Castlepollard Quarry, Deerpark, Castlepollard, Co. Westmeath

# Castlepollard Quarry

# Environmental Impact Assessment Report

## Appendix 11

## Blast Notification Procedure &

## Blast Monitoring Programme

February 2022



LAGAN
Part of the Breedon Group

Prepared by:

J Sheils Planning & Environmental Ltd

31 Athlumney Castle, Navan, Co. Meath

| Blast Notification Procedure & Blast Monitoring Programme | | |
|---|---|---|
| LAGAN Part of the Breedon Group | Location: | Deerpark, Castlepollard, Co. Westmeath. |
| | Date: | 10th November 2021 |
| | Reviewer: | John Fennell, MSc. Hydrogeology |
| | Approver: | Brian Downes BSc. Spatial Planning. Dip. Env. Eng. MIPI |

## 1. Policy

The blast monitoring programme at site will be undertaken in compliance with the requirements of Planning Ref. 01/525 Conditions:

9. *The vibration levels from the blasting shall not exceed a peak particle velocity of 12millimetres per second (when measured in any one of three mutually orthogonal planes) for any blast when measured at the site boundaries.*

10. *Blasting shall not give rise to air overpressure values at noise sensitive locations exceeding 125 dB (Lin) max peak.*

11. *Public notice of blasting procedures shall be established and agreed in advance with the planning authority.*

## 2. Operational Practice

The rock is fragmented using industry standard blasting procedures. This procedure utilises state-of-the-art blast design system, the objectives being to:

- Efficiently extract rock from the quarry face;
- Minimise the amount of explosive used;
- Minimise the vibration and air overpressure;
- Eliminate the risk of flyrock; and
- To allow prediction of vibration levels at given locations.

The blasting operations are carried out by Irish Industrial Explosives Ltd. (IIE) or a similar company, at the quarry. Each particular production blast is designed to fragment and loosen the particular section of rock. Production blasting is normally carried out using bench blasting techniques.

The blastholes are drilled to the pattern (spacing, depth, burden, etc) specified by IIE. Any geological anomaly encountered during drilling is recorded and reported to the quarry manager. The blasthole is marked and the Shotfirer decided whether or not the hole is to be used. If necessary, a replacement blasthole is drilled.

Blasts are designed so that there are no excess explosives. Any small surplus of explosive material resulting from unforeseen circumstances are burned in situ in accordance with standard blasting practice and as per the manufacturers recommendations.

## 3. Blast Notification Procedure

- Residences within 500m of the quarry are provided with a minimum of 24 hours' written notice of intention to blast.
- On the day of the blast, all of these identified residents are contacted by phone approximately 1 hour before the blast is due to take place. A clearly audible warning siren is sounded before each blast. When blasting operations are completed an ALL CLEAR siren is sounded.

## 4. Blast Monitoring – Vibration & Air Overpressure

The blast design is permanently under review to ensure that impacts associated with blasting are kept below DoEHLG (2004) thresholds. Air overpressure is minimised through proper blast design, avoiding detonation of large unconfined charges, and by consideration of atmospheric conditions before blasting. Established methods and practices for efficient blast design are utilised at all times.

The following precautions are taken at the quarry to minimise potential disturbances during blasting operations:

- The blasting of rock does not take place within the site on more than two occasions in any calendar month;
- The blasting of rock only takes place between the hours of 10.30 and 16.30 on working days (Monday to Friday) (except in emergencies, or where health and safety issues arise); and
- There is no blasting carried out on Saturdays, Sundays or public holidays (except in emergencies, or where health and safety issues arise).

The blasting system uses the monitoring results to optimize and ensure consistent blast designs. Efficient blasts use as much of the explosive energy as possible for rock fragmentation, and by implication ground vibration and air overpressure is inefficient use of this energy. Therefore, optimization of the blast design is economically beneficial to the company (through improved rock fragmentation), and also minimizes the potential environmental impacts.

## 5. Monitoring Methodology

All blasts carried out at the quarry at Castlepollard are monitored at sensitive receptors by an independent contractor for peak particle velocity (PPV) and air overpressure (AOP).

Ground vibration and air over-pressure are measured utilizing portable seismographs, located at nearby residences (subject to the owner's agreement). Air over-pressure is measured utilizing a calibrated microphone, incorporated into the seismograph.

Each seismograph is calibrated in accordance with the manufacturer's requirements.

Before the blast, the following factors must be adhered to:

- Ensure the blast site is under the control of a competent person;
- Establish the danger zone, which will be cleared when firing the blast;

- The location of all services must be known, i.e., water mains, gas mains, underground cables or overhead lines, sewers, drainage pipes, etc;
- Ensure all holes are drilled in accordance with a blast design and holes are ready for charging;
- Establish an identifiable prohibited zone of 10m within which smoking, naked flames, welding, etc are prohibited;
- Consider sources of extraneous electric currents from power cables, electrical storms, etc and prohibit the use of radios and mobile phones on site;
- Ensure all unnecessary equipment and personnel not required at the blast site are removed; and
- Consider and protect against the possibility of projected materials from the blast.

**When Firing the Blast**

- Lagan Materials Ltd. must ensure that the danger zone within the quarry floor is clear and all persons are in places of safety before firing the blast;
- Provide audible signals to indicate start and cessation of blasting (refer to Section above);
- Ensure all persons who may be affected by the blast (workforce and the public) are notified of the time for blasting (refer to Section above).

**After Firing**

- Ensure that no one enters the danger zone until the competent person examines it and the all-clear signal is given;
- Ensure that a procedure for dealing with misfires is in place and followed;
- Ensure that surplus explosives are returned where possible or destroyed in strict accordance with manufacturer's instructions;
- An **ALL CLEAR** siren will sound after blasting operations are completed.

**Emergency Telephone Numbers**

| | |
|---|---|
| • Ambulance / Gardai / Fire-Brigade | 999 / 112 |
| • Midland Regional Hospital, Mullingar | 044-9340221 |
| • Westmeath County Council | 044-9332000 |

**Site Personnel**

The person on site responsible for blasting operations is Mr. James Butler (Quarry Manager).

## 6. Monitoring Results

Blast monitoring results will be assessed in relation to the following limits;

- Ground-borne vibration-peak particle velocity measured in any of the three mutually orthogonal directions at the receiving location should not exceed 12mm/s, (for vibration with a frequency of less than 40Hz).
- Blasting should not give rise to air overpressure values at sensitive locations which are in excess of 125 dB(Lin) max peak. To allow for wind fluctuations and weather conditions, 95% of all air over-pressure levels measured at the nearest noise sensitive locations should

conform to the specified limit value. No individual air over-pressure value should exceed the limit value by more than 5 dB(Lin).

The results of the blast monitoring will be held on site and also made available to the planning authority, upon request.