SQUARE GARDENS RESTAURANT

COMMERCIAL UNIT 1, SQUARE GARDENS MANCHESTER

NOISE IMPACT ASSESSMENT

4 August 2026

AEC REPORT: P5756/R1/WJK

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1.0 INTRODUCTION

1.1 Acoustic & Engineering Consultants Limited (AEC) has been appointed to undertake a noise impact assessment for a proposed Thai restaurant at Commercial Unit 1, Square Gardens, First Street in order to discharge Conditions 15 and 17 of the associated planning permission. which state:

"15) Prior to occupation of

(a) The residential accommodation; and

(b) Each of the ground floor commercial units

A scheme for the acoustic insulation of any externally mounted ancillary equipment associated with the development to ensure that it achieves a background noise level of 5dB below the existing background (La90) at the nearest noise sensitive location shall be submitted to and approved in writing by the City Council as local planning authority in order to secure a reduction in the level of noise emanating from the equipment. The approved scheme shall be completed before the premises is occupied and a verification report submitted for approval by the City Council as local planning authority and any non compliance suitably mitigated in accordance with an agreed scheme prior to occupation. The approved scheme shall remain operational thereafter.

Reason – To secure a reduction in noise in order to protect future residents from noise nuisance, pursuant to policies SP1, H1 and DM1 of the Core Strategy.

17) Before each of (a) the residential accommodation and (b) each of the Class A3 (Café and Restaurant) use and D2 (Gym) units within Block B commences a scheme for acoustically insulating the ground floor commercial to ensure that there is no unacceptable level of noise transfer from the ground floor uses to the residential accommodation above shall be submitted to and approved in writing by the City Council as local planning authority.

Where entertainment noise is proposed the LAeq (entertainment noise) shall be controlled to 10dB below the LA90 (without entertainment noise) in each octave band at the facade of the nearest noise sensitive location, and internal noise levels at structurally adjoined residential properties in the 63HZ and 125Hz octave frequency bands shall be controlled so as not to exceed (in habitable rooms) 47dB and 41dB, respectively.

The approved noise insulation scheme shall be completed before any of the approved uses commence.

Prior to occupation a post completion report to verify that all of the recommended mitigation measures have been installed and effectively mitigate any potential adverse noise impacts in adjacent residential accommodation arising directly from the proposed development shall be submitted and agreed in writing by the City Council as local planning authority. Prior to occupation any non compliance shall be suitably mitigated in accordance with an agreed scheme.

Reason - To secure a reduction in noise in order to protect future residents from noise nuisance, pursuant to policies SP1 and DM1 of the Core Strategy and saved UDP Policy DC26."

1.2 This report details the baseline noise levels measured at locations representative of the nearest noise sensitive receptors and an assessment of the noise impact of the plant against the local authority criteria.

1.3 In relation to Condition 17 of the Planning Permission Commercial Unit 01 is a single storey unit with an external podium level directly above. Therefore, noise transfer from inside the restaurant to above has not been considered further in this assessment.

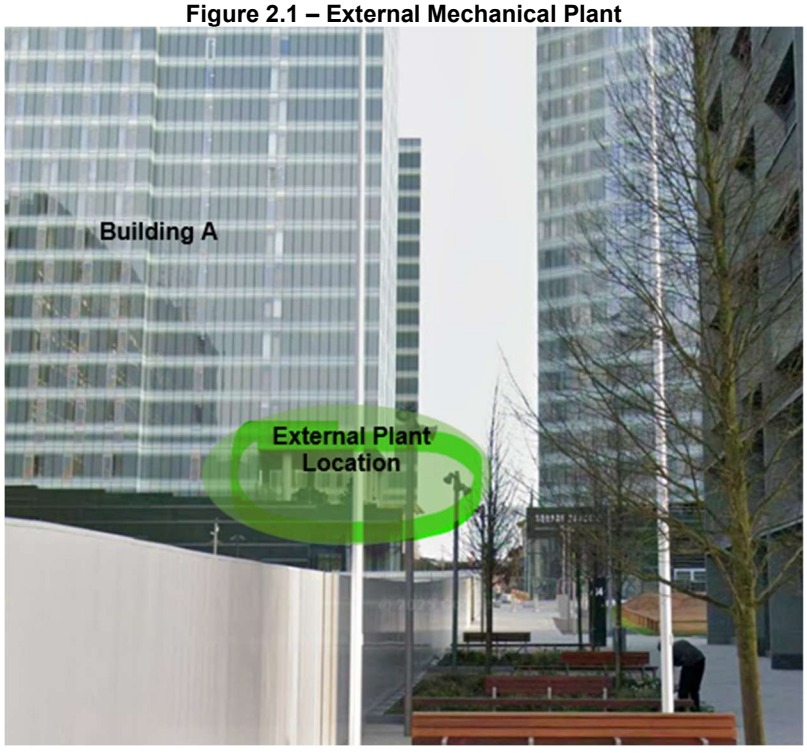
1.4 Acoustic terminology used in this report is provided in Appendix A.

