

# **THE ISSUE OF QUARRY FLY ROCK**

**June 2021. REVISED August 2021**

## **ADVISORY TO REGISTERED PROFESSIONAL PLANNERS**

On January 1, 2022, Rule 28 of subsection 0.13 (1) in Ontario Regulation 244/97 of the *Aggregate Resources Act*, comes into effect. It stipulates that the licensee of an aggregate quarry shall ensure that the quarry is in compliance with the Rule as follows:

a licensee or permitted shall take all reasonable measures to prevent fly rock from leaving the site during blasting if a sensitive receptor is located within 500 metres of the boundary of the site.

Fly Rock discharge from quarry blasting is a contaminant as determined by the Supreme Court of Canada. It is likely to cause an adverse effect under the *Environmental Protection Act*.

Members of OPPI are advised to also consider the directions provided under Policy 1.2.6 under Provincial Policy Statement 2020 to establish the appropriate municipal planning policies as a preventative measure to achieve land use compatibility between quarries that undertake blasting and sensitive land uses.

### **Aggregates Resources Act and O. Reg. 244/97**

The issue of blasting rock in a quarry is addressed by the Ministry of Northern Development, Mines, Natural Resources and Forestry (“NDMNR”) in consideration of applications for a licence under the Act. As of **April 21, 2021**, Ontario Regulation 244/97 under the *Aggregate Resources Act*, was amended to provide the following licence conditions and standards:

#### Licence Conditions

- No blasting on a holiday, or between 6 p.m. and 8 a.m.
- The Licensee shall monitor all blasts for ground vibration and blast over pressure in accordance with provincial guidelines on limits on blast over pressure and ground vibration for blasting operations.
- The Licensee shall prepare blast monitoring reports according to provincial guidelines on limits of blast overpressure and ground vibration for blasting operations.
- The Licensee shall retain blast monitoring reports for a period of seven years after each blast.

NDMNRF Standards require the following for applications:

### **Blast Design Report**

In the application for a licence to extract or remove more than 20,000 tonnes of aggregate annually, a Blast Design Report is required to be submitted by the applicant if a sensitive receptor is located within 500 metres of the limit of extraction. The Report must demonstrate that provincial guideline, NPC-119-blasting, for blast overpressure and ground vibration can be satisfied.

### **Site Operations Plan**

The applicant's Operations Plan must:

- (a) provide details about the frequency and timing of blasts;
- (b) provide the number of sensitive receptors that are located within 500 metres of the boundary of the site and the distance from this boundary to each sensitive receptor. A sensitive receptor is defined as a school, child care centre, or any residence or facility at which at least one person sleeps.

### **Land Use Compatibility - Provincial Policy Statement 2020**

Section 1.2.6 sets out provincial policies with respect to Land Use Compatibility. In particular, Section 1.2.6.1 applies to the consideration by NDMNRF and municipalities of proposed quarries as a defined "Major Facility", as follows:

*Major facilities and sensitive land uses shall be planned and developed to avoid, or if avoidance is not possible, minimize and mitigate any potential adverse effects from odour, noise and other contaminants, minimize risk to public health and safety, and to ensure the long-term operational and economic viability of major facilities in accordance with provincial guidelines, standards and procedures.*

This policy is mandatory, and it is to be considered by the ministries and the municipalities.

Conversely, where sensitive land uses are proposed in the vicinity of an existing or planned quarry (major facility), the Province directs the municipalities to apply the following provincial policy 1.2.6.2:

*Where avoidance is not possible in accordance with policy 1.2.6.1, planning authorities shall protect the long-term viability of existing or planned industrial, manufacturing or other uses that are vulnerable to encroachment by ensuring that the planning and development of proposed adjacent sensitive land uses are only permitted if the following are demonstrated in accordance with provincial guidelines, standards and procedures.*

- a) there is an identified need for the proposed use;
- b) alternative locations for the proposed use have been evaluated and there are no reasonable alternative locations;
- c) *adverse effects* to the proposed *sensitive land use* are minimized and mitigated; and
- d) potential impacts to industrial, manufacturing or other uses are minimized and mitigated.

### **The Legal Obligations**

The Supreme Court of Canada considered an appeal by Castonguay Blasting Ltd. and dismissed the appeal in favour of the Province of Ontario. The Court decided (October 17, 2013) that "Castonguay was required to report the discharge of fly-rock forthwith to the Ministry of the Environment" (Paragraph 40). In its decision, the Court stated the following relevant reasons:

"Applying these elements to this case, s. 15(1) (*Environmental Protection Act*) was clearly engaged. Castonguay "discharged" fly-rock, large pieces of rock created by the force of a blast, into the "natural environment". There is also no doubt that fly-rock meets the definition of "contaminant". The discharge in this case was "out of the normal course of events" - it was an accidental consequence of Castonguay's blasting operation. Had the blast been conducted routinely, the fly-rock would not have been thrust into the air." (Paragraph 37).

