



# Appendix 4

## Response to Request for Information - Noise and Blasting Assessment

prepared by  
SLR Consulting Australia Pty Ltd

(Total No. of pages including blank pages = 6)

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Cleary Bros (Bombo) Pty Ltd  
39 Five Island Road  
PORT KEMBLA NSW 2505

**Attention: Mark Hammond**

Dear Mark

## Response to DPE's Request for Information Noise and Blasting Assessment Albion Park Quarry Extraction Area Stage 7 Extension

### 1 DEP's Request for Information

In relation to the potential impacts from blasting in Stage 7 of the proposed Albion Park Quarry Extension, the Department of Planning and Environment (DPE) have requested further information, extra to that contained in the Noise and Blasting Assessment (Report No 1004/02, September 2021, "NBA") for the proposal.

The DPE's comments/requests are as follows:

#### ***"Blasting***

*The blasting impact assessment details the potential impact for receivers R1, R2 and R3 and assumes no impact/compliance with the relevant criteria to other receivers based on the distance from the proposed quarry pit. The department considers additional information is required to support this conclusion.*

*The blasting impact assessment must consider:*

- model and demonstrate ground vibration and airblast overpressure for all potential receivers surrounding the project area;*
- differing blast positions in a variety of proposed operational stages including different vertical positions with the pit and different locations distributed north to south length of proposed pit;*
- the influence of topography on airblast overpressure for receivers located to the south and south east of the proposed pit;*
- varying maximum instantaneous charge (MIC) that would apply to blasts in different locations to achieve compliance with the relevant criteria;*
- how compliance with the relevant criteria would be demonstrated at all receivers during various operational stages of the proposed project; and*
- confirm whether the negotiated agreement with the landowners of receivers R1, R2 and R3 allows for exceedances of the ground vibration and airblast overpressure criteria."*

## 2 Response

### 2.1 Stage 7 Extension – Predicted Blast Emissions

As an example of the blast emissions management process, **Table 1** presents the predicted levels of ground vibration and airblast from blasting for the respective allowable MIC's at the nearpoint and farpoint of blasting in Stages 7a, 7b, 7c and 7d (as well as in Stages 1 to 6 to the existing "Figtree Hill" residences (R1 "The Cottage" and R2 "The Hill"), R5 ("Deer Farm"), R6 ("Kurrawong"), R10 ("Gravella") and R11 ("Merlin") – refer to Figure 3 of the NBA, based on the current blast emissions site laws presented in Sections 8.7 and 8.8 of the NBA.

**Table 1 Blast Emissions Predictions based on Current Site Laws**

Stages	Residence	Near/Far Distance to Blasting (m)	Allowable MIC (Near/Far) (kg)	Ground Vibration (mm/s)	Airblast (dBLinear)
1 to 6	R1	375/944	51/340	4.8/5.0	115.0/112.7
	R2	475/1,045		3.5/4.3	113.1/111.9
	R5	1,045/1,660		1.1/2.3	106.9/108.2
	R6	1,302/1,927		0.8/1.8	105.1/107.0
	R10	1,480/2,099		0.7/1.6	104.1/106.3
	R11	1,619/2,215		0.6/1.5	103.4/105.9
7a	R1	449/937	77/335	5.0/5.0	114.7/112.7
	R2	508/954		4.2/4.9	113.7/112.6
	R5	833/1,145		2.1/3.8	109.8/111.1
	R6	872/1,392		2.0/2.9	109.4/109.6
	R10	1,034/1,568		1.5/2.4	108.0/108.6
	R11	1,157/1,714		1.3/2.1	107.1/107.9
7b	R1	741/915	210/300	5.0/4.8	113.3/112.6
	R2	765/928		4.8/4.7	113.1/112.5
	R5	770/888		4.7/5.0	113.0/112.9
	R6	869/1,046		4.0/4.0	112.1/111.6
	R10	1,034/1,218		3.1/3.2	110.7/110.3
	R11	1,159/1,353		2.7/2.8	109.8/109.5
7c	R1	455/802	79/246	5.0/5.0	114.6/113.1
	R2	489/808		4.9/5.0	114.1/113.1
	R5	722/1,010		2.6/3.6	111.0/111.3
	R6	911/1,322		1.9/2.5	109.1/109.2
	R10	1,089/1,508		1.5/2.1	107.7/108.1
	R11	1,239/1,662		1.2/1.8	106.7/107.3
7d	R1	280/890	21/114	3.9/2.5	115.0/110.3
	R2	330/547		3.1/5.0	113.7/114.1
	R5	794/1,224		0.9/1.6	106.7/107.7
	R6	1,148/1,579		0.5/1.1	103.8/105.7
	R10	1,346/1,765		0.4/1.0	102.5/104.8
	R11	1,525/1,917		0.4/0.9	101.5/104.2

The data presented in **Table 1** also indicates the range of MICs required for compliance with the nominated criteria for blasts conducted in the various areas of the proposed Stage 7 extraction.

Until such time that the "Figtree Hill" approved residence (R3) is built, the blast designs (ie the allowable MICs) will be controlled by compliance with the respective blast emissions criteria at the "Figtree Hill" residences R1 and R2.

The blast emissions site laws presented in Sections 8.7 (airblast) and 8.8 (ground vibration) inherently cater for the various locations of blasts (both lateral and vertical) within the proposed pit as they have been developed using the vast range of monitoring data from the blasts conducted over the whole of the Stages 1 to 6 extraction area.

The blast emissions prediction site laws also inherently cater for the influence of the site topography on the predicted levels of airblast as the data includes data measured in different directions from the respective blasts.

In relation to the allowable MICs for blasting in the proposed Stage 7 extraction areas, blast emissions data from every blast will be used (via the blast emissions site laws developed from the results of the quarry extension blast monitoring to date) to refine subsequent blast designs in order to control blast emissions (ground vibration and airblast) levels using the then current prediction site laws.

An example spreadsheet currently being used to calculate the allowable MIC for each blast is presented in **Appendix A**.

I trust the foregoing information satisfies your requirements in addressing the DPE's comments. However, should you have any queries, please contact me.

Yours sincerely



DICK GODSON  
Technical Direction

Checked/  
Authorised by: DD

# Appendix A:

## Cleary Bros Albion Park Quarry Calculation of Maximum Instantaneous Charge (MIC)

**Cleary Bros Albion Park Quarry  
Calculation of Maximum Instantaneous Charge (MIC)**

The following is based on 13 July 2017 site law as listed below

Blast Identification Number	20/22
Name of Quarry Supervisor	Ash Mathie
Scheduled Date	13-Sep
Scheduled Time	9:00am - 5:00pm
Rock to be Blasted (eg. lower latite):	Upper flow Blue/Red

Instructions: Enter coordinates of centre of blast in yellow box below, as well as the closest point of the blast to the Figtree Hill boundary fence. The lower of the MIC's will be calculated in the green box below. Give this number to blasting contractor.

**APQ Site Law**

5% MIC (kg) for airblast (The Cottage) =  $[D / 110.1]^3$

5% MIC (kg) for airblast at boundary =  $[D / 5.509]^3$

5% MIC (kg) for vibration (The Cottage) =  $[D^2 / 2606.9]$

5% MIC (kg) for vibration at boundary =  $[D^2 / 8.320]$

Distance from centre blast to blast monitor

409.2 m

Distance from boundary fence to closest point of blast

61.0 m

MIC for airblast

The Cottage  
51 kg

Boundary

1358 kg

MIC for vibration

64 kg

447 kg

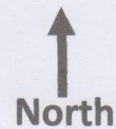
Lower MIC of the above (give to blasting subcontractor)

**51 kg**

Initial of Quarry Supervisor	AM
Date calculation completed	06-09-2022



**Blast Location -  
Show Approximate  
Area and  
Orientation**



Calculating distance with phone

	Shot	Monitor
X	300399	300641
Y	6170685	6171015

Distance= 409.2 m

	Shot	Fence
	6170685	6170746

Distance= 61.0 m