepreneurs le contenu de ce plan et les meilleures pratiques de gestion à mettre en œuvre.

1.3.3. Superviseurs des opérations : Superviseurs Environnement, Superviseur Construction et Chef de travail

Les superviseurs des opérations sont responsables de :

- Assurer l'efficacité des mesures actuelles de contrôle de la poussière du site;
- Mettre en œuvre des mesures de contrôle des poussières; et

- Remplir la documentation nécessaire au suivi de la qualité de l'air (cette documentation sera détaillée dans le plan de suivi de la qualité de l'air à venir).

1.3.4. Personnel du site et entrepreneurs

Tout le personnel du site et les entrepreneurs sont responsables de :

- Suivre les procédures de contrôle des poussières en place;
- Rapporter l'efficacité des mesures de contrôle de la poussière du site; et
- Rapporter les non-conformités en matière de contrôle des poussières.

1.4. Contrôle des versions

Le PGP se veut un document évolutif devant s'adapter à la réalité des activités de la mine. Ainsi, lors d'une mise à jour du PGP, le Tableau 1 devra être complété et approuvé par une personne responsable.

Tableau 1 : Contrôle des versions

Version	Date	Description des modifications	Pages mises à jour	Approuvé par	
				Titre	Nom
0.0	2023-12-15	Nouveau document	Toutes	Vice-présidente, Environnement et Relations communautaires	Andréanne Boisvert
1.0	2023-12-15	Mise à jour de la figure 1 et du tableau 2	p. 2 et p. 7	Vice-présidente, Environnement et Relations communautaires	Andréanne Boisvert

1.5. Contexte législatif

Les principales exigences provinciales en matière de qualité de l'atmosphère sont définies par la *Loi sur la qualité de l'environnement* (L.R.Q., chapitre Q-2) et, en particulier, par le *Règlement sur l'assainissement de l'atmosphère* (RAA) (R.R.Q., chapitre Q-2., r. 4.1). Plus précisément, le RAA définit des normes de qualité de l'atmosphère (R.R.Q., chapitre Q-2., r. 4.1 a. 196). Ces normes sont des seuils de référence à respecter à la limite d'application des normes. De plus, le ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (MELCCFP) a publié un document intitulé *Normes et critères québécois de qualité de l'atmosphère*.

L'EIE ainsi que l'Addenda ont couvert tous les aspects et composantes reliés à la qualité de l'air et ceux-ci ont été considérés dans l'élaboration de ce PGP.

Les principales exigences provinciales en matière de qualité de l'atmosphère sont donc définies dans les documents suivants :

- *Loi de la qualité de l'environnement* (L.R.Q., chapitre Q-2);
- *Règlement sur l'assainissement de l'atmosphère* (R.R.Q., chapitre Q-2., r. 4.1);
- *Normes et critères québécois de qualité de l'atmosphère*, version 6. MELCCFP, 2018. Québec, Direction du suivi de l'état de l'environnement, ISBN 978-2-550- 82698-9.

Comme indiqué à la section 1.1, le projet n'est pas assujetti à une évaluation environnementale fédérale sous la *Loi sur l'évaluation d'impact* (L.C., 2019, ch. 28, art. 1) en application du *Règlement sur les activités concrètes* (art. 18, alinéa c), puisque la production prévue de cette nouvelle mine d'or est de moins de 5 000 tonnes par jour (t/ jour).

2. Généralités du projet Windfall

Le Tableau 2 présente quelques données descriptives du projet Windfall.

Tableau 2 : Données descriptives du projet Windfall

Information	Description
Installation	Projet Windfall
Localisation	Le site Windfall est localisé à 100 % sur les terres du domaine de l'État. Il est accessible par un chemin forestier R1050 (R1000) jusqu'au kilomètre 12, chemin R0853 (R5000) jusqu'au kilomètre 66, puis chemin R1053 (R6000) jusqu'au kilomètre 112 - Windfall.
Coordonnées géographiques	Latitude : 49,069873 Nord et Longitude : -75,645724 Ouest Dans la projection UTM, le site se situe dans la zone 18N et a pour coordonnées X = 452 836 m et Y = 5 435 424 m.
Superficie occupée	176,05 ha
Code SCIAN	21222 - Extraction de minerais d'or et d'argent
Récepteurs sensibles	Quatre (4) récepteurs sensibles ont été identifiés dans le domaine de modélisation de l'étude.
Provenance des vents dominants	Nord-ouest L'annexe A montre les roses des vents pour les années 2016 à 2021.

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2.1. Description sommaire de la mine

La section 3 du résumé de l'EIE[2] ainsi que l'addenda transmis aux autorités contient une description du projet Windfall. La Figure 2 du résumé est une carte montrant la disposition des infrastructures projetées. L'annexe B présente des plans utiles pour supporter le PGP.

[2] Lien fonctionnel en date du 27 septembre 2023 https://comexqc.ca/wp-content/uploads/EIE_Windfall_Resume_FR.pdf

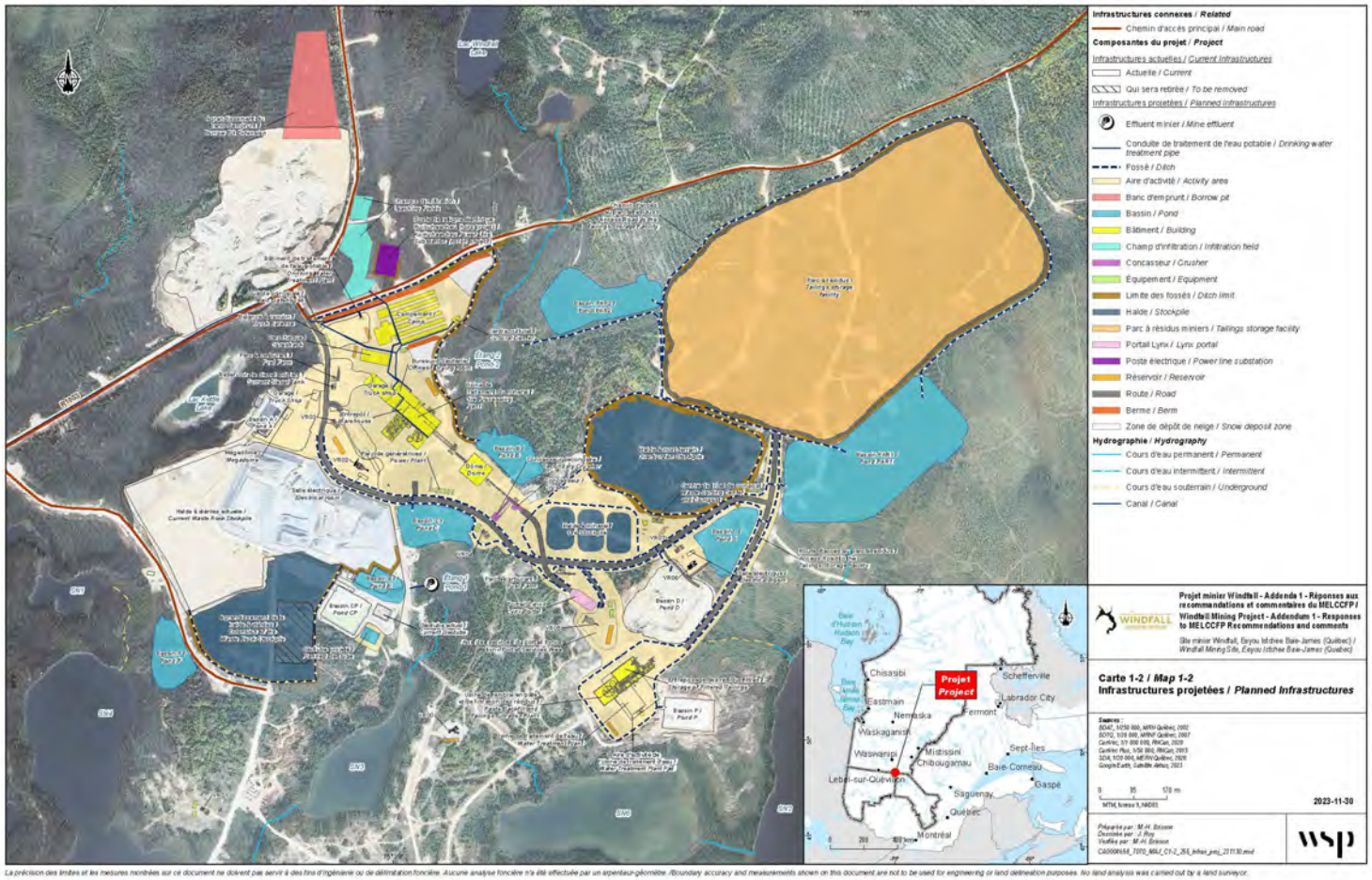


Figure 2 : Infrastructures projetées

Le Tableau 3 présente les données descriptives des récepteurs sensibles identifiés dans l'étude de modélisation de la dispersion atmosphérique de l'EIE.

Tableau 3 : Données descriptives des récepteurs sensibles dans le domaine de modélisation

Identification	Type	Latitude (°)	Longitude (°)	Distance en km (1)
BAUX08	Villégiature	49,125	-75,702	7,3
BAUX12	Villégiature	49,119	-75,685	6,0
BAUX50	Pourvoirie sans droits exclusifs	49,025	-75,602	6,1
PN1	Camp cri	49,015	-75,665	6,4
(1) : Distance entre le récepteur et le bâtiment de l'usine de traitement				

3. Sources d'émissions atmosphériques

Le Tableau 4 présente les sources d'émissions atmosphériques identifiées au cours de la vie du projet Windfall pour ses trois grandes phases (construction, exploitation et fermeture) ainsi que pour les activités générales présentes à chacune de ces phases. Ce PGP couvre les matières particulaires et, par conséquent, les métaux et la silice, puisqu'on considère ces deux paramètres comme étant liés aux poussières.

À titre informatif, la note technique n° 142-2148985709-MTF-Rev0 présente les résultats d'analyse métallique effectuée par GMW sur son site. Cette note inclut des résultats pour les poussières de route.

Tableau 4 : Sources d'émissions atmosphériques

Source	Type d'émission			
	Matières particulaires	Gaz de combustion	Métaux	Autres
Activités en surface				
Combustion de propane	✓		✓	
Pertes de vapeur des réservoirs de combustibles fossiles				COV, HAP, PCDD/F
Gaz d'échappement (équipements mobiles)	✓	✓	✓	COV, HAP, PCDD/F
Routage (resuspension)	✓	✓		
Manutention de matériaux	✓	✓		
Boutage	✓	✓		
Érosion éolienne	✓	✓		
Concassage et tamisage (équipements mobiles)	✓	✓		
Activités souterraines (ventilation de la mine)				
Gaz d'échappement (équipements mobiles)	✓	✓	✓	COV, HAP, PCDD/F
Routage (resuspension)	✓	✓		
Manutention de matériaux	✓	✓		
Forage	✓	✓		
Sautage	✓	✓	✓	
Activités spécifiques à la phase de construction				
Sautage	✓	✓	✓	
Activités spécifiques à la phase d'exploitation				
Usine de traitement du minerai (UTM)	✓	✓		HCl, HCN
Usine de filtration des résidus (UFR)	✓	✓		HCN
Volatilisation (cuves de lixiviation, parc à résidus et bassins)				HCN
Activités spécifiques à la phase de fermeture				
Remblaiement des chantiers souterrains	✓	✓	✓	
Démantèlement des bâtiments, des infrastructures et des installations sanitaires qui ne seront pas utiles au suivi post-fermeture	✓	✓	✓	
Bris des fondations de béton et recouvrement par des sols	✓	✓	✓	
Nivelage du sol et la végétalisation	✓	✓	✓	

4. Mesures d'atténuation courantes

La stratégie de gestion de GMW est d'appliquer des mesures d'atténuation courantes à l'ensemble de ses activités minières génératrices d'émissions atmosphériques, et ce, afin de répondre aux exigences suivantes :

- Limiter les effets individuels et cumulatifs d'émissions atmosphériques sur la qualité de l'air en périphérie du site;
- Contrôler et contenir les émissions sur le site;
- Minimiser les effets négatifs sur les écosystèmes du secteur ainsi que sur les travailleurs;
- Respecter les normes de la qualité de l'air.

4.1. Mesures d'atténuation listées dans l'EIE

L'EIE contient dix mesures d'atténuation courantes en lien avec l'air ambiant. Ces mesures sont reprises au Tableau 5 et intégrées au présent PGP.

Tableau 5 : Mesures d'atténuation listées dans l'EIE

N°	Code	Description de la mesure d'atténuation courante ou de l'engagement
1	AIR 01	Utiliser lors des activités de l'eau ou de l'abat-poussière sur les voies de circulation afin de prévenir, autant que possible, les émissions fugitives de poussières liées aux activités à risque de causer le soulèvement des poussières. L'abat-poussière utilisé sera conforme à la norme BNQ 2410-300.
2	AIR 02	Limiter les accès aux secteurs désignés et la vitesse de circulation des véhicules sur les différents chantiers ainsi que pour les opérations de la mine. Des panneaux de signalisation seront installés aux endroits désignés.
3	AIR 03	Plutôt que de brûler les résidus, procéder autant que possible au déchiquetage des résidus des coupes d'arbres et du débroussaillage sur le site des travaux, puis les épandre.
4	AIR 04	Dans la mesure du possible, utiliser l'électricité provenant du réseau d'Hydro-Québec comme source principale d'énergie.
5	AIR 05	Poursuivre l'évaluation des initiatives d'économie d'énergie en continu afin de réduire les émissions de GES et de polluants normés dans la sélection d'équipements, les méthodes de construction et les modes d'opération.
6	AIR 06	Sensibiliser les travailleurs sur les facteurs influençant la consommation de carburant, entre autres la gestion efficace de l'accélération et la décélération ainsi que l'arrêt complet du véhicule, lorsque possible, lors des périodes d'attente « idle ».

