REVERBERATE
CONSULTING

Friday 28 June 2024
Reference: P191224LT2.docm

Manager Statutory Planning & Compliance
Shire of Serpentine Jarrahdale
6 Paterson Street,
Mundijong WA 6123

Attention: Ms Heather O'Brien

Dear Ms O'Brien,

17 Cardup Siding Road, Cardup, Environmental Noise Assessment – Peer Review

We have undertaken an acoustic review and appraisal of a report entitled *Environmental Noise Assessment - Operations Noise Survey - Lot 41 (#17) Cardup Siding Road* by Lloyd George Acoustics, dated 28/05/24, Ref: 16053600-05 [LGA]

From our review we have the concerns regarding noise impact from the operations. These are summarised as follows:

- The Assigned level for the surrounding neighbours appears to be incorrectly calculated
- The allowable noise level from the site was discussed but not used in the assessment
- The measured noise levels appear insufficient to determine compliance or otherwise

These concerns are discussed in detail overleaf. It is for these reasons LGA should resubmit their report after rectification to account for the factors described overleaf.

Yours sincerely,

Martti Warpenius
Director

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1.0 Assigned Levels

A noise limit for emissions from the site is the Assigned Level. This is defined in the Environmental Protection (Noise) Regulations 1997 and is applicable at all potentially affected neighbours. The night-time L_{A10} Assigned Level is applicable for a defined subset of noise emissions from the site prior to 7am.

BY way of example, LGA state[1] that the (IF) influencing factor, at a nearby residence, Residence A, is +6 dB. They identified 230 Soldiers Rd as this "Residence A"[2].

Our own calculations of the IF at this address are given in Table 1 below. This shows an IF of +2 dB for this residence.

This IF +2 was also confirmed in an earlier revision of the Lloyd George report[3] so it is not clear why this has now changed to +6 IF in the current report.

Where the IF is noticeably lower there is a corresponding reduction in L_{A10}, L_{A1} and L_{Amax} Assigned Levels, as well as a reduction in the permitted noise from the site.

[1] LGA Table 2-3, page 4
[2] LGA Figure 2-1, page 4
[3] Environmental Noise Assessment – Workshop and Moulding Facility Operational Updates - 17 Cardup Siding Road, Cardup, dated 18/04/23, Ref: 16053600-05C

Table 1 – Influencing Factors Calculation comparison for 230 Soldiers Rd (Residence A)

Item	LGA Factor	Reverberate Factor	Comment
Transportation Factor	0 dB	0 dB	-
Commercial Premises within inner circle	0% = 0 dB	0% = 0 dB	-
Commercial Premises within outer circle	0% = 0 dB	9% = +0.5 dB	The appropriate Land Use map[4] to determine the extent of commercially and industrially zoned land is the Shire of Serpentine Jarrahdale Town Planning Scheme 3. This is shown in Figure 2. This map identify commercially zoned land North of Cardup Siding Rd. This commercial area is measured as 9 %, yielding a factor of 0.5 dB. It is +0.5 dB different to LGA
Industrial Premises within inner circle	21% = +2.1 dB	0% = 0 dB	The Land Use Maps show there is no industrially zoned land within 100m of the residence. A factor of 0 dB is therefore to be used, being -2.1 dB different to LGA.
Industrial Premises within outer circle	39% = +3.9 dB	19.3% = +1.9 dB	The Land Use maps identify industrially zoned land associated with the Town Planning Scheme 3. This is measured to be 19.3 % which is lower than the 39 % adopted by LGA. This lower percentage area corresponds to a factor -2.0 dB different to LGA
TOTAL Influencing Factor	**+6 dB**	**+2 dB**	The total influencing factor is 2 dB. This is -4 dB lower than LGA due to the +0.5, -2.1 and -2.0 differences in the factors outlined above.
Night-time L_{A10} Assigned level	(35+6 =) **41 dB**	(35 + 2 =) **37 dB**	The corresponding Assigned Level is then 4 dB lower than that presented by LGA

The revised influencing factor will alter the Assigned Levels for day, evening, and night-time operations. Each Assigned level at 230 Soldiers Rd will 4 dB lower than those presented by LGA.

No assessment has been undertaken of the other residences. We request LGA to review these assigned levels using a similar analysis to that in Table 1.