2.0 SITE DESCRIPTION

2.1 The proposed restaurant is to be located along the south-eastern and south-western elevations of the ground floor of Commercial Unit 01 of Building A of the Square Gardens , First Street development.

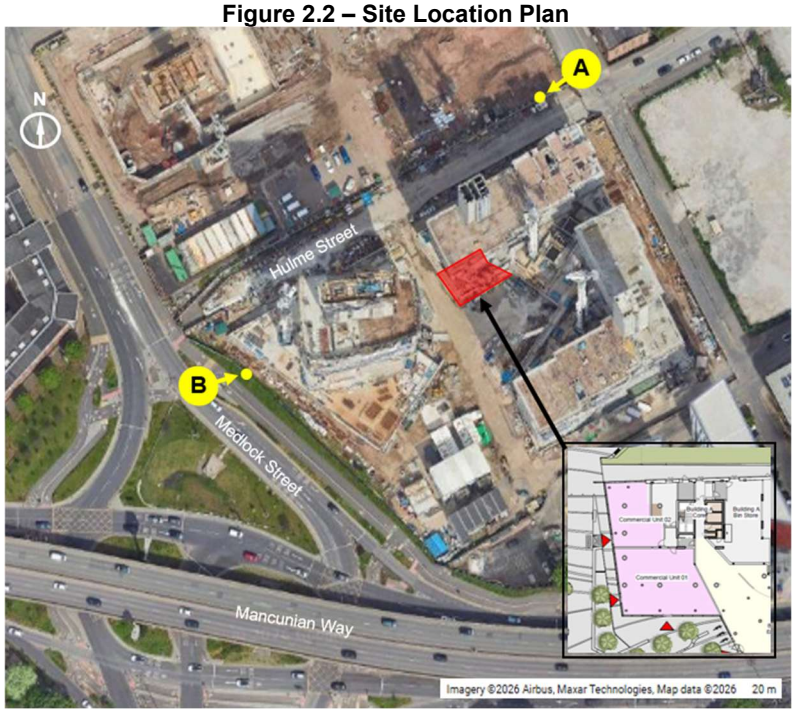
2.2 The mechanical plant comprises a kitchen supply and extract system and external condenser units to be located at podium level on the first floor of Building A, within an open void directly adjacent to apartments on the first floor and underneath apartments on the second floor, neither of which have line of sight to the plant area, as shown in the following Figure 2.1. At this stage, the intended operating hours of the restaurant are 0800-0000h Sunday to Thursday and 0800-0130h Friday and Saturday.

Figure 2.1 – External Mechanical Plant



2.3 A plan showing the premises in the context of the wider development is provided in the following Figure 2.2.

Figure 2.2 – Site Location Plan



3.0 BASELINE NOISE MEASUREMENTS

3.1 An attended background noise survey was undertaken between 2200h and 0000h on Sunday 1 February 2026 at two locations representative of the nearest noise sensitive properties to the proposed plant, shown as A and B on Figure 2.2. The noise measurements were carried out at a time considered to be the most sensitive hours of operation.

3.2 Noise measurements were undertaken in general accordance with BS7445-1: 2003 '*Description and measurement of environmental noise. Guide to quantities and procedures*'.

