

Professor Mary O’Kane AC  
Chair - Independent Planning Commission

14 July 2022

Dear Professor O’Kane

Re: **Mount Pleasant Optimisation Project (SSD 10418)**

We wish to make the following submission to the IPC in relation to the above.

We have made submissions to the Department of Planning and Environment including a large amount of material evidencing the impacts which we have experienced from the existing Mt Pleasant operation. We understand that you have reviewed those and so you know the issues.

We operate the largest dairy farm in the Upper Hunter and we have been here for over 30 years. Our life has changed greatly since Mt Pleasant started. We experience terrible impacts from Mt Pleasant.

We are not opposed to the mine. We appreciate the economic advantages as are created by the mine and which benefit the broader community however, we ask you to consider the terrible, inordinately high cost as is borne by a handful of proximate landowners who are directly, detrimentally impacted as a consequence of the mine’s existence.

We are only asking that the conditions of consent for the mine include one which affords us the right to trigger an obligation on the mine to acquire our land/business on the usual basis. We really want to continue our operations as they presently are but we fear that may not continue to be possible. If it is not possible then we just want to have the right to require Mt Pleasant to buy us out because their impacts mean that our operation and life is less viable than it was before the mine.

The principal impacts have been dust and noise (on us and our animals) and the visual amenity on us.

The development and operation of Mt Pleasant mine (and its proposed expansion) impacts detrimentally upon our business viability, the general liveability of our rural environment as well as having potential to decimate the legacy we wish to leave our children.

### **Dust**

During drier times, which are far more common than the currently prevailing wet conditions, we have been impacted by dust. Irrespective of the mine’s ‘modelling’, our lived experience has been that the mine generates enormous amounts of dust at our houses and this dust causes us great discomfort. This can be seen in the photographs we included with our submission to the Department.

## **Noise**

We are also affected by noise from the mine. We recently had a noise/acoustic expert (Michael Phillips) undertake a study of the noise impacts from the mine at our property. We **attach** a copy of his reports. The results of that brief study show that we are impacted by noise to levels which exceed the mine's existing allowed noise emissions under its existing consent. If the mine cannot now operate within its existing approval then we ask how can it be expected to do so going forward under an approval for expanded (over double the size and intensity) operation?

## **Dairy Impacts**

Our dairy expert, Dr Sandles, (who has been advising us for decades) says these impacts have caused negative outcomes at our operation. Our cows' productivity is affected by the noise and dust impacts. We **attach** a summary prepared by our dairy expert relating to impacts on our business operation and our animals.

## **Personal Amenity**

Obviously, our personal amenity is also very badly affected negatively by the noise, dust and visual impacts. Our previous life of sunshine, clean air and cows has become one of spoil piles, noise, dust and anxiety.

## **Conclusion**

All we ask is that the mine accept a contingent obligation to buy us out on the usual conditions for such matters. We were here first. The mine has been forced upon us. It affects us badly. We don't affect it.

We have proven the impacts on us even though we don't feel that we should have to prove those impacts. They exist. They are self-evident. However, we have also scientifically proven them with our dairy expert and our noise expert (at our expense).

We don't think that the imposition of a condition requiring our property/business to be purchased on the usual conditions is unreasonable at all considering the nature and extent of the detrimental impact of the mine on us. At more than double the size, those impacts are going to get a lot worse. We ask that you also take into account the relativity of the scale of such an obligation on the mine and the scale of the mine, its total capital outlays and the scale of its profits.

We accept that the mine owner makes huge profits and that the broader community enjoys benefits from the mine. However, there are costs / detriments from the mine and we think it is unreasonable for us to bear those costs and detriments so significantly. Imposing the usual purchase condition would allow us to have the right to escape those costs / detriments. Without the condition, we cannot see how we would be able to avoid the costs / detriments.

Effectively, without being afforded "acquisition upon request rights" by the IPC, our family will be consigned to a future whereby the compounding detrimental effects of noise, dust and visual intrusion upon our health and general amenity will be profound – not to mention

the detrimental impacts upon the financial viability of our business and the value of our associated rural and residential assets.

Thank you for considering our position. Please impose a purchase condition for our properties/business.

Yours faithfully

John, Catherine, Doug and Amy Raphael  
Cowtime Investments Pty Ltd

[REDACTED]  
[REDACTED]  
Professor Mary O’Kane AC  
Chair - Independent Planning Commission  
[REDACTED]

14 July 2022

Dear Professor O’Kane

Re: Mount Pleasant Optimisation Project (SSD 10418)

I wish to support the submission to the IPC by The Raphael Family.

I have been advising the Raphael’s since 1995, mostly around agronomy, herd nutrition and the farm business system. Over that period we have steadily increased production and health of the herd through improved nutrition and matching supplements to pasture quality. Management of pasture quality has also improved tremendously over the period. Progress in each key area has been consistent with both expectation and with other large dairy farms I work with – at least until the past few years. If one were to cast a casual eye across the business, nothing seems too out of place. It’s not until we deep dive into production and health that it becomes apparent that something is significantly amiss. Despite high levels of supplementation supporting good pasture management:

- Herd fertility is poor
- Milk fat is low
- Incidence of lameness and mastitis are high
- Feed digestibility is low
- Grazing behaviour is poor
- Cows lose excessive amounts of weight at the start of each lactation
- Several mineral deficiencies persist despite high supplementation
- Cow behaviour is inconsistent
- Pasture quality (nutritional profile) is inconsistent.

While it is fair to suggest some of these are normal seasonal issues, in this case there is no relief when seasons move on. As a result, an excessive amount of supplement (purchased energy, protein and mineral products) have been used just to maintain productivity and keep the herd functional.

Obviously given the ups and downs of the dairy industry, and the vagaries of climate and its impact on pastures and cows, I have seen close-up, how the various individuals in this family manage themselves and their business through good times and bad. Throughout the duration of our relationship, we have grown to know each other quite well. I recall being curious on a visit late 2017 when John wasn't his usual affable self and there were signs that his management and wit weren't quite as sharp as I was accustomed to. A chat revealed that a cocktail of factors were getting on top of him – battling to justify the amount of feed purchased, frustrated by issues with the herd, lack of answers re the cause of these issues, and so on. Observing the herd's behaviour during milking prompted me to enquire about potential causes of stress. It was then that I was informed about the mine and suddenly everything made sense. My assessment has been detailed in a previous submission, and the data collected since then certainly corroborates the concerns around noise and dust. I therefore fully support their action in this matter. There is no doubt in my mind that the noise and (silicon) dust resulting from the operations of the mine are detrimentally impacting the pastures, the farm animals, and most importantly, the health and well-being of the Raphael Family.

Sincerely

Dr Les Sandles

John & Catherine Raphael  
Glen Eden Holsteins  
Burtons Lane  
Muswellbrook NSW 2333

Web: <https://mpacoustics.com.au>  
ABN 19 465 981 722

Re: Environmental Impact Summary – Mount Pleasant Resource Extraction Operations

Dear John & Catherine Raphael,

This letter is issued as a summary of the assessment of the environmental impact of noise emissions from Mach Energy Pty Ltd at the Mount Pleasant operational site including resource extraction as investigated by Michael Phillips Acoustics at Glen Eden Holsteins between Tuesday, 7<sup>th</sup> June and Tuesday, 14<sup>th</sup> June 2022. Michael Phillips Acoustics has been engaged by John & Catherine Raphael to provide an Environmental Impact Summary on the compliance of noise emissions from resource extraction operations conducted by MACH Energy Pty Ltd to the Glen Eden Holsteins Dairy Farm.

**Noise Management Plan**

MACH Energy Pty Ltd has undertaken an environmental impact survey to investigate the impacts of the proposed operations to the surrounding environment from which a Noise Management Plan (NMP) has been issued within document number MP001-000-ENV-PLN-00003 (effective date 14/06/17), based on the Noise and Blasting Assessment conducted by Wilkinson Murray Pty Ltd (report no. 15402-H, version A, issued December 2020).

The NMP provides noise emission criteria for the Mount Pleasant Site to maintain an adequate level of acoustic amenity at all nearby sensitive receivers including the Glen Eden Holsteins Dairy Farm at Burton Lane, Muswellbrook. The subject site at Glen Eden Holsteins is categorised within the NMP as Noise Assessment Group 6 (NAG6) as shown in Figure 1.

Figure 1 – Glen Eden Holsteins site location in relation to Mt Pleasant Operation (MACH Energy)



Noise criteria is managed by quarterly attended noise measurements according to the Mount Pleasant Operations, which operate 24 hours per day, 7 days per week, under the noise emission criteria for daytime, evening and night-time periods as shown below from NMP Table 7 extract within Section 6.1.1.