"The adverse effects were not trivial. The force of the blast, and the rocks it produced, were so powerful they caused extensive and significant property damage, penetrating the roof of a residence and landing in the kitchen. A vehicle was also seriously damaged. The fly-rock could easily have seriously injured or killed someone." (Paragraph 39).

The *Environmental Protection Act* is preventive with respect to the discharge of contaminants. The Act and the Regulations apply to prevent the accidental impact of fly rock. Since the licensee is required to keep fly rock on the site during blasting, any discharge of fly rock beyond the controlled blast environment that is not a normal event, i.e. it would have been prevented, must be reported forthwith to the MECP, if the contaminant may likely cause an adverse effect. The Ministry may issue an order for remediation and preventive measures.

### **Analysis**

The new provision for regulating and managing fly rock at a quarry site is contained in Ontario Regulation 244/97 under the *Aggregate Resources Act*. All quarries, both existing and those that are licenced after January 1, 2022, are required:

"to take all reasonable measures to prevent fly rock from leaving the site during blasting if a sensitive receptor is located within 500 metres of the boundary of the site"

These following observations should be considered by Planners:

- There is no existing provincial government guideline indicating how the licensee is to keep fly rock within the quarry site when blasting. We understand from NDMNRF that this guidance is being prepared.
- The Act and/or the Regulation do not indicate how the proponent is to take all reasonable measures to demonstrate that fly rock can be contained within the quarry site during blasting. We understand from NDMNRF that this guidance is being prepared.
- At least one existing sensitive receptor must be located within 500 metres of the licenced boundary. If a new sensitive receptor is located within 500 metres of the quarry after it is operational, the fly rock rule would apply.
- If there are vacant lots that are designated and/or zoned for sensitive receptors, these are not recognized by this obligation. When these lots are developed and used as sensitive receptors, the fly rock rule will apply where they are within 500 metres of the boundary of the quarry.
- If during blasting, fly rock discharges off the site within the 500-metre area, the municipality should be aware of the obligation by the operator to report this contamination forthwith to MECP.

Blasting is referred to in section 49 of O. Reg. 419/05 "Air Pollution - Local Air Quality". There is a prohibition on the emission of any contamination beyond the limits of the property upon which blasting is being carried out.

*At the request of officials in the Ministry of Northern Development, Mines, Natural Resources and Forestry, a meeting was conducted with the advisory authors and staff at the Ontario Professional Planners Institute. At this meeting, several updates were provided, facts and observations were discussed. We made amendments to this advisory to address these matters. The assistance of Ministry officials is greatly appreciated.*

*The Ministry advised OPPI that it is currently in the process of developing a guideline to assist quarry operators in implementing the fly rock rule.*

*This Advisory, as revised, is prepared by Mark L. Dorfman, RPP, and George McKibbin, RPP. The views expressed within this Advisory are their own based on research of existing legislation, policies and court records and do not necessarily reflect the views of OPPI or its affiliates. This is not legal advice. Members should rely on relevant laws, standards, by-laws, regulations and legislation that govern this issue.*

## **Addendum**

*(provided by the Ministry of Northern Development, Mines, Natural Resources and Forestry)*

Fly rock risks are managed through a matrix of policies and legislation that deal with a wide range of related topics including operational requirements for blasting, land-use compatibility, protection of the environment as well as public health and safety. The ministry takes this issue seriously and offers the following for OPPI consideration, and further discussion:

### **Land-use Planning**

The Provincial Policy Statement (PPS) provides the policy foundation for regulating development and the use of land in Ontario. It deals with a variety of subjects including public safety, protection of the environment, and natural resources as well as provides for policies for economic growth. It is important to note the PPS exists as a comprehensive framework of policies which cannot be viewed in isolation from other policies. Part III of the preamble states the following:

*"The Provincial Policy Statement is more than a set of individual policies. It is to be read in its entirety and the relevant policies are to be applied to each situation. When more than one policy is relevant, a decision-maker should consider all relevant policies..."*

In addition to the land-use compatibility policies section 1.2.6 referenced in the OPPI paper, the PPS also contains detailed policies related to Mineral Aggregate Resources in section 2.5. Of note, the PPS requires that extraction "...be undertaken in a manner which minimizes social, economic and impacts".

These policies are reflected in specific requirements outlined in the *Aggregate Resources Act* (ARA), associated regulations, standards, and policies (discussed further, below) for existing operations and new applications.

