



Reference: Royal Arms, Nuneaton

Project No: 2120654

Date: 3rd July 2026

Technical Note 1

Re: Noise Assessment – Royal Arms

1.0 Introduction

Sharps Redmore have previously undertaken a noise assessment for the proposed redevelopment of the Royal Arms Hotel on Main Street, Nr Market Bosworth, a report which investigated inherent acoustic characteristics of the building and provide commentary on the proposed conversion was submitted as part of the Planning Application.

2.0 Background & Acoustic Criteria – Local Authority

The scheme provided consent with conditions is understand to remain, the existing Hotel and Restaurant is to converted into 9 residential apartments, the existing pub will be retained but modified.

Royal Arms is to be rebranded as 'Greyhound Inn', the rebranded Micro-Pub will function as a typical local community leisure facility which will not hold live events or make use of amplified sound. Internal activity noise will arise from community/friendly gatherings, raised voices from group chatter is expected to dominate the internal noise environment in the Greyhound Inn and the transfer into the dwellings across Party Walls and Floors warrant consideration.

The residential apartment at ground floor level that will be separated from the 'Greyhound Inn' by a retained wall and the two apartments directly above, one of such; Flat 3 will share a party wall with the existing Greyhound Cottage are considered to be exposed to the highest levels of noise. To prevent future occupant disturbance during use of the Pub, Sharps Redmore proposed noise criteria in the apartments in question, it is understood that the Environmental Health Department of the Local Authority have sought clarification on how the developer will mitigate noise in line with the criteria proposed.

Based on discussion with the end client, APA Leisure Limited. There is an intention to retain the existing wall and floor structures that surround the Pub and to enhance these acoustically as required to limit noise from activity to between NR dB 15 and 20, L_{eq} .

The recommended spectral values that form the internal criteria in the apartments are summarised in the Table.

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Table 2.1: Octave band values of the NR 15 and NR 20 rating curves

Noise rating curve	Octave Band Centre Frequency (Hz)						
	63 Hz	125 Hz	250 Hz	500 kHz	1 kHz	2 kHz	4 kHz
NR 15	47	35	26	19	15	12	9
NR 20	51	39	31	24	20	17	14

The noise rating curves above, can be used for comparison against the level of expected background noise level in the receiving apartments, built and furnished.

3.0 Building Acoustic Separation

Based on discussion with the end client, APA Leisure Limited. There is an intention to retain the existing wall and floor structures that surround the Pub and to enhance these acoustically as required to limit noise from activity to between NR dB 15 and 20, L_{eq} .

An assessment of the existing structures ability to control noise across has been undertaken, the resultant noise levels are predicted in the table below. Calculation indicates marginal exceedances can be expected and remedials are required, the section that proceeds provides recommendations in regard to this.

As noted in the original report, acoustic separation measured across the existing in-situ constructions at the time of the test in September 2021 was limited by the current layouts and open staircases. A sound insulation test of the existing joist floor was undertaken towards the rear of the property, the test was carried to provide confidence in our assumptions of the existing structure, which is understood to feature timber joists (approx. 180mm) with a plaster ceiling below and original floorboards retained.

Based on the expected noise level in the Micro Pub, prediction of airborne noise transmission across a new/rebuilt ground floor party wall is made, Table 3.2. Transfer of noise during operations across a floor enhanced acoustically is also predicted, the resultant level in the apartment is detailed in Table 4.2.

Subject to appropriate control of sound flanking and a high level workmanship during the build, noise will be controlled to achieve NR criteria that was previously recommended to minimise disturbance to future occupants.

Building Upgrades

Party Wall: a masonry wall, either existing or built as new should separate the Micro Pub from the apartment, the masonry wall (brickwork or blockwork) should be of minimum thickness 140mm, (approximate density 1350kg/m³). A wall lining, independent from the masonry wall should be constructed to one (Apartment side of Pub side), the lining should be built as follows:

- 10mm clearance gap
- 48mm metal studwork with 25mm mineral wool insulation in the void
- 2 layers of 15mm dense plasterboard

Party Floors: the existing floor should be reconstructed to enhance the acoustic separation afforded by the build. The joists can be retained or replaced, the floorboards should be removed to accommodate a new composite floor panel i.e. 28mm Screed board. A floor built as follows would provide the separation sought.

Overall Dimension, approx. 340mm

- Floor finish
- 22mm T&G Chipboard or similar
- 5mm resilient layer ΔL_w 18 dB
- 19mm Plank
- Timber studwork (existing or retained)
- Void filled with 150mm mineral insulation
- Ceiling formed of 2 layers of 15mm dense plasterboard, hung from existing joists using acoustic hangers i.e. BG GAH1 or fixed through new independent joists (i.e. 2 rows of joists).

4.0 Assessment

Based on the expected noise level in the Micro Pub, prediction of airborne noise transmission across a new/rebuilt ground floor party wall is made, Table 3.2. Transfer of noise during operations across a floor enhanced acoustically is also predicted, the resultant level in the apartment is detailed in Table 4.2.

The levels given in the tables assume enhancement proposed in section 2.0 to the Party Wall and Floor that divide apartments from the pub are implemented during the build.

Table 4.1: Typical Noise Levels

Noise description	Octave band (Hz) sound pressure level (dB)							Total (dBA)
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	
Pub typical continuous level, $L_{eq,30\text{-mins}}$	62	66	65	66	63	60	55	68
Typical noise, raised group speech, $L_{max,fast}$	66	70	73	76	77	72	64	80

Table 4.2 Predicted noise levels in level in Ground Floor Flat

Detail	Parameter	Octave-band sound pressure level (dB)							dBA
		63	125	250	500	1 k	2 k	4 k	
Greyhound Inn	L_{eq}	62	66	65	66	63	60	55	68
	L_{max}	66	70	73	76	77	72	64	80
Sound Insulation	D_w	35	40	46	53	59	58	60	-
Predicted	L_{eq} dB	27	26	21	13	4	2	0	16
	L_{max} dB	31	30	27	23	18	14	4	25
Criteria	NR 20 dB	51	39	31	24	20	17	14	-

Table 4.3 Predicted noise levels in level in Level 1 Flats

Detail	Parameter	Octave-band sound pressure level (dB)							dBA
		63	125	250	500	1 k	2 k	4 k	
Greyhound Inn	L_{eq}	62	66	65	66	63	60	55	68
	L_{max}	66	70	73	76	77	72	64	80
Sound Insulation	D_w	28	41	48	56	61	62	64	-
Predicted	L_{eq} dB	34	25	18	10	2	0	0	14
	L_{max} dB	38	29	25	20	16	10	0	23
Criteria	NR 20 dB	51	39	31	24	20	17	14	

Calculations show that that noise from typical elevated activity within the area in question would be expected to fall between NR 15-20 and would therefore meet the criteria given, the predicted worst case noise levels are also equal to or lower than 25 dB L_{Aeq} . Internal L_{Aeq} noise in apartments in rural areas during the day and evening would be expected to be above the NR criteria proposed, noise from the Micro Pub would not normally be expected to cause disturbance as a result.

We trust this is of assistance, please distribute further as required.

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