N°	Code	Description de la mesure d'atténuation courante ou de l'engagement
7	AIR 07	Valider la faisabilité d'utiliser des biocarburants, comme le biodiesel, dans le respect des recommandations des fabricants de machinerie.
8	AIR 08	Instaurer des mécanismes de suivi de la consommation de carburant et d'électricité dans la gestion des opérations et pour l'entretien de la flotte d'équipement.
9	AIR 09	Produire et appliquer un plan de gestion des poussières qui inclut les différentes phases du projet.
10	NOR 01	S'assurer que les systèmes d'échappement des véhicules et de la machinerie sont en bonne condition et fonctionnent de façon optimale afin de minimiser les émissions de contaminants dans l'air, et s'assurer qu'il en va de même avec les systèmes de dépoussiérage pour les équipements et machines qui en sont munis. Référence : Règlement sur l'assainissement de l'atmosphère, art.6.

4.2. Phase de construction

Un suivi environnemental sera effectué durant la construction pour assurer le respect des engagements environnementaux, la bonne mise en place des mesures d'atténuation ainsi que leur efficacité. Des réunions avec les responsables du chantier seront planifiées pour réagir rapidement et identifier des mesures de prévention ou des mesures correctives, le cas échéant. En plus des mesures établies, GMW s'assurera que les entrepreneurs sur le site effectueront un entretien adéquat des équipements, des filtres et des dépoussiéreurs afin de limiter les émissions de polluants dans l'air ambiant, et cela pour toutes les phases du projet minier.

4.2.1. Défrichage

Les volumes de bois marchands seront valorisés par les canaux habituels pour leur transformation.

De façon générale, le défrichage sera limité au minimum. Lorsque possible, les déchets de coupes et les débris ligneux seront valorisés. Comme mentionné au point 3 des mesures d'atténuation listées dans l'EIE, les déchets ligneux ne seront pas brûlés, mais plutôt déchiquetés puis épandus. De plus, ces déchets pourront être entreposés temporairement en périphérie des travaux pour un usage ultérieur pour stabiliser et aider à végétaliser les zones perturbées ou les pentes de haldes.

4.2.2. Décapage des sols

Le décapage sera limité au minimum, c'est-à-dire seulement aux endroits nécessaires pour la construction des infrastructures, afin d'éviter l'érosion éolienne sur les surfaces décapées. Les opérations de décapage seront planifiées en fonction des besoins du plan d'exploitation. Lorsqu'il sera possible de le faire, la couche arable sera enlevée pendant qu'elle est humide ou peu de temps avant le début des travaux de construction. L'arrosage des zones de travail pourra être effectué au besoin.

4.2.3. Opération de forage

Les foreuses seront équipées de dispositif de dépoussiérage humide ou à sec. La poussière recueillie par ces appareils sera éliminée de manière à minimiser sa volatilité.

L'entretien mécanique des équipements sera effectué régulièrement afin de réduire les vibrations qui peuvent augmenter les émissions. Le système de dépoussiéreur sera aussi vérifié régulièrement.

4.2.4. Dynamitage au niveau du sol

Les charges et la superficie sautée vont être adaptées pour réduire les inconvénients. Des matériaux adéquats seront utilisés pour le bourrage des explosifs. La hauteur de bourrage sera calculée selon les règles de l'art par des spécialistes en dynamitage afin d'éviter le phénomène de débourrage.

Pour éviter la dispersion des poussières (notamment de silice cristalline) hors du site minier, le sautage sera restreint par la mise en place de tapis. Durant les périodes de grands vents, des mesures additionnelles pourront être prises. Les zones sautées seront humidifiées, lorsque nécessaire, pour que la dispersion des matériaux secs et fins déposés en surface par les activités de forage soit évitée.

4.2.5. Chargement et déchargement des matériaux

La hauteur à laquelle le matériel (minerai et stérile) est relâché ainsi que la distance sur laquelle il sera en chute libre seront gardées au minimum. De plus, puisque les matières particulaires s'accumulent généralement à proximité de la machinerie, le nettoyage et l'arrosage régulier des zones de travail lors des chargements constants sur les mêmes secteurs seront effectués afin

d'empêcher la resuspension de ces matières particulaires. Ce nettoyage et cet arrosage seront effectués selon les besoins.

Autant que possible, le déchargement du mort-terrain et des stériles par les camions sur les haldes sera limité à une hauteur de 10 m pour minimiser les émissions de matières particulaires.

4.2.6. Boutage sur les haldes

Les opérations de boutage des matières déchargées seront gérées en tenant compte des conditions météorologiques de la zone en activité et de l'humidité du matériel manipulé.

4.2.7. Concassage de matériel granulaire et de stérile pour l'aménagement du site (unité mobile)

Le concasseur mobile sera installé dans l'aire du banc d'emprunt et positionné afin qu'il ne soit pas exposé aux grands vents. Il sera utilisé pour concasser le matériel granulaire provenant des bancs d'emprunt du projet. Les émissions seront limitées par l'utilisation de jets d'eau au concasseur.

Lorsqu'il sera possible de valoriser du stérile pour l'aménagement des infrastructures, le concasseur sera positionné sur la halde à stériles. La même mesure, soit l'utilisation de jets d'eau, sera appliquée.

4.2.8. Transport des différents matériaux sur le site minier (routage)

Le site comporte principalement des routes non pavées. La circulation sur ces routes, particulièrement le transport de matériaux (par camion ou véhicule minier), représente une des principales sources d'émissions de matières particulaires du projet.

L'utilisation de matériaux non friables et présentant une bonne résistance à l'abrasion routière sera priorisée pour la construction et l'entretien des routes. L'entretien régulier des routes sera mis de l'avant afin de maintenir une bonne surface de roulement et un faible taux de silt. Aucun matériel argileux ne sera utilisé pour la construction des routes et les matériaux ayant une faible teneur en silice seront favorisés.

Afin de limiter les émissions de silice cristalline liées au routage, du gabbro sera utilisé comme agrégat sur les routes minières. Le gabbro est en effet une lithologie des stériles qui présente le moins de silice cristalline et qui peut être valorisée par ses propriétés géochimiques.

Les émissions de poussières liées à la circulation dépendent de la vitesse des véhicules. Afin de limiter les émissions, GMW restreint la vitesse de circulation des équipements miniers de transport sur le site à 50 km/h. L'accès aux zones spécialement à risque sera également réduit pour limiter le passage.

Les émissions seront contrôlées par l'arrosage régulier des surfaces routières. Dans le cas où des épisodes de poussières seraient malgré tout observés, l'utilisation d'abat-poussière chimique sera considérée, comme décrit dans le programme de gestion de l'arrosage des routes à la section 5.

4.2.9. Aires d'entreposage extérieures

Durant la phase de construction, les aires d'entreposage extérieures de matériel (construction, mort-terrain et stériles) peuvent entraîner de l'érosion éolienne. Il est cependant important de rappeler que les précipitations et l'humidité contribuent au lavage des surfaces et à la cimentation des particules fines, en particulier lorsque les haldes sont principalement constituées de matériaux grossiers.

La circulation routière et les perturbations physiques des aires d'entreposages seront contrôlées et minimisées. Ces mesures sont décrites en détail à la section 5.

4.3. Phase d'exploitation

La stratégie de gestion des émissions atmosphériques de la phase d'exploitation reprend intégralement les mesures d'atténuation identifiées pour les activités de la phase de construction, qui seront poursuivies lors de l'exploitation. Il s'agit notamment des opérations de forage, du chargement et déchargement des matériaux, du boutage sur les haldes, du concassage, du transport des différents matériaux sur le site minier (routage) et d'érosion éolienne associée à l'entreposage extérieur. Seulement les mesures d'atténuation spécifiques à l'exploitation de la mine sont donc décrites aux sections suivantes. Il est à noter que les activités de dynamitage effectuées durant la phase d'exploitation seront dans la mine souterraine et seront donc émises par la ventilation de la mine.

4.3.1. Sources ponctuelles de l'usine de traitement du minerai

L'usine de traitement du minerai (UTM) comprend huit phases, la neuvième phase du procédé de traitement du minerai étant effectuée dans l'usine de traitement des résidus :

- Concassage;
- Broyage;
- Gravimétrie;
- Épaississement de prélixiviation;
- Lixiviation;
- Adsorption au charbon – CIP;
- Élution, raffinerie et réactivation;
- Destruction du cyanure.

En plus des secteurs propres au procédé, l'UTM sera composée de bâtiments pour l'entretien des équipements lourds, d'espaces d'entreposage, d'un laboratoire, d'un local pour les premiers soins et de bureaux administratifs.

Ainsi, l'UTM comprendra quelques systèmes de dépoussiérage et points d'émissions. Le plan de l'annexe B montre la localisation prévue de ces points d'émissions. Les dépoussiéreurs seront contrôlés périodiquement (inspection visuelle) et nettoyés selon leur plan d'entretien développé selon les recommandations du fabricant. De plus, des détecteurs de filtre percé seront installés aux dépoussiéreurs. La poussière recueillie par ces appareils sera éliminée de manière à prévenir sa dispersion.

Les émissions des dépoussiéreurs seront maintenues en deçà des normes applicables du RAA. L'échantillonnage des sources, à la fréquence prévue au RAA ou dans une future autorisation ministérielle, permettra de valider le respect des seuils d'émissions.

Enfin, les résidus miniers de cette usine seront acheminés par tuyauterie vers l'usine de traitement des résidus.

4.3.2. Sources ponctuelles de l'usine de filtration des résidus

L'usine de filtration des résidus (UFR) est située à environ 500 m au sud-est de l'usine de traitement du minerai. L'UFR comprendra quelques systèmes de dépoussiérage et points d'émissions. Le plan de l'annexe B montre la localisation prévue de ces points d'émissions. Les dépoussiéreurs seront contrôlés périodiquement (inspection visuelle) et nettoyés selon leur plan

d'entretien, qui sera produit en intégrant les recommandations du fabricant. La poussière recueillie par ces appareils sera éliminée de manière à prévenir sa dispersion.

Les émissions des dépoussiéreurs seront maintenues en deçà des normes applicables du RAA. L'échantillonnage des sources, à la fréquence prévue au RAA ou dans la future autorisation ministérielle, permettra de valider le respect des seuils d'émissions.

Enfin, les résidus miniers asséchés seront acheminés vers le parc à résidus par camion.

4.3.3. Activités souterraines (ventilation de la mine)

Les activités souterraines comportent le forage, le dynamitage ainsi que la circulation des équipements mobiles. La ventilation de la mine permet d'avoir une circulation d'air suffisante pour assurer la sécurité des travailleurs.

Le suivi de la qualité de l'air ambiant du site sera effectué au moyen de stations d'échantillonnage positionnées à des points stratégiques du site et à l'aide de la modélisation atmosphérique, selon les conditions émises avec l'autorisation ministérielle.

Ce suivi en continu permettra de vérifier entre autres les émissions provenant de la ventilation de la mine et d'émettre des alertes sur la dégradation de la qualité de l'air. Le détail de ce plan est fourni dans un document distinct.

4.3.4. Parc à résidus

Il est prévu que le parc à résidus sera revégétalisé. Tout au long de l'exploitation, la restauration progressive, au début par les pentes extérieures de ce parc, sera favorisée lorsque possible afin de minimiser les émissions de matières particulaires générées par l'érosion éolienne. De plus, l'ouverture du parc à résidus sera réalisée en trois zones; ainsi, les superficies actives seront grandement réduites.

De manière à diminuer les émissions de poussières et particulièrement de silice cristalline générée par l'érosion éolienne de l'empilement de résidus filtrés (parc à résidus miniers), il a été proposé de diviser la zone 1 de déposition en cellules. En fonctionnant avec des cellules, l'empreinte en opération ainsi que le potentiel de génération de poussières seront réduits.

Après leur opération, chacune des cellules pourra être restaurée totalement ou partiellement (mise en place totale ou partielle du recouvrement de fermeture) pour limiter les émissions atmosphériques. Il sera aussi possible de procéder à la fermeture totale ou partielle des pentes

et des surfaces finales (extérieures) avant la fin de l'opération des cellules, tout dépendant du séquençage.

Il est à noter qu'une stratégie similaire sera déployée pour les zones 2 et 3.

4.3.5. Circulation sur le site

Afin de limiter les émissions liées à la circulation sur le site, la vitesse de circulation sera restreinte et les routes non pavées empruntées par des véhicules seront arrosées régulièrement. Dans le cas où des épisodes de poussières seraient malgré tout observés, l'utilisation d'abat-poussière chimique sera considérée, comme décrit dans le programme de gestion de l'arrosage des routes et des haldes à la section 5.

4.4. Phase de fermeture

Les activités pouvant générer des émissions atmosphériques lors de la phase de fermeture seront plus limitées que celles présentes lors des phases de construction et d'exploitation, car les activités en restauration seront de moindre envergure que celles de la construction et de l'exploitation. La stratégie de gestion des émissions atmosphériques de la phase de fermeture reprend intégralement les mesures d'atténuation applicables pour les activités de la phase de construction, qui seront semblables. Il s'agit notamment des opérations de chargement et de déchargement des matériaux, de déconstruction des ouvrages et des infrastructures, de boutage pour fermer les aires d'accumulation, de transport des différents matériaux sur le site minier (routage), de nivelage des lieux et d'entreposage extérieur. Seulement les mesures d'atténuation spécifiques à la fermeture de la mine sont donc décrites aux sections suivantes.

À la suite de l'accomplissement de la restauration du site et à l'arrêt des activités, les émissions de matières particulaires seront grandement diminuées.

4.4.1. Remblaiement des chantiers souterrains

Les ouvertures et les accès aux infrastructures de soutien qui resteront en place seront obturés et décontaminés au besoin. Un plan d'ingénieur sera fourni, analysant l'emplacement et la nature des travaux à réaliser. L'utilisation des résidus miniers et des stériles sera favorisée, et l'acceptabilité des matériaux sera validée au préalable auprès du MERN et du MELCCFP.

La stabilité du pilier de surface a été démontrée par une étude technique d'ingénierie, qui permettra ainsi d'obstruer les accès souterrains.