**Table 7**  
**Noise Criteria (dBA)**

Location		Day	Evening	Night	
		L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)	L <sub>A1</sub> (1min)
NAG 1 <sup>1</sup>	260, 261	37	37	37	45
	258 <sup>2</sup>	40	40	40	45
	259	39	39	39	45
	All other privately-owned land	35	35	35	45
NAG 2	272	36	36	36	45
	All other privately-owned land	35	35	35	45
NAG 3 <sup>1</sup>	139, 154, 240 <sup>2</sup>	40	40	40	45
	241 <sup>2</sup>	39	39	39	45
	All other privately-owned land	35	35	35	45
NAG 4	169	36	36	36	45
	All other privately-owned land	35	35	35	45
NAG 5	All privately-owned land	41	40	39	45
NAG 6 <sup>1</sup>	205 <sup>2</sup>	41	41	41	45
	203, 242 <sup>2</sup>	40	40	40	45
	202	39	39	39	45
	204	38	38	38	45
	All other privately-owned land	37	37	37	45

Source: Development Consent DA 92/97.

Notes:

<sup>1</sup> The MOD 1 EA predicted maximum noise levels of 40 dBA at Receiver 257 (located in NAG 1), 39 dBA at Receiver 140 (located in NAG 3), 38 dBA at Receiver 198 (located in NAG 6) and 42 dBA at Receiver 83 (located in NAG 7). While these MOD 1 EA predictions are not reflected in Table 7, Receivers 257 and 140 are entitled to noise mitigation upon request under Development Consent DA 92/97.

It is also noted that *Section 6.1.1 Noise Criteria* within the NMP also states the following clause:

*Condition 3, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to ensure the noise generated by the MPO does not exceed the criteria in Table 7 at any residence on privately-owned land or on more than 25% of any privately-owned land.*

Compulsory land acquisition is also required of the Mount Pleasant Operation where the noise emissions exceed additional criteria as detailed in *Section 6.1.3 Acquisition Criteria* of the NMP.

*Condition 4, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to acquire the relevant land in Table 10 in accordance with the procedures in Condition 6 and Condition 7, Schedule 4 of Development Consent DA 92/97, if:*

- *the noise generated by the MPO exceeds the criteria in Table 10 at any residence on privately-owned land or on more than 25 percent of any privately-owned land; and*
- *MACH Energy receives a written request for acquisition from the landowner.*

**Table 10**  
**Noise Acquisition Criteria (dBA)**

Location	Day	Evening	Night
	L <sub>Aeq(15min)</sub>	L <sub>Aeq(15min)</sub>	L <sub>Aeq(15min)</sub>
All privately-owned land in NAG 1, NAG 2, NAG 3, NAG 4, and NAG 10	40	40	40
All privately-owned land in NAG 5	46	45	44
All privately-owned land in NAG 6	42	42	42
All privately-owned land in NAG 7	45	42	42
All privately-owned land in NAG 8	46	44	44
All privately-owned land in NAG 9	44	43	42
All privately-owned land in NAG 11	42	41	40
All other privately-owned land	40	40	40

Source: Development Consent DA 92/97.

### Acoustic Environmental Noise Measurements

Long-term measurements were conducted with an Australian Research Laboratories NGARA Class 1 Environmental Noise Logger set to fast response, A-weighted measurements in 15-minute and 1-minute intervals as per the requirements of noise criteria in the NMP. High-definition audio recording was also enabled in order to validate the noise occurrences. Instrument calibration was checked before and after measurements, with variation in calibrated levels not exceeding  $\pm 0.5$  dB.

The acoustic instrumentation employed was designed to comply with the requirements of AS IEC 61672.1—2004 – Electroacoustics—Sound level meters, Part 1: Specifications and carries current manufacturer calibration certificates.

For analysing environmental noise, the following descriptors are used.

- L<sub>90</sub> is known as background noise. L<sub>90</sub> is a statistical sound level which describes the percentage of times a sound level is exceeded. This parameter is used to set up the allowable noise levels for intrusive noise sources since the level of disturbance of the intrusive noise source will be dependent on how audible it is above the existing noise environment.
- L<sub>01</sub> is known as loudest noise. L<sub>01</sub> is a statistical sound level which describes the percentage of times a sound level is exceeded. This parameter is used to determine the average maximum noise levels for identifying intrusive noise sources within the noise environment.
- L<sub>eq</sub> is the equivalent sound level which represents the average noise level during a measurement period. L<sub>eq</sub> describes a receiver's cumulative noise exposure from all events over a specified period of time for compliance assessment purposes.
- A-weighted Sound Level (instantaneous) is the most common weighting used in noise measurements and it represents the frequency range and sensitivity detectable by the human ear. A-weighted is used for noise measurements and prediction purposes.

## Burtons Lane Long-Term Environmental Measurements (Daily Summary)

Equivalent noise levels and loudest noise levels were logged at the Burtons Lane site, where the noise levels provided the following data as detailed in Table 1.

Table 1 – Long-Term Noise Measurement Results at Burtons Lane

Burtons Lane	Equivalent Noise Level – dB(A) $L_{eq(15-min)}$			Loudest Noise – dB(A) $L_{01(1-min)}$
Date	Daytime (7am – 6pm)	Evening (6pm – 10pm)	Night-time (10pm – 7am)	Night-time (10pm – 7am)
Tuesday, 7 June 2022	-	41	40	43
Wednesday, 8 June 2022	58	41	40	43
Thursday, 9 June 2022	55	41	39	42
Friday, 10 June 2022	53	40	43	43
Saturday, 11 June 2022	55	40	41	44
Sunday, 12 June 2022	57	40	41	43
Monday, 13 June 2022	52	41	40	43
Tuesday, 14 June 2022	51	-	-	-
<b>Average</b>	<b>53</b>	<b>41</b>	<b>41</b>	<b>43</b>
<b>Criteria</b>	40	40	40	45
<b>Compliance?</b>	<b>No</b>	<b>No</b>	<b>No</b>	Yes

Graphical data for the measurements conducted at Burtons Lane are provided in Attachment 1 – Burtons Lane Noise Logging.

## Burtons Lane Long-Term Environmental Measurements (15 Minute Summary)

Table 2 – Long-Term Audio Recorded Noise Measurement Results at Burtons Lane

Burtons Lane	Equivalent Noise Level – dB(A) $L_{eq(15-min)}$	Loudest Noise – dB(A) $L_{01(1-min)}$	Compliance?
Tuesday, 7 June 2022			
10:00:00 PM	*	*	n/a
10:15:00 PM	*	*	n/a
10:30:00 PM	<b>**44</b>	54.3	<b>No</b>
10:45:00 PM	39	43.6	Yes
11:00:00 PM	38	44.7	Yes
11:15:00 PM	39	47.3	<b>No</b>
11:30:00 PM	*	*	n/a
11:45:00 PM	*	*	n/a
12:00:00 AM	*	*	n/a
12:15:00 AM	*	*	n/a
12:30:00 AM	37.5	45	Yes
12:45:00 AM	37	41.3	Yes
1:00:00 AM	37	41.1	Yes
1:15:00 AM	37.5	41.4	Yes
1:30:00 AM	*	*	n/a
1:45:00 AM	*	*	n/a
2:00:00 AM	40.5	44.6	<b>No</b>
2:15:00 AM	40.5	44.2	<b>No</b>
2:30:00 AM	40	43.6	Yes
2:45:00 AM	40	44.2	Yes
3:00:00 AM	<b>**41.5</b>	45.5	<b>No</b>
3:15:00 AM	<b>**41.5</b>	48.5	<b>No</b>
3:30:00 AM	40	44.2	Yes
3:45:00 AM	41	45.5	<b>No</b>
4:00:00 AM	39.5	44.0	Yes
4:15:00 AM	39.5	43.6	Yes

4:30:00 AM	40.5	43.7	No
4:45:00 AM	41	45.3	No
5:00:00 AM	39.5	42.9	Yes
5:15:00 AM	38.5	43.5	Yes
5:30:00 AM	37.5	41.9	Yes
5:45:00 AM	38	42.5	Yes
6:00:00 AM	39.5	45.4	Yes
6:15:00 AM	40.5	46.2	No
6:30:00 AM	41.5	45.7	No
6:45:00 AM	<b>**42</b>	46.0	No
7:00:00 AM	41	46.2	No

