



OBERON **QUARRIES**

BLAST MANAGEMENT PLAN

Oberon Quarries Pty Ltd

Version 9 May 2025

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1.0 Introduction

1.1 Background

Oberon Quarries Pty Limited (Oberon Quarries) operates Oberon Quarry, an existing hard rock quarry located approximately 4 kilometres (km) south of Oberon, New South Wales (NSW) (refer **Figure 1.1**). Oberon Quarries has been operating at the site since 1995. The original Oberon Quarries Development Consent (DA92/164) was granted on 1 October 1993 by the NSW Minister for Planning and was surrendered on 2 December 2015. The existing operations have been developed in accordance with DA92/164 (incorporating the 2000, 2002, 2004, 2007 and 2013 modifications) and Environment Protection Licence (EPL) 4442. On 14 September 2015, Oberon Quarries was granted approval of the Oberon Quarry Continuation Project Development Consent (SSD_6333) (Development Consent) by the NSW Minister for Planning to extend the life of the quarry for an additional 30 years.

The Development Consent allows for continued operations of the Oberon Quarry across a broader area which will enable the extraction of additional basalt resources. The Development Consent permits a maximum production level of 400,000 tonnes per annum (tpa) and 3000 tonnes of product transport per day.

Oberon Quarries is committed to implementing continued quarrying operations in the context of updated and contemporary environmental management requirements. This Blast Management Plan (BMP) has been prepared in accordance with Schedule 3, Condition 9 of the Development Consent. Oberon Quarries notes that a blasting agreement, in accordance with Schedule 3, Condition 6 of the Development Consent, has been established with the relevant landowner and an additional landowner to generate higher blast noise and vibration levels than those specified in the Development Consent (refer **Appendix 1 and 2**). Oberon Quarries notified the Department of Planning and Environment (DPE) of this blasting agreement on 17 April 2018; the additional on the 27th April 2022.

This agreement allows the blasting criteria as specified in Schedule 5 Condition 7 of the Development Consent to be exceeded and removes the requirement of any associated incident reporting required by the same, should the blasting criteria be exceeded.

Oberon Quarries will; however, continue to carry out regular monitoring to comply with Schedule 3, Item 8 c) of the Development Consent "Operating Conditions" and to inform future blast designs.

It is noted that Oberon Quarries has been operating for the last 20 years and has established relationships with the surrounding residences (refer **Figure 3.1**). The Oberon Quarry Manager maintains regular contact with the few residences that reside within the vicinity of the operation. It is also noted that blasting impacts from the Quarry have historically not been an issue and on this basis unlikely to be an issue in the future.

Should a blasting related complaint ever be received it will be managed in accordance with the Oberon Quarries Environmental Management Strategy (EMS) which includes a procedure for the management of environmental incidents and community complaints. In accordance with this procedure, all environmental incidents will be investigated to a level commensurate to their risk level by the Quarry Manager in consultation with Work, Safety, Health, Environmental, and Quality Representative. Additional controls will be implemented where required, based on the outcomes of the investigation. All environmental complaints will be reported annually in the Annual Review.

In the unlikely event that the monitoring undertaken in response to a community complaint identifies an exceedance of the blasting criteria at a residence where a blasting agreement has not been established, the exceedance will be reported in accordance with Schedule 5, Condition 7 of the Development Consent and the relevant landowner(s) notified in accordance with Schedule 4, Condition 1 of the Development Consent.

1.2 Project Description

The Oberon Quarries Development Consent (SSD_6333) provides for the following:

- continued quarrying operations within the project area as defined by SSD_6333 until 30 August 2045
- a maximum production level of 400,000 tpa and maximum daily transport of 3000 tonnes (t) of quarry product
- replacement of some of the existing screening plant, reconfiguration of the alignment of screens and the inclusion of an additional cone crusher
- inclusion of a second diesel fuel storage tank of approximately 28,000 litre capacity
- inclusion of a 1.0 hectare (ha) extension to the existing extraction area to avoid the sterilisation of approximately 500,000 t of high quality basalt resource
- inclusion of a Finlay 750e Hydrasander (or equivalent) to separate silt and clay from sand size particles in the crusher fines
- duplication of approximately a 180 m section of the internal haul road to improve road safety and
- continued extraction of the high quality basalt from the existing extraction areas as required, with extraction at times occurring on the upper and lower benches.

1.3 Purpose and Scope

The purpose of this BMP is to provide a description of the measures to be implemented by Oberon Quarries to manage blasting operations at Oberon Quarry and to detail the blast monitoring requirements associated with the operation. This BMP also provides a mechanism for assessing blast monitoring results against the relevant blast impact assessment criteria.

This BMP also addresses the requirements detailed in the Development Consent. The Development Consent conditions relevant to this plan are provided in **Sections 2.1** and **2.2** respectively, including a checklist of where each condition has been addressed within this document.

This plan outlines the control measures to be implemented as part of the continued operations at Oberon Quarry to minimise the potential blast related impacts on the local community.

1.4 Objectives

The objectives of this BMP include the following:

- detail the controls currently implemented at the site and the controls to be implemented to minimise blasting impacts from the site
- provide a blast protocol to assess monitoring results against blast impact assessment criteria to evaluate compliance
- detail community notification procedures of the blasting schedule
- manage blast-related community complaints in a timely and effective manner



Figure 0.1 Locality Plan

2.0 Regulatory Requirements

2.1 Development Consent

The Development Consent for the Oberon Quarry Continuation Project was assessed under the *Environmental Planning and Assessment Act 1979* (EP&A Act). Approval for the project was granted by the Minister for Planning on 14 September 2015. The requirement for this BMP arises from Schedule 3, Conditions 6 to 9 of the Oberon Quarry Development Consent. The requirements from the Development Consent relating to blasting, and where these requirements are addressed within this document, are provided in **Table 2.1**.

