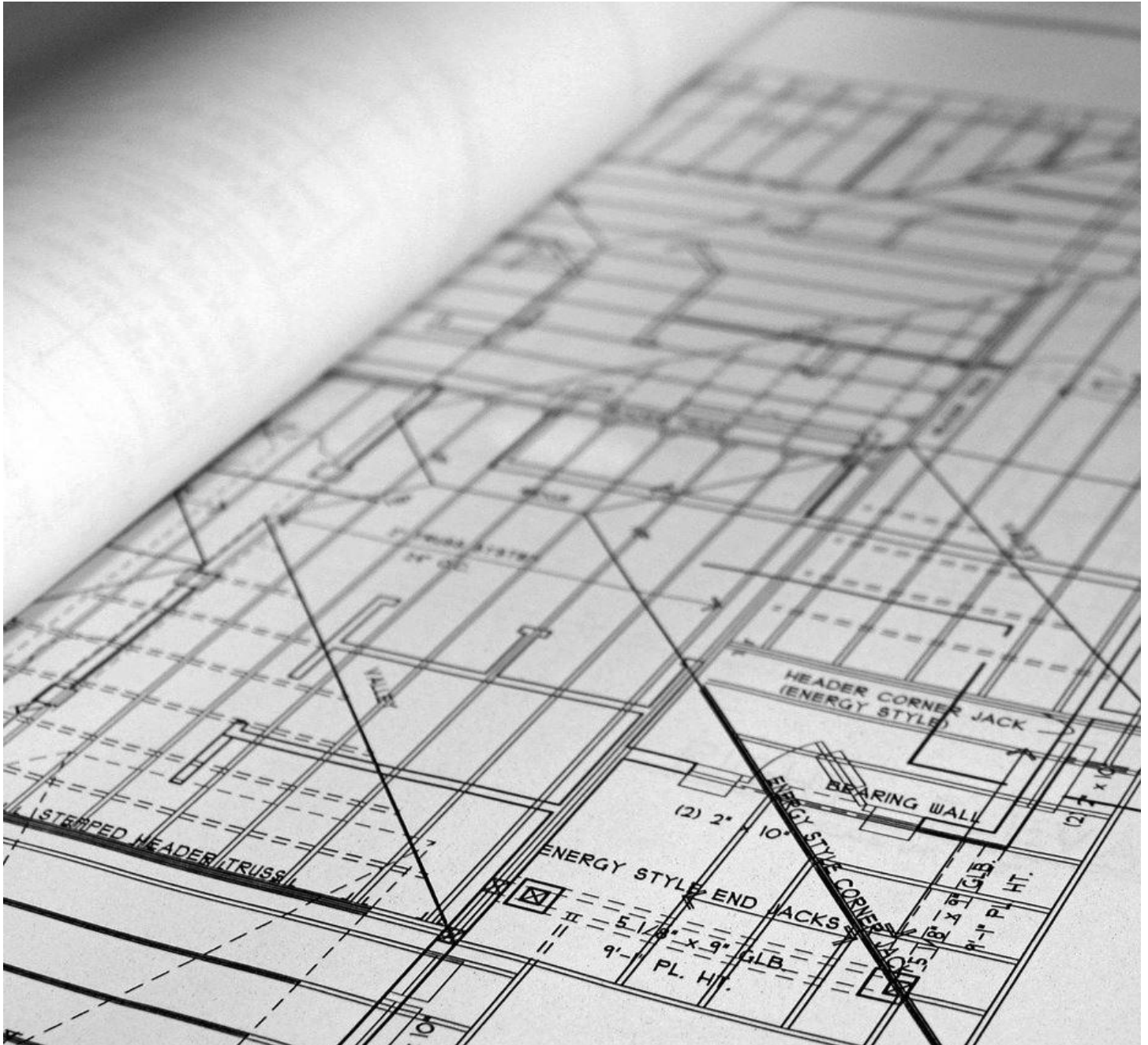




Second City, 37 Blossom Street, Ancoats, Manchester
Noise Assessment

Client: Second City
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1 INTRODUCTION