4.4.2. Fermeture des aires d'accumulation

Les aires d'accumulation seront fermées par l'ajout de membranes imperméables, lorsque nécessaire, et avec l'ajout de couches successives de matériel granulaire et de mort-terrain. Le tout sera compacté pour assurer l'étanchéité de la surface recouverte.

La stabilité des aires d'accumulation a été démontrée par des études techniques d'ingénierie; ainsi, aucune autre manœuvre ne sera requise.

4.4.3. Démantèlement des bâtiments, des infrastructures et des installations sanitaires

Tous les bâtiments de surface seront démantelés, sauf s'ils sont nécessaires à l'atteinte et au maintien de l'état du site. Les matériaux seront disposés en concordance avec le « Guide de bonnes pratiques pour la gestion des matériaux de démantèlement » du MELCCFP et le « Règlement sur l'enfouissement et l'incinération de matières résiduelles ».

Puisque le remblai et le stérile utilisés sur les surfaces de roulement sur le site ont été jugés inertes, aucune action additionnelle ne sera nécessaire pour la fermeture des infrastructures. L'écoulement naturel de l'eau sera rétabli et les surfaces mises en végétation pour prévenir l'érosion.

4.4.4. Bris des fondations de béton, recouvrement par des sols et mise à niveau

Les fondations en béton seront perforées ou concassées pour assurer le drainage. Des mesures d'abatage de la poussière seront mises en place en concordance avec le « Code de sécurité pour les travaux de construction » article 3.18-2. Les fondations seront recouvertes d'un matériau favorisant la croissance et le maintien d'une végétation autosuffisante pour limiter l'érosion éolienne.

4.4.5. Revégétalisation des sols

Lorsque possible, une revégétalisation des sols sera effectuée sur les surfaces manipulées afin de limiter les émanations de poussières. Un ensemencement sera ajouté sur le mort-terrain déplacé afin d'accélérer le processus.

5. Programme préliminaire de gestion de l'arrosage des routes

Étant donné que le routage sur le site minier a été identifié par la modélisation de la dispersion atmosphérique comme étant une source importante d'émissions de matières particulaires, GMW prévoit certaines mesures, énumérées aux paragraphes suivants.

Un programme de gestion de l'arrosage des routes sera mis en place afin d'effectuer un suivi de l'efficacité des mesures de contrôle prévues. La fréquence et l'intensité d'arrosage des routes seront conjuguées aux conditions d'opération, aux conditions météorologiques et aux données de suivi de la qualité de l'air.

L'atténuation des émissions due à l'arrosage dépend de plusieurs facteurs : la quantité d'eau appliquée sur la route par unité de surface, le temps entre les arrosages, l'intensité du trafic et les conditions météorologiques pendant cette période.

Si des épisodes importants d'emportement de poussières sont malgré tout observés, l'utilisation d'abat-poussière chimique sera nécessaire. Les produits chimiques hygroscopiques utilisés seront certifiés conformes par le Bureau de Normalisation du Québec à la norme BNQ 2410-300.

6. Suivi des émissions de sources fixes

Les équipements représentant des sources d'émissions fixes réglementées par le RAA seront échantillonnés. Les équipements faisant l'objet d'un suivi des émissions à la source seront ceux identifiés dans l'autorisation ministérielle.

Ce programme de suivi des émissions à la source respectera les exigences du MELCCFP. L'échantillonnage sera effectué selon les modalités et les méthodes de référence prescrites dans le Guide d'échantillonnage aux fins d'analyses environnementales – Cahier 4 – Échantillonnage des émissions atmosphériques en provenance de sources fixes (MDDELCC, 2016).

Un rapport d'échantillonnage sera systématiquement produit et transmis au MELCCFP dans les délais prévus. Si l'analyse révèle un dépassement d'une valeur limite ou d'une norme d'émission, l'événement sera mentionné ainsi que les mesures correctrices appliquées.

Une revue des méthodes utilisées pourra être effectuée pour s'assurer de leur efficacité et, si requis, apporter des ajustements et suivre l'évolution de l'activité minière.

7. Maintenance et entretien

Les équipements miniers seront inspectés régulièrement et les défectuosités seront réparées dans les plus brefs délais pour maximiser leur efficacité. D'ailleurs, une procédure pour l'inspection des équipements doit obligatoirement être suivie par les employés et sous-traitants. Les matières particulaires récupérées par les dépoussiéreurs seront éliminées de façon à minimiser leur dispersion. Les pièces de rechange pour les principaux équipements d'atténuation seront conservées sur le site (pompes à eau, sacs filtrants, etc.).

8. Gestion des mesures d'atténuation adaptatives

La première stratégie de gestion de GMW consiste à appliquer en permanence un contrôle de routine des mesures d'atténuation ainsi que des activités génératrices de poussière. Cependant, quelques modifications dans les activités pourraient être réalisées afin d'adapter les mesures d'atténuation pour ne pas dépasser les normes et minimiser les impacts sur la qualité de l'air.

Le Groupe minier Windfall mettra à jour et améliorera son plan de gestion des poussières en fonction des nouvelles activités et des nouvelles mesures d'atténuation que GMW décidera de mettre en place. Le tableau de suivi des versions et des modifications intégrées au début du document sera utilisé afin d'identifier rapidement les modifications qui auront eu lieu au fil du temps.

9. Formation et sensibilisation

Tous les employés de GMW ainsi que ses sous-traitants seront informés et sensibilisés aux bonnes pratiques environnementales et la réduction des émissions de poussières sur le site sera abordée. Lors des formations d'accueil aux nouveaux employés et entrepreneurs, les mesures mises en place pour réduire les émissions de poussières seront expliquées ainsi que les raisons d'appliquer ces mesures.

10. Gestion des plaintes

Une gestion des plaintes sera déployée pour permettre aux utilisateurs du territoire de communiquer avec les responsables de la mine, d'émettre des plaintes et de soulever des enjeux. Un protocole de réponse rapide, empathique, culturellement adapté et conciliant sera développé et mis en place pour assurer l'intégration sociale optimale du projet.

11. Références

BUREAU DE NORMALISATION DU QUÉBEC. Produits utilisés comme abat-poussières pour routes non asphaltées et autres surfaces similaires. BNQ 2410-300. 2009.

COWHERD, C, G. E. MULESKI AND J. KINSEY. Control of Open Fugitive Dust Sources, Kansas City, EPA-450/3-88-008. 1988.

GOUVERNEMENT DU QUÉBEC. Loi sur la qualité de l'environnement, Règlement sur l'assainissement de l'atmosphère. c. Q-2, r. 4.1

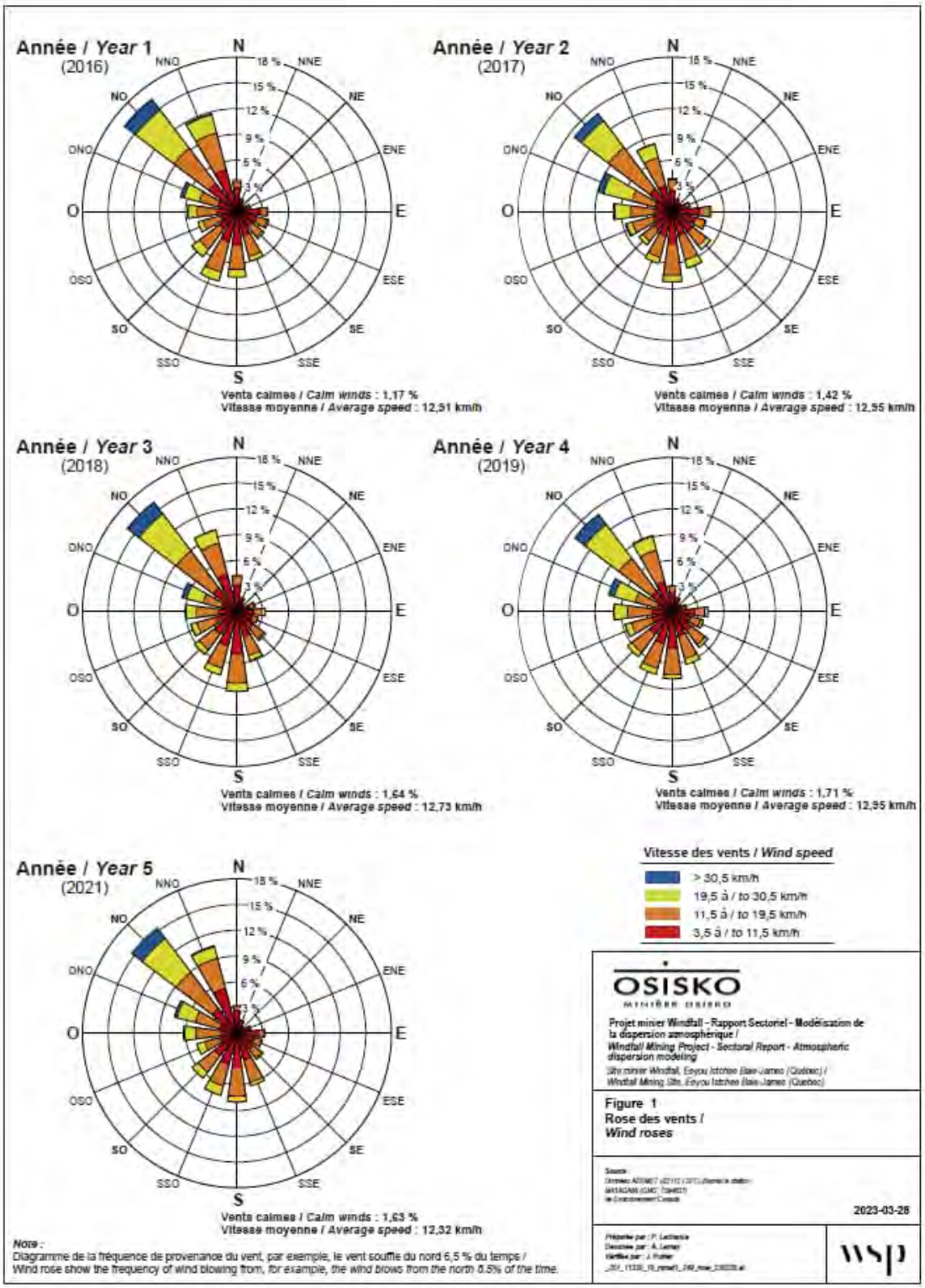
MINISTÈRE DU DÉVELOPPEMENT DURABLE, DE L'ENVIRONNEMENT ET DE LA LUTTE CONTRE LES CHANGEMENTS CLIMATIQUES DU QUÉBEC, Guide d'échantillonnage à des fins d'analyses environnementales – Cahier 4 – Échantillonnage des émissions atmosphériques en provenance de sources fixes, Québec, Centre d'expertise en analyse environnementale du Québec, 2016.

MINISTÈRE DE L'ENVIRONNEMENT ET DE LA LUTTE CONTRE LES CHANGEMENTS CLIMATIQUES. Normes et critères québécois de qualité de l'atmosphère, version 6. Québec, Direction du suivi de l'état de l'environnement, ISBN 978-2-550-82698-9. 2018.

WSP. 2023. PROJET MINIER WINDFALL. RAPPORT SECTORIEL - MODÉLISATION DE LA DISPERSION ATMOSPHÉRIQUE. RAPPORT PRODUIT POUR MINIÈRE OSISKO INC. 26 PAGES ET ANNEXES.

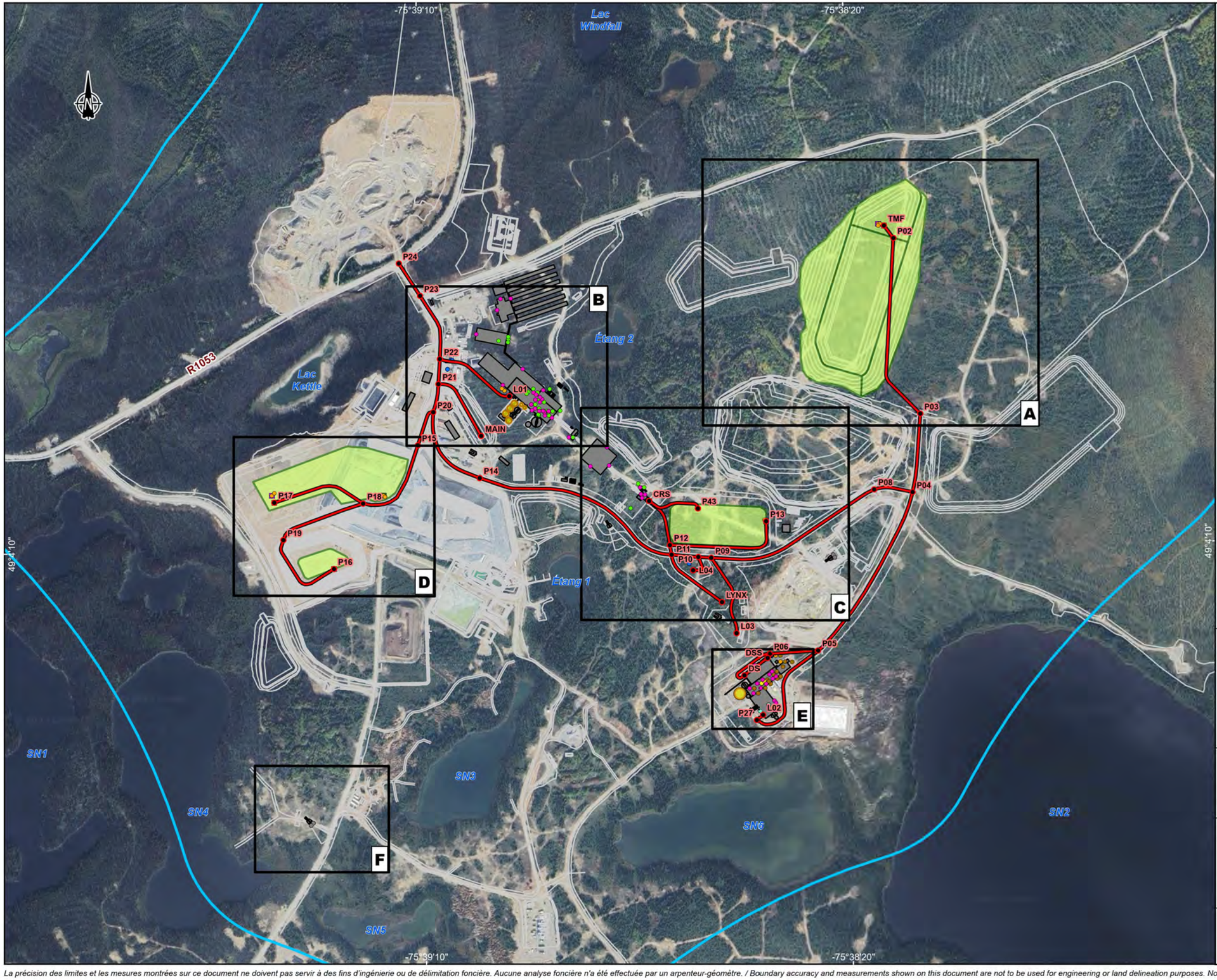
CENTRE FOR EXCELLENCE IN MINING INNOVATION (CEMI) – Guide to The Preparation of a Best Management Practices Plan for the Control of Fugitive Dust for the Ontario Mining Sector. Version 1.0. August 2010.