3.3 The measured background and ambient noise levels are shown in the following Table 3.1.

Table 3.1 – Measured Background and Ambient Noise Levels

Location	Period, h	Noise Level, dB		Comments
		L_{A90}	L_{Aeq}	
A	2201 – 2219	53.5	56.9	Plant clearly audible from building opposite. Light, slow moving traffic on Hulme Street and from neighbouring junction, some light footfall – both decreased over time. Mancunian Way distantly audible.
	2243 - 2258	53.0	56.6	
	2322 - 2337	52.1	55.3	
B	2224 - 2240	58.2	62.3	Minimal traffic across Medlock Street – Neighbouring junctions and Mancunian Way moderate throughout measurements.
	2302 - 2318	56.7	60.3	
	2342 - 2357	56.2	60.1	

3.4 In addition to the above, background noise measurements were undertaken as part of the planning application for the overall development in July 2019 on River Street, which is considered to be representative of the overall area. A summary of the typical daytime and night-time background noise levels are provided in the following Table 3.2.

Table 3.2 – Previously Measured Background Noise Levels

Period	Typical Background Noise Levels, $dBL_{A90,T}$
Daytime (0700h to 2300h)	57
Night-time (2300h to 0700h)	54

3.5 The measured background noise levels are comparable to those previously measured as part of the overall development. BS4142:2014+A1:2019 '*Methods for rating and assessing industrial and commercial sound*' (BS4142) states that a representative background noise level should be used and that the objective is not just to ascertain a lowest background sound level. Therefore, for the purposes of this assessment, the typical night-time background noise level of $54dBL_{A90}$ shown in Table 3.2 above is considered to be representative of the prevailing noise climate during the most sensitive hours of operation.

4.0 NOISE ASSESSMENT OF MECHANICAL PLANT

Source Noise Levels

4.1 The predicted noise levels at the nearest noise sensitive properties for the proposed units are based on the manufacturer data provided by the client. The source noise level data used in the calculations is shown in Table 4.1, below:

Table 4.1 – Plant Source Noise Level Data

Source	Model	Sound Power Level, dB(A)	Sound Pressure Level, dB(A)	@ distance, m	No. of Units
Condenser	Midea 55FN8	-	61	1.5	2
Extract (Inlet)	MUB 062 560D4 Multibox	84	-	-	1
Extract (Outlet)		85	-	-	1

4.2 The extract fan is to include silencers to the system inlet and outlet. The insertion loss of the silencer used in the calculations is provided in the following Table 4.2.

Table 4.2 – Silencer Insertion Loss

Insertion Loss, dB @ Octave Band Centre Frequency (Hz)							
63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
-5	-9	-17	-27	-33	-29	-21	-15

Predicted Noise Levels

4.3 The source noise level data has been used to calculate the noise levels from the proposed units at the nearest noise sensitive location, considering distance attenuation and screening. It has been assumed that the windows to the closest apartments are no closer than 5m from the plant.

4.4 There is no clear line of sight between the noise sensitive receptors and the plant. BS 5228 "*Code of practice for noise and vibration control on construction and open sites*" (2009) gives a working approximation of the effect of a barrier between the source and receiving position. An attenuation of -10dB is assumed when a noise screen completely hides the source from the receiver.

4.5 The predicted noise level at the nearest noise sensitive receptors is shown in the following Table 4.3.

Table 4.3 – Predicted Noise Level at Nearest Noise Sensitive Receptor

Source	Number of Units	Sound Power Level, dB(A)	Sound Pressure Level, dB(A)	@ Distance, m	Assumed Receiver Distance, m	Barrier Attenuation, dB	Predicted Noise Level, dBA	Cumulative Noise Level, dBA
Condenser	2	N/A	61	1.5	5	10	44	**44**
Extract (Inlet) incl. Silencer	1	58	N/A	N/A	5		26	
Extract (Outlet) incl. Silencer	1	60	N/A	N/A	5		28	

4.6 The predicted cumulative noise level from the proposed mechanical plant is 10dB below the representative background noise level at the closest noise sensitive properties. The assessment therefore demonstrates that the requirement of Condition 15 has been achieved.

5.0 CONCLUSIONS

5.1 Acoustic & Engineering Consultants Limited (AEC) has been appointed to undertake a noise impact assessment to discharge Conditions 15 and 17 of the associated planning permission for a proposed Thai restaurant at Commercial Unit 1, Square Gardens.

5.2 Background noise measurements undertaken by AEC in February 2026 and previously in July 2019 have been used to determine a representative background noise level in accordance with BS4142 during the most sensitive hours of operation.