1.1 OVERVIEW

- 1.1.1 JPM Acoustics Ltd has been appointed by Second City to undertake a noise impact assessment to demonstrate compliance with a noise related planning condition imposed on the Second City bar at 37 Blossom Street in Ancoats, Manchester.
- 1.1.2 The Second City bar are seeking to discharge Planning Condition 8 attached to the 2004 planning consent for the bar. The bar has been open for several years and, based on information provided by the bar's management team, there have been no persistent complaints regarding noise from the bar.
- 1.1.3 A noise survey has been undertaken in the bar to benchmark current noise levels and an assessment of the scheme of acoustic mitigation currently installed has been undertaken to demonstrate compliance with the requirements of Planning Condition 8.
- 1.1.4 This report contains some technical terminology where necessary and appropriate. To assist the reader, a glossary of acoustic terminology can be found in **Appendix A**.

1.2 SITE DESCRIPTION

- 1.2.1 The bar is located at 37 Blossom Street and is surrounded by other bars and restaurants at ground floor level, with residential dwellings above. **Figure 1-1** and **Figure 1-2** identify 37 Blossom Street in aerial and streetview photographs respectively.

Figure 1-1: Site Location, Aerial Photograph

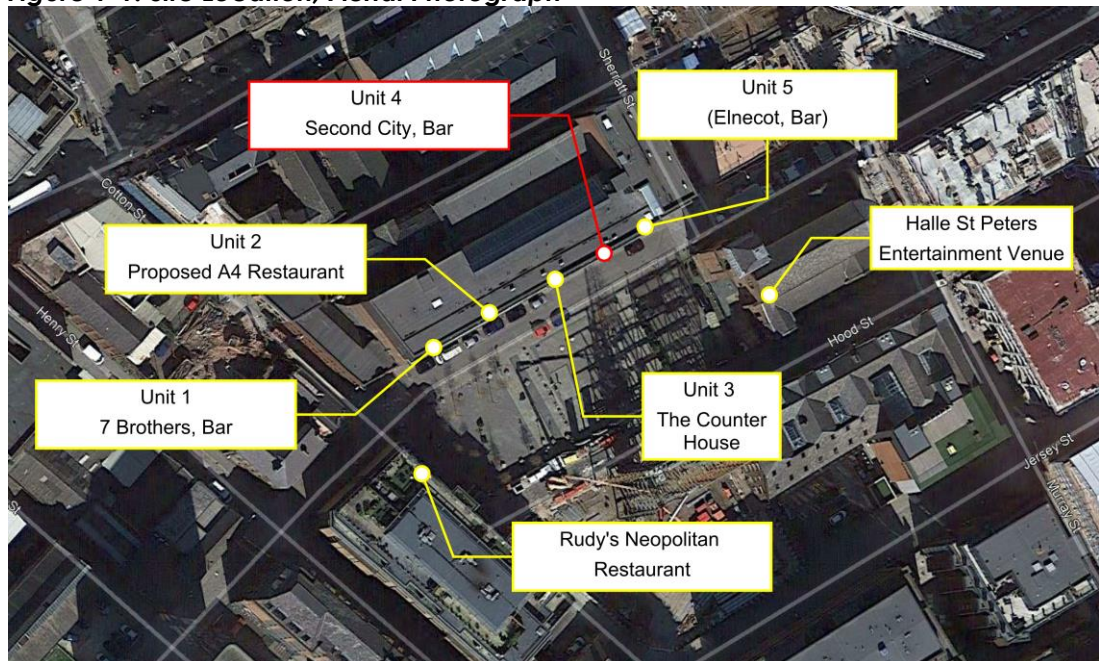


Figure 1-2: Site Location, Streetview



1.3 DESCRIPTION OF EXISTING BAR

- 1.3.1 Second City is a contemporary "sports bar" featuring sports on big screens, American-style food and external patio seating. The bar uses an internal speaker system for amplified music and is open from 12:00 to 00:00 daily.
- 1.3.2 The bar has been operational for several years and, based on information provided by the bar's managements team, has not been the subject of persistent noise complaints.