Annexe A : Roses des vents annuelles 2016 à 2021



Note :
Diagramme de la fréquence de provenance du vent, par exemple, le vent souffle du nord 6,5 % du temps / *Wind rose show the frequency of wind blowing from, for example, the wind blows from the north 6.5% of the time.*

Annexe B : Plans de soutien au PGP



Limite d'application des normes et critères / *Application limit for standards and criteria*

Infrastructure actuelle ou projetée / *Current or planned infrastructure*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Extrémité de segment de routage / *Hauling segment endpoint*

Routage / *Hauling*

Bâtiment / *Building*

Sources ponctuelles / *Point Sources*

Usine de traitement de minerai / *Ore processing plant*

Usine de filtration des résidus / *Tailings filtration plant*

Usine de traitement de l'eau / *Water treatment plant*

Volatilisation de HCN / *Volatilization of HCN*

Combustion de propane / *Propane combustion*

Réservoir / *Tank*

Gaz d'échappement / *Exhaust gas*

Ventilation de la mine souterraine / *Underground mine ventilation*

Sources volumiques / *Volume Sources*

Bouteurs / *Bulldozer*

Chargement - déchargement / *Loading - unloading*

Concasseur et tamiseur / *Crusher and screen*

Sources surfaciques / *Area Sources*

Volatilisation de HCN / *Volatilization of HCN*

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WINDFALL GROUPE MINIER

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Carte B-1-3 / *Map B-1-3*

Sources d'émissions utilisées pour la modélisation de la dispersion atmosphérique / *Emission Sources Used for the Atmospheric Dispersion Modeling* - Exploitation / *Exploitation*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
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Carte B-1-3 (Zone A) / *Map B-1-3 (Zone A)*

Sources d'émissions utilisées pour la modélisation de la dispersion atmosphérique / *Emission Sources Used for the Atmospheric Dispersion Modeling* - Exploitation / *Exploitation*

Sources :

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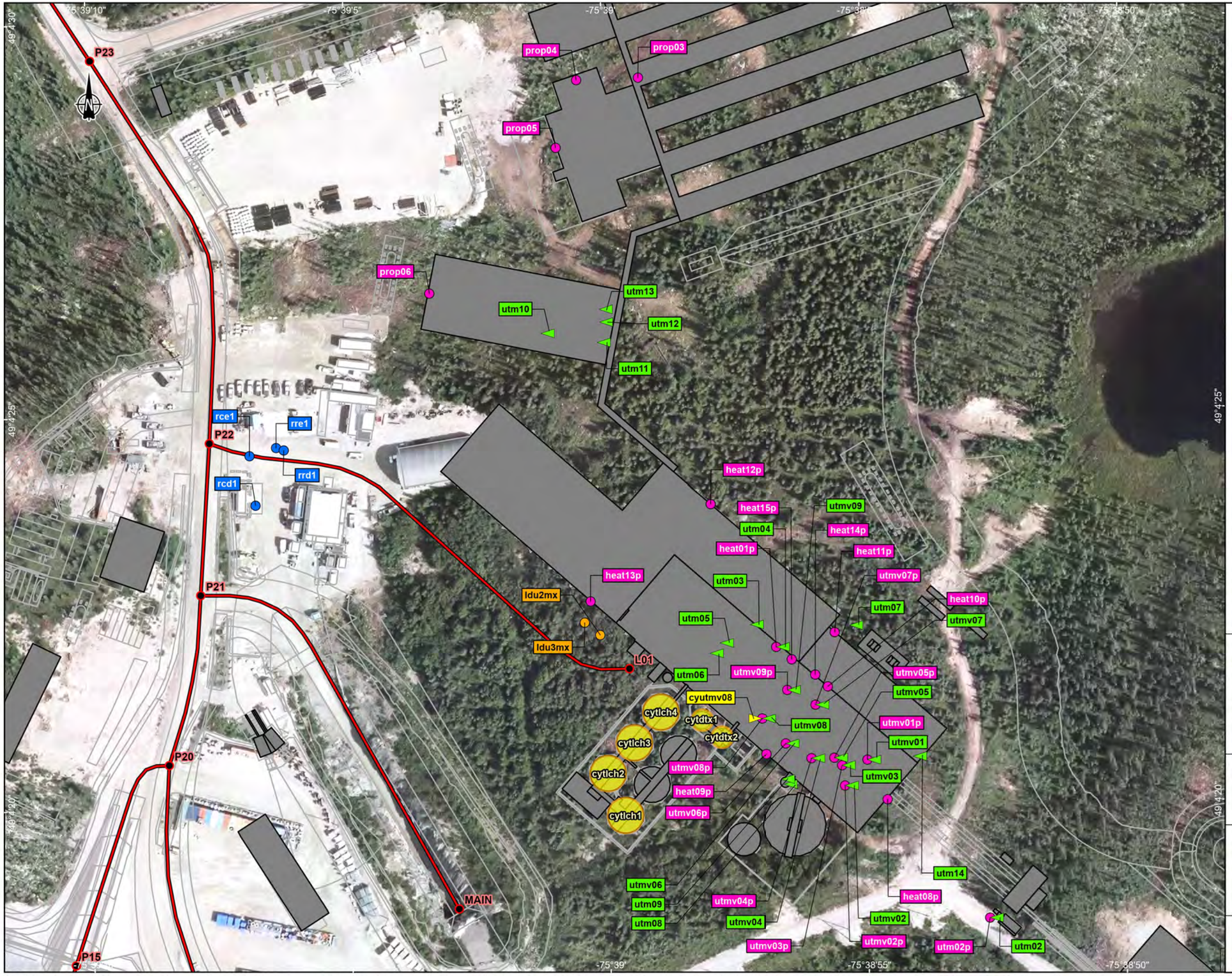

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Routage / *Hauling*

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Carte B-1-3 (Zone B) / *Map B-1-3 (Zone B)*
Sources d'émissions utilisées pour la modélisation de la dispersion atmosphérique / *Emission Sources Used for the Atmospheric Dispersion Modeling* - Exploitation / *Exploitation*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
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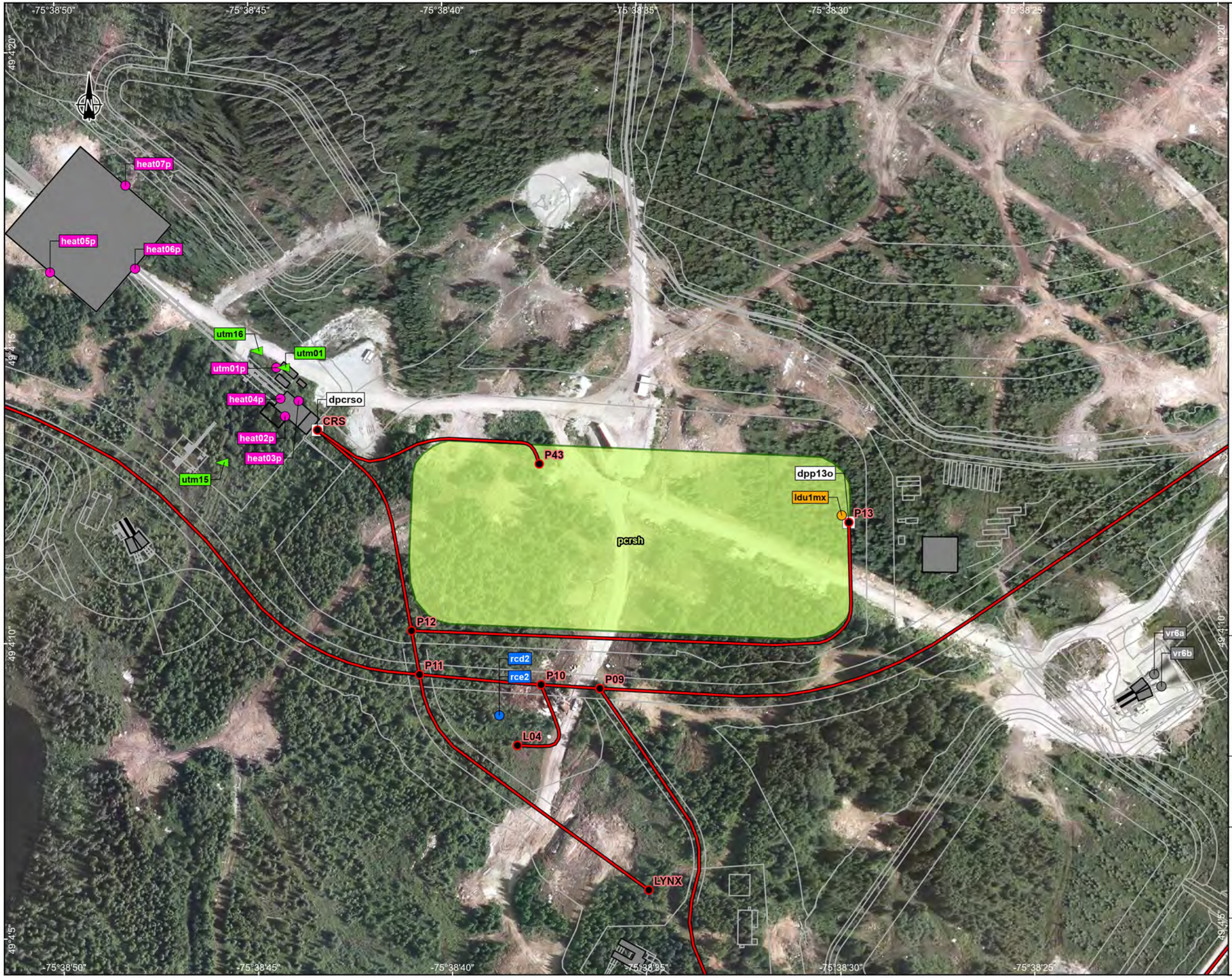

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WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique

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Carte B-1-3 (Zone C) / *Map B-1-3 (Zone C)*

Sources d'émissions utilisées pour la modélisation de la dispersion atmosphérique / *Emission Sources Used for the Atmospheric Dispersion Modeling* - Exploitation / *Exploitation*

Sources :

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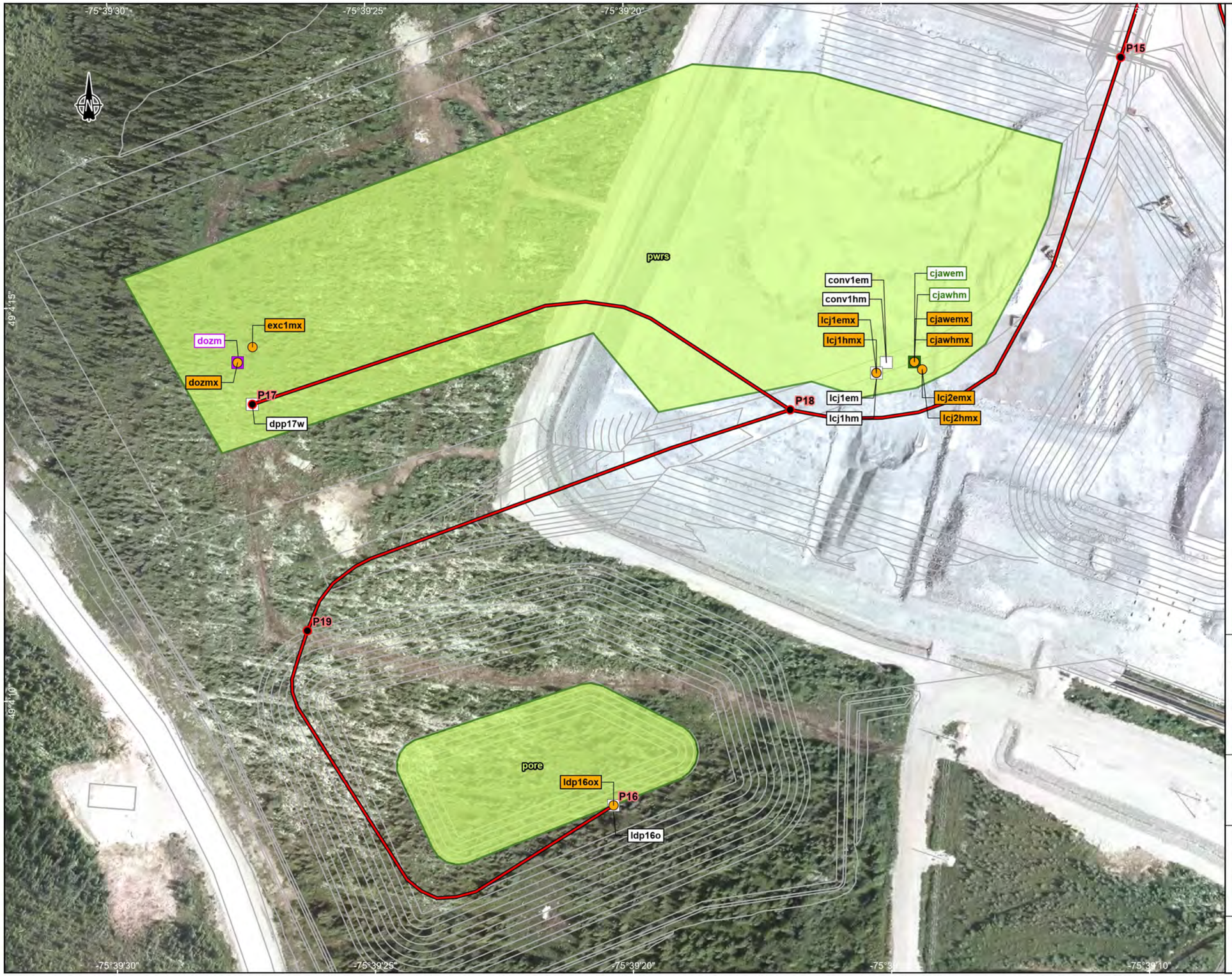