\*Weather affected period

\*\*Noise acquisition criteria triggered

Table 3 – Long-Term Noise Measurement Results at Burtons Lane

Burtons Lane	Equivalent Noise Level – dB(A) $L_{eq(15-min)}$	Loudest Noise – dB(A) $L_{01(1-min)}$	Compliance?
Wednesday, 8 June 2022			
10:00:00 PM	40.5	44.8	No
10:15:00 PM	<b>**41.5</b>	45.3	No
10:30:00 PM	<b>**41.5</b>	44.9	No
10:45:00 PM	40.5	45.0	No
11:00:00 PM	40.5	44.8	No
11:15:00 PM	<b>**41.5</b>	46.9	No
11:30:00 PM	<b>**42</b>	47.7	No
11:45:00 PM	41	46.0	No
12:00:00 AM	40	44.1	Yes
12:15:00 AM	38.5	43.6	Yes
12:30:00 AM	39	44.3	Yes
12:45:00 AM	40	44.1	Yes
1:00:00 AM	39.5	45.3	Yes
1:15:00 AM	40.5	46.8	No

1:30:00 AM	41	46.4	No
1:45:00 AM	40.5	46.2	No
2:00:00 AM	39.5	46.3	No
2:15:00 AM	37	41.6	Yes
2:30:00 AM	36.5	40.8	Yes
2:45:00 AM	36.5	41.1	Yes
3:00:00 AM	36.5	40.8	Yes
3:15:00 AM	37.5	41.6	Yes
3:30:00 AM	38.5	43.0	Yes
3:45:00 AM	39.5	45.5	No
4:00:00 AM	40	44.9	Yes
4:15:00 AM	38.5	43.7	Yes
4:30:00 AM	38.5	42.1	Yes
4:45:00 AM	40.5	44.8	No
5:00:00 AM	39	43.3	Yes
5:15:00 AM	37	40.9	Yes
5:30:00 AM	39	44.9	Yes
5:45:00 AM	39.5	43.2	Yes
6:00:00 AM	39.5	44.3	Yes
6:15:00 AM	41	46.7	No
6:30:00 AM	41	45.0	No
6:45:00 AM	**41.5	46.7	No
7:00:00 AM	**42	46.8	No

\*Weather affected period

\*\*Noise acquisition criteria triggered

Table 4 – Long-Term Noise Measurement Results at Burtons Lane

Burtens Lane	Equivalent Noise Level – dB(A) $L_{eq(15-min)}$	Loudest Noise – dB(A) $L_{01(1-min)}$	Compliance?
Thursday, 9 June 2022			
10:00:00 PM	38	42.4	Yes
10:15:00 PM	38.5	42.1	Yes

10:30:00 PM	38.5	42.3	Yes
10:45:00 PM	39.5	43.6	Yes
11:00:00 PM	*	*	n/a
11:15:00 PM	*	*	n/a
11:30:00 PM	40	45.2	Yes
11:45:00 PM	39	43.9	Yes
12:00:00 AM	39.5	47.0	No
12:15:00 AM	38.5	44.3	Yes
12:30:00 AM	39	47.0	No
12:45:00 AM	37.5	43.4	Yes
1:00:00 AM	38.5	45.8	No
1:15:00 AM	36	42.3	Yes
1:30:00 AM	39.5	48.7	No
1:45:00 AM	36.5	41.9	Yes
2:00:00 AM	37	41.8	Yes
2:15:00 AM	38	42.1	Yes
2:30:00 AM	39	42.6	Yes
2:45:00 AM	39.5	43.2	Yes
3:00:00 AM	39.5	43.2	Yes
3:15:00 AM	39	43.1	Yes
3:30:00 AM	38	42.1	Yes
3:45:00 AM	38.5	43.1	Yes
4:00:00 AM	38	44.6	Yes
4:15:00 AM	39	43.4	Yes
4:30:00 AM	39	43.5	Yes
4:45:00 AM	38.5	42.5	Yes
5:00:00 AM	39	44.9	Yes
5:15:00 AM	37.5	43.6	Yes
5:30:00 AM	36.5	41.0	Yes
5:45:00 AM	37.5	41.4	Yes
6:00:00 AM	38.5	44.1	Yes

6:15:00 AM	41	47.5	No
6:30:00 AM	**41.5	46.8	No
6:45:00 AM	41	46.4	No
7:00:00 AM	40.5	45.1	No

\*Weather affected period

\*\*Noise acquisition criteria triggered

Table 5 – Long-Term Noise Measurement Results at Burtons Lane

Burtens Lane	Equivalent Noise Level – dB(A) $L_{eq(15-min)}$	Loudest Noise – dB(A) $L_{01(1-min)}$	Compliance?
Friday, 10 June 2022			
10:00:00 PM	*	*	n/a
10:15:00 PM	*	*	n/a
10:30:00 PM	*	*	n/a
10:45:00 PM	**44	48.6	No
11:00:00 PM	41	45.4	No
11:15:00 PM	39.5	43.6	Yes
11:30:00 PM	39.5	44.0	Yes
11:45:00 PM	38.5	42.2	Yes
12:00:00 AM	39	44.3	Yes
12:15:00 AM	39	43.5	Yes
12:30:00 AM	37	42.6	Yes
12:45:00 AM	35	39.9	Yes
1:00:00 AM	36.5	42.1	Yes
1:15:00 AM	35.5	41.2	Yes
1:30:00 AM	37	42.9	Yes
1:45:00 AM	36.5	39.6	Yes
2:00:00 AM	38.5	41.3	Yes
2:15:00 AM	40	46.9	Yes
2:30:00 AM	41	43.6	No
2:45:00 AM	41	44.8	No
3:00:00 AM	40	44.8	Yes

3:15:00 AM	39.5	43.1	Yes
3:30:00 AM	39.5	43.7	Yes
3:45:00 AM	40	43.9	Yes
4:00:00 AM	39.5	42.8	Yes
4:15:00 AM	40	44.9	Yes
4:30:00 AM	40	43.9	Yes
4:45:00 AM	39.5	43.5	Yes
5:00:00 AM	38.5	43.1	Yes
5:15:00 AM	38.5	42.6	Yes
5:30:00 AM	39	43.4	Yes
5:45:00 AM	40	45.4	Yes
6:00:00 AM	39.5	43.0	Yes
6:15:00 AM	40	44.9	Yes
6:30:00 AM	40	46.0	Yes
6:45:00 AM	39.5	45.5	No
7:00:00 AM	40.5	45.8	No

\*Weather affected period

\*\*Noise acquisition criteria triggered

Table 6 – Long-Term Noise Measurement Results at Burtons Lane

Burtens Lane	Equivalent Noise Level – dB(A) $L_{eq}(15\text{-min})$	Loudest Noise – dB(A) $L_{01}(1\text{-min})$	Compliance?
Saturday, 11 June 2022			
10:00:00 PM	39.5	43.7	Yes
10:15:00 PM	40	44.9	Yes
10:30:00 PM	41	47.1	No
10:45:00 PM	40	43.5	Yes
11:00:00 PM	40.5	44.0	No
11:15:00 PM	40	44.4	Yes
11:30:00 PM	*	*	n/a
11:45:00 PM	*	*	n/a
12:00:00 AM	*	*	n/a

12:15:00 AM	*	*	n/a
12:30:00 AM	*	*	n/a
12:45:00 AM	*	*	n/a
1:00:00 AM	*	*	n/a
1:15:00 AM	*	*	n/a
1:30:00 AM	40	45.4	Yes
1:45:00 AM	39.5	44.6	Yes
2:00:00 AM	41	47.4	No
2:15:00 AM	40	44.0	Yes
2:30:00 AM	*	*	n/a
2:45:00 AM	*	*	n/a
3:00:00 AM	*	*	n/a
3:15:00 AM	*	*	n/a
3:30:00 AM	40.5	44.7	Yes
3:45:00 AM	41	49.0	No
4:00:00 AM	40	45.2	Yes
4:15:00 AM	40.5	45.4	No
4:30:00 AM	*	*	n/a
4:45:00 AM	*	*	n/a
5:00:00 AM	*	*	n/a
5:15:00 AM	*	*	n/a
5:30:00 AM	*	*	n/a
5:45:00 AM	*	*	n/a
6:00:00 AM	*	*	n/a
6:15:00 AM	*	*	n/a
6:30:00 AM	41	45.7	No
6:45:00 AM	*	*	n/a
7:00:00 AM	*	*	n/a