2 LEGISLATION AND GUIDANCE

2.1 PLANNING CONDITION 8

2.1.1 The wording of Planning Condition 8 is as follows:

"Before the development hereby granted planning permission is commenced on site, a scheme for the acoustic insulation of the proposed buildings together with any externally mounted equipment shall be submitted to and approved in writing by the City Council as Local Planning Authority. This scheme shall:

(a) Secure a reduction in the level of noise emanating from the application site:

(b) Secure a reduction in the level of noise within the proposed residential apartments arising from other uses within the proposed development and from the use of adjacent external areas, nearby highways and premises:

(c) Include the provision of acoustic glazing to external windows and doors and the provision of acoustic ventilation:

The approved scheme shall be implemented in full before any part of the proposed development is first brought into use or as any [sic] otherwise be agreed [sic] in writing by the City Council as Local Planning Authority prior to the development commencing on site."

2.1.2 This assessment also draws on relevant British Standards and local planning policy, as detailed in the following sections.

2.2 BS 8233:2014: GUIDANCE ON SOUND INSULATION AND NOISE REDUCTION FOR BUILDINGS (BS 8233)

2.2.1 BS 8233 provides guidance for the control of noise in and around buildings and details recommended internal and external noise level criteria for residential dwellings.

2.2.2 It is stated in BS 8233 that it is desirable that internal ambient noise levels do not exceed the levels set out in **Table 2-2**.

Table 2-2: Indoor Ambient Noise Levels for Dwellings

Activity	Location	Period	
		07:00 to 23:00 Hours, i.e. Daytime	23:00 to 07:00 Hours, i.e. Night-time
Resting	Living Room	35 dB LAeq, 16 Hour	-
Dining	Dining Room/area	40 dB LAeq, 16 Hour	-
Sleeping (daytime resting)	Bedroom	35 dB LAeq, 16 Hour	30 dB LAeq, 8 Hour

2.3 MANCHESTER CITY COUNCIL PLANNING & NOISE TECHNICAL GUIDANCE – DECEMBER 2015

- 2.3.1 MCC's Planning & Noise Technical Guidance document provides guidance and suggested criteria for the assessment of noise from a range of sources including entertainment venues.
- 2.3.2 Below is a summary of the guidance outlined in the document, which relates to entertainment noise:

"...a criterion that would achieve a condition of 'inaudible' / 'virtually inaudible' which is applicable for new residential developments that are structurally connected to entertainment venues (or vice versa) would be:

'Music noise levels in the 63Hz and 125Hz octave centre frequency bands (Leq) should be controlled so as not to exceed (in habitable rooms) 47dB and 41dB (Leq), respectively'.

This criterion may also be applicable for new residential developments that are structurally separate from an existing entertainment venue."

3 BASELINE NOISE SURVEY

3.1 OVERVIEW

- 3.1.1 A baseline noise survey has been undertaken to benchmark current noise levels generated within the Second City bar during a busy period when the bar was showing a premier league football match.

3.2 MEASUREMENT LOCATION

- 3.2.1 A measurement location was adopted at a high level within the bar, to ensure that the equipment could not be interfered with, the microphone was approximately 25 cm from the ceiling with separates the bar from the above residential dwelling. The measurement location is labelled in **Figure 3-1** below.

Figure 3-1: Measurement Location



- 3.2.2 Monitoring was undertaken over a 24-hour period commencing at 11:15 on the 21/12/2019, and therefore the opening hours of 12:00 – 00:00 were captured.

3.3 EQUIPMENT

- 3.3.1 Monitoring was undertaken using the Class 1 specification equipment detailed in **Table 3-1**. Measurement equipment was calibrated using a portable calibrator immediately before and after the survey with no significant drift observed. The sound level meter, pre-amplifier and microphone were calibrated to traceable standards within the 24 months prior to the survey. The portable calibrator was calibrated within 12 months prior to the date of the survey.

Table 3-1: Survey Equipment Details

Item	Make & Model	Serial Number	Calibration Due
Sound Level Meter	Svantek 971	80344	March 2020
Pre-Amplifier	Svantek SV18	71577	
Microphone	ACO Pacific 7052E	69566	
Calibrator	01 dB CAL21	34675335	December 2020

3.4 RESULTS

- 3.4.1 The L_{eq} noise levels during the opening hours 12:00 – 00:00 pm on the 21st December are shown in **Table 3-1** below, the daytime measurement period included a Premier League football match featuring local team Manchester City, and can therefore be considered worst-case. $L_{eq,1h}$ time history results are included in **Appendix B**.