Infrastructure actuelle ou projetée / *Current or planned infrastructure*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Extrémité de segment de routage / *Hauling segment endpoint*

Routage / *Hauling*

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WINDFALL GROUPE MINIER

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Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

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Carte B-1-3 (Zone D) / *Map B-1-3 (Zone D)*

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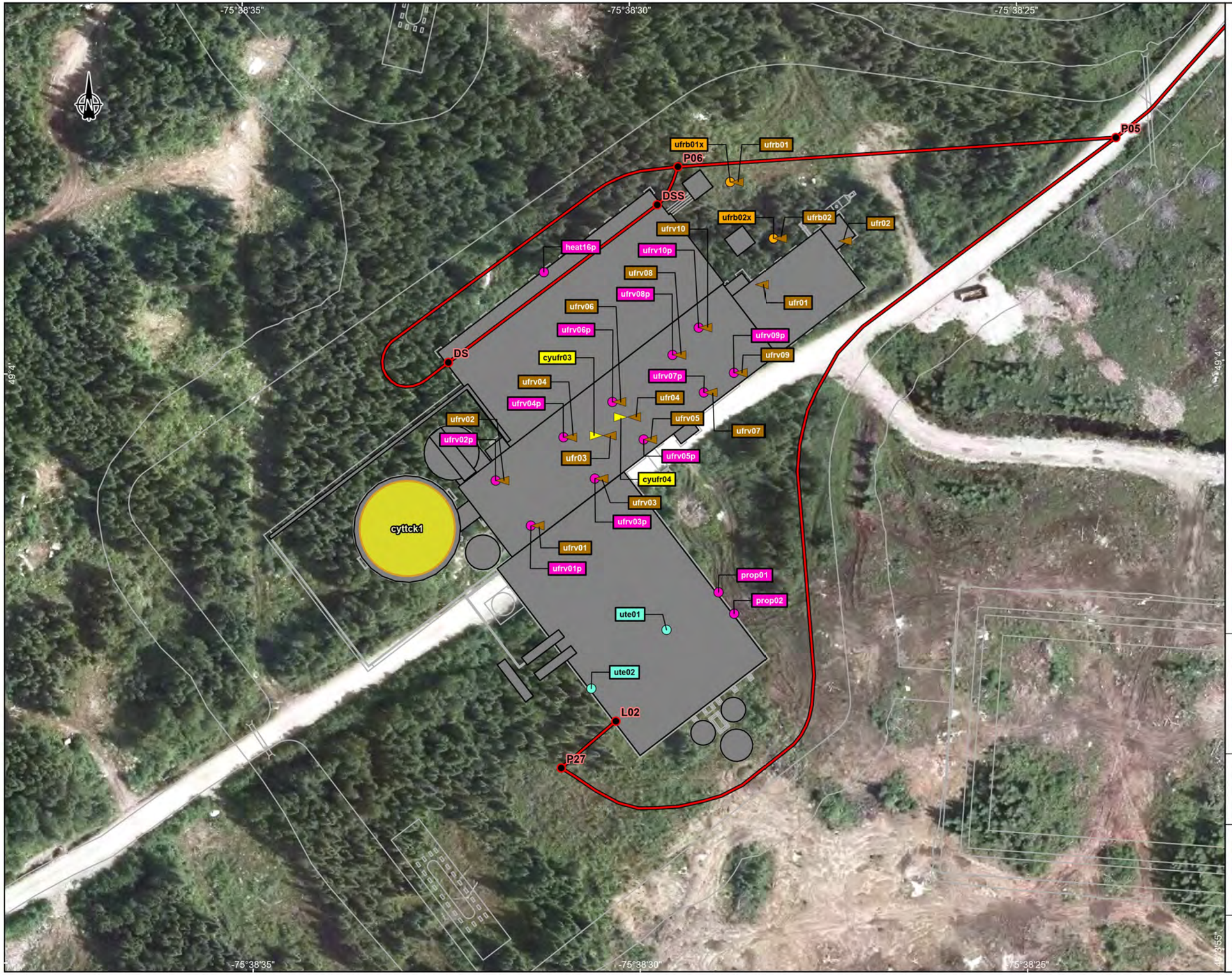

Infrastructure actuelle ou projetée / *Current or planned infrastructure*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Extrémité de segment de routage / *Hauling segment endpoint*

Routage / *Hauling*

Bâtiment / *Building*

Sources ponctuelles / *Point Sources

Usine de filtration des résidus / *Tailings filtration plant*

Usine de traitement de l'eau / *Water treatment plant*

Volatilisation de HCN / *Volatilization of HCN*

Combustion de propane / *Propane combustion*

Gaz d'échappement / *Exhaust gas*

Sources surfaciques / *Area Sources*

Volatilisation de HCN / *Volatilization of HCN*

* Position exacte de la source ponctuelle au centre du cercle ou à la pointe de la flèche / *Exact position of the point source at the center of the circle or at the tip of the arrow*

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique
Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte B-1-3 (Zone E) / *Map B-1-3 (Zone E)*
Sources d'émissions utilisées pour la modélisation de la dispersion atmosphérique / *Emission Sources Used for the Atmospheric Dispersion Modeling* - Exploitation / *Exploitation*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
Airbus, Image satellitaire tirée de Google Earth, 2023

0 — 30 — 60 m

UTM, Fuseau 18N / *UTM, Zone 18N*, NAD83

2024-01-12

Préparation / Preparation : J. Poirier
Dessin / Drawing : J. Roy
Vérifié par / Verification : J. Poirier
CA0004658_7070_MA_B-1-3_-4_313_Sources_240112.aprx
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Infrastructure actuelle ou projetée / *Current or planned infrastructure*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Bâtiment / *Building*

Sources ponctuelles / *Point Sources

Ventilation de la mine souterraine / *Underground mine ventilation*

* Position exacte de la source ponctuelle au centre du cercle / *Exact position of the point source at the center of the cercle*

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique
Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte B-1-3 (Zone F) / *Map B-1-3 (Zone F)*
Sources d'émissions utilisées pour la modélisation de la dispersion atmosphérique / *Emission Sources Used for the Atmospheric Dispersion Modeling* - Exploitation / *Exploitation*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
Airbus, Image satellitaire tirée de Google Earth, 2023

0 — 30 — 60 m

UTM, Fuseau 18N / *UTM, Zone 18N*, NAD83

2024-01-12

Préparation / Preparation : J. Poirier
Dessin / Drawing : J. Roy
Vérifié par / Verification : J. Poirier
CA0004658_7070_MA_B-1-3_-4_313_Sources_240112.aprx
CA0004658_7070_MA_B_1_3X_313_Sources_expl_240110

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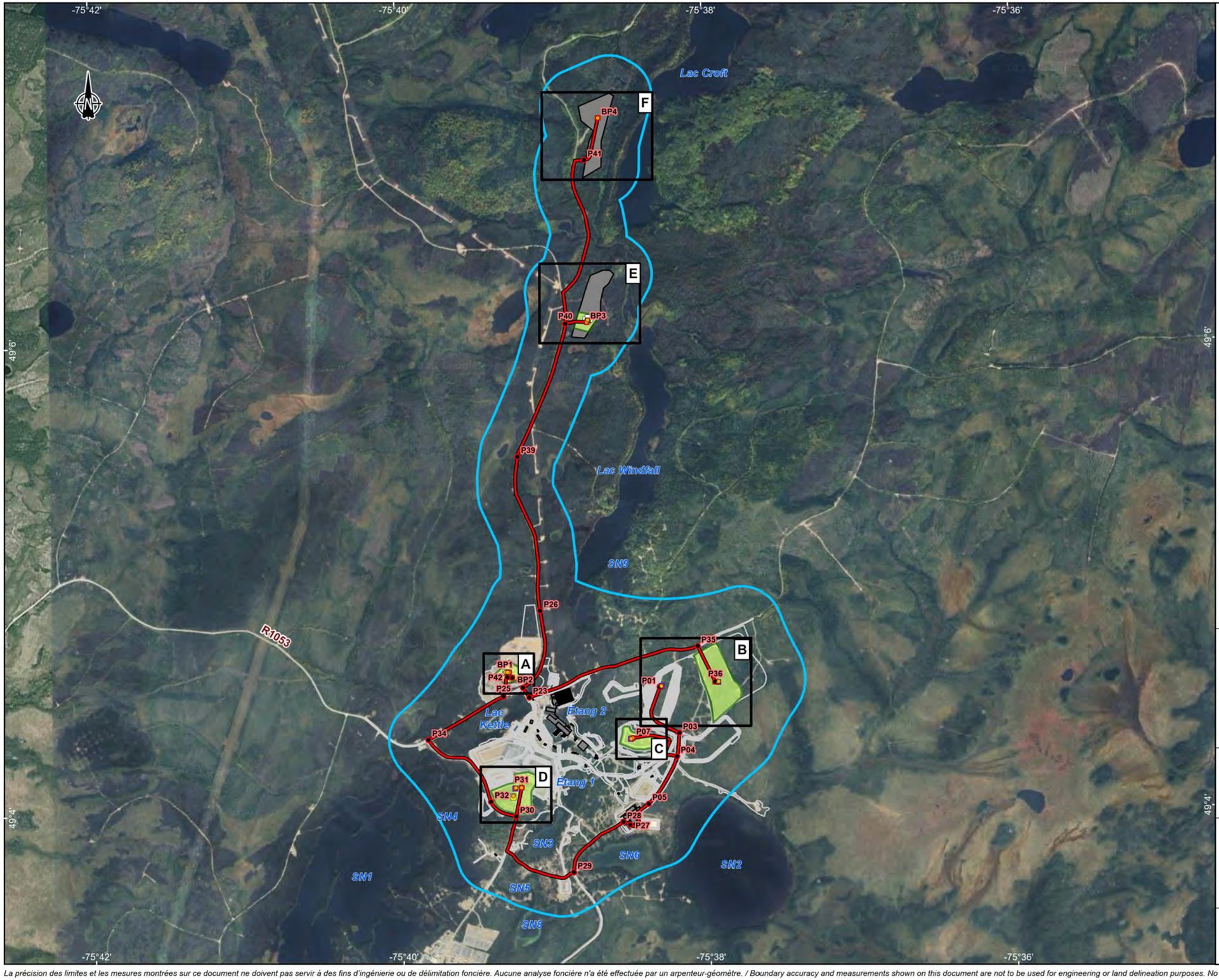

Limite d'application des normes et critères / Application limit for standards and criteria

Infrastructure actuelle ou projetée / *Current or planned infrastructure*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Extrémité de segment de routage / *Hauling segment endpoint*

Routage / *Hauling*

Bâtiments et bancs d'emprunt / *Buildings and borrow pits*

Sources ponctuelles / *Point Sources*

Gaz d'échappement / *Exhaust gas*

Sources volumiques / *Volume Sources*

Bouteurs / *Bulldozer*

Chargement - déchargement / *Loading - unloading*

Concasseur et tamiseur / *Crusher and screen*

Forage / *Borehole*

Sautage / *Blasting*

Sources surfaciques / *Area Sources*

Érosion éolienne / *Wind erosion*

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique

Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte B-1-4 / *Map B-1-4*

Sources d'émissions utilisées pour la modélisation de la dispersion atmosphérique / *Emission Sources Used for the Atmospheric Dispersion Modeling* - Construction / *Construction*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
Airbus, Image satellitaire tirée de Google Earth, 2023

0 300 600 m

UTM, Fuseau 18N / *UTM, Zone 18N, NAD83*

2024-01-12

Préparation / Preparation : J. Poirier
Dessin / Drawing : J. Roy
Vérifié par / Verification : J. Poirier
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Infrastructure actuelle ou projetée / *Current or planned infrastructure*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Extrémité de segment de routage / *Hauling segment endpoint*

Routage / *Hauling*

Sources ponctuelles / *Point Sources*

Gaz d'échappement / *Exhaust gas*

Sources volumiques / *Volume Sources*

Chargement - déchargement / *Loading - unloading*

Concasseur et tamiseur / *Crusher and screen*

Sources surfaciques / *Area Sources*

Érosion éolienne / *Wind erosion*

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique

Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte B-1-4 (Zone A) / *Map B1-4 (Zone A)*

Sources d'émissions utilisées pour la modélisation de la dispersion atmosphérique / *Emission Sources Used for the Atmospheric Dispersion Modeling* - Construction / *Construction*

Sources :

BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
Airbus, Image satellitaire tirée de Google Earth, 2023