\*Weather affected period

\*\*Noise acquisition criteria triggered

Table 7 – Long-Term Noise Measurement Results at Burtons Lane

Burtons Lane	Equivalent Noise Level – dB(A) $L_{eq(15-min)}$	Loudest Noise – dB(A) $L_{01(1-min)}$	Compliance?
Sunday, 12 June 2022			
10:00:00 PM	38	42.8	Yes
10:15:00 PM	39	44.8	Yes
10:30:00 PM	39	42.7	Yes
10:45:00 PM	40	45.8	No
11:00:00 PM	41	47.9	No
11:15:00 PM	40	44.3	Yes
11:30:00 PM	39.5	43.2	Yes
11:45:00 PM	39.5	43.8	Yes
12:00:00 AM	39.5	44.1	Yes
12:15:00 AM	38.5	44.0	Yes
12:30:00 AM	38.5	44.5	Yes
12:45:00 AM	38.5	43.5	Yes
1:00:00 AM	36	43.4	Yes
1:15:00 AM	38.5	44.1	Yes
1:30:00 AM	39.5	44.7	Yes
1:45:00 AM	37.5	43.3	Yes
2:00:00 AM	39.5	45.1	Yes
2:15:00 AM	**42.5	48.0	No
2:30:00 AM	**43.5	49.2	No
2:45:00 AM	**45	48.9	No
3:00:00 AM	**42.5	47.3	No
3:15:00 AM	**45	50.4	No
3:30:00 AM	**44	48.6	No
3:45:00 AM	39.5	44.4	Yes
4:00:00 AM	39	44.0	Yes
4:15:00 AM	**42.5	50.5	No
4:30:00 AM	37	42.9	Yes

4:45:00 AM	37.5	42.6	Yes
5:00:00 AM	37	41.5	Yes
5:15:00 AM	<b>**42</b>	49.5	<b>No</b>
5:30:00 AM	37.5	43.8	Yes
5:45:00 AM	37.5	42.3	Yes
6:00:00 AM	38.5	42.4	Yes
6:15:00 AM	<b>**41.5</b>	46.7	<b>No</b>
6:30:00 AM	41	45.6	<b>No</b>
6:45:00 AM	41	45.2	Yes
7:00:00 AM	40	43.9	Yes

\*Weather affected period

\*\*Noise acquisition criteria triggered

Table 8 – Long-Term Noise Measurement Results at Burtons Lane

Burtons Lane	Equivalent Noise Level – dB(A) $L_{eq}(15\text{-min})$	Loudest Noise – dB(A) $L_{01}(1\text{-min})$	Compliance?
Monday, 13 June 2022			
10:00:00 PM	39.5	43.5	Yes
10:15:00 PM	38	42.5	Yes
10:30:00 PM	37.5	43.5	Yes
10:45:00 PM	40	45.8	<b>No</b>
11:00:00 PM	38	44.1	Yes
11:15:00 PM	37	44.5	Yes
11:30:00 PM	38	44.4	Yes
11:45:00 PM	<b>**44</b>	53.2	<b>No</b>
12:00:00 AM	36.5	42.9	Yes
12:15:00 AM	40.5	47.7	<b>No</b>
12:30:00 AM	36	43.2	Yes
12:45:00 AM	38.5	47.3	<b>No</b>
1:00:00 AM	35.5	45.1	Yes
1:15:00 AM	33	38.5	Yes
1:30:00 AM	33	38.0	Yes

1:45:00 AM	36	39.6	Yes
2:00:00 AM	**43	49.1	No
2:15:00 AM	**43.5	51.1	No
2:30:00 AM	**44.5	48.8	No
2:45:00 AM	39.5	44.9	Yes
3:00:00 AM	38	43.3	Yes
3:15:00 AM	41	46.9	No
3:30:00 AM	36	40.2	Yes
3:45:00 AM	41	46.8	No
4:00:00 AM	**41.5	45.3	Yes
4:15:00 AM	**42	47.4	No
4:30:00 AM	39.5	45.0	Yes
4:45:00 AM	36.5	42.0	Yes
5:00:00 AM	35.5	40.4	Yes
5:15:00 AM	36.5	40.5	Yes
5:30:00 AM	39.5	45.6	No
5:45:00 AM	43	52.7	No
6:00:00 AM	40.5	45.0	Yes
6:15:00 AM	**43.5	48.6	No
6:30:00 AM	43.5	47.8	No
6:45:00 AM	44.5	48.0	No
7:00:00 AM	45	49.8	No

\*Weather affected period

\*\*Noise acquisition criteria triggered

Noise levels in exceedance of the project criteria of the NMP have been recorded during the night-time period and presented in Tables 1 - 8.

Please contact us if you have any further queries.

Sincerely,

**Michael Phillips**

Acoustic Engineering Director  
M.A.A.S.