Table 3-2: Measured Sound Pressure Levels During Opening Hours, L_{eq} , dB

Period	Octave Band Sound Pressure Levels (L_{eq} dB)								dB(A)
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
Daytime 12:00 – 23:00	68	80	80	84	85	80	74	65	88
Night-time 23:00 – 00:00	68	79	77	79	81	75	69	62	83

4 ASSESSMENT

4.1 PLANNING CONDITION 8

4.1.1 The Second City bar has operated for several years without any persistent complaints relating to noise. Therefore, it is considered that the bar does not cause a significant impact from an acoustics perspective.

4.1.2 Notwithstanding the above context, the requirements from Planning Condition 8 are as follows:

"a scheme for the acoustic insulation of the proposed buildings together with any externally mounted equipment shall be submitted to and approved in writing by the City Council as Local Planning Authority. This scheme shall:

(a) Secure a reduction in the level of noise emanating from the application site:

(b) Secure a reduction in the level of noise within the proposed residential apartments arising from other uses within the proposed development and from the use of adjacent external areas, nearby highways and premises:

(c) Include the provision of acoustic glazing to external windows and doors and the provision of acoustic ventilation"

4.1.3 It is understood from discussions with the bar operator that the ceiling in the bar comprises a composite concrete floor. It is assumed that the overall thickness of the concrete floor is 200 mm based on our experience working on adjacent units. Prior to opening, the bar operator installed an acoustic ceiling below the existing concrete soffit to mitigate noise transfer from the bar (suspended plasterboard), with a cavity of approximately 1 m and acoustic insulation of circa 300 mm in the cavity.

4.1.4 Modelling the ceiling construction using industry standard modelling software Insul®, the ceiling is expected to achieve a performance of approximately 62 [-5] dB $D_{nT,w}$ [C_{tr}] (57 dB $D_{nT,w}$ + C_{tr}). Therefore, the ceiling would be predicted to exceed the 45 dB $D_{nT,w}$ + C_{tr} requirement for separating partitions from Part E of the Building Regulations by a margin of 12 dB.

4.1.5 Modelling the concrete slab without the acoustic ceiling, would result in an acoustic performance approximately 18 dB lower than with the ceiling. Therefore, bullet points (a) and (b) of the condition requiring a reduction in noise level are satisfied, as without the acoustic plasterboard ceiling, noise levels in the first-floor flats would be circa 18 dB higher.

4.1.6 To provide further reassurance that the noise levels in the first-floor flat are acceptable, noise transfer to the flats have been predicted. BS EN ISO 16283-1:2014: *Acoustics — Field measurement of sound insulation in buildings and of building elements Part 1: Airborne sound insulation* (ISO16283-1:2014), details the relationship between noise levels in adjacent spaces and D_{nT} in equations (1) and (2) of the standard. From these equations, assuming the reverberation time in the receiving room is 0.5 seconds (which is typical for a bedroom), the following relationship can be derived:

$$L_2 = L_1 - D_{nT}$$

Where:

L_1 is the energy-average sound pressure level in the source room; and

L_2 is the energy-average sound pressure level in the receiving room.

4.1.7 **Table 4-1** details the predicted $D_{nT,w}$ Performance of the existing ceiling, the measured daytime and night-time noise levels in the bar and the predicted noise levels in the first-floor flats.

Table 4-1: Predicted Noise Levels in First-floor Flats Due to Airborne Noise Transfer from Bar, dB

Description	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	dB(A)
Daytime noise level in bar, L_{eq} [A]	68	80	80	84	85	80	74	88
Night-time noise level in bar, L_{eq} [B]	68	79	77	79	81	75	69	83
Predicted sound insulation performance of ceiling, $D_{nT,w}$ [C]	37	49	49	58	67	73	78	-
Predicted Daytime Noise Level in Flat [A]-[C]=[D]	31	31	31	26	18	7	-4	27
Predicted Night-time Noise Level in Flat [B]-[C]=[E]	31	30	28	21	14	2	-9	23

- 4.1.8 It can be seen from **Table 4-1** that the predicted noise levels in the first-floor flat are below the MCC low frequency noise criteria and the desirable guideline values from BS 8233. Therefore, the ceiling construction is considered appropriate.
- 4.1.9 Bullet point (c) of Planning Condition 8 requires the provision of acoustic glazing to external windows and doors, and acoustic ventilation. Acoustically rated glazing has been used for the shop front and the viewing panels within the doors into the bar. Ventilation is provided by mechanical means; mechanical ventilation allows a high level of sound insulation to be achieved by the building envelope as there is no need to have passive ventilation units degrading the performance of the building envelope.
- 4.1.10 Given the above, and the lack of persistent complaints relating to noise, it is considered that the Second City bar complies with all the requirements of Planning Condition 8 and that the condition should be discharged without delay.