[4] Noise Regulations Schedule 3, cl. 1. (1) *Land Use Map (b)*

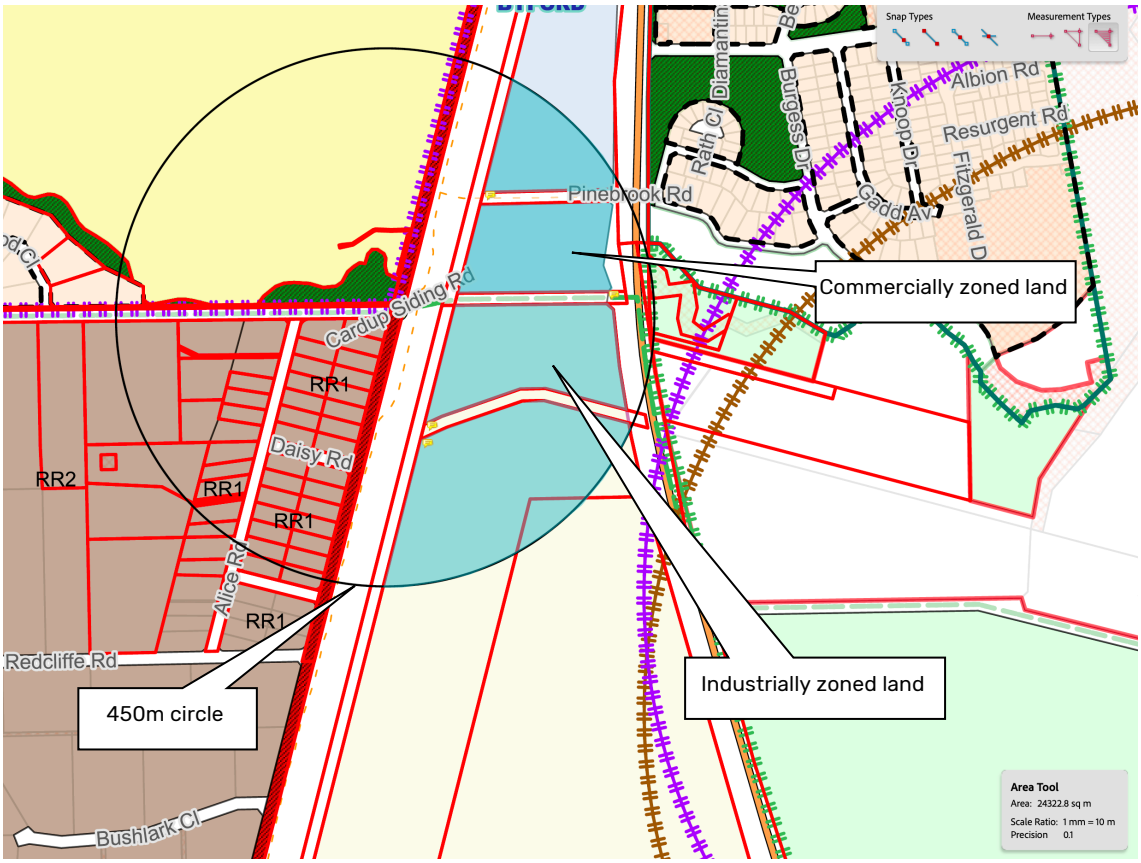

Figure 1 – Shire of Serpentine Jarrahdale LPS3 land zoning Map

2.0 Allowable Noise Emission

LGA outline[5] that the noise from an industrial park is not to "significantly contribute" to a noise emission and so be 5 dB below the assigned level. This is supported by Reverberate.

However, this factor has not been included in the LGA assessment. By way of example, the night-time allowable noise emission, reaching 230 Soldiers Rd, would then be:

35 (baseline assigned level)
+ 2 (Influencing factor)
- 5 (significantly contribute)
= 32 dB

Likewise, the allowable noise at other residences would reduce.

[5] LGA Section 2, page 5 paragraph 3

3.0 Measured Noise Levels

The measured noise levels presented in LGA cannot be used to determine the noise impact from the site. This is because insufficient measurements have been conducted, and no measurements have been conducted at a suitable reference point.

The Noise Regulations[6] require that the level of noise emission from a site may be determined by:

(a) *Measurement at its point of reception when, to the extend practicable, other noises that would contribute to the measured noise level are not present; or*
(b) *calculation of the level at its point of reception based on measurement of the noise emission at a reference point determined by the inspector or authorised person to be a point where the relationship between the noise emission as measured at the reference point and at the point of reception can be established*.

Neither of these methods appear to be used by LGA to determine the level of noise emission from the site.

By way of example, LGA present[7] the night-time measured L_{A10} noise levels. At Residence A the following is summarised from their table

Predicted L_{A10} level from site	30 dB
Allowable Noise Emission	32 dB
Measured L_{A10} noise level (affected by traffic noise)	50 dB

The measured L_{A10} 50 dB does not demonstrate compliance with the 32 dB allowable noise emission.

Where the background noise cannot be removed from the measurement, as appears to be the case in these measurements, Regulation 7 (3) (b) is to be applied and an additional set of noise measurements are to be conducted at an acceptable reference point closer to the noise source.

Lastly, no allowance has been made for the low wind conditions during measurements. For compliance measurements, either the measurements are conducted at the '*default meteorological conditions*'[8], or the results are to be adjusted to account for such conditions.

[6] Regulation 7 (3)
[7] Section 4.1, Table 4-1, page 11
[8] DWER Draft Guideline - Assessment of environmental noise emissions May 2021, Table 4, page 33