7/07/2022

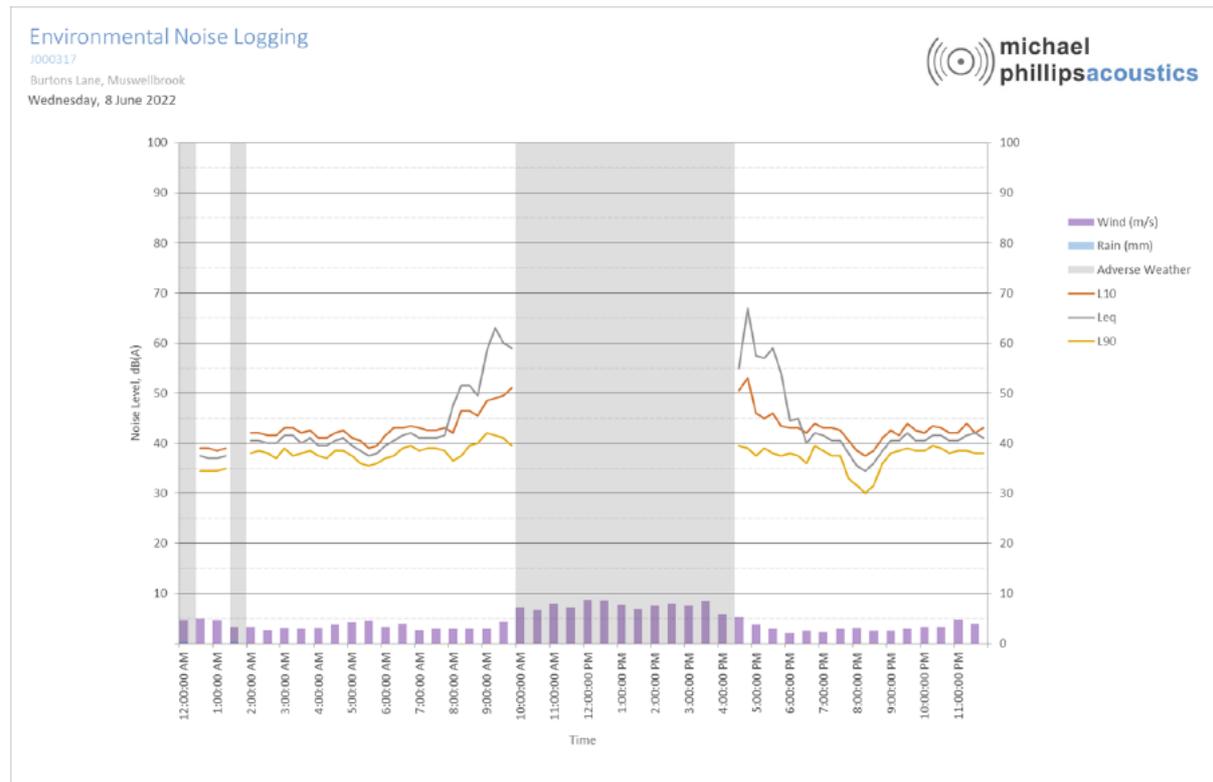
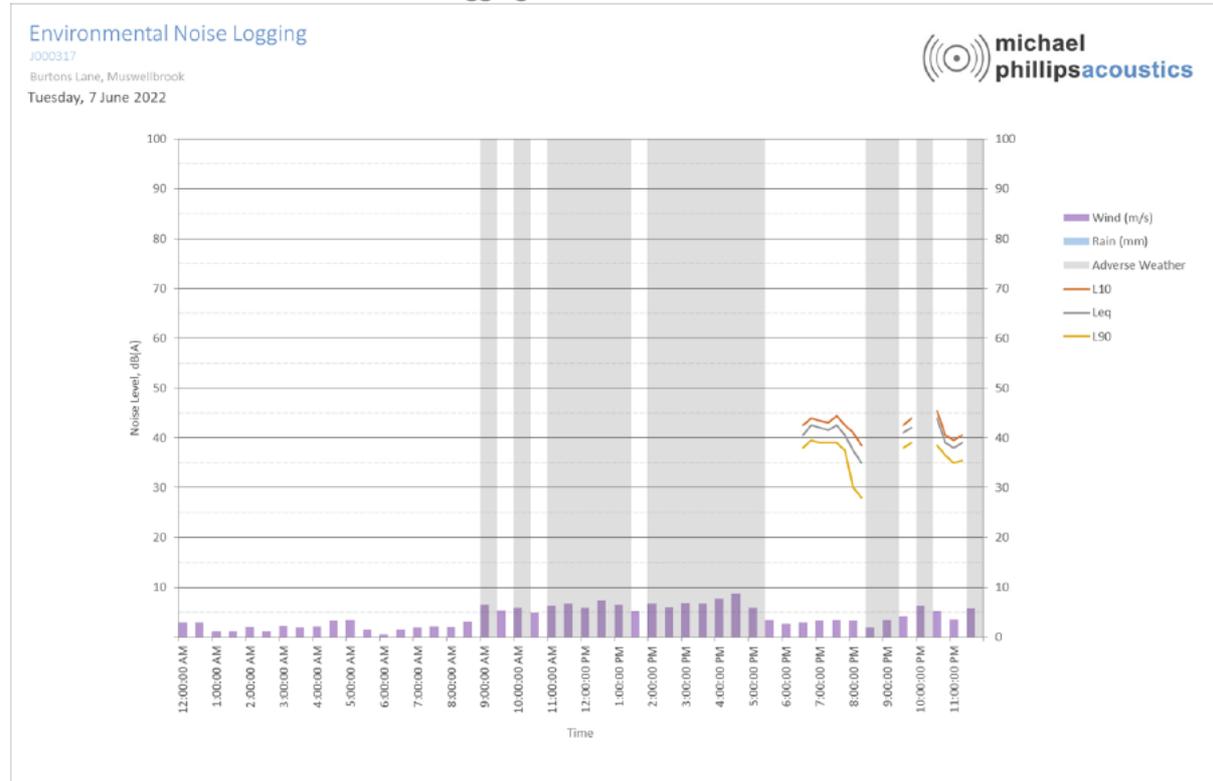
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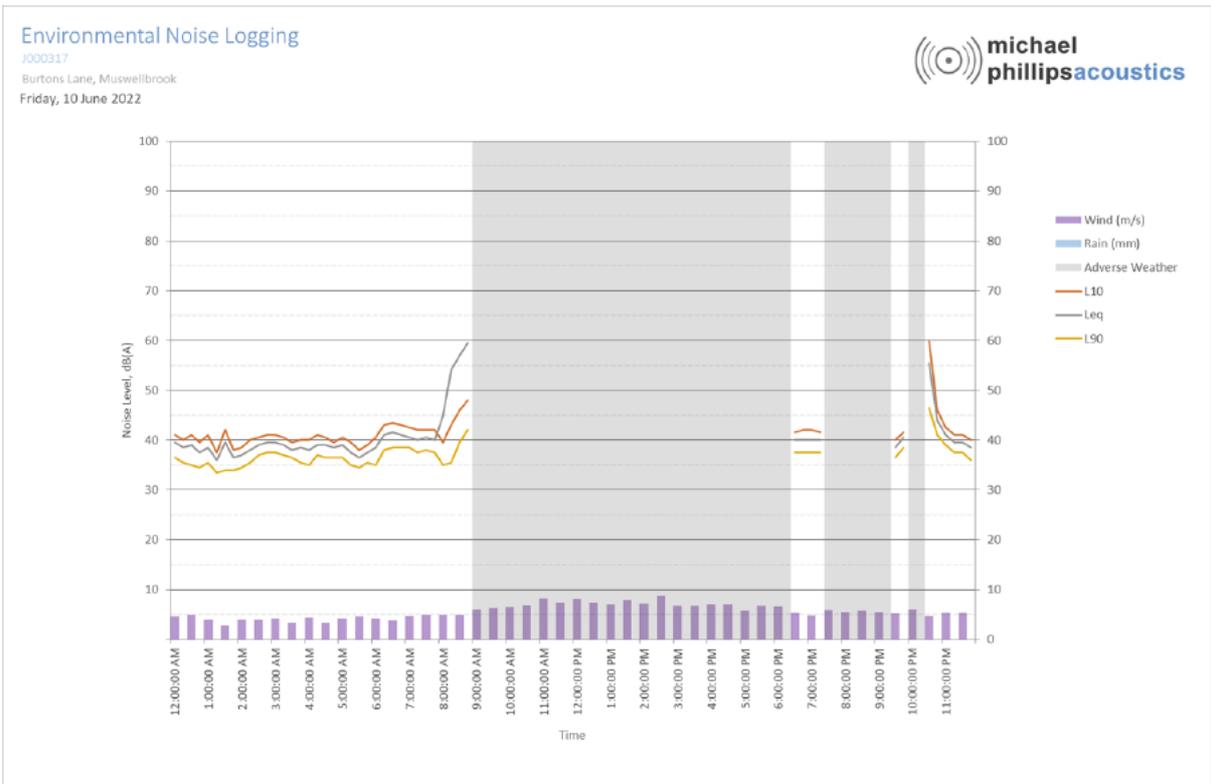
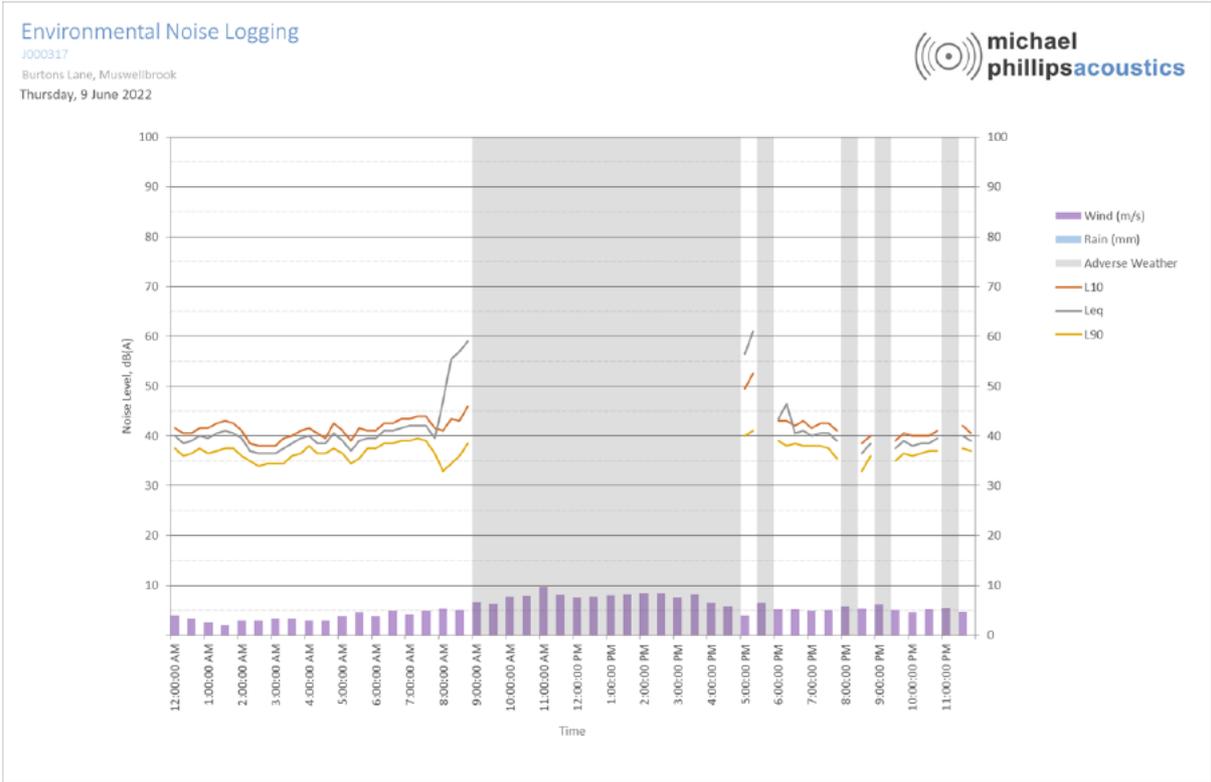