5 CONCLUSION

- 5.1.1 JPM Acoustics Ltd has been appointed by Second City to undertake a noise assessment to demonstrate compliance with a noise related planning condition imposed on the Second City bar at 37 Blossom Street in Ancoats, Manchester.
- 5.1.2 The Second City bar are seeking to discharge Planning Condition 8 attached to the 2004 planning consent for the bar. The bar has been open for several years and it is understood that there have been no persistent complaints with regard to noise. Therefore, the current scheme of mitigation is considered appropriate for the current usage of the bar.
- 5.1.3 A noise survey has been undertaken in the bar to benchmark current noise levels, to evidence any future change in noise levels which may affect adjacent residential dwellings.
- 5.1.4 The assessment identified that the existing bar meets the requirements of Planning Condition 8, which include securing a reduction in the level of noise emanating from the bar and the provision of acoustic glazing and ventilation.
- 5.1.5 Given the findings of this assessment, it is considered that Planning Condition 8 should be discharged without delay.

APPENDIX A: TECHNICAL GLOSSARY

The table below provides definitions for several commonly used technical terms in this assessment.

Terminology	Descriptions
Sound Pressure	Sound, or sound pressure, is a fluctuation in air pressure over the static ambient pressure.
Sound Pressure Level (Sound Level)	The sound level is the sound pressure relative to a standard reference pressure of 20µPa (20x10 ⁻⁶ Pascals) on a decibel scale.
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds S1 and S2 is given by 20log ₁₀ (S1/S2). The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is 20µPa.
A-weighting, dB(A)	The unit of sound level, weighted according to the A-scale, which takes into account the increased sensitivity of the human ear at some frequencies.
Noise Level Indices	Noise levels usually fluctuate over time, so it is often necessary to consider an average or statistical noise level. This can be done in several ways, so a number of different noise indices have been defined, according to how the averaging or statistics are carried out.
L _{eq,T}	A noise level index called the equivalent continuous noise level over the time period T. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
L _{max,T}	A noise level index defined as the maximum noise level during the period T. L _{max} is sometimes used for the assessment of occasional loud noises, which may have little effect on the overall L _{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
L _{90,T}	A noise level index. The noise level exceeded for 90% of the time over the period T. L ₉₀ can be considered to be the "average minimum" noise level and is often used to describe the background noise.
Free-Field	Far from the presence of sound reflecting objects (except the ground), usually taken to mean at least 3.5m.
Façade	At a distance of 1m in front of a large sound reflecting object such as a building façade.
Fast/Slow Time Weighting	Averaging times used in sound level metres.
Octave Band	A range of frequencies whose upper limit is twice the frequency of the lower limit.

APPENDIX B: TIME HISTORY SURVEY RESULTS

Start Date and Time	Duration	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dB(A)
21/12/2019 12:00	1-hour	60	69	69	72	72	65	61	54	75
21/12/2019 13:00	1-hour	62	72	72	76	76	69	65	57	79
21/12/2019 14:00	1-hour	67	79	78	82	82	76	72	63	85
21/12/2019 15:00	1-hour	70	81	80	83	83	78	73	65	86
21/12/2019 16:00	1-hour	72	83	81	84	85	80	75	67	88
21/12/2019 17:00	1-hour	68	81	82	86	87	81	76	66	89
21/12/2019 18:00	1-hour	69	84	84	88	89	83	78	68	92
21/12/2019 19:00	1-hour	66	81	83	88	88	83	77	67	91
21/12/2019 20:00	1-hour	70	82	82	86	87	81	76	67	90
21/12/2019 21:00	1-hour	70	80	77	81	82	77	72	65	85
21/12/2019 22:00	1-hour	69	78	77	81	85	77	71	63	86
21/12/2019 23:00	1-hour	68	79	77	79	81	75	69	62	83