Table 2.1 Development Consent conditions

Conditions		Addressed in Section												
Blasting Impact Assessment Criteria														
6.	<p>The Applicant shall ensure that blasting on site does not cause any exceedance of the criteria in Table 3.</p> <p>Table 3: Blasting Criteria</p> <table border="1"> <thead> <tr> <th>Location</th> <th>Airblast overpressure (dB(Lin Peak))</th> <th>Ground vibration (mm/s)</th> <th>Allowable exceedance</th> </tr> </thead> <tbody> <tr> <td>Any residence on privately-owned land</td> <td>120</td> <td>10</td> <td>0%</td> </tr> <tr> <td></td> <td>115</td> <td>5</td> <td>5% of the total number of blasts over a period of 12 months</td> </tr> </tbody> </table> <p>However, these criteria do not apply if the Applicant has a written agreement with the relevant landowner to exceed the limits in Table 3, and the Applicant has advised the Department in writing of the terms of this agreement.</p>	Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance	Any residence on privately-owned land	120	10	0%		115	5	5% of the total number of blasts over a period of 12 months	Section 0
Location	Airblast overpressure (dB(Lin Peak))	Ground vibration (mm/s)	Allowable exceedance											
Any residence on privately-owned land	120	10	0%											
	115	5	5% of the total number of blasts over a period of 12 months											
Schedule 3 – Environmental Performance Conditions Blasting Frequency														
7.	<p>The Applicant may carry out a maximum of 2 blasts per week, unless an additional blast is required following a blast misfire. This condition does not apply to blasts required to ensure the safety of the quarry or workers on site.</p> <p>Note: For the purposes of this condition, a blast refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the quarry.</p>	Noted												
Schedule 3 – Environmental Performance Conditions Operating Conditions														
8.	<p>During blasting operations, the Applicant shall:</p> <p>(a) implement best management practice to:</p> <ul style="list-style-type: none"> • protect the safety of people and livestock in areas surrounding blasting operations; • protect public or private infrastructure/property in the surrounding area from damage from blasting operations; and • minimise dust and fume emissions from blasting. <p>(b) operate a suitable system to enable the local community to get up-to-date information on the proposed blasting schedule on site; and</p> <p>(c) carry out regular monitoring to determine whether the development is complying with the relevant conditions of this consent, to the satisfaction of the Secretary.</p>	<p>Sections 6.2 and 6.3</p> <p>Section 8.1</p> <p>Section 7.0</p>												

Conditions		Addressed in Section
Schedule 3 – Environmental Performance Conditions Blast Management Plan		
9.	The Applicant shall prepare and implement a Blast Management Plan for the development to the satisfaction of the Secretary. This plan must:	This document
	(a) be submitted to the Secretary for approval within 6 months of the date of this consent, unless otherwise agreed by the Secretary;	Appendix 1
	(b) describe the measures that would be implemented to ensure compliance with the blast criteria and operating conditions in conditions 7 and 8 above;	Section 6.0
	(c) include a monitoring program for evaluating and reporting on compliance with the blasting criteria in this consent;	Section 7.0
	(d) include community notification procedures for the blasting schedule; and	Section 8.1
	(e) include a protocol for investigating and responding to complaints.	Section 8.3
Schedule 5 – Environmental Management, Reporting and Auditing Management Plan Requirements		
2.	The Applicant shall ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:	
	(a) detailed baseline data;	Section 3.0
	(b) a description of: <ul style="list-style-type: none"> • the relevant statutory requirements (including any relevant approval, licence or lease conditions); • any relevant limits or performance measures/criteria; and • the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; 	Sections 2.0, 3.0, 6.2, 7.2 and 8.2.1
	(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Section 6.0
	(d) a program to monitor and report on the: <ul style="list-style-type: none"> • impacts and environmental performance of the development; and • effectiveness of any management measures (see (c) above); 	Sections 6.0 and 7.0
	(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 8.2
	(f) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 8.2
	(g) a protocol for managing and reporting any: <ul style="list-style-type: none"> • incidents; • complaints; • non-compliances with statutory requirements; and • exceedances of the impact assessment criteria and/or performance criteria; and 	Section 8.0
	(h) a protocol for periodic review of the plan.	Section 9.0
Schedule 5 – Environmental Management, Reporting and Auditing Annual Review		
9.	By the end of March each year, or other timing as may be agreed by the Secretary, the Applicant shall review the environmental performance of the development to the satisfaction of the Secretary. This review must:	Section 8.0

	(a) describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;	
	(b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the: <ul style="list-style-type: none"> • relevant statutory requirements, limits or performance measures/criteria; • requirements of any plan or program required under this consent; • relevant predictions in the EIS; 	
	(c) identify any non-compliance over the past calendar year, and describe what actions were (or are being) taken to ensure compliance;	
	(d) identify any trends in the monitoring data over the life of the development;	
	(e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and	
	(f) describe what measures will be implemented over the current calendar year to improve the environmental performance of the development.	
Schedule 5 – Environmental Management, Reporting and Auditing Access to Information		
12.	Within 6 months of the date of this consent, the Applicant shall:	
	(a) make the following information publicly available on its website: <ul style="list-style-type: none"> • The documents listed in condition 2 of Schedule 2; • current statutory approvals for the development; • all approved strategies, plans and programs required under the conditions of consent; • a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of the consent, or any approved plans and programs; • a complaints register, updated monthly; • the annual reviews of the development; • any independent environmental audit, and the Applicant's response to the recommendations in any audit; and • any other matter required by the Secretary. 	Sections 7.0 and 8.0
	(b) keep this information up-to-date, to the satisfaction of the Secretary.	Section 8.0

2.2 Statement of Commitments

The Statement of Commitments relevant to the BMP, and where they are addressed in this document, is detailed in **Table 2.2**.

Table 2.2 Statement of commitments

Commitment	Addressed in Section
<p>Oberon Quarries will continue to implement the existing blast management measures:</p> <ul style="list-style-type: none"> • all relevant quarry personnel will be trained on the environmental obligations in relation to blasting controls • the surrounding landowners and Council will be notified prior to undertaking a blast • the date, location of blast holes and quantity of explosive used each day will be documented • blasts will be designed to comply with overpressure and vibration criteria • monitoring will be undertaken at the nearest private residence and/or other sensitive locations (as required) to verify compliance with the relevant criteria (refer Figure 3.1) • the maximum number of holes to be detonated in a blast is 300 • sufficient distance will be maintained between the blast hole and the quarry face • appropriate detonation delays will be used • blast monitoring data will be used on an ongoing basis to further refine the blast design and management • blast design and blast management procedures will be periodically reviewed to evaluate performance and identify corrective action, if required • blasting will be undertaken between 9.00 am and 5.00 pm, Monday to Saturday inclusive, except under apparent temperature inversions conditions when blasting shall only occur between 11.00 am and 1.00 pm Monday to Saturday. No blasting is undertaken on Sundays or public holidays, without approval of the Secretary. 	<p>Section 6.2</p>

3.0 Baseline Data

3.1 EIS Blast Modelling Predictions

Alveras' cottage is the closest non-quarry related residence to the quarry (refer **Figure 3.1**). Within the currently approved extraction area, the distance of the quarry operations where blasting will take place from Alveras cottage ranges from approximately 400 to 1400 m. There are several other non-quarry related residences in proximity to the quarry with the closest of these being in excess of 850 m from the quarry blasting area.

Blasting site laws developed for the quarry by Richard Heggie and Associates (Oberon Quarries Submission in Reply 1993) indicate that airblast overpressure is the limiting factor in terms of the size of the Maximum Instantaneous Charge (MIC) that can be detonated. This is consistent with blast monitoring results recorded at the quarry. Based on the site laws, air blast overpressure and ground vibration for a range of MIC and distances from the nearest residence have been derived and are provided in **Table 3.1**.

To minimise the potential for off-site impacts, the MIC for any blast at the quarry can be varied depending on distance to nearest residence. The closest residence is 400 m to the north of the quarry blasting area.

As shown in **Table 3.1**, site laws developed for blasting at the site indicate that blast overpressure is the limiting factor in terms of charge size. Site laws indicate that blast overpressure limits are able to be complied with at 400 m with a MIC of approximately 45 kilograms (kg) or less. As set out in **Table 3.1**, MIC can be increased to 60 kg where the distance to the closest residence is in excess of approximately 450 m, 80 kg where the distance is 500 m or more and 120 kg where the distance to the nearest residence is 550 m or greater.

Details regarding blast design measures to be incorporated for ongoing operations are provided in **Section 6.0**.

Please note as Quarry Operations continue over time the blasting will move from the North face of the currently approved extraction area to the South creating even more distance between blasting operations and neighbouring residences. At the time of this document review, blasting and cutting operations have concluded on the Northern face entirely with the Northern quarry floor area now being used for stockpiling.

Table 3.1 Permissible Maximum Instantaneous Charge

Distance to nearest residence (m)	Maximum Instantaneous Charge (kg)	Modelled Airblast Overpressure (dB Linear)	Modelled Ground Vibration (mm/s)
400	40	114	1.7
600	40	110	0.8
800	40	107	0.5
400	60	116	2.0
600	60	112	1.1
800	60	108	0.7
400	80	117	2.7
600	80	113	1.3
800	80	110	0.9
400	100	117.5	3.0
600	100	114	1.7
800	100	111	1.0
400	120	118	3.7

Distance to nearest residence (m)	Maximum Instantaneous Charge (kg)	Modelled Airblast Overpressure (dB Linear)	Modelled Ground Vibration (mm/s)
600	120	114.5	1.9
800	120	112	1.2
1000	120	108	0.8



Data source: Oberon Quarries Pty Ltd 2021 | Image source: Google 2023

0 0.25 0.5 0.75 1 km
SCALE 1 : 13 000

Legend

- Project Area
- Processing Area
- Right of Carriageway (12m Wide)
- Residence owned by Oberon Quarries/Associated with Oberon Quarry
- Private Residences
- Blast monitoring location

FIGURE 3.1
Blast Monitoring Locations



Image Source: Google Earth (Sep 2017)
Data Source: Oberon Quarries Pty Ltd (2014), LPI (2017)

0 25 50 100m
1:2 500

- Legend**
- Project Area
 - Blast Monitor

FIGURE 3.2
Blast Monitoring Location

4.0 Blasting Criteria

As discussed in **Section 1.1** in accordance with Schedule 3, Condition 6 of the Development Consent, Oberon Quarries has an agreement with the relevant landowner to generate higher blast noise and vibration levels than those specified in the Development Consent (refer **Appendix 1**). Oberon Quarries notified the Department of Planning and Environment of this blasting agreement on 17 April 2018. This agreement is still current; although, as a courtesy and under the EPA's recommendation an up to date agreement has been signed by the Relevant Landowner. In addition, (refer **Appendix 2**), an agreement has been signed by an additional landowner. The DPE was notified of this on 21st of April 2022.

Both agreements allow the blasting criteria as specified in Schedule 5 Condition 7 of the Development Consent to be exceeded and removes the requirement of any associated incident reporting required by the same, should the blasting criteria be exceeded, at this location.

Oberon Quarries will continue to carry out regular monitoring to comply with Schedule 3, Item 8c) of the Development Consent 'Operating Conditions' and to inform future blast designs.

5.0 Blast Methods

Explosives are used to fracture the high quality basalt to enable the extraction of the resource by earth moving equipment. To achieve this, holes are drilled in a pre-determined pattern giving attention to their angle, depth and spacing. These holes are then filled with an explosive and the charge is initiated with the aid of primers and detonators. The detonation of each hole is delayed in a pre-designed sequence to ensure that each hole is fired individually in close succession. This delayed firing technique improves the efficiency of the blast and also reduces its environmental impacts.

The design of a blast depends on its location, geological structures in that area, volume of resource in the target area, end product requirements and any limiting factors in relation to potentially sensitive locations (including residences and infrastructure). Blast design is therefore completed on a blast by blast basis, ensuring that all these factors are considered to achieve blast levels within acceptable limits

6.0 Blast Management Controls

Oberon Quarries is committed to implementing reasonable and feasible best practice blast impact mitigation measures at the quarry.

In order to mitigate any potential blast impacts from the operation, a number of blast management controls will be implemented throughout the life of the operation. These controls are outlined in:

- the Oberon Quarry Proposed Extended Life of Operations and Development Changes Environmental Impact Statement (Umwelt 2015)
- the Development Consent blast management conditions (Schedule 3, Condition 1 and Conditions 6 to 9)
- general management plan requirements listed in Schedule 5, Condition 2 of the Development Consent, and
- the Development Consent Statement of Commitments (Appendix 2 of the Development Consent).

The relevant blast controls for the operation are detailed in the sections below and will be reviewed to confirm their applicability on an ongoing basis through the process outlined in **Section 8.2.1**.

6.1 Hours of Operation

Impacts to public amenity for sensitive receivers in the vicinity of Oberon Quarry have been managed through the design of the operation, including the restrictions on the hours of operation for the facility. The operating hours for Oberon Quarry are prescribed in Table 1 of the Development Consent (Schedule 3, Condition 1) and are reproduced in **Table 6.1** below. Oberon Quarry will operate in accordance with the operating hours defined in **Table 6.1**.

In accordance with Schedule 3, Condition 1 of the Development Consent, blasting will be undertaken between the hours of 9.00 am and 5.00 pm, Monday to Saturday. In the event that blasting is required to be undertaken outside of the hours of 9.00 am and 5.00 pm Monday to Saturday for safety reasons or when the amenity of local residents would be impacted by delaying the blast, Oberon Quarries will request approval from DPE and EPA prior to undertaking any blasting activities outside of the approved hours.

Table 6.1 Operating hours

Activity	Operation Hours
Extraction operations	7 am to 6 pm Monday to Friday 7 am to 5 pm Saturday
Loading and dispatch	6 am to 10 pm Monday to Friday 6 am to 5pm Saturday
Construction and maintenance activities	7 am to 6 pm Monday to Friday 7 am to 4 pm Saturday
Blasting	9 am to 5 pm Monday to Saturday

Note: The Applicant may carry out other activities e.g. maintenance, on the site provided that these activities are conducted in a manner that is inaudible at all privately-owned residences.

6.2 General Controls

Control measures that have been considered as a standard part of the operation of the quarry and incorporated include:

- All relevant quarry personnel will be trained on the environmental obligations in relation to blasting controls.
- The surrounding landowners and Council will be notified prior to undertaking a blast.
- The date, location of blast holes and quantity of explosive used each day will be documented.
- Blast design will aim to comply with the overpressure and vibration criteria specified in Schedule 3, Item 6 of the Development Consent
- Monitoring will be undertaken at the relevant landowner (as per Figure 3.2) and/or other sensitive locations, (as required) to verify compliance with the relevant criteria.
- The maximum number of holes to be detonated in a blast is 300.
- Sufficient distance will be maintained between the blast hole and the quarry face.
- Appropriate delays will be used.
- All blasts will be monitored and recorded.
- Blast monitoring data will be used on an ongoing basis to further refine the blast design and management.
- Blast design and blast management procedures will be periodically reviewed to evaluate performance and identify corrective action, if required.
- Blasting will be undertaken between 9.00 am and 5.00 pm, Monday to Saturday inclusive, except under apparent temperature inversions conditions when blasting shall only occur between 11.00 am and 1.00 pm Monday to Saturday. No blasting is undertaken on Sundays or public holidays, without approval of the Secretary.
- Oberon Quarries will undertake consultation with residents whose properties are adjacent to the development, with a view to determining the most appropriate blasting times for the development. The applicant shall, in accordance with the requirements of the council, give notice of proposed blasting times on the day of the blast.
- Not blast more than twice a week unless an additional blast is required following a blast misfire.
- Design all blasts to minimise airblast overpressure and vibration using the NONEL system of equivalent.
- Design all blasts based on the results of monitored blasts and modelled predictions in **Table 3.1**. This will minimise airblast overpressure and vibration such that any one blast has less than a 5% probability of exceeding airblast overpressure and vibration goals as set by the EPA for affected property.
- EPL blast limits of 115 dB/120 dB are unlikely to be exceeded, however a blasting agreement which allows higher levels has been established with the relevant landowner (see **Appendix 2**).
- Undertake detailed designs for each blast in order to maximise the blast efficiency, minimise dust, fumes, ground vibration and airblast, the potential for flyrock and to ensure compliance with site specific blasting conditions.

- Oberon Quarries undertake a pre-blast meteorological assessment in order to confirm the applicability of blasting during the proposed blasting times. The pre-blast meteorological assessment will inform the likelihood of potential blast impacts as a result of forecasted adverse wind inversion weather conditions.
- Monitor blasts as quarrying progresses utilising the adaptive management techniques described in **Section 8.2.1**, so that blast prediction site laws can be further refined and future blast designs can be optimised based on more detailed site information. By adopting this approach, in conjunction with the adoption of improved blasting products and methods, as they are introduced, it is anticipated that blast emissions criteria can be met without imposing any significant constraints on blast designs throughout the operation of Oberon Quarries. Oberon Quarries will design all blasts to comply with the project specific vibration and airblast criteria and to protect public and private infrastructure and property from any damage as a result of flyrock. Future updates of this plan will include any additional management requirements, taking into account the results of blast monitoring undertaken.
- The blasting site design will be regularly reviewed using site-specific blast monitoring data. This process will provide Oberon Quarries with flexibility to design blasts to best meet production requirements while complying with relevant criteria for residential receivers.
- All blast configurations and delays used will be thoroughly checked by the Shotfirer before the blasts are detonated.

6.2.1 Non-Routine Blasts

Non-routine blasts, such as to establish a new bench, where there is no free face, will consider the following:

- Altering the drill pattern design
- Reducing the MIC of the blast
- Altering the timing sequence of the blast pattern; and
- Maximising the distance between the blast and the blast monitoring location, where feasible.

6.3 Blast Fume Management Protocol

Blast fume development and migration will be observed and managed. With regard to Blast Fume Management, the following management controls include:

- Use of appropriately qualified personnel. This includes an assessment of whether the contractor is appropriately trained to undertake the drill and blast works.
- Use of appropriate blast design as approved by the site drill and blast coordinator or his or her delegate.
- Appropriate dewatering of drill hole prior to loading.
- Minimisation of 'sleep time' between loading and blasting, where practical.
- Prior to blasting, a visual weather assessment of meteorological conditions will be undertaken by the Quarry Manager to confirm that weather conditions are not conducive to fume migration.
- In the event that blast fumes are generated, an investigation into the causes will be undertaken (refer **Section 7.2**).

7.0 Blast Monitoring

In accordance with Schedule 3, Condition 6 of the Development Consent, Oberon Quarries has an agreement with the relevant landowner to generate higher blast noise and vibration levels than those specified in the Development Consent (refer **Appendix 2**). Oberon Quarries notified the DPE of this blasting agreement on 17 April 2018.

This agreement allows the blasting criteria as specified in Schedule 5 Condition 7 to be exceeded and removes the requirement of any associated incident reporting required by the same, should the blasting criteria be exceeded.

The agreement with the relevant landowner is for the nearest private residence to the Quarry (i.e. approximately 400m to the north of the Quarry). The next nearest residence is located approximately 1500 m to the east of the Quarry. In practical terms compliance at the relevant landowner is highly likely to result in compliance at all other receiver locations.

Oberon Quarries will continue to carry out regular monitoring to comply with Schedule 3, Item 8c) "Operating Conditions" and to inform blast designs.

It is noted that Oberon Quarries has been operating for the last 20 years and has established relationships with the surrounding residences (refer **Figure 3.1**). The Oberon Quarry Manager maintains regular contact with the few residences that reside within the vicinity of the operation. It is also noted that blasting impacts from the Quarry have historically not been an issue and on this basis unlikely to be an issue in the future. The blasting criteria and associated reporting obligations continue to apply at all residences where a blasting agreement has not been established.

Should a blasting related complaint be received it will be managed in accordance with the Oberon Quarries Environmental Management Strategy (EMS) which includes a procedure for the management of environmental incidents and community complaints. In accordance with this procedure, all environmental incidents will be investigated to a level commensurate to their risk level by the Quarry Manager in consultation with Work, Safety, Health, Environmental, and Quality Representative. Additional controls will be implemented where required, based on the outcomes of the investigation. All environmental complaints will be reported annually in the Annual Review.

7.1 *Blast Data*

Data collected for each blast will include:

- measured vibration (monitored blasts only)
- measured overpressure (monitored blasts only)
- maximum instantaneous charge
- number of holes
- blast type, and
- meteorological conditions.

7.2 *Blast Fume Monitoring*

Fume monitoring and post-blasting investigation into fume events will be undertaken at Oberon Quarry. Fume monitoring requirements include:

- visual assessment and analysis of each blasting event to determine whether excessive fume was generated as a result of the blast. All blasts undertaken at Oberon Quarry are video recorded to provide a record of the blast
- in the event that any blast at Oberon Quarry leads to the development of excessive fume an analysis of the blast will be undertaken to determine the cause of the blast fume development and whether the blast fume travelled off site
- analysis of meteorological conditions to determine the likely, if any, offsite impact of NOx fume events post-blasting.

7.3 *Standards relevant to Blast Monitoring/Management*

Oberon Quarries will undertake blast monitoring at Oberon Quarry in accordance with the policies, principles, regulation and guidelines contained within:

- *Protection of the Environment Operations Act 1997* (POEO Act) administered by the Office of Environment and Heritage (OEH).
- EP&A Act administered by the DPE.
- AS 2187.2-2006 ‘Explosives – Storage and Use – Use of Explosives’.
- *OHS Amendment (Dangerous Goods) Act 2005* and *Explosives Act 2003* administered by WorkCover.
- Prevention and Management of Blast Generated NOx Gases in Surface Blasting – Code of Good Practice (AEISG 2011).
- ANZECC ‘Technical Basis for Guidelines to Minimise Annoyance Due to Blasting Overpressure and Ground Vibration’.

7.4 *Independent Review*

In the event that a landowner considers that Oberon Quarries is exceeding blast criteria at his or her property, the landowner may request an independent review of the blast impacts at their property. The independent review will be conducted in accordance with the procedure described in Schedule 4, Condition 2 of the Development Consent.

8.0 Reporting

8.1 External Reporting

A summary of blast monitoring results will be provided in the Oberon Quarry Annual Review. The following information will be reported in the Annual Review in accordance with Schedule 5, Condition 9 of the Development Consent.

By the end of March each year Oberon Quarries shall review the environmental performance of the development to the satisfaction of the Secretary. The requirements of the review are detailed in **Table 2.1**.

In addition, in accordance with *Protection of the Environment Legislation Amendment Act 2011* (Amendment Act) and Schedule 5, Condition 12 of the Development Consent, Oberon Quarries will provide contact details on the Oberon Quarries website so residents and stakeholders can obtain proposed blast dates and times from Oberon Quarries personnel. Blast monitoring results will also be provided on the Oberon Quarries website (<http://www.oberonquarries.com.au>).

Oberon Quarries has been operating for the last 20 years and has established relationships with the surrounding residences (refer **Figure 3.1**). The Oberon Quarry Manager maintains regular contact with the few residences that reside within the vicinity of the operation. The Oberon Quarry Manager will notify the surrounding residences of the blasting schedule for the operation prior to undertaking any blasts. The residences will be provided with the following information:

- a schedule of the planned blasting event
- the likely blast location, date and time for the scheduled blasting event
- contact information should the resident have any further queries or concerns.

Should the blasting schedule change or is required to be undertaken outside of the approved hours (refer **Section 6.1**) all residences will be advised prior to the implementation of the revised schedule.

8.2 Complaint Initiated Blast Reporting Protocol

As discussed in **Section 7.1**, Oberon Quarries has an agreement to exceed the blast criteria in the Development Consent (refer **Appendix 2**) at the nearest private residence to the Quarry. The establishment of this agreement allows the blasting criteria as specified in Schedule 5 Condition 7 of the Development Consent to be exceeded and removes the requirement of any associated incident reporting required by the same, should the blasting criteria be exceeded, at this location. Oberon Quarries notified the DPE of this blasting agreement on 17 April 2018.

All blasting related complaints will be managed in accordance with the Oberon Quarry EMS (Umwelt, 2016) which includes a procedure for the management of environmental incidents and community complaints. In accordance with this procedure, all environmental incidents will be investigated to a level commensurate to their risk level by the Oberon Quarry Manager in consultation with environmental personnel from Oberon Quarries. Additional controls will be implemented where required, based on the outcomes of the investigation. All environmental complaints are reported annually in the Annual Review.

8.2.1 Adaptive Management

In accordance with Schedule 5, Condition 6 of the Development Consent, Oberon Quarries will assess and manage blast related risks to ensure compliance with the criteria outlined in **Section 4.0**.

As discussed in **Section 7.1**, Oberon Quarries has an agreement for the relevant landowner to exceed the blasting criteria in the Development Consent (refer **Appendix 2**). However, Oberon Quarries will continue to design blasts such that the level of overpressure and vibration generated is less than or equal to the levels specified in the Development Consent.

Where a non-compliance relating to impact has occurred, Oberon Quarries, at the earliest opportunity will:

- take all reasonable and feasible steps to ensure the exceedance ceases and does not reoccur. This could include:
 - re-training of relevant personnel involved in blasting regarding the monitoring location and performance criteria, and
 - accompanying blast monitoring personnel to ensure correct placement of the blast monitor.
- consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action, and

- implement remediation measures as directed by the Secretary, to the satisfaction of the Secretary.

Contingency measures that can be implemented while feasible steps to minimise impacts are being determined include reducing the number of blast holes detonated in any one event and reducing the MIC used in each blast hole.

8.3 Complaint Response

Complaints relating to Oberon Quarry will be managed in accordance with the requirements of the Oberon Quarry EMS (Umwelt, 2016) and Complaints Management Policy and Procedure. In accordance with Condition M5 of EPL 4442, a community complaints line is operated by Oberon Quarries during the hours of operation. The complaints line is displayed on Oberon Quarries website (<http://oberonquarries.com.au/>).

The Complaints Line number is (02) 6336 0259.

The Complaints line has been operational for many years and provides the community with a mechanism by which to raise any concerns that they have with operations at Oberon Quarries. The Quarry Manager is responsible for the implementation of the complaints management process and will ensure a timely initial response to any complaints received and then, as appropriate, will provide a more detailed response outlining any complaint investigation findings and corrective actions implemented. Records of complaints will be kept for a minimum of 4 years in a register to be maintained by the Quarry Manager, the complaints register is available on Oberon Quarries website. This register will be updated when/if a genuine notifiable complaint is received. The community complaints will also be reported annually in the Annual Review.

9.0 Review and Improvement

Ongoing monitoring and review on the performance and implementation of this BMP will be undertaken in accordance with Oberon Quarry EMS (Umwelt, 2016).

In accordance with Schedule 5, Condition 5 of the Development Consent, Oberon Quarries shall review, and if necessary revise, the strategies, plans, and programs required under Development Consent to the satisfaction of Secretary, within 3 months of the submission of an:

- (a) incident report under condition 7 below;*
- (b) annual review under condition 9 below;*
- (c) audit report under condition 10 below; and*
- (d) any modifications of this consent,*

the Applicant shall review the strategies, plans, and programs required under this consent, to the satisfaction of the Secretary. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted for the approval of the Secretary.

The Quarry Manager and Oberon Quarries environmental personnel will review and if necessary, revise this BMP and resubmit to DPE, as detailed above.

Any changes made to the BMP as a result of the review will be made in consultation with relevant stakeholders. A copy of the revised BMP will be supplied to the Secretary for approval. The BMP will reflect changes in environmental requirements, technology and operational procedures. Updated versions of the approved BMP will be made publicly available on the Oberon Quarries website (<http://oberonquarries.com.au/>).

Continuous improvement will also occur through independent review as a result of the 3-yearly compliance audit, which is required in accordance with Schedule 5, Condition 10 of the Development Consent.

10 Definitions

The terminology utilised within this BMP is defined in **Table 10.1** below.

Table 0.1 Definitions

Term	Definition
Airblast/Overpressure	An airborne shock wave resulting from detonation of explosives. An airblast may be caused by blasted material movement or the release of expanding gas into the air.
Blasting	Any activity involving the use of explosives for the purpose of fragmenting rock for excavation.
Flyrock	Rock that is propelled outside of the blasting area through the air or along the ground as a result of the detonation of explosives.
Ground vibration	The movement of the ground caused by the blast wave emanating from the blast.
Particle Velocity	A measure of ground vibration. Particle velocity describes the velocity at which a particle of ground vibrates when excited by a seismic wave.
Blast Exclusion Window	The arc of prevailing wind direction calculated on an individual blast basis and designed to minimise the risk of adverse dust or fume impacts.
Sleep time	The time taken between the drill hole being loaded with explosive and detonation of the explosive.

11 Accountabilities

Relevant roles and responsibilities associated with this BMP are presented in **Table 11.1** below.

Table 0.1 Accountabilities

Role	Accountabilities
Quarry Manager	<ul style="list-style-type: none"> • provide adequate resources for the implementation of this BMP • authorise the implementation of specific management measures to minimise blast impacts in accordance with this plan • ensuring that the outcomes of monitoring are systematically evaluated as part of ongoing quarry planning • authorise internal and external reporting requirements • oversee the implementation of the BMP • ensure the drill pattern is drilled in accordance with the blast design • ensure that the blast is loaded with the correct quantity and quality of explosive and stemmed in accordance with the blast design • record drill status, including hole depths, pattern and relevant information • coordinate blast monitoring in accordance with this BMP • regularly review blast design parameters on the basis of blast monitoring records • notify regulatory authorities and affected landholders of any blasting related exceedance and undertake associated reporting; manage blasting related complaints • ensure that the results of monitoring are systematically evaluated and reported to relevant personnel for consideration as part of ongoing quarry planning and • undertake investigations into blasting exceedances, incidents or complaints.

12 References

AEISG, 2011. *Prevention and Management of Blast Generated NOx Gases in Surface Blasting – Code of Good Practice.*

Australian and New Zealand Environment and Conservation Council ANZECC, 1990. *Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration.*

EPA, 2001. OEH’s ‘*Approved methods for the sampling and analysis of air pollutants in NSW*’ which refers to Australian Standard AS 2923 -1987 (Guide for measurement of horizontal wind for air quality applications).

Standards Australia, *AS 2187.2-2006 Explosives – Storage and Use – Use of Explosives.*

Umwelt (Australia) Pty Limited, 2016. Environmental Management Strategy. Report prepared for Oberon Quarries Pty Limited.

Umwelt (Australia) Pty Limited, 2015. Proposed Extended Life of Operations and Development Changes to Oberon Quarry, Environmental Impact Statement, Report prepared for Oberon Quarries Pty Limited.

Appendix 1: DPE APPROVAL V9 2025

Insert new approval letter

Appendix 2 : Blast Agreement with Tony Alevras



Oberon Quarries Pty Ltd
Hargraves Quarry Road, Oberon NSW 2787
ABN: 12 054 994 802
P: (02) 6336 0312 – Quarry Office
P: (02) 6336 0259 – Weighbridge Office

13 April 2018

Mr. Anthony Alevras



Dear Anthony

Re: Oberon Quarries Pty Limited Continuation Project (SSD_6333) - Blasting Agreement

On the 14 September 2015 the Department of Planning and Environment granted Development Consent (SSD_6333), which permits the continuation of quarrying activities for a further 30 years. The Development Consent details a number of environmental monitoring and performance requirements for these quarrying activities. Specifically Schedule 3, Condition 6 relates to the maximum noise and vibration levels for blasting operations.

As you are aware, Oberon Quarries Pty Limited has historically undertaken blast monitoring at your premises to measure the noise and vibration levels for each blast. Over the last 20 plus years the blast noise and vibration monitoring results have typically been below the levels, as specified in the Development Consent and Environment Protection Licence. On occasion when exceedences of these levels have occurred, which have been associated with the noise level, we have provided you with notification.

While we propose to continue to undertake blasting, such that the level of noise and vibration generated is below the maximum levels allowed, we seek your agreement to higher levels in accordance with Schedule 3, Condition 6. Oberon Quarries does not intend to generate blast levels greater than that generated previously. Subject to your concurrence, this will remove the formal requirement to monitor each blast and the need to advise yourself and government departments within the nominated timeframes (within seven days of the exceedance being observed), should an exceedance occur. We note however, that Oberon Quarries wishes to continue to monitor blasts at your property for due diligence purposes. Oberon Quarries will also continue to advise you of blasts results above the levels specified in Schedule 3, Condition 6 of the Development Consent, if requested for your information. Oberon Quarries is also willing to provide you with all blasting monitoring results, if requested.

If you are in agreement with the above, Oberon Quarries would appreciate if you could sign and date the blast agreement below and return for our records.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Neil Hargraves', written over a grey rectangular box.

Neil Hargraves
Managing Director

Neil Hargraves
Oberon Quarries Pty Limited
315 Commercial Road
VINEYARD NSW 2765

Dear Neil

Re: Oberon Quarries Pty Limited Continuation Project (SSD_6333) - Blasting Agreement

As the resident of 167 Harveys Road, Oberon NSW 2787, Lot 401 DP 1105551 (Formerly in Lot 401 DP 1004011) we have no objection to Oberon Quarries generating higher blast noise and vibration levels than those specified in Schedule 3, Condition 6 of the 2015 Development Consent (SSD_6333).

If in the future we have any objections we will raise these directly with the Quarry Manager.

Yours sincerely

Signature:

A rectangular area that has been redacted with a solid grey fill, obscuring the signature of the sender.

Name: Anthony Alevras

Date:

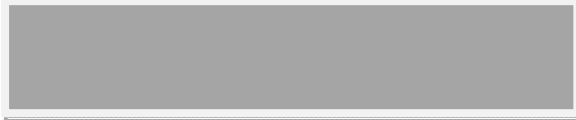
17/04/2018



Oberon Quarries Pty Ltd
Hargraves Quarry Road , Oberon NSW 2787
ABN: 12 054 994 802
P: (02) 6336 0312 - Quarry Office
P: (02) 6336 0259 - Weighbridge Office

21 December 2021

Mr. Anthony Alevras



Dear Anthony

Re: Oberon Quarries Pty Limited Continuation Project (SSD_6333) - Blasting Agreement and EPA Licence 4442

On the 14 September 2015 the Department of Planning and Environment granted Development Consent (SSD_6333), which permits the continuation of quarrying activities for a further 30 years. The Development Consent details a number of environmental monitoring and performance requirements for these quarrying activities. Specifically Schedule 3, Condition 6 relates to the maximum noise and vibration levels for blasting operations. In respect to the EPA Licence 4442 Limit Conditions L5 refers to the same with the latest Licence version being 3rd August 2020. Both copies are available via the Oberon Quarries website <https://oberonquarries.com.au/development-consent-and-environment-approvals/> for your review

As you are aware, Oberon Quarries Pty Limited has historically undertaken blast monitoring at your premises to measure the noise and vibration levels for each blast. Over the last 20 plus years the blast noise and vibration monitoring results have typically been below the levels and all measures are taken by Quarry Ownership and Management to ensure it. On occasions when exceedances of these levels have occurred we have provided you with notification.

While we propose to continue to undertake blasting and put in place all measures to ensure such the level of noise and vibration generated is below the maximum levels specified in both the Licence and Consent, we seek your agreement to higher levels.

Subject to your concurrence, this will remove the formal requirement to monitor each blast and the need to advise yourself and government departments within the nominated timeframes (within seven days of the exceedance being observed), should an exceedance occur.

We note however, that Oberon Quarries wishes to continue to monitor blasts at your property for due diligence purposes.

Oberon Quarries will also continue to advise you of blasts results above the levels specified and if requested shall provide to you all blasting monitoring results

To confirm your consent and agreement please sign the attached template

Best Wishes



Neil Hargraves – Owner Director

Neil Hargraves
Oberon Quarries Pty Limited
315 Commercial Road
VINEYARD NSW 2765

Dear Neil

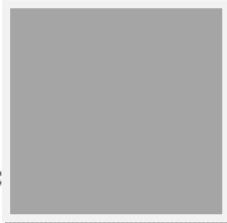
Re: Oberon Quarries Pty Limited Continuation Project (SSD_6333) - Blasting Agreement and EPA Licence 4442

As the resident of 167 Harveys Road, Oberon NSW 2787, Lot 401 DP 1105551(Formerly in Lot 401 DP 1004011) we have no objection to Oberon Quarries generating higher blast noise and vibration levels than those specified in Schedule 3, Condition 6 of the 2015 Development Consent (SSD_6333) and EPA Licence 4222 3-L5

If in the future we have any objections we will raise these directly with yourself

Yours sincerely

Signature:

A rectangular box with a thin black border, filled with a solid grey color, used to redact the signature of the sender.

Name: Anthony Alevras

Date: 14/01/2022

Appendix 3: Notice of Determination and Approval of OQCP Modification 1 (SSD-6333-Mod-1)

The Oberon Quarries Modification was submitted to the Department in May 2023. This notice of determination was approved the removal of the constraint for Oberon Quarries Blasting Operations to be no more than 150 holes per blast; and instead, no more than 300, on the basis it would result in minimal change to the existing environmental impacts of the quarry.

Department of Planning and Environment



Our ref: Oberon Quarry Continuation Project Mod 1 (SSD-6333-Mod-1)

Jake Hargraves
Chief Financial Officer
Oberon Quarries Pty Limited
315 Commercial Road
Vineyard NSW 2765

9/11/2023

Subject: Notice of determination

Dear Mr Hargraves

On 9 November 2023, the Director, Energy and Resource Assessments approved the modification application for the Oberon Quarry Continuation Project Modification 1 (SSD-6333-Mod-1), under Section 4.55(1A) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The approval is subject to modified conditions of consent. The assessment report contains our rationale for the conditions. You can view the assessment report and conditions (as modified) on the NSW planning portal at www.planningportal.nsw.gov.au/major-projects.

Reviews and appeals

In some circumstances, applicants have certain appeal and review rights once a determination is made. In terms of this determination, you have a right to request a review of the determination under section 8.2 of the EP&A Act.

You also have a right to appeal the determination to the Land and Environment Court under section 8.9 of the EP&A Act. You must make this appeal within six months of the date the decision was listed on the NSW planning portal

If you have any questions, please contact Jarrod Blane on 0282751831 or via jarrod.blane@dpie.nsw.gov.au.

Yours sincerely,

A handwritten signature in black ink that reads "Jessie Evans".

Jessie Evans
Director
Energy and Resource Assessments