



MGR KITCHENS LTD

125 MANCHESTER ROAD, CHORLTON

PLANT NOISE ASSESSMENT

17 November 2025

AEC REPORT: P5755/R1/WJK

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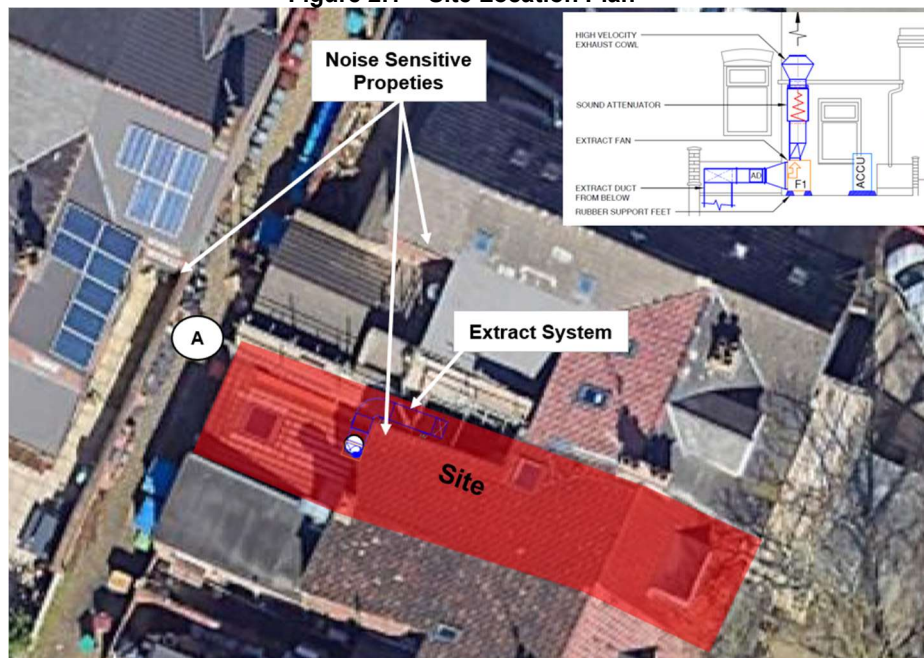
1.0 INTRODUCTION

- 1.1 Acoustic & Engineering Consultants Limited (AEC) has been appointed to undertake a noise impact assessment as part of a retrospective planning application relating to the external mechanical plant installed at the premises at 125 Manchester Road, Chorlton.
- 1.2 This report details the baseline noise levels measured at the nearest noise sensitive receptors and an assessment of the noise impact of the plant against relevant standards and criteria.
- 1.3 Acoustic terminology used in this report is provided in Appendix A.

2.0 SITE DESCRIPTION

- 2.1 The premises is a ground floor licensed restaurant at 125 Manchester Road, Chorlton, within a mixed commercial and residential area. The installed extract system comprises an extract fan, attenuator and high velocity exhaust cowl at first floor level on the rear northwestern façade of the existing building. The fresh air inlet is located on the front southeastern façade, which overlooks Manchester Road.
- 2.2 The restaurant opening hours are 1100 to 2300h daily. It is understood that the extract is switched off at 2200h when the kitchen closes.
- 2.3 The closest residential properties are adjacent to the extract duct on the first floor above the premises. There are also residential properties opposite, approximately 10m to the west the extract system. A plan showing the premises, extract system and noise sensitive properties is provided in the following Figure 2.1.

Figure 2.1 – Site Location Plan



3.0 BASIS OF ASSESSMENT

National Planning Policy Framework (NPPF)

3.1 Current national planning policies are set out in the National Planning Policy Framework (NPPF) published by the Department for Communities and Local Government, in March 2012, and revised most recently in February 2025.

3.2 The planning policies which relate specifically to noise are reproduced below:

“187. Planning policies and decisions should contribute to and enhance the natural and local environment by:

- (e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.*

198. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- (a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- (b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.*

200. Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or ‘agent of change’) should be required to provide suitable mitigation before the development has been completed.”

3.3 Further to the above, the Governments Planning Practice Guidance (PPG) published in March 2014 and updated in September 2023 states:

‘Noise needs to be considered when development may create additional noise, or would be sensitive to the prevailing acoustic environment (including any anticipated changes to that environment from activities that are permitted but not yet commenced). When preparing plans, or taking decisions about new development, there may also be opportunities to make improvements to the acoustic environment. Good acoustic design needs to be considered early in the planning process to ensure that the most appropriate and cost-effective solutions are identified from the outset.’

- 3.4 In addition, the guidance indicates that, whilst noise can override other planning concerns, it is important to look at noise in the context of the wider characteristics of a development proposal, its likely users and its surroundings, as these can have an important effect as to whether or not noise is likely to pose a concern.