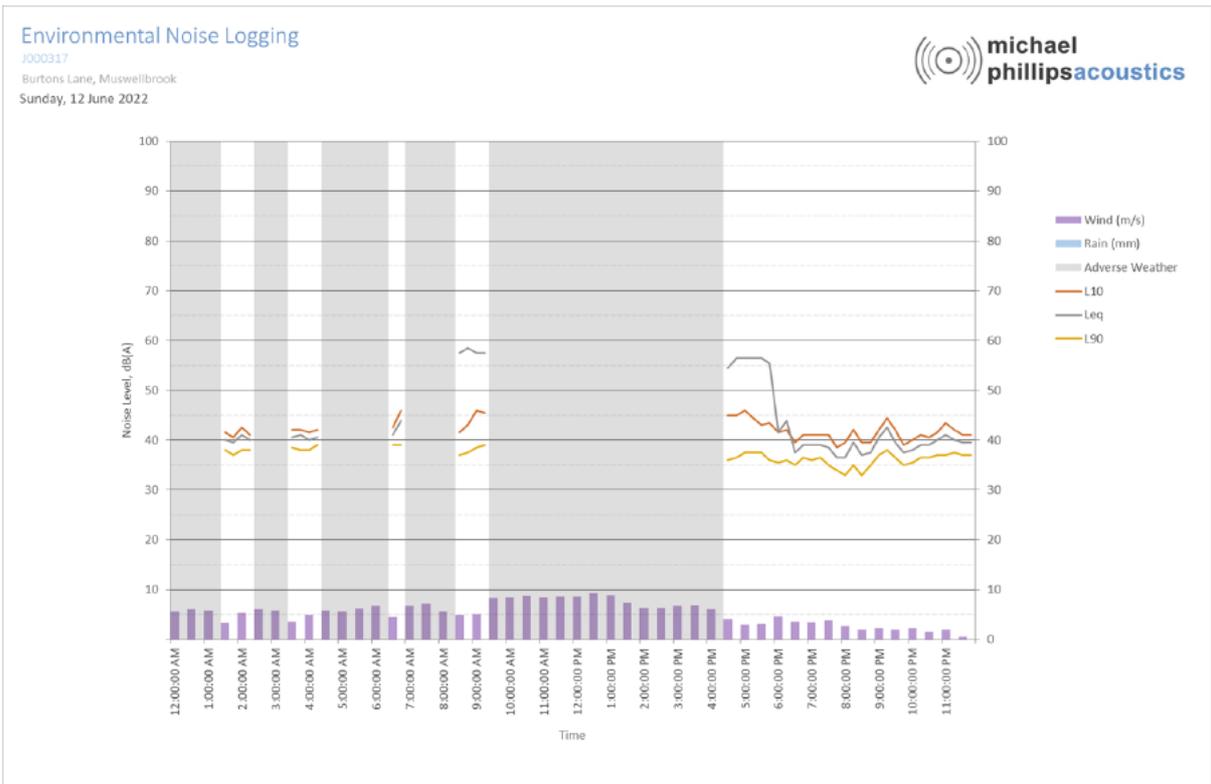
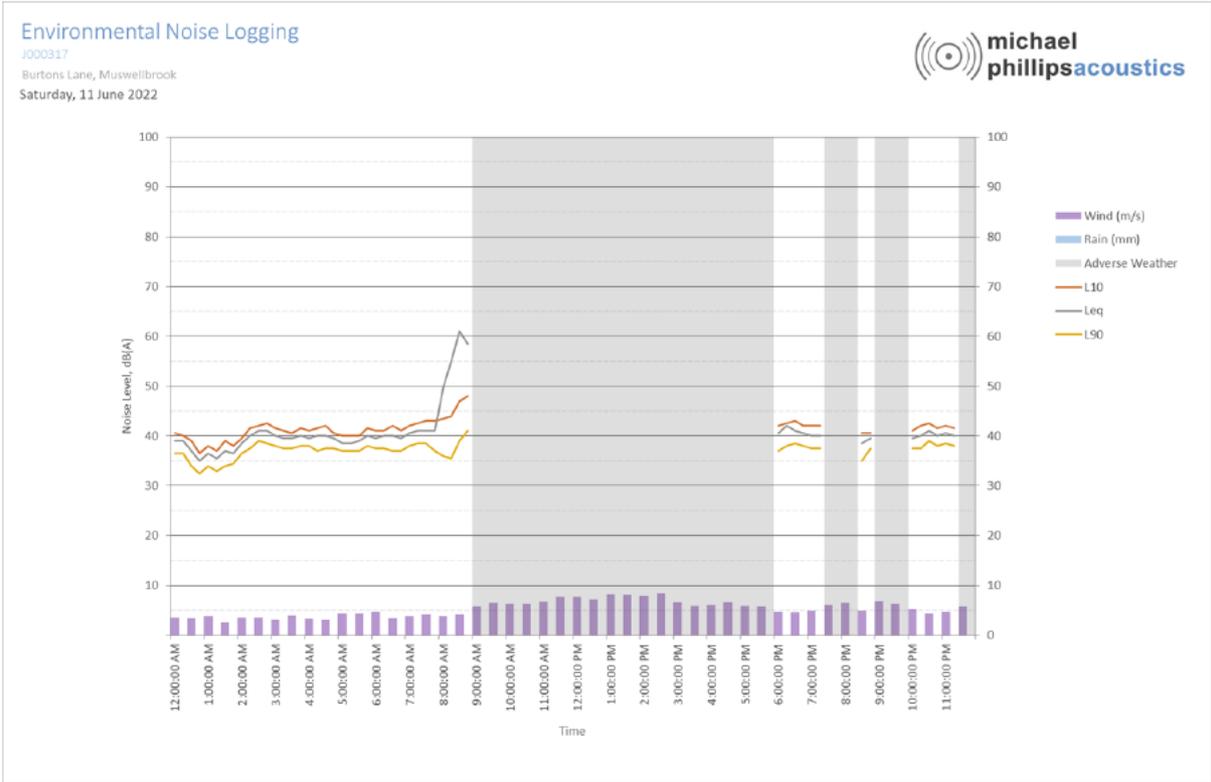
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michael  
phillipsacoustics 