0 — 30 — 60 m

UTM, Fuseau 18N / *UTM, Zone 18N, NAD83*

2024-01-12

Préparation / Preparation : J. Poirier
Dessin / Drawing : J. Roy
Vérifié par / Verification : J. Poirier
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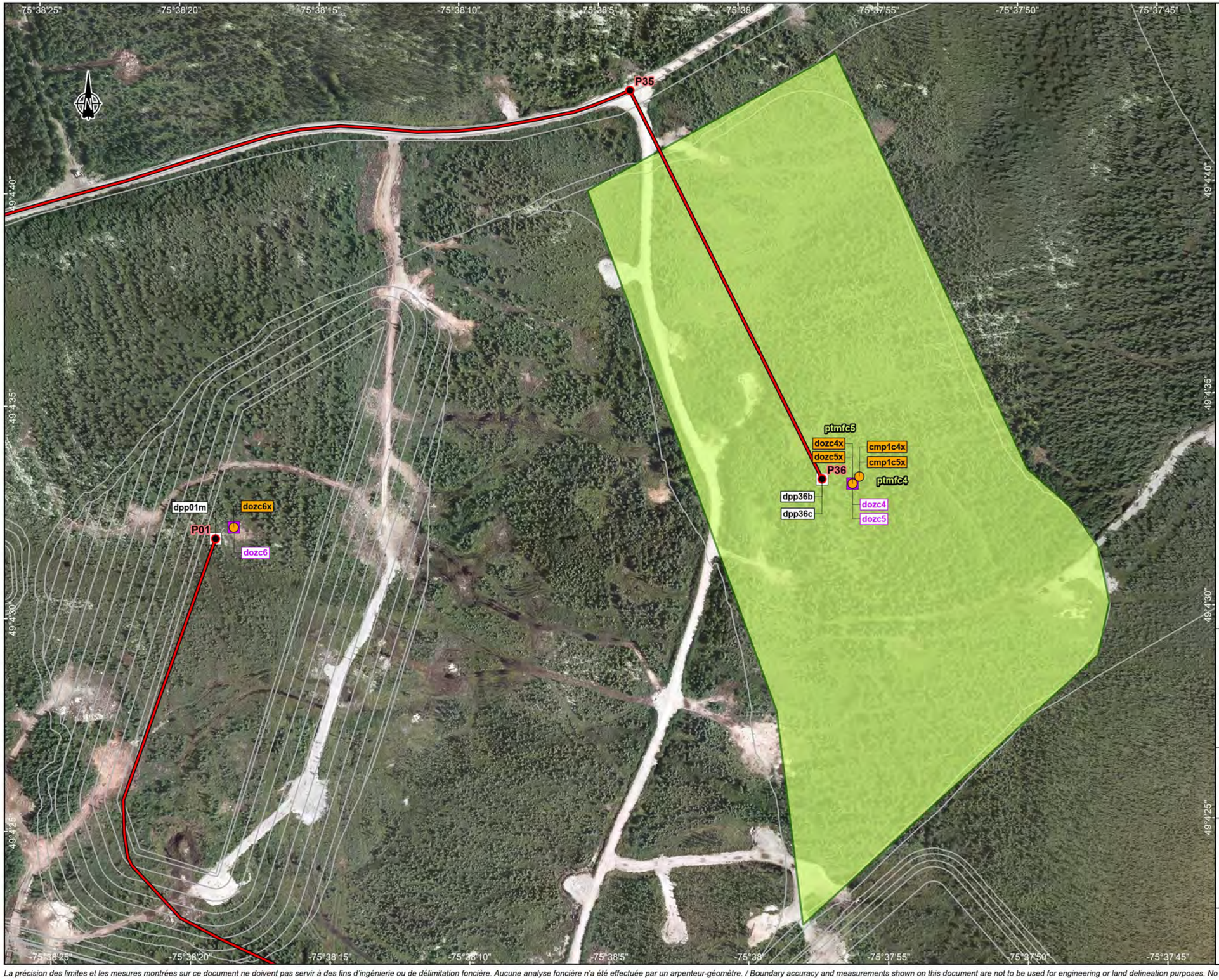

Infrastructure actuelle ou projetée / *Current or planned infrastructure*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Extrémité de segment de routage / *Hauling segment endpoint*

Routage / *Hauling*

Sources ponctuelles / *Point Sources*

Gaz d'échappement / *Exhaust gas*

Sources volumiques / *Volume Sources*

Bouteurs / *Bulldozer*

Chargement - déchargement / *Loading - unloading*

Sources surfaciques / *Area Sources*

Érosion éolienne / *Wind erosion*

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique

Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte B-1-4 (Zone B) / *Map B1-4 (Zone B)*
Sources d'émissions utilisées pour la modélisation de la dispersion atmosphérique / *Emission Sources Used for the Atmospheric Dispersion Modeling* - Construction / *Construction*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
Airbus, Image satellitaire tirée de Google Earth, 2023

0 30 60 m

UTM, Fuseau 18N / *UTM, Zone 18N, NAD83*

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Préparation / Preparation : J. Poirier
Dessin / Drawing : J. Roy
Vérifié par / Verification : J. Poirier
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Infrastructure actuelle ou projetée / *Current or planned infrastructure*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Extrémité de segment de routage / *Hauling segment endpoint*

Routage / *Hauling*

Sources ponctuelles / *Point Sources*

Gaz d'échappement / *Exhaust gas*

Sources volumiques / *Volume Sources*

Bouteurs / *Bulldozer*

Chargement - déchargement / *Loading - unloading*

Sources surfaciques / *Area Sources*

Érosion éolienne / *Wind erosion*

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique

Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte B-1-4 (Zone C) / *Map B1-4 (Zone C)*

Sources d'émissions utilisées pour la modélisation de la dispersion atmosphérique / *Emission Sources Used for the Atmospheric Dispersion Modeling* - Construction / *Construction*

Sources :

BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
Airbus, Image satellitaire tirée de Google Earth, 2023

0 30 60 m

UTM, Fuseau 18N / *UTM, Zone 18N, NAD83*

2024-01-12

Préparation / Preparation : J. Poirier
Dessin / Drawing : J. Roy
Vérifié par / Verification : J. Poirier
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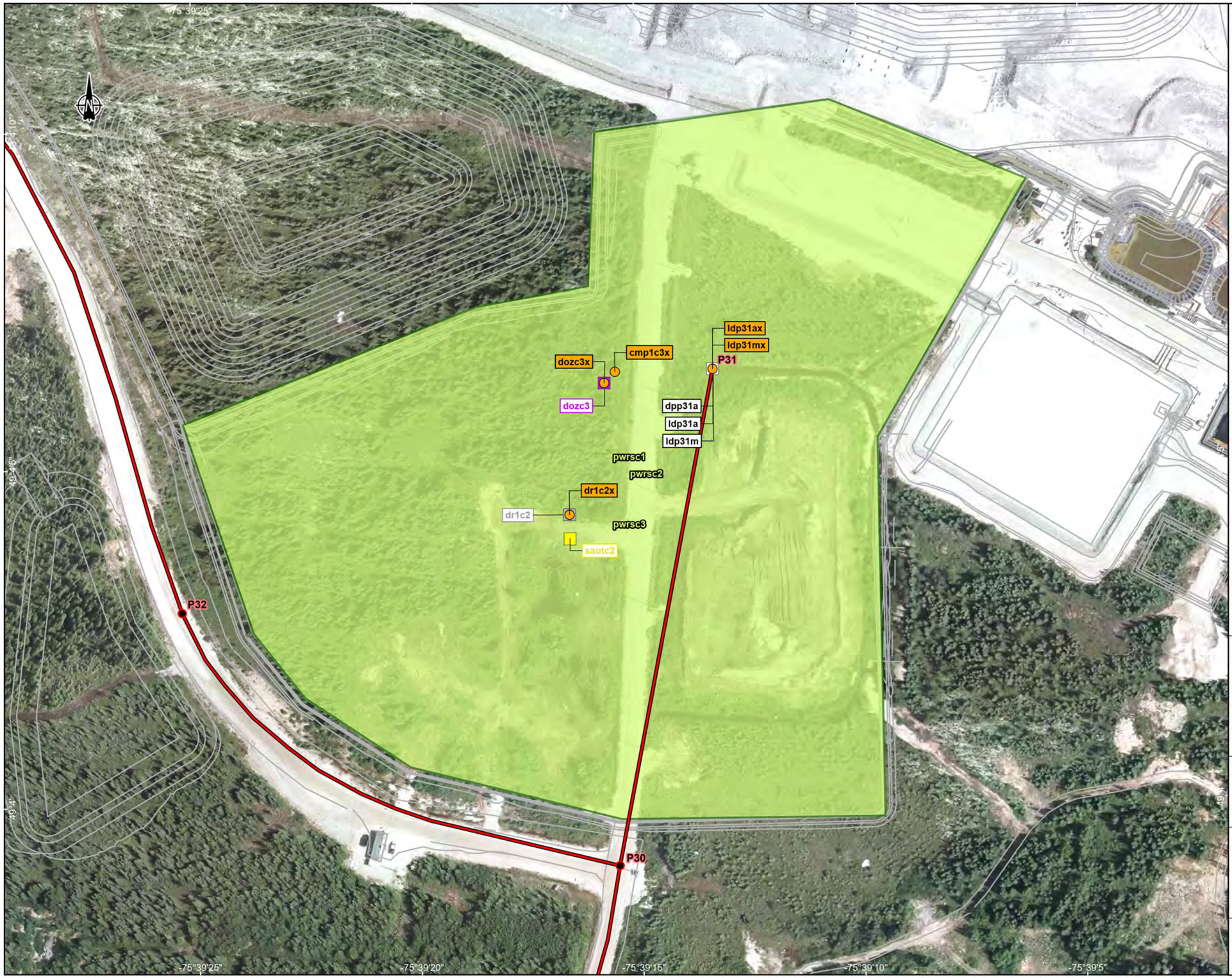

Infrastructure actuelle ou projetée / *Current or planned infrastructure*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Extrémité de segment de routage / *Hauling segment endpoint*

Routage / *Hauling*

Sources ponctuelles / *Point Sources*

Gaz d'échappement / *Exhaust gas*

Sources volumiques / *Volume Sources*

Bouteurs / *Bulldozer*

Chargement - déchargement / *Loading - unloading*

Forage / *Borehole*

Sautage / *Blasting*

Sources surfaciques / *Area Sources*

Érosion éolienne / *Wind erosion*

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique

Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte B-1-4 (Zone D) / *Map B1-4 (Zone D)*

Sources d'émissions utilisées pour la modélisation de la dispersion atmosphérique / *Emission Sources Used for the Atmospheric Dispersion Modeling* - Construction / *Construction*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
Airbus, Image satellitaire tirée de Google Earth, 2023

0 30 60 m

UTM, Fuseau 18N / *UTM, Zone 18N, NAD83*

2024-01-12

Préparation / Preparation : J. Poirier
Dessin / Drawing : J. Roy
Vérifié par / Verification : J. Poirier
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Limite d'application des normes et critères / *Application limit for standards and criteria*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Extrémité de segment de routage / *Hauling segment endpoint*

Routage / *Hauling*

Banc d'emprunt / *Borrow pit*

Sources ponctuelles / *Point Sources*

Gaz d'échappement / *Exhaust gas*

Sources volumiques / *Volume Sources*

Chargement - déchargement / *Loading - unloading*

Concasseur et tamiseur / *Crusher and screen*

Sources surfaciques / *Area Sources*

Érosion éolienne / *Wind erosion*

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique

Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte B-1-4 (Zone E) / *Map B1-4 (Zone E)*

Sources d'émissions utilisées pour la modélisation de la dispersion atmosphérique / *Emission Sources Used for the Atmospheric Dispersion Modeling* - Construction / *Construction*

Sources :

BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
Airbus, Image satellitaire tirée de Google Earth, 2023

0 30 60 m

UTM, Fuseau 18N / *UTM, Zone 18N*, NAD83

2024-01-12

Préparation / Preparation : J. Poirier
Dessin / Drawing : J. Roy
Vérifié par / Verification : J. Poirier
CA0004658_7070_MA_B-1-3_-4_313_Sources_240112.aprx
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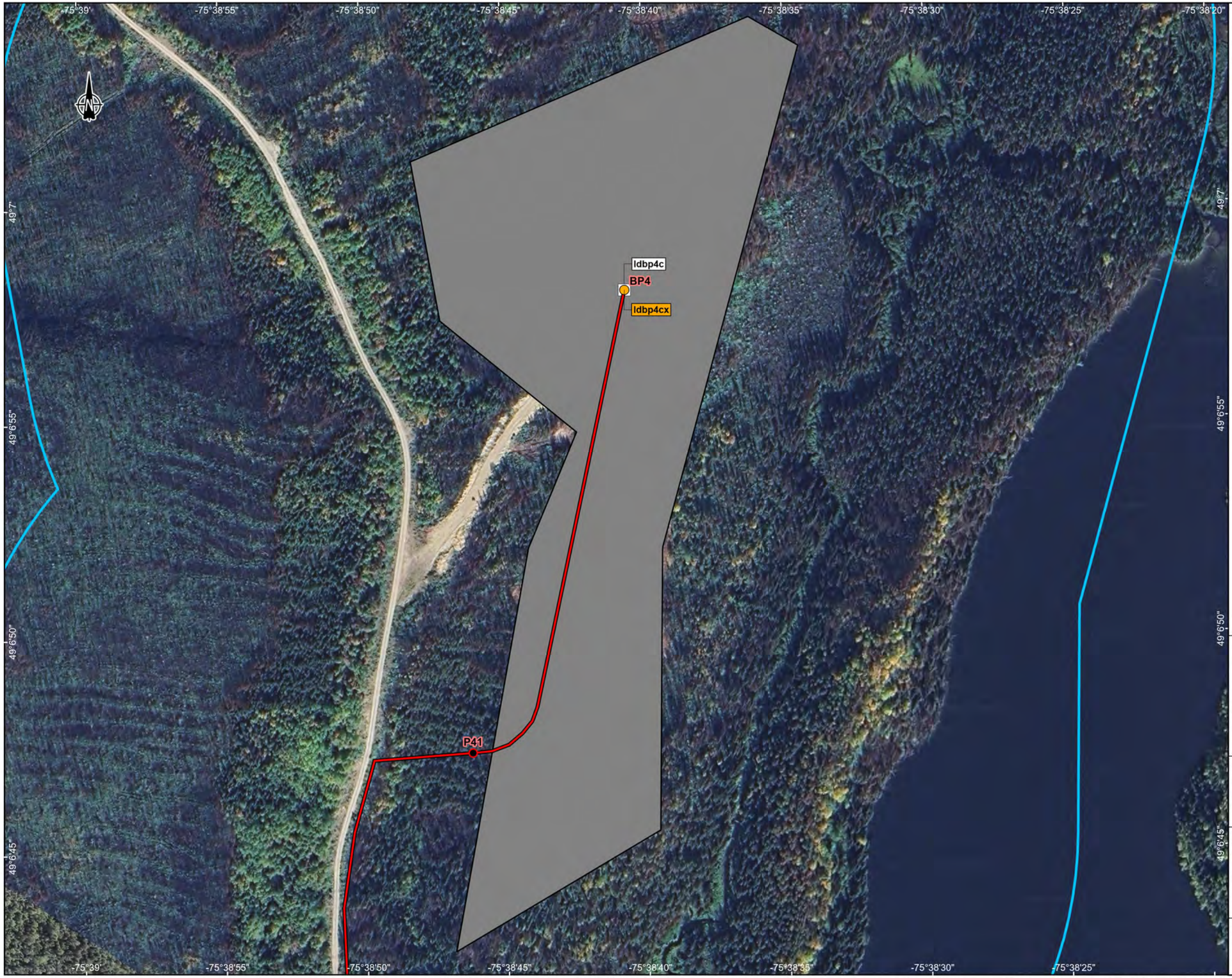