Local Authority Criteria

- 3.5 The assessment of noise from mechanical services plant in Manchester city centre is outlined in Manchester City Council's (MCC) document '*Planning and Noise – Technical Guidance*' (PNTG) issued in October 2022. PNTG states that noise from industrial sources should be assessed using British Standard 4142: 2014+A1:2019 '*Methods for rating and assessing industrial and commercial sound*' (BS4142).
- 3.6 Section 3.7.1.5 'Industrial / commercial developments' of PNTG states "*The development should be designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location.*"

BS4142: 2014+A1:2019

- 3.7 BS4142:2014+A1:2019 '*Methods for rating and assessing industrial and commercial sound*' (BS4142), provides methods for rating and assessing industrial and commercial sound by comparing the specific sound level (that directly attributable to the industrial/commercial sound) to the prevailing background sound level ($dBL_{A90,T}$) over relevant periods that the commercial/industrial activities occur.
- 3.8 It is necessary to determine the specific sound level from the industrial/commercial activities over a period of one hour during the daytime, normally considered to be over the period 0700 to 2300 hours. The specific sound level relates to the specific commercial/industrial sound source only and has to be corrected to take account of other sound sources generally in the area, residual sound.
- 3.9 BS4142, in Section 9, identifies that certain acoustic features can increase the significance of impact over that expected from a basic comparison between the specific sound level and the background sound level. Where present at the assessment location, such features are taken into account by adding a correction to the specific sound level to obtain the rating level. A correction should be applied if one or more of the following features occur, or are expected to be present for new or modified sound sources:

<i>Tonality-</i>	for sound ranging from not tonal to prominently tonal a correction of 0 to 6dB should be considered
<i>Impulsivity-</i>	A correction of up to 9dB can be applied for sound that is highly impulsive, considering both the rapidity and overall change in sound level.
<i>Other –</i>	Where a sound features characteristics that are neither tonal nor impulsive but are readily distinctive against the residual environment a penalty of 3dB can be applied.
<i>Intermittency-</i>	If Intermittency is distinctive against the residual environment a penalty of 3dB can be applied.

- 3.10 The significance of the potential impact is indicated by the difference between the background sound level and the rating level. Typically, the greater this difference, the greater the magnitude of the impact.
- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
 - A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.
 - Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.
 - The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact.
- 3.11 With regard to undertaking the assessment, BS4142 indicates that the context of the sound must be taken into consideration.

Internal Noise Levels

- 3.12 BS4142 states that *'where background sound levels and rating levels are low, absolute noise levels might be as, or more relevant than the margin by which the rating level exceeds the background.'*

World Health Organisation (WHO) – Guidelines for community noise

- 3.13 Table 4.1 of the World Health Organisation (WHO) *'Guidelines for Community Noise'*, 1999 (WHO Guidelines) provides internal and external noise levels for specific environments that indicate the thresholds for onset of moderate and serious annoyance for the daytime period (0700-2300h).
- 3.14 The WHO document assumes that attenuation of external to internal noise levels provided by a window partially open for ventilation is 15dB.

BS8233:2014 Sound insulation and noise reduction for buildings

- 3.15 The WHO Guidelines were translated into UK practice through BS8233:1999 which has since been superseded by BS8233:2014 (BS8233), which provides guideline values for internal ambient noise levels for dwellings. A summary of the recommended internal noise levels is shown in the following Table 3.1

Table 3.1 – Recommended internal noise levels

Activity	Location	Daytime Noise Limit, dB 0700-2300h L _{Aeq, 16h}
Resting	Living Room	35
Dining	Dining Room/Area	40
Sleeping (daytime resting)	Bedroom	35

- 3.16 The recommended criteria would generally apply to external noise as it affects the internal acoustic environment for steady sources without a specific character, such as road traffic and should relate to noise levels within the space during normal hours of occupation. Where noise sources have specific character, such as being intermittent in nature, containing a distinguishable, discrete, and continuous tone, is irregular enough to attract attention, or has a strong low-frequency content, BS8233 suggests that lower internal noise level limits may be appropriate.

4.0 BASELINE NOISE SURVEY

- 4.1 Attended source noise and background noise measurements were undertaken between 2145h and 2230h on Thursday 6 November 2025 at a single location representative of the nearest noise sensitive properties to the plant, shown as A on Figure 2.1.
- 4.2 Noise measurements were undertaken in general accordance with BS7445-1: 2003 '*Description and measurement of environmental noise. Guide to quantities and procedures*'.

Source Noise Levels

- 4.3 The measured noise levels at a distance of approximately 6m from the source when the extract system was operating are shown in the following Table 4.1.

Table 4.1 – Measured Source Noise Levels

Time	Duration	Noise Level, L _{Aeq,T} (dB)	@ Distance, m
21:43:00	00:01:00.0	61.1	6
21:44:00	00:01:00.0	61.5	6
21:45:00	00:01:00.0	60.1	6
21:46:00	00:01:00.0	60.4	6
21:47:00	00:01:00.0	60.1	6

Background Noise Levels

- 4.4 The measured background noise levels when the kitchen extract was switched off are shown in the following Table 4.2.