### Attachment 1 – Burtons Lane Noise Logging

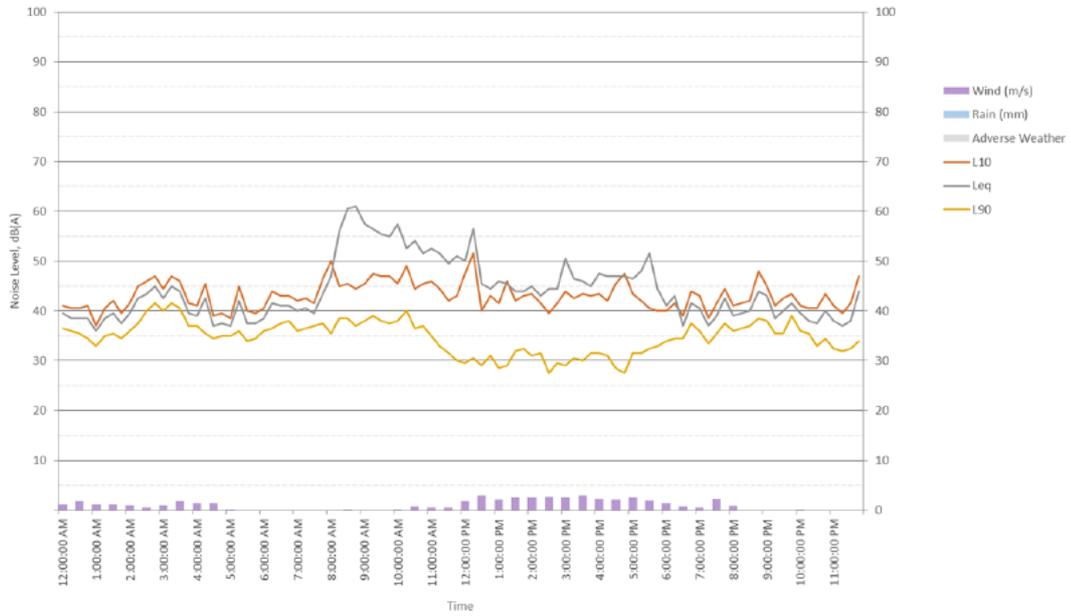






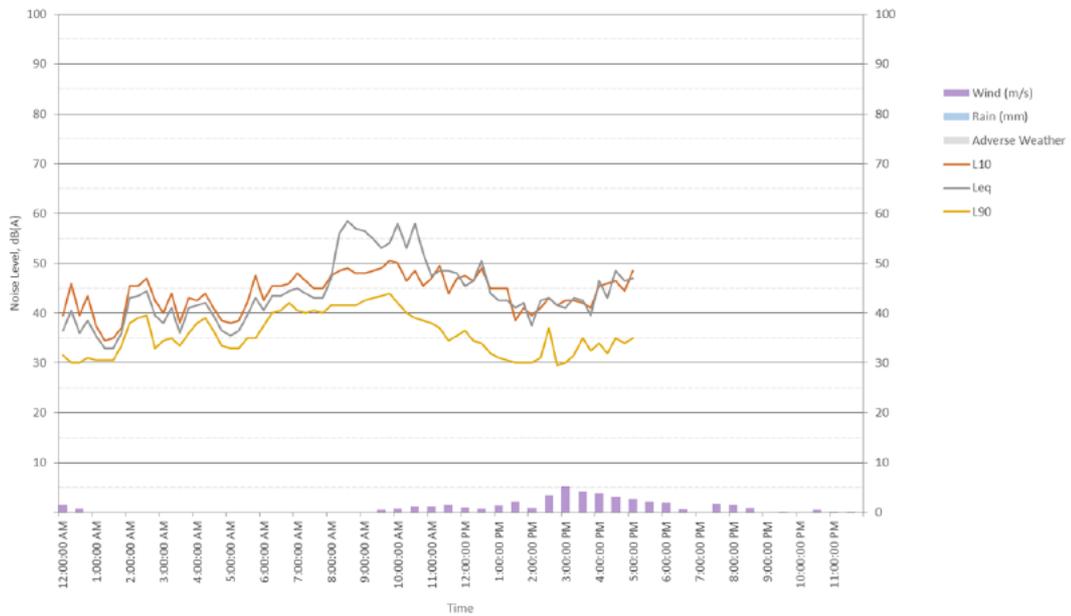
### Environmental Noise Logging

J000317  
Burtens Lane, Muswellbrook  
Monday, 13 June 2022



### Environmental Noise Logging

J000317  
Burtens Lane, Muswellbrook  
Tuesday, 14 June 2022



JULY 7, 2022

Contact: 0413 904 997

Email: [michael@mpacoustics.com.au](mailto:michael@mpacoustics.com.au)

Web: <https://mpacoustics.com.au>

ABN 19 465 981 722

John & Catherine Raphael  
Glen Eden Holsteins  
Burtons Lane  
Muswellbrook NSW 2333  
0418 41 878, (02) 6541 0878  
[john.raaphael@bigpond.com](mailto:john.raaphael@bigpond.com)

Re: Environmental Impact Summary – Mount Pleasant Resource Extraction Operations

Dear John & Catherine Raphael,

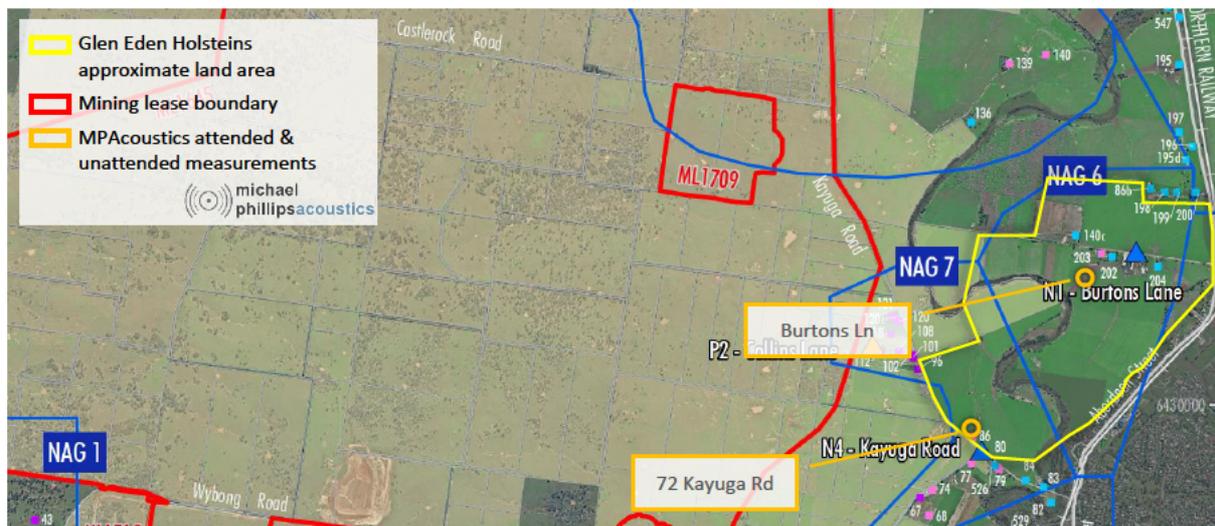
This letter is issued as a summary of the assessment of the environmental impact of noise emissions from Mach Energy Pty Ltd at the Mount Pleasant operational site including resource extraction as investigated by Michael Phillips Acoustics at Glen Eden Holsteins between Tuesday, 7<sup>th</sup> June and Tuesday, 28<sup>th</sup> June 2022. Michael Phillips Acoustics has been engaged by John & Catherine Raphael to provide an Environmental Impact Summary on the compliance of noise emissions from resource extraction operations conducted by MACH Energy Pty Ltd to the Glen Eden Holsteins Dairy Farm.

#### Noise Management Plan

MACH Energy Pty Ltd has undertaken an environmental impact survey to investigate the impacts of the proposed operations to the surrounding environment from which a Noise Management Plan (NMP) has been issued within document number MP001-000-ENV-PLN-00003 (effective date 14/06/17), based on the Noise and Blasting Assessment conducted by Wilkinson Murray Pty Ltd (report no. 15402-H, version A, issued December 2020).

The NMP provides noise emission criteria for the Mount Pleasant Site to maintain an adequate level of acoustic amenity at all nearby sensitive receivers including the Glen Eden Holsteins Dairy Farm at Burton Lane, Muswellbrook. The subject site at Glen Eden Holsteins is categorised within the NMP as Noise Assessment Group 6 (NAG6) as shown in Figure 1.

Figure 1 – Glen Eden Holsteins site location in relation to Mt Pleasant Operation (MACH Energy)



Noise criteria is managed by quarterly attended noise measurements according to the Mount Pleasant Operations, which operate 24 hours per day, 7 days per week, under the noise emission criteria for daytime, evening and night-time periods as shown below from NMP Table 7 extract within Section 6.1.1.

**Table 7**  
**Noise Criteria (dBA)**

Location		Day	Evening	Night	
		L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)	L <sub>Aeq</sub> (15min)	L <sub>A1</sub> (1min)
NAG 1 <sup>1</sup>	260, 261	37	37	37	45
	258 <sup>2</sup>	40	40	40	45
	259	39	39	39	45
	All other privately-owned land	35	35	35	45
NAG 2	272	36	36	36	45
	All other privately-owned land	35	35	35	45
NAG 3 <sup>1</sup>	139, 154, 240 <sup>2</sup>	40	40	40	45
	241 <sup>2</sup>	39	39	39	45
	All other privately-owned land	35	35	35	45
NAG 4	169	36	36	36	45
	All other privately-owned land	35	35	35	45
NAG 5	All privately-owned land	41	40	39	45
NAG 6 <sup>1</sup>	205 <sup>2</sup>	41	41	41	45
	203, 242 <sup>2</sup>	40	40	40	45
	202	39	39	39	45
	204	38	38	38	45
	All other privately-owned land	37	37	37	45

Source: Development Consent DA 92/97.

Notes:

<sup>1</sup> The MOD 1 EA predicted maximum noise levels of 40 dBA at Receiver 257 (located in NAG 1), 39 dBA at Receiver 140 (located in NAG 3), 38 dBA at Receiver 198 (located in NAG 6) and 42 dBA at Receiver 83 (located in NAG 7). While these MOD 1 EA predictions are not reflected in Table 7, Receivers 257 and 140 are entitled to noise mitigation upon request under Development Consent DA 92/97.

It is also noted that *Section 6.1.1 Noise Criteria* within the NMP also states the following clause:

*Condition 3, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to ensure the noise generated by the MPO does not exceed the criteria in Table 7 at any residence on privately-owned land or on more than 25% of any privately-owned land.*

Compulsory land acquisition is also required of the Mount Pleasant Operation where the noise emissions exceed additional criteria as detailed in *Section 6.1.3 Acquisition Criteria* of the NMP.

*Condition 4, Schedule 3 of Development Consent DA 92/97 requires MACH Energy to acquire the relevant land in Table 10 in accordance with the procedures in Condition 6 and Condition 7, Schedule 4 of Development Consent DA 92/97, if:*

- *the noise generated by the MPO exceeds the criteria in Table 10 at any residence on privately-owned land or on more than 25 percent of any privately-owned land; and*
- *MACH Energy receives a written request for acquisition from the landowner.*

**Table 10**  
**Noise Acquisition Criteria (dBA)**

Location	Day	Evening	Night
	L <sub>Aeq(15min)</sub>	L <sub>Aeq(15min)</sub>	L <sub>Aeq(15min)</sub>
All privately-owned land in NAG 1, NAG 2, NAG 3, NAG 4, and NAG 10	40	40	40
All privately-owned land in NAG 5	46	45	44
All privately-owned land in NAG 6	42	42	42
All privately-owned land in NAG 7	45	42	42
All privately-owned land in NAG 8	46	44	44
All privately-owned land in NAG 9	44	43	42
All privately-owned land in NAG 11	42	41	40
All other privately-owned land	40	40	40

Source: Development Consent DA 92/97.

#### Acoustic Environmental Noise Measurements

Noise measurements were conducted by this office between Tuesday, 7<sup>th</sup> June and Tuesday, 28<sup>th</sup> June 2022 as a verification of the noise criteria at Glen Eden Holsteins site. Acoustic measurements were taken at Burtons Lane and 72 Kayuga Road, Muswellbrook as shown in Figure 1.

All measurements were taken at 1.5m above the natural surface level and clear of any reflective surface façades. Attended measurement equipment included an NTi XL2 Sound Level Meter with a calibrated NTi MA2230 Class 1 measurement microphone. Instrument calibration was checked before and after measurements, with variation in calibrated levels not exceeding  $\pm 0.5$ dB.

The acoustic instrumentation employed was designed to comply with the requirements of AS IEC 61672.1—2004 – Electroacoustics—Sound level meters, Part 1: Specifications and carries current manufacturer calibration certificates.

For analysing environmental noise, the following descriptors are used.

- L<sub>90</sub> is known as background noise. L<sub>90</sub> is a statistical sound level which describes the percentage of times a sound level is exceeded. This parameter is used to set up the allowable noise levels for intrusive noise sources since the level of disturbance of the intrusive noise source will be dependent on how audible it is above the existing noise environment.
- L<sub>01</sub> is known as loudest noise. L<sub>01</sub> is a statistical sound level which describes the percentage of times a sound level is exceeded. This parameter is used to determine the average maximum noise levels for identifying intrusive noise sources within the noise environment.
- L<sub>eq</sub> is the equivalent sound level which represents the average noise level during a measurement period. L<sub>eq</sub> describes a receiver's cumulative noise exposure from all events over a specified period of time for compliance assessment purposes.
- A-weighted Sound Level (instantaneous) is the most common weighting used in noise measurements and it represents the frequency range and sensitivity detectable by the human ear. A-weighted is used for noise measurements and prediction purposes.

#### Burtons Lane Long-Term Environmental Measurements

Long-term measurements were conducted with an Australian Research Laboratories NGARA Class 1 Environmental Noise Logger set to fast response, A-weighted measurements in 15-minute and 1-minute intervals as per the requirements of noise criteria in the NMP.

Equivalent noise levels and loudest noise levels were logged at the Burtons Lane site, where the noise levels provided the following data as detailed in Table 1.

Table 1 – Long-Term Noise Measurement Results at Burtons Lane

Burtons Lane	Equivalent Noise Level – dB(A) $L_{eq}(15\text{-min})$			Loudest Noise – dB(A) $L_{01}(1\text{-min})$
	Daytime (7am – 6pm)	Evening (6pm – 10pm)	Night-time (10pm – 7am)	Night-time (10pm – 7am)
Tuesday, 7 June 2022	-	41	40	43
Wednesday, 8 June 2022	58	41	40	43
Thursday, 9 June 2022	55	41	39	42
Friday, 10 June 2022	53	40	43	43
Saturday, 11 June 2022	55	40	41	44
Sunday, 12 June 2022	57	40	41	43
Monday, 13 June 2022	52	41	40	43
Tuesday, 14 June 2022	51	40	40	43
Wednesday, 15 June 2022	55	41	40	42
Thursday, 16 June 2022	54	40	39	41
Friday, 17 June 2022	53	40	38	42
Saturday, 18 June 2022	53	39	40	41
Sunday, 19 June 2022	55	40	41	42
Monday, 20 June 2022	51	39	40	43
Tuesday, 21 June 2022	50	40	40	42
Wednesday, 22 June 2022	50	39	39	42
Thursday, 23 June 2022	51	40	40	41
Friday, 24 June 2022	51	40	39	42
Saturday, 25 June 2022	56	39	40	42
Sunday, 26 June 2022	53	40	41	43
Monday, 27 June 2022	54	39	40	41
Tuesday, 28 June 2022	54	39	40	42
<b>Average</b>	<b>53</b>	<b>40</b>	<b>40</b>	<b>42</b>

Graphical data for the measurements conducted at Burtons Lane are provided in Error! Reference source not found..

### 72 Kayuga Road Long-Term Environmental Measurements

Long-term measurements were conducted with an NTi Class 1 Environmental Noise Logger set to fast response, A-weighted measurements in 15-minute and 1-minute intervals as per the requirements of noise criteria in the NMP. Equivalent noise levels and loudest noise levels were logged at the Burtons Lane site, where the noise levels provided the following data as detailed in Table 2.

Table 2 – Long-Term Noise Measurement Results at 72 Kayuga Road

72 Kayuga Road	Equivalent Noise Level – dB(A) $L_{eq(15-min)}$			Loudest Noise – dB(A) $L_{01(1-min)}$
	Daytime (7am – 6pm)	Evening (6pm – 10pm)	Night-time (10pm – 7am)	Night-time (10pm – 7am)
Tuesday, 7 June 2022	-	56	51	47
Wednesday, 8 June 2022	58	56	50	47
Thursday, 9 June 2022	58	56	50	45
Friday, 10 June 2022	56	56	51	46
Saturday, 11 June 2022	57	55	47	45
Sunday, 12 June 2022	55	55	47	45
Monday, 13 June 2022	56	57	52	46
Tuesday, 14 June 2022	57	57	50	45
Wednesday, 15 June 2022	57	58	51	47
Thursday, 16 June 2022	57	57	50	46
Friday, 17 June 2022	58	56	49	43
Saturday, 18 June 2022	55	55	47	42
Sunday, 19 June 2022	55	54	50	43
Monday, 20 June 2022	56	57	49	44
Tuesday, 21 June 2022	56	57	50	46
Wednesday, 22 June 2022	57	57	50	45
Thursday, 23 June 2022	58	58	51	47
Friday, 24 June 2022	56	57	50	46
Saturday, 25 June 2022	57	56	49	43
Sunday, 26 June 2022	55	55	47	42
Monday, 27 June 2022	55	54	50	43
Tuesday, 28 June 2022	57	57	49	44
<b>Average</b>	<b>56</b>	<b>56</b>	<b>49</b>	<b>45</b>

Graphical data for the measurements conducted at 72 Kayuga Road are provided in Error! Reference source not found.

## Measurement Summary

Table 3 – Long-Term Noise Measurement Results at Burtons Lane

Burtons Lane	Equivalent Noise Level – dB(A) $L_{eq(15-min)}$			Loudest Noise – dB(A) $L_{01(1-min)}$
	Daytime (7am – 6pm)	Evening (6pm – 10pm)	Night-time (10pm – 7am)	Night-time (10pm – 7am)
Average	55	40	40	43
Criteria	40, *42	40, *42	40, *42	45
Compliance?	No	Yes	Yes	Yes

\*Noise Acquisition Criteria

## Burtons Lane Attended Measurements

Table 4 – Attended Noise Measurement Results at Burtons Lane

Burtons Lane	Equivalent Noise Level – dB(A) $L_{eq(15-min)}$	Loudest Noise – dB(A) $L_{01(1-min)}$
Saturday 26 <sup>th</sup> June 2022	Night-time 2:55am – 4:25am	
Average	40	43
Criteria	40, *42	45
Compliance?	Yes	Yes

\*Noise Acquisition Criteria

Please contact us if you have any further queries.

Sincerely,

### Michael Phillips

Acoustic Engineering Director

M.A.A.S.

MArchSc (Audio & Acoustics), AssocDeg (Audio Eng.)



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michael  
phillipsacoustics 