Limite d'application des normes et critères / *Application limit for standards and criteria*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Extrémité de segment de routage / *Hauling segment endpoint*

Routage / *Hauling*

Banc d'emprunt / *Borrow pit*

Sources ponctuelles / *Point Sources*

Gaz d'échappement / *Exhaust gas*

Sources volumiques / *Volume Sources*

Chargement - déchargement / *Loading - unloading*

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique

Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte B-1-4 (Zone F) / *Map B1-4 (Zone F)*

Sources d'émissions utilisées pour la modélisation de la dispersion atmosphérique / *Emission Sources Used for the Atmospheric Dispersion Modeling* - Construction / *Construction*

Sources :

BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
Airbus, Image satellitaire tirée de Google Earth, 2023

0 30 60 m

UTM, Fuseau 18N / *UTM, Zone 18N*, NAD83

2024-01-12

Préparation / Preparation : J. Poirier
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Vérifié par / Verification : J. Poirier
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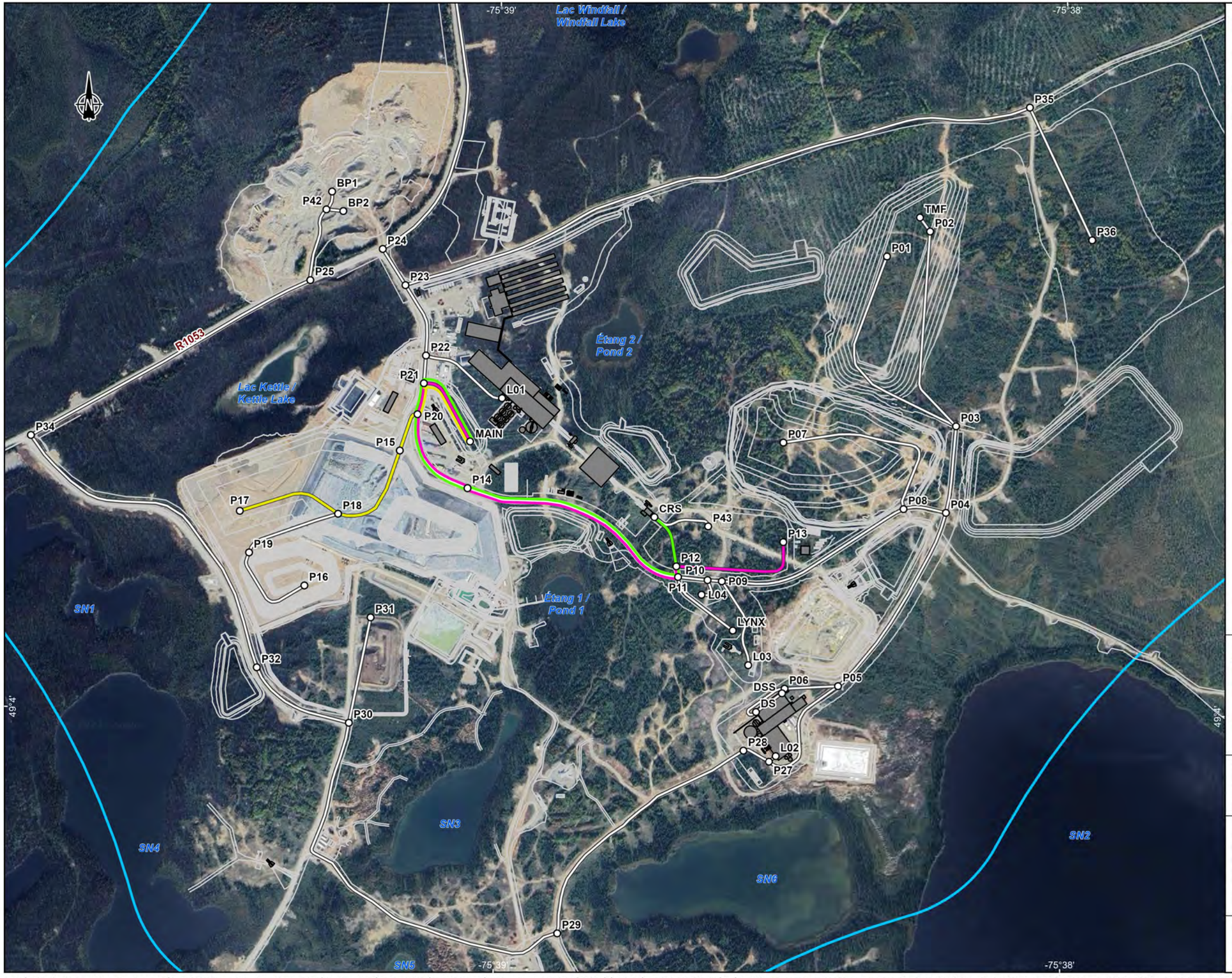

Limite d'application des normes et critères / *Application limit for standards and criteria*

Infrastructure existante ou projetée / *Current or planned infrastructure*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Routage / *Hauling*

Intersection de segment de routage / *Hauling segment endpoint*

Bâtiment / *Building*

Trajets / *Paths*

MAIN_CRS

MAIN_P13

MAIN_P17

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique
Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte B-1-5A / *Map B-1-5A*
Trajets de transport des différentes matières sur le site / *Transport Routes for Different Materials on the Site* - Portail Main / *Main Portal*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
Airbus, Image satellitaire tirée de Google Earth, 2023

0 80 160 m
UTM, Fuseau 18N / *UTM, Zone 18N*, NAD83

2024-01-12

Préparation / Preparation : J. Poirier
Dessin / Drawing : J. Roy
Vérifié par / Verification : J. Poirier
CA0004658_7070_MA_B-1-5_312_Trajets_240112.aprx
CA0004658_7070_MA_B-1-5_312_Trajets_240112

wsp

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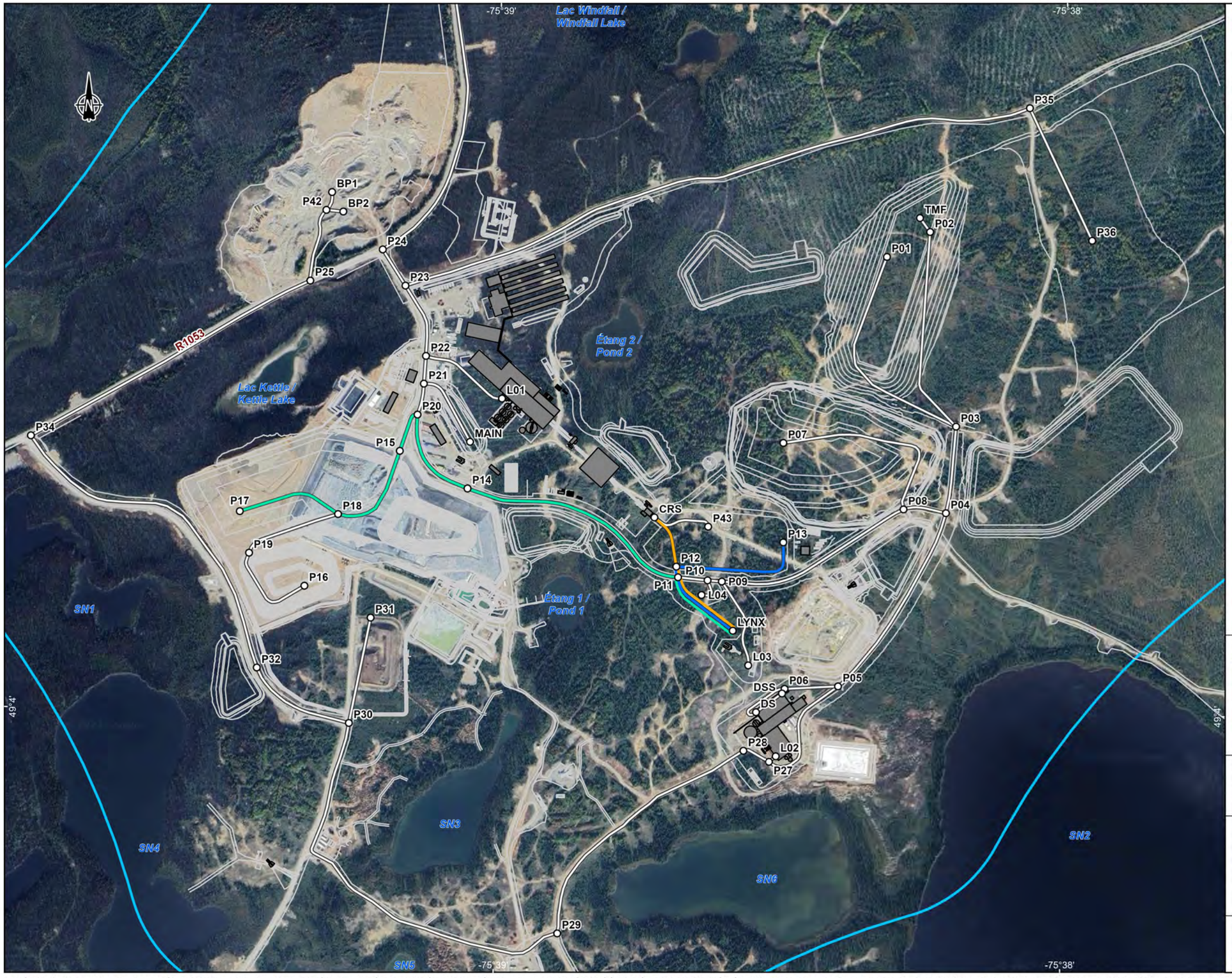

Limite d'application des normes et critères / *Application limit for standards and criteria*

Infrastructure existante ou projetée / *Current or planned infrastructure*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Routage / *Hauling*

Intersection de segment de routage / *Hauling segment endpoint*

Bâtiment / *Building*

Trajets / *Paths*

LYNX_CRS

LYNX_P13

LYNX_P17

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique
Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte B-1-5B / *Map B-1-5B*
Trajets de transport des différentes matières sur le site / *Transport Routes for Different Materials on the Site* - Portail Lynx / *Lynx Portal*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
Airbus, Image satellitaire tirée de Google Earth, 2023

0 80 160 m
UTM, Fuseau 18N / *UTM, Zone 18N*, NAD83

2024-01-12

Préparation / Preparation : J. Poirier
Dessin / Drawing : J. Roy
Vérifié par / Verification : J. Poirier
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Limite d'application des normes et critères / *Application limit for standards and criteria*

Infrastructure existante ou projetée / *Current or planned infrastructure*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Routage / *Hauling*

Intersection de segment de routage / *Hauling segment endpoint*

Bâtiment / *Building*

Trajets / *Paths*

DS_TMF

P16_CRS

P43_CRS

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique
Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte B-1-5C / *Map B-1-5C*
Trajets de transport des différentes matières sur le site / *Transport Routes for Different Materials on the Site* - Remanipulation / Résidus / *Rehandling / Tailing*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
Airbus, Image satellitaire tirée de Google Earth, 2023

0 80 160 m

UTM, Fuseau 18N / *UTM, Zone 18N*, NAD83

2024-01-12

Préparation / Preparation : J. Poirier
Dessin / Drawing : J. Roy
Vérifié par / Verification : J. Poirier
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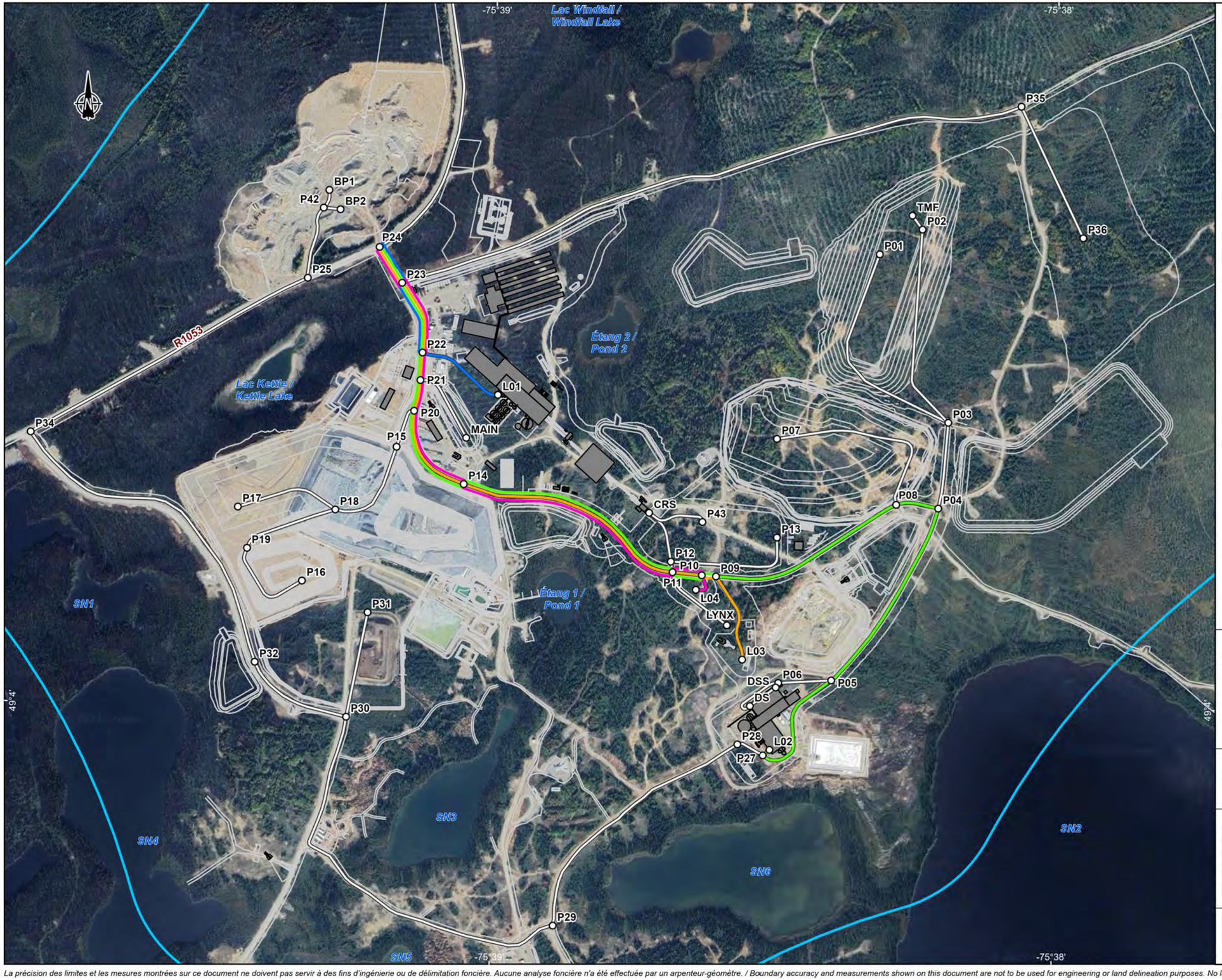

Limite d'application des normes et critères / *Application limit for standards and criteria*

Infrastructure existante ou projetée / *Current or planned infrastructure*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Routage / *Hauling*

Intersection de segment de routage / *Hauling segment endpoint*

Bâtiment / *Building*

Trajets / *Paths*

P24_L01

P24_L02

P24_L03

P24_L04

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique
Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte B-1-5D / *Map B-1-5D*
Trajets de transport des différentes matières sur le site / *Transport Routes for Different Materials on the Site* - Livraisons / *Deliveries*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
Airbus, Image satellitaire tirée de Google Earth, 2023

0 80 160 m

UTM, Fuseau 18N / *UTM, Zone 18N*, NAD83

2024-01-12

Préparation / Preparation : J. Poirier
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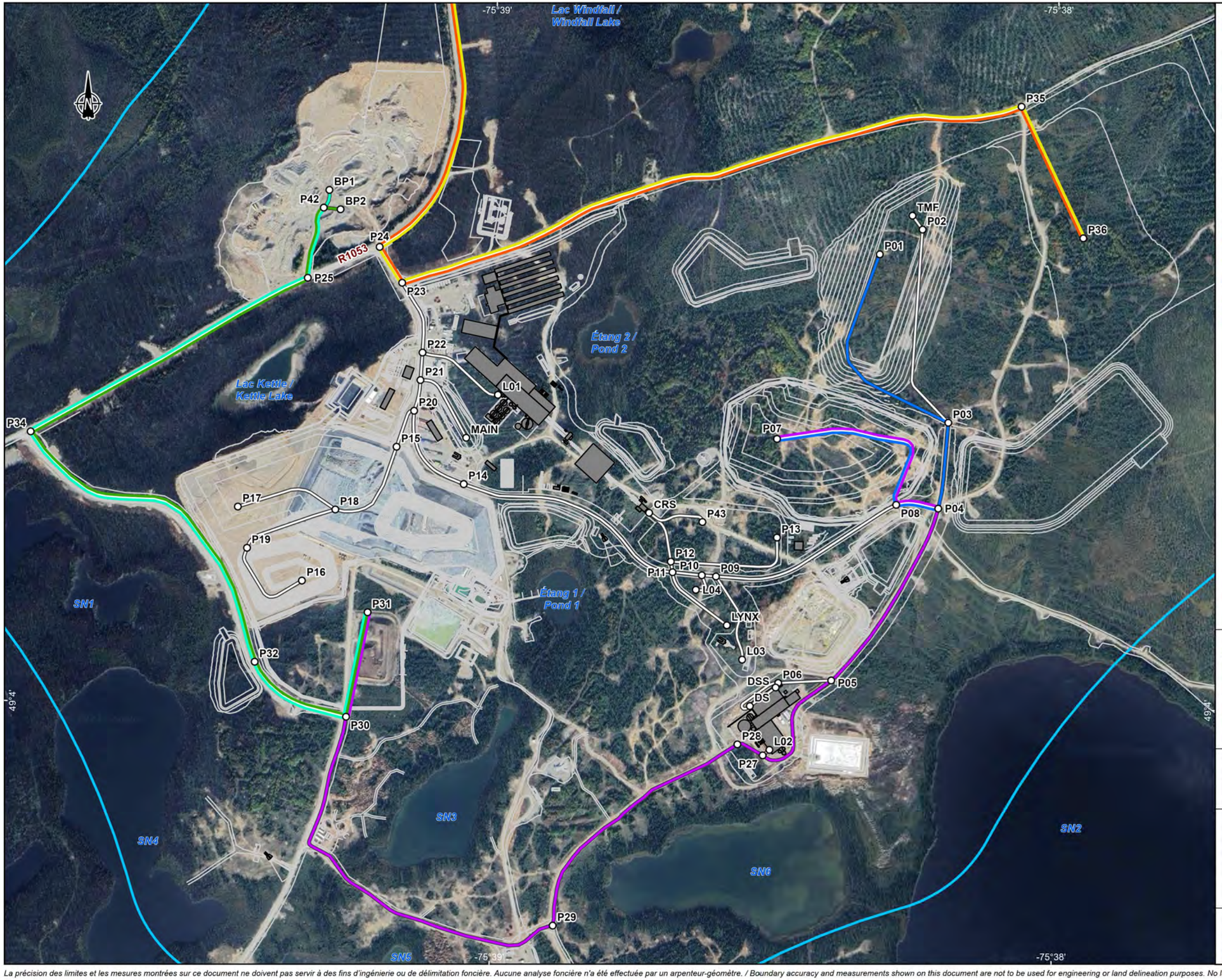

Limite d'application des normes et critères / *Application limit for standards and criteria*

Infrastructure existante ou projetée / *Current or planned infrastructure*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Routage / *Hauling*

Intersection de segment de routage / *Hauling segment endpoint*

Bâtiment / *Building*

Trajets / *Paths*

- BP1_P31
- BP3_P36
- BP4_P36
- P07_P01
- P31_BP2
- P31_P07

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique
Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte B-1-5E / *Map B-1-5E*
Trajets de transport des différentes matières sur le site / *Transport Routes for Different Materials on the Site* - Construction / *Construction*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
Airbus, Image satellitaire tirée de Google Earth, 2023

0 80 160 m
UTM, Fuseau 18N / *UTM, Zone 18N*, NAD83

2024-01-12

Préparation / Preparation : J. Poirier
Dessin / Drawing : J. Roy
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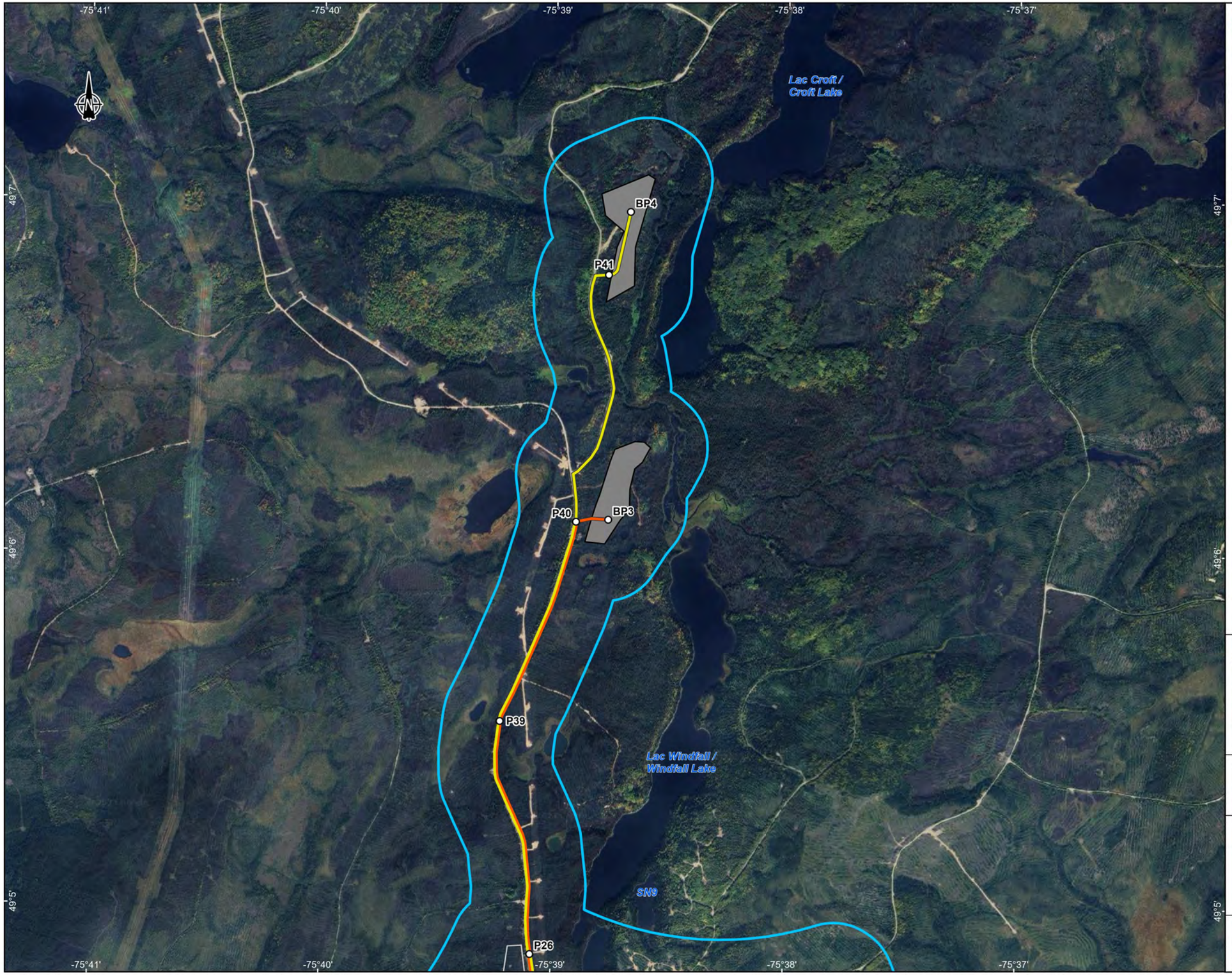

Limite d'application des normes et critères / *Application limit for standards and criteria*

Infrastructure existante ou projetée / *Current or planned infrastructure*

Modèle de dispersion atmosphérique / *Atmospheric Dispersion Model*

Routage / *Hauling*

Intersection de segment de routage / *Hauling segment endpoint*

Banc d'emprunt / *Borrow pit*

Trajets / *Paths*

BP3_P36

BP4_P36

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique
Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) / *Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)*

Carte B-1-5F / *Map B-1-5F*
Trajets de transport des différentes matières sur le site / *Transport Routes for Different Materials on the Site* - Construction / *Construction*

Sources :
BDTQ, 1/20 000, MRNF Québec, 2007
BNDT, 1/250 000, RNCan, 2007
AQréseau+, Réseau routier, MERN Québec, 2020-03
SDA, 1/20 000, MERN Québec, 2019-01
Airbus, Image satellitaire tirée de Google Earth, 2023

0 80 160 m
UTM, Fuseau 18N / *UTM, Zone 18N*, NAD83

2024-01-12

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Dessin / Drawing : J. Roy
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Rayon de 20 km / *20 km radius*

Domaine de modélisation / *Modeling domain*

Limite d'application des normes et critères / *Application limit for standards and criteria*

Chemin d'accès principal / *Main road*

Chemin d'accès aux bancs d'emprunts Gravtest-3 et Gravtest-4 / *Access path to the Gravtest-3 and Gravtest-4 borrow pits*

Infrastructures actuelles et projetées / *Current and planned infrastructure*

Récepteurs / *Receptors*

Camps cri / *Cri camps*

Baux à des fins de villégiature / *Private vacation use leases*

Baux à des fins d'hébergement dans une pourvoirie sans droits exclusifs / *Leases for accommodation in an outfitter without exclusive rights*

Baux à des fins d'abri sommaire en forêt / *Rough shelter leases*

Baux à d'autres fins / *Leases for other purposes*

Camps Bonterra / *Bonterra camps*

WINDFALL GROUPE MINIER

Projet minier Windfall - Rapport Sectoriel - Modélisation de la dispersion atmosphérique
Windfall Mining Project - Sectoral Report - Atmospheric dispersion modeling

Site minier Windfall, Eeyou Istchee Baie-James (Québec) /
Windfall Mining Site, Eeyou Istchee Baie-James (Quebec)

Carte B-1-10 / *Map B-1-10*
Récepteurs sensibles / *Sensitive receptors*

Source :
MELCCFP, Photos aériennes de l'inventaire écoforestier, 2009-2019
MRNF, Droits fonciers (baux), 2019

0 1,6 3,2 km
UTM, fuseau 18, NAD83

2024-01-12

Préparée par / Preparation : J. Poirier
Dessinée par / Drawing : J. Roy
Vérifiée par / Verification : J. Poirier
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