Table 4.2 – Measured Background Noise Levels

Start Time	Duration	Background Noise Level, L _{A90,T} (dB)	Ambient Noise Level, L _{Aeq,T} (dB)
22:03:29	00:15:00.0	41.3	44.9
22:18:29	00:15:00.0	40.7	44.8

5.0 NOISE ASSESSMENT

5.1 Table 5.1 below shows the average measured source and background noise levels. The difference between the source and background noise levels has also been provided.

Table 5.1 – Noise Assessment

Average Source Noise Level L _{Aeq,T} (dB)	Average Background Sound Level L _{A90,T} (dB)	Excess of Rating Level Over Background (dB)	Significance of Impact
61	41	20	Indication of the sound source having a significant adverse impact, depending on the context

5.2 The above assessment provides an indication of the sound source having a significant adverse impact at the nearest noise sensitive properties in accordance with the guidance provided in BS4142.

Predicted Noise Levels

5.3 In addition to the measured noise levels, noise predictions have been carried out based on the manufacturer data provided. The source noise level data for the extract fan is shown in the following Table 5.2.

Table 5.2 – Source Noise Level Data

Source	Sound Power Level, dB @ Octave Band Centre Frequency (Hz)							Sound Power Level (dBA)
	63	125	250	500	1k	2k	4k	
Supply - Suction	53	75	73	73	79	77	72	83
Extract - Blowout	53	76	76	79	83	79	75	86
Extract - Casing Breakout	50	66	64	70	70	61	57	72

5.4 The insertion loss of the attenuator, located on the atmosphere side of the extract fan, is provided in the following Table 5.3.

Table 5.3 – Silencer Insertion Loss

Item	Sound Reduction Performance, dB @ Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Standard Circular Silencer	4	8	12	17	23	17	12

- 5.5 The calculated total sound power level from the operation of the plant is provided in the following Table 5.4.

Table 5.4 – Calculated Noise Level at 6m from Plant

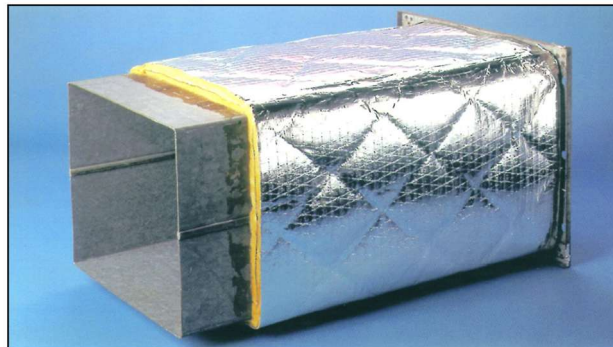
Source	Sound Power Level, dB @ Octave Band Centre Frequency (Hz)							Sound Power Level (dBA)
	63	125	250	500	1k	2k	4k	
Suction	53	75	73	73	79	77	72	83
Blowout	53	76	76	79	83	79	75	86
Total	56	79	78	80	85	81	77	88
Attenuator	4	8	12	17	23	17	12	-
Total	52	71	66	63	62	64	65	70
Casing Breakout	50	66	64	70	70	61	57	72
Total	54	72	68	71	71	66	66	75

- 5.6 Based on the calculated sound power level from the manufacturer data in Table 5.4 above, the predicted sound pressure level at 6m from the plant is 51dBA. The predicted noise level is 10dB lower than the measured noise level.

Mitigation Measures

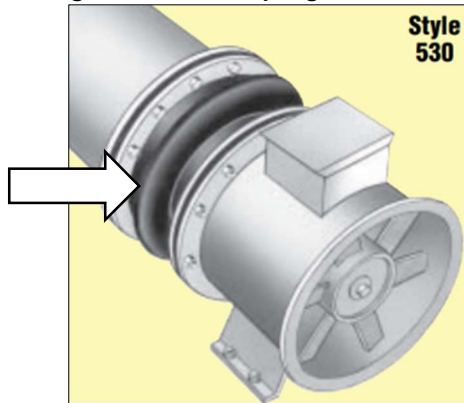
- 5.7 The following mitigation measures should be considered and implemented to reduce noise levels from the installed plant.
- Reduce the fan speed / settings or replace fan with a quieter unit.
 - Relocating the fan unit to inside the building.
 - Provide lagging to the duct and fan casing with a minimum mass of 10kg/m². Suitable products include (but are not limited to) Mufti-Lag A, CMS SuperLag Type Technowrap 1 or JCW barrier mat. An example is shown in the following Figure 5.1.

Figure 5.1 – Mufti-Lag A ©



- Decouple the fan from the duct if the fan casing is rigidly fixed to the duct, as shown in the following Figure 5.2.

Figure 5.2 – Decoupling Fan from Duct



- Install acoustically lined ductwork.

- 5.8 The mitigation measures will need to achieve a reduction of around 25dB in order to meet the Manchester City requirement of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location in accordance with BS4142.
- 5.9 It is anticipated that the implementation of the above mitigation measures will result in acceptable noise levels at the nearest noise sensitive properties.

Internal Noise Levels

- 5.10 BS4142 states that *'where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background.'*
- 5.11 The noise levels from the mechanical plant have been assessed against the recommended internal noise levels provided in BS8233. The standard suