

Appendix 11b

Cumulative Noise Impact Assessment

prepared by

**Muller Acoustic Consulting
Pty Ltd**

(Total No. of pages including blank pages = 11)

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MAC180700-04LR1

Attention: Mitchell Bland
RW Corkery & Co Pty Limited
North Tower, Suite 12.01, 10/5 Railway Street
Chatswood NSW 2067

Dear Mitchell,

Addendum Noise Assessment – Cumulative Noise Impacts

Copi Mineral Sands Project, Wentworth NSW

1 Introduction

Muller Acoustic Consulting Pty Ltd (MAC) has been commissioned by RW Corkery & Co Pty Limited (RWC) on behalf of RZ Resources Limited (the Applicant) to prepare an addendum to the Noise Impact Assessment for the Copi Mineral Sands Project prepared by MAC (2025, Ref: MAC180700-04RP2V8). The addendum Noise Assessment has been prepared to address comments issued by the Department of Planning, Housing and Infrastructure (DPHI), in relation to cumulative noise impacts with the operation of a proposed wind farm immediately to the south of the Project site. The comment provided by DPHI is reproduced as follows:

Include cumulative impacts of noise in Section 6 and Appendix 11 (Noise Impact Assessment), noting section 2 describes predicted noise exceedance at R1 from the proposed Lake Victoria wind farm and cumulative operational impacts from the project and the wind farm to be high at R1, should both projects be approved.

A glossary of terms, definitions and abbreviations used in this report is provided in **Appendix A**.

2 Project Description

2.1 Copi Mineral Sands Project

The Applicant proposes to mine a high-grade, strandline type, continuous mineral sand placer deposit at Lot 4068 DP766543, approximately 75km northwest of Wentworth in the Far West Region of NSW.

The Project would generally comprise the following:

- Dredge mining from an Extraction Area to extract up to approximately 46.8 million tonnes per annum (Mtpa) of overburden, up to approximately 44Mtpa of interburden and up to approximately 27.1Mtpa of ore;
- on-site processing of extracted ore using a floating wet concentrator and land-based REC Plant to produce up to approximately 475,000tpa of Mine Products;
- transportation of Mine Products in sealed containers from the Mine Site to Broken Hill via the Site Access Road, an upgraded Anabranche Mail Road and the Silver City Highway, with up to 7,500tpa of Monazite Product being transported by road to South Australia and the remainder by road to a Rail Facility on Holten Drive in Broken Hill;
- progressive rehabilitation of completed sections of the Mine Site, including re-establishment of a final landform and revegetation with native species to re-establish ecosystem function within the Mine Site;
- mining and processing operations would occur 24 hours per day, seven days per week; and
- the life of the Project would be 26 years, comprising an initial 3-year construction period, followed by 18 years of mining operations and a further period of 5 years of rehabilitation.

2.2 Lake Victoria Wind Farm

MAC understands that the Lake Victoria Wind Farm Trust (WestWind) proposes to build the Lake Victoria Wind Farm (the Wind Farm) on a parcel of land immediately to the south of the Copi Mineral Sands Project site. The Wind Farm would comprise up to 203 wind turbine generators (WTGs) spread over an area of around 41,700 hectares (ha) about 24km northwest of Wentworth, NSW.

2.3 Receiver Review

A review of the non-associated residential receivers most likely to be affected by noise from the Project and the Wind Farm are summarised in **Table 1**. The closest, potentially most affected residential receiver to the Project is identified as R1, which corresponds to the Wind Farm receiver R34. The closest, potentially most affected residential receiver to the Wind Farm is identified as R05. It is noted that due to the considerable separation distance (ie 21km), this receiver was not assessed as part of the Project.

Table 1 Residential Receiver Locations

Project Receiver ID	Wind Farm Receiver ID	MGA 54 Coordinates		Approximate Distance to Project (km) ¹	Approximate Distance to Wind Farm (km) ²
		Easting (m)	Northing (m)		
R1	R34	527467	6279758	1.3	~7.5
N/A	R05	532890	6255247	21	1.6

Note 1: Distance to limit of disturbance.

Note 2: Distance to nearest WTG.

3 Noise Policy and Guidelines

In accordance with Section 2.1 of the Noise Policy for Industry (NPI) (EPA, 2017), cumulative noise impacts are considered with respect to the Project Amenity Noise Level (PANL). Specifically, the NPI states that the ambient noise levels within an area, from all industrial noise sources combined, should remain below the recommended amenity noise levels specified in Table 2.2, reproduced for rural residential receivers in **Table 2** below.

Table 2 Amenity Noise Levels				
Receiver Type	Noise Amenity Area	Time of day	Recommended ANL ² dB LAeq(period)	Recommended ANL dB LAeq(15min) ³
Residential	Rural	Day	50	53
		Evening	45	48
		Night	40	43

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Note 2: Recommended Amenity Noise Levels as per Table 2.2 of the NPI.

Note 3: Includes a +3dB adjustment to the amenity period level to convert to a 15-minute assessment period as per Section 2.2 of the NPI.

It is noted that in accordance with the NPI, where the PANL is applicable and can be satisfied, the assessment of cumulative industrial noise is not required.

4 Assessment of Cumulative Noise Impacts

A summary of the predicted noise levels for the Project worst-case scenario (Year 6 Operations) and the Wind Farm, and the cumulative noise levels from both projects, are provided in **Table 3** below. It is noted that due to the separation distance from the Project to the receiver identified as receiver R05 in the Scoping Report for the Wind Farm, this receiver was not previously assessed for the Project. Predictions have been completed for this receiver for this addendum Noise Assessment, using the same methodology as detailed in the Noise Impact Assessment.

The results of the assessment demonstrate that at receiver R1/R34, which is the receiver predicted to experience the highest noise levels from the Project, the cumulative noise levels would remain the same for the day period, and up to 1dBA higher for the evening and night periods. The cumulative noise levels are predicted to be more than 10dBA below the recommended ANLs for all assessment periods. It is noted that an increase of 1dBA is considered to be acoustically insignificant, and is unlikely to be perceptible to the human ear.

For receiver R05, which is the receiver predicted to experience the highest noise levels from the Wind Farm, the cumulative noise levels demonstrate that the Project would not contribute to a net increase in noise levels above the predicted level from the operation of the Wind Farm in isolation. Hence, there would be no cumulative noise impacts at this receiver.

Table 3 Combined Noise Predictions – Operational Scenarios¹

Site	Receiver	Predicted Noise Level, dB			Recommended ANL, dB		
		LAeq(15min)			LAeq(15min)		
		Day	Evening	Night ²	Day	Evening	Night
Most Affected Receiver - Project							
Project	R1	35	30	33	53	48	43
Wind Farm	R34	<25	<25	<25	53	48	43
	Cumulative	35	31	34	53	48	43
Most Affected Receiver – Wind Farm							
Project	N/A ³	<10	<10	<10	53	48	43
Wind Farm	R05	37	37	37	53	48	43
	Cumulative	37	37	37	53	48	43

Note 1: Day - the period from 7am to 6pm Monday to Saturday or 8am to 6pm on Sundays and public holidays; Evening - the period from 6pm to 10pm; Night - the remaining periods.

Note 2: Noise Enhancing Conditions.

Note 3: Receiver not assessed for the Project. Calculation completed for Addendum Noise Assessment only.

5 Concluding Statement

Muller Acoustic Consulting Pty Ltd has completed an addendum Noise Assessment to address comments from the Department of Planning, Housing and Infrastructure, in relation to cumulative noise impacts from the proposed Copi Mineral Sands Project and the Lake Victoria Wind Farm, northwest of Wentworth in the Far West Region of NSW.

The results of the assessment demonstrate that cumulative noise levels at receiver R1, closest to the Copi Mineral Sands Project, would be up to 1dBA higher than predicted noise levels from the Copi Mineral Sands Project in isolation. Cumulative noise levels however, are predicted to be more than 10dBA below the recommended amenity noise levels. Furthermore, a difference of 1dBA is considered to be acoustically insignificant, and unlikely to be perceptible to the human ear.

The cumulative noise assessment for receiver R05, which is the receiver closest to the Lake Victoria Wind Farm, demonstrates that the Copi Mineral Sands Project would not contribute to a net increase in noise levels above the predicted level from the operation of the Wind Farm.

We trust the above information is satisfactory and if you have any further questions regarding the addendum Noise Assessment, please contact the undersigned.

Yours sincerely



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Reviewed: Oliver Muller, Principal Acoustic Scientist, BSc (REM & HGeog) | MAAS

Appendix A – Glossary of Terms

A number of technical terms have been used in this report and are explained in **Table A1**.

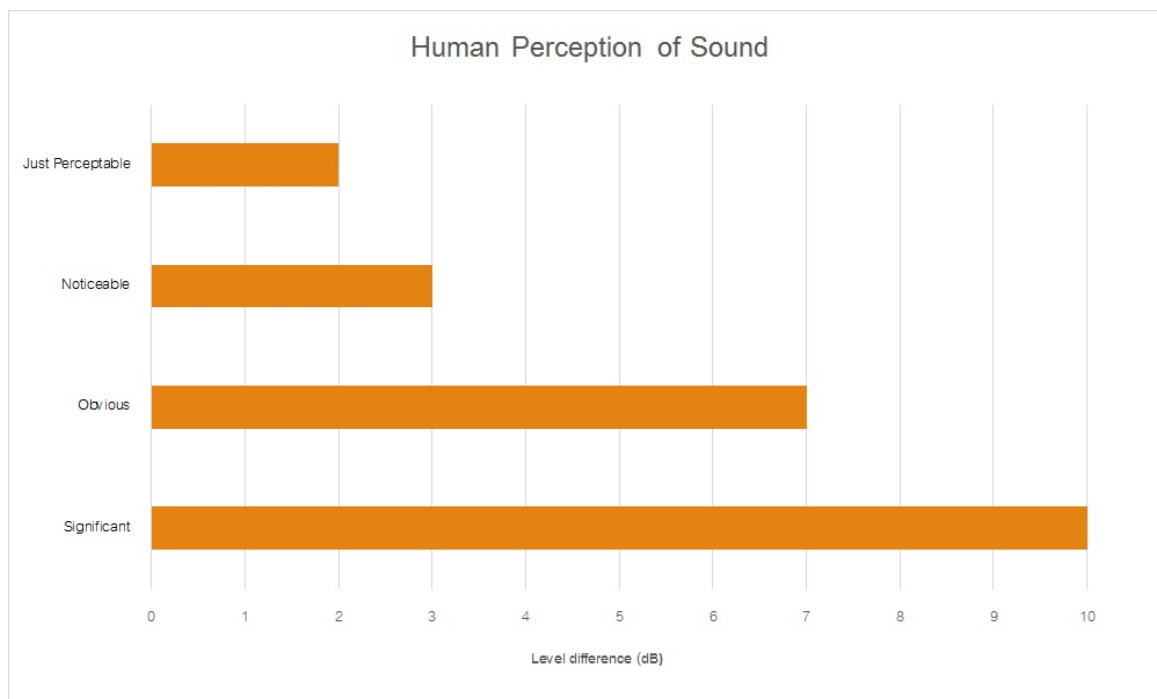
Table A1 Glossary of Acoustical Terms	
Term	Description
1/3 Octave	Single octave bands divided into three parts
Octave	A division of the frequency range into bands, the upper frequency limit of each band being twice the lower frequency limit.
ABL	Assessment Background Level (ABL) is defined in the NPI as a single figure background level for each assessment period (day, evening and night). It is the tenth percentile of the measured L90 statistical noise levels.
Ambient Noise	The total noise associated with a given environment. Typically, a composite of sounds from all sources located both near and far where no particular sound is dominant.
A Weighting	A standard weighting of the audible frequencies designed to reflect the response of the human ear to sound.
Background Noise	The underlying level of noise present in the ambient noise, excluding the noise source under investigation, when extraneous noise is removed. This is usually represented by the LA90 descriptor
dBA	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear.
dB(Z), dB(L)	Decibels Z-weighted or decibels Linear (unweighted).
Extraneous Noise	Sound resulting from activities that are not typical of the area.
Hertz (Hz)	The measure of frequency of sound wave oscillations per second - 1 oscillation per second equals 1 hertz.
LA10	A sound level which is exceeded 10% of the time.
LA90	Commonly referred to as the background noise, this is the level exceeded 90% of the time.
LAeq	Represents the average noise energy or equivalent sound pressure level over a given period.
LAmx	The maximum sound pressure level received at the microphone during a measuring interval.
Masking	The phenomenon of one sound interfering with the perception of another sound. For example, the interference of traffic noise with use of a public telephone on a busy street.
RBL	The Rating Background Level (RBL) as defined in the NPI, is an overall single figure representing the background level for each assessment period over the whole monitoring period. The RBL, as defined is the median of ABL values over the whole monitoring period.
Sound power level (Lw or SWL)	This is a measure of the total power radiated by a source in the form of sound and is given by $10 \cdot \log_{10} (W/W_0)$. Where W is the sound power in watts to the reference level of 10^{-12} watts.
Sound pressure level (Lp or SPL)	the level of sound pressure; as measured at a distance by a standard sound level meter. This differs from Lw in that it is the sound level at a receiver position as opposed to the sound 'intensity' of the source.

Table A2 provides a list of common noise sources and their typical sound level.

Table A2 Common Noise Sources and Their Typical Sound Pressure Levels (SPL), dBA

Source	Typical Sound Pressure Level
Threshold of pain	140
Jet engine	130
Hydraulic hammer	120
Chainsaw	110
Industrial workshop	100
Lawn-mower (operator position)	90
Heavy traffic (footpath)	80
Elevated speech	70
Typical conversation	60
Ambient suburban environment	40
Ambient rural environment	30
Bedroom (night with windows closed)	20
Threshold of hearing	0

Figure A1 – Human Perception of Sound



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