

Expected Noise Levels
From
Automotive Body Repair Operations
75 Meninya Street Moama, NSW

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Brief
Determination of expected noise levels and impacts on nearby commercial accommodation and private premises from a proposed automotive body repair operation at 75 Meninya Street Moama, NSW.

Disclaimer

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NOTES:

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1.0 Introduction

This report has been commissioned subsequent to a request from the Murray Shire Council to provide an assessment of the anticipated acoustic effects of a proposed automotive body repair facility located at 75 Meninya Street Moama. There are no automotive body repairs currently performed at the site which necessitated noise levels being measured at a surrogate site (in Melbourne) and transposing the results to the site in Moama.

The prime concern is effects of any excessive noise on the River Country Inn Motel at 79-81 Meninya Street, immediately to the west of the proposed body repair operation. The nearest dwelling is at 54 Francis Street (40 m) that might also be slightly affected. Another dwelling is located at 4 Ash Court, but this is 60 m away and most unlikely to be affected.

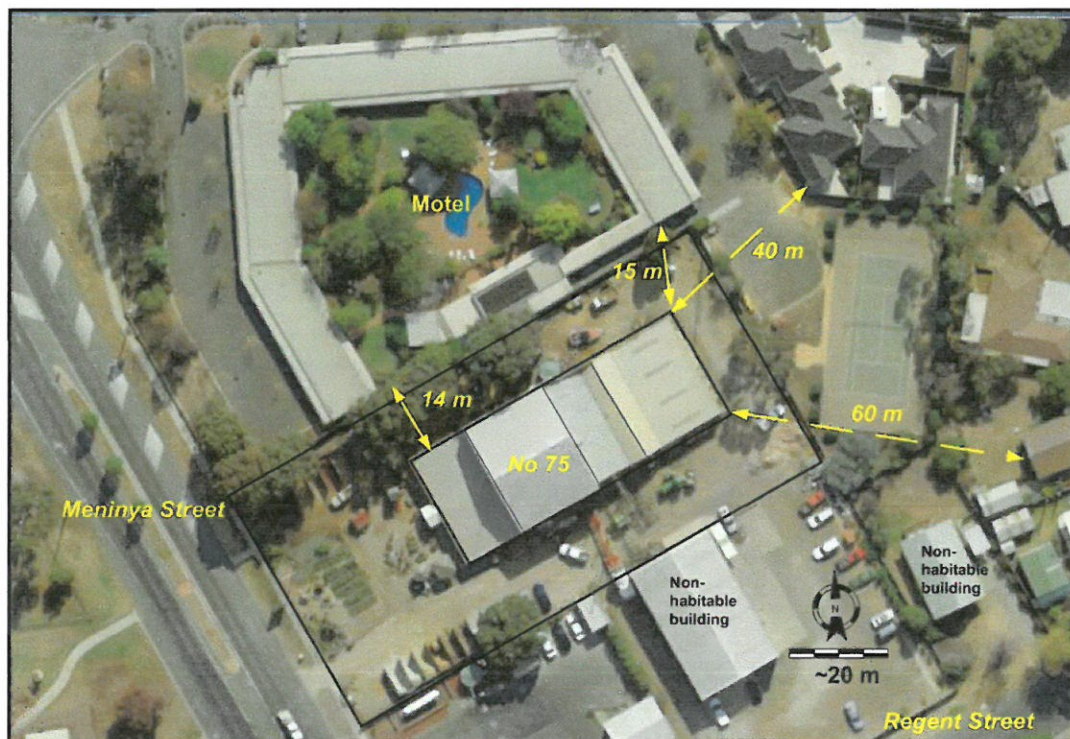


Figure 1. Site layout and proximity of dwellings and motel

2.0 Description of Facility

The body repair operations will be undertaken in the large steel metal structure behind the brick office area. This has doors on both east and the west sides, though normal access for vehicles would be via the east side door.

3.0 Potential Noise Sources

The nature of automotive body repairs has changed significantly in line with the change of nomenclature from the old word "panel beating".

Panel repair by hammer and dolly is undertaken to a much lesser degree nowadays, partly due to the relative balance between labour cost and cost of panels. Additional to this not all modern steels used are as suited to repair. Regardless, the procedure does still occur. Alternative techniques that use vacuum to draw out defects also contribute to the significant reduction of the Daily Noise Dose of employees in this industry. It is worthy of note that when this firm undertakes Industrial Noise Surveys for this industry to identify the exposure of personnel, it always has to be undertaken as a demonstration as it is not being undertaken normally when we are present.

