



BROOK 508 CAFE

508 BROOKTON HIGHWAY, ROLEYSTONE

ACOUSTIC ASSESSMENT

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FOR

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1.0 INTRODUCTION

Herring Storer Acoustics was commissioned to provide an assessment of noise emissions in accordance with the *Environmental Protection (Noise) Regulations 1997* associated with the “Brook 508 Café” located at 508 Brookton Highway, Roleystone.

This work was understood to have been requested to be carried out by the City of Armadale.

2.0 SUMMARY

Noise level emissions associated with the cafe, have been determined to comply with the *Environmental Protection (Noise) Regulations 1997* at the neighbouring premises at all times, noting that ambient music within the café and veranda is to be at background levels only.

3.0 CRITERIA

The allowable noise level at the surrounding locales is prescribed by the *Environmental Protection (Noise) Regulations 1997*. Regulations 7 & 8 stipulate maximum allowable external noise levels determined by the calculation of an influencing factor, which is then added to the base levels shown below. The influencing factor is calculated for the usage of land within two circles, having radii of 100m and 450m from the premises of concern.

TABLE 1 - BASELINE ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L _{A10}	L _{A1}	L _{Amax}
Noise sensitive premises	0700 - 1900 hours Monday to Saturday (Day)	45 + IF	55 + IF	65 + IF
	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	40 + IF	50 + IF	65 + IF
	1900 - 2200 hours all days (Evening)	40 + IF	50 + IF	55 + IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays (Night)	35 + IF	45 + IF	55 + IF

Note: L_{A10} is the noise level exceeded for 10% of the time.
 L_{A1} is the noise level exceeded for 1% of the time.
 L_{Amax} is the maximum noise level.
 IF is the influencing factor.

It is a requirement that received noise be free of annoying characteristics (tonality, modulation and impulsiveness), defined below as per Regulation 9.

“impulsiveness” means a variation in the emission of a noise where the difference between L_{Apeak} and L_{Amax Slow} is more than 15 dB when determined for a single representative event;

“modulation” means a variation in the emission of noise that –

- (a) is more than 3dB L_{A Fast} or is more than 3 dB L_{A Fast} in any one-third octave band;
- (b) is present for more at least 10% of the representative assessment period; and
- (c) is regular, cyclic and audible;

“tonality”

means the presence in the noise emission of tonal characteristics where the difference between –

- (a) the A-weighted sound pressure level in any one-third octave band; and
- (b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3dB when the sound pressure levels are determined as $L_{Aeq,T}$ levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as $L_{A\ Slow}$ levels.

Where the noise emission is not music, if the above characteristics exist and cannot be practicably removed, then any measured level is adjusted according to Table 2 below.

TABLE 2 - ADJUSTMENTS TO MEASURED LEVELS

Where tonality is present	Where modulation is present	Where impulsiveness is present
+5 dB(A)	+5 dB(A)	+10 dB(A)

Note: These adjustments are cumulative to a maximum of 15 dB.

Where the noise emission is music, then any measured level is adjusted to Table 3 below.

TABLE 3 - ADJUSTMENTS TO MEASURED MUSIC NOISE LEVELS

Where impulsiveness is not present	Where impulsiveness is present
+10 dB(A)	+15 dB(A)

The nearest noise sensitive premises to the proposed development have been identified as shown in Figure 1.



FIGURE 1 – PROPOSED DEVELOPMENT AND SURROUNDING AREA

The influencing factor at the neighbouring residence has been estimated at 3 dB, with the calculation based on the following:

Secondary Roads within the inner circle;

Brookton Highwa + 2 dB

Commercial Premises within inner Circle;

10% + 0.5 dB

TOTAL IF + 3 dB (rounded up)

Hence, the Assigned Outdoor Noise Levels at the nearest noise sensitive premises are as listed below in Table 4.

TABLE 4 - ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L _{A 10}	L _{A 1}	L _{A max}
Neighbouring Residences	Day	48	58	68
	Sunday / Public Holiday Day Period	43	53	68
	Evening	43	53	58
	Night	38	48	58

Note: L_{A10} is the noise level exceeded for 10% of the time.
 L_{A1} is the noise level exceeded for 1% of the time.
 L_{Amax} is the maximum noise level.

4.0 NOISE SOURCES

The café was attended on 24th November 2020 at approximately 2pm. The café was closed at this time.

The purpose of the visit was to measure the attenuation that the façade/orientation of the building provides in relation to the adjacent noise sensitive premise.

The attenuation afforded by the façade and orientation was determined by establishing a loud white noise source within the café and measuring the resultant noise level both inside and at a representative location for “R1”.

Utilising these measurements the level of patron noise that would be expected at “R1” was calculated, based on two scenarios of patrons on the veranda (and door to the internal café area open) and door to the veranda area closed, but with patrons still occupying the space.

It is noted that noise levels have been calculated on a noise level of 75 dB(A) throughout the internal area of the café, and 70 dB(A) on the external veranda – noting the difference is attributable to the reverberant nature of the internal space.

These assumed noise levels correspond to the venue being full of patrons (i.e. in the order of 60 – 70 people).

Calculated noise levels are listed below in Table 5 for the two scenarios considered.

TABLE 5 – CALCULATED NOISE LEVELS AT “R1”

Condition	Source of Noise Emission	Noise Level, dB(A)
Door to Veranda area open	Patron Noise	36
Door to Veranda area closed	Patron Noise	34

5.0 ASSESSMENT

The measured noise levels were inspected for annoying characteristics in accordance with the *Environmental Protection (Noise) Regulations 1997*.

Patron noise does not contain annoying characteristics in accordance with the *Environmental Protection (Noise) Regulations 1997*, hence, are not applicable in this instance.

Any ambient music within both the internal area and veranda area would be required to be background in nature only for this to remain applicable.

Therefore, Table 6 summarises the applicable Assigned Noise Levels, and assessable noise level emissions at each location.

TABLE 6 – ASSESSMENT OF NOISE LEVEL EMISSIONS

Location	Condition / Noise Source	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable L _{A10} Assigned Level (dB)	Exceedance to Assigned Noise Level (dB)
R1	Door to Veranda area open	36	Day	48	Complies
			Sunday / Public Holiday Day	43	Complies
			Evening	43	Complies
			Night	38	Complies
	Door to Veranda area closed	34	Day	48	Complies
			Sunday / Public Holiday Day	43	Complies
			Evening	43	Complies
			Night	38	Complies

As can be seen from the above tabulation, noise level emissions associated with the cafe, comply with the *Environmental Protection (Noise) Regulations 1997* at the neighbouring at all times.

Hence, regardless of the proposed operating hours of the café, compliance with the *Environmental Protection (Noise) Regulations 1997* is calculated to be achieved.

We trust the above meets your requirements on this matter. Should you have any further queries, do not hesitate to contact the undersigned.

Yours faithfully,
For **HERRING STORER ACOUSTICS**

George Watts