5.3 The proposed restaurant is single storey with a podium level above. Therefore noise transfer from the restaurant to above has not been considered in this assessment.

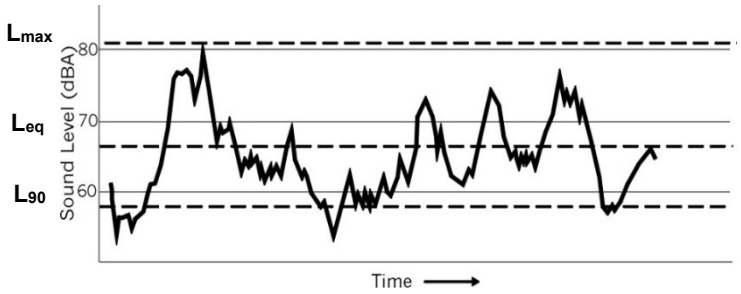
APPENDIX A – Acoustic Terminology

General

Sound is produced by mechanical vibration of a surface, which sets up rapid pressure fluctuations in the surrounding air. The rate at which the pressure fluctuations occur determines the pitch or *frequency* of the sound. The frequency is expressed in Hertz *(Hz)*, that is, cycles per second. The human ear is sensitive to sounds from about 20 Hertz to 20,000 Hertz. Although sound can be of one discreet frequency - a 'pure tone' - most noise is made up of many different frequencies.
The human ear is more sensitive to some frequencies than others, and modern instruments can measure sound in the same subjective way. This is the basis of the A-weighted sound pressure level *dBA,* normally used to assess the effect of noise on people. The dBA weighting emphasizes or reduces the importance of certain frequencies within the audible range

Sound / Noise Units

The figure below shows an example of sound level varying with time. Because of this variation over time the same period of noise can be described by several different levels. The most common of these are described below.



Commonly Used Descriptors for Sound / Noise	
$L_{Amax,F/S}$	The maximum (A-weighted) sound level measured during a given time. 'Fast' or 'Slow' meter response should be cited.
$L_{Aeq,T}$	The equivalent continuous (A-weighted) sound level. It may be thought of as the "average" sound level over a given time, T. It is used for assessing noise from various sources: industrial and commercial premises, construction sites, railways and other intermittent noises. **It can be considered as the "ambient" noise level.**
$L_{A90,T}$	The (A-weighted) sound level exceeded for 90% of a measurement period. **It is the value often used to describe the "background" noise.**
Free-field Level	This refers to the sound level measured outside, away from reflecting surfaces.
Ambient Sound Level, $L_{Aeq,T}$	Equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, T.
Background Sound Level, L_{A90}	A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting, F, and quoted to the nearest whole number of decibels.

APPENDIX B – Noise Survey Details

Date & Time of Survey:	Attended: 2200h on Sunday 1st February 2026 to 0000h on Monday 2nd February 2026.					
Personnel:	Toby Chadwick (AEC).					
Equipment Used:	B&K 2250 Real Time Analyser (AEC Kit 4).					
Calibration:	The sound level analysers, which conforms to BS EN 61672-1: 2013 *'Electroacoustics – Sound level meters - Part 1 Specifications'* for Class 1 Type Z meters, was in calibration and check calibrated before and after the measurement periods using a Brüel & Kjær type 4231 (94dB) calibrator. There was no significant drift of calibration. Calibration certificates are available on request.					
Weather Conditions:	**Date**	**Period**	**Wet/Dry**	**Temp °C**	**Wind Speed & Direction**	**Cloud Cover**
	01.02.26	Night	Dry	6°C	No wind	50%
Measurement Locations:	***Attended:*** Measurements were undertaken at two locations around the development site. Identified as A to B on Figure 1 and described below. A – 24m south west from the nearest carriageway of Wilmott Street. B – 9m North East from the nearest carriageway of Medlock Street.					
Measurement Details:	***Attended****:* Measurements were undertaken over various periods in terms of L_{eq}, $L_{90,}$ and L_{max}. Full 1/3rd Octave band centre frequency data was obtained for all measurements					
Façade / Free-Field:	All Free-field					
Measured Data:	Full results for the attended measurements are given in Table 3.1.					