Another factor is that the most vulnerable components are at the front and the rear of motor cars and nowadays these are made of plastic, which can be repaired by a heat based welding process which is relatively silent.

The sanding of panel surfaces prior to, or between, coats is unchanged in general concept, though this is now usually undertaken with pneumatic tools rather than electric ones. The modern units are certainly quieter than the electric units. Use of pneumatic tools requires the supply of compressed air. Modern units of commercial size are usually of the screw type which are quieter than reciprocating units.

The one tool worthy of mention is the use of smaller angle grinders, usually 100 or 125mm units. These are a noisy tool and are mostly used to cut off damaged panels. The overall exposure period is short, especially when compared to the time taken to repair a car.

Noise of spray painting escaping from the booth is not a problem due to the normal steel sided construction. Fan related noise is a possibility in the external environment, though unlikely with a modern booth and fan. The last time this firm had to investigate fan noise from a painting booth was at least 12 years ago, and that was from an older unit. Note that modern booths also require a suitable height of the exhaust stack with vertical discharge that also assists with mitigation of any noise emissions.

4.0 Measurement of Noise Sources

Typical noise sources were measured in Bulleen with assistance from Yarra Park Motor Body Repairs of 48 Greenaway Street, Bulleen. This facility has a large roller door entry on the front, which would be similar to the east side door of the building at 75 Meninya Street. The following measurements (Table 1) were taken with the door open, at a position 16m from the opening.

Table 1. Body repair facility operational noise levels

Source	Leq	Max
125mm angle grinder	74dBA	78dBA
Hammer and dolly on loose panel	63dBA	67dBA

In addition we measured the Genesis 1108 Screw Compressor. At 10m it was measured at 60dBA, though in a partly reflective environment. This is a 1.65m³/min unit. Whilst housed outside, it can be installed internally if required.

The unit planned to be installed in Moama is a Senator ES11 Screw Compressor which is rated at a delivery of 1.78m³/min. Data supplied is that will operate at 70dBA @ 1m. This data would be for a free field environment. We see the two units as similar in terms of noise generated.

5.0 Operational Expectations

At Moama the turnover is expected to be 2 vehicles per day, which will vary between minor and major collision damage. Minor damage would not require the use of an angle grinder to remove panels, but a major one would. We would expect that the use of an angle grinder would be less than 2 or 3 minutes in an hour, and then certainly not every hour.

We are advised the door on the west side of the building (the motel side) will normally be shut, except in the case of a very hot day. Based on this being shut, and the east door open, Table 2 details the likely noise levels at the receiving properties.

Table 2. Likely noise levels at the receiving properties

Source	Leq at Motel Rooms	Leq dBA at rear 54 Francis Street
Angle Grinder	56dBA	45dBA
Hammer and Dolly	45dBA	<40dBA
Air compressor	42dBA	<40dBA
Booth exhaust	<45dBA	<40dBA

Based on the above expectations, we expect that the use of the angle grinder is expected to be the one item that might stand out from the background noise. The background noise is expected to be in the order of 40 – 45dBA at both premises.

6.0 Recommendations

Overall the operation of the automotive body repair shop is unlikely to be intrusive, though the nature of the sound of the angle grinder is such that we expect it to be audible outside the motel rooms, though not inside. The reason for this is the high frequency nature of the sound, which is much more readily attenuated than low frequency noise, such as strong beat of disco music.

We suggest that to provide an element of security, the use of the angle grinder be limited to after 0800hrs and not after 1800hrs. This should not be too difficult to work around as the use of the tool is normally for short periods anyway.

If the suggested early morning use is considered to be an operating problem, then the matter can be addressed by actual measurement of this noise source and also the other components. If our calculations are proved to be on the high side, then the matter can be resubmitted to Council for reassessment.

Overall the emissions for most of a normal working day are expected to be not much more than the prevailing background noise, and so within acceptable limits for Day Time operations.

7.0 Summary

The nature of automotive body repairs has changed over time so we are not so concerned with the operation of this business in the vicinity of a motel, even though housed in a light weight structure.

We view the modest restriction on the use of the angle grinder as reasonable, with an option for revision if necessary.

Please feel free to contact us should any additional detail be required. This applies to any other parties that have legitimate access to this report.

Respectfully,

A handwritten signature in blue ink, appearing to read 'R. Unkles'.

Richard Unkles (M.AAS)
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A handwritten signature in black ink, appearing to read 'P. Clinnick'.

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