The PPS also requires that development, and activities being considered near existing aggregate operations and aggregate deposits, consider and address "...issues of public health, safety and environmental impact." In undertaking development, municipal planners are required to consider public health and safety for new developments in relation to existing mineral aggregate operations and resources areas. Municipal planners need to ensure that new development near existing operations, or known resources, do not create or exacerbate public health and safety issues.

### **Aggregates**

Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNR) regulates blasting, including fly rock, in quarries (on Crown lands and designated private lands) under the following policy framework which prioritizes the safety and wellbeing of people, the environment and property, while enabling the extraction of aggregate resources:

- [Aggregate Resources Act](#) — The purpose of the ARA is, among other things, to minimize adverse impact on the environment in respect of aggregate operations (Section 2). Further, the contravention of the Act or Regulations under the Act (including the below-listed Regulation and Standards) is considered an offence<sup>[1]</sup>.
- [Ontario Regulation 244/97](#) under the ARA — lists prescribed conditions<sup>[2]</sup> pertaining to blasting, including blasting hours, requirements for blast monitoring<sup>[3]</sup> (in conjunction with blasting policies; see below), and the new flyrock rule<sup>[4]</sup>.
- The Aggregate Resources of Ontario Provincial Standards
  - [Aggregate Resources of Ontario Technical Reports and Information Standards](#) — lists requirements for the submission of blast design reports by quarry applicants proposing to extract over 20,000 tonnes/year.
  - [Aggregate Resources of Ontario Site Plan Standards](#) — require quarry applicants to include details of proposed blasting activities, and information regarding sensitive receptors within 500 m of the quarry boundary.
- The Aggregate Resources Policy and Procedures Manual
  - Policy [A.R. 5.00.10](#) — covers blasting restrictions across approval instruments
  - Policies [A.R. 2.01.09](#) (licences), [A.R. 4.01.08](#) (permits), and [A.R. 3.01.07](#) (wayside permits) — lay out the Ministry’s approach for Blast Design Report and blast monitoring requirements.

Therefore, the new fly rock rule should not be viewed in isolation but rather within the larger ARA regulatory context within which it is nested.

Further, our Ministry is currently working on developing guidance to provide greater clarity and detail on the intent and implementation of the new fly rock rule; guidance may include best management practices and policy guidance.

## Environmental Protections

The Ministry of the Environment, Conservation and Parks (MECP) administers the [Environmental Protection Act](#) (EPA) under which flyrock can be considered a contaminant (pollutant), and the off-site discharge of flyrock is considered a spill<sup>[5]</sup>. The EPA requires that every person who spills or causes or permits a spill of a pollutant is required to notify MECP’s Spills Action Centre<sup>[6]</sup> and take action to address any adverse impacts caused by the spill<sup>[7]</sup>. Both NDMNRF and MECP take fly rock incidents very seriously and when off-site discharge of fly rock is reported, or a complaint of off-site impact is received, MECP staff will work with the NDMNRF to assess the incident and determine the appropriate action, which may include additional measures which need to be taken to prevent future off-site fly rock incidents.

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<sup>[1]</sup> Subsection 57(3) of the ARA

<sup>[2]</sup> Prescribed conditions are placed on the approval instrument (licence, permit, wayside permit) at the time of approval, and cannot be changed or varied.

<sup>[3]</sup> Subsection 0.12(5) of O. Reg. 244/97

<sup>[4]</sup> Subsection 0.13(1) of O. Reg. 244/97

<sup>[5]</sup> Subsection 91(1) of the EPA

<sup>[6]</sup> Subsection 92(1) of the EPA

<sup>[7]</sup> Subsection 91(1) of the EPA

## **Worker Safety**

The Ministry of Labour, Training and Skills Development (MLTSD) administers the [Occupational Health and Safety Act](#) (OHSA) under which [Regulation 854 \(Mines and Mining Plants; R.R.O. 1990\)](#) lists requirements pertaining to blasting, including in quarries. The OHSA and Regulation 854 require that:

- quarry operators conduct a risk assessment of the workplace to identify, assess, and manage hazards, and potential hazards, that may expose a worker to injury or illness. Under such a risk assessment, fly rock would also have to be addressed.
- each blast be designed by a competent person, appointed by the quarry operator. The blast design:
  - must be documented (prior to start of blasting), as well as reviewed and followed.
  - must include guarding procedures to protect workers on site.
- prior to each blast, a siren warning of blast is to be given, and where there are public roads nearby, traffic must be warned of the impending blast, and stopped.
- where workers are required to be present near the blast, blasting shelters must be provided.

Further, in the event of an accident (unintended event), premature or unexpected explosion or defective explosives or detonators, which could result in fly rock leaving the quarry site, the operator must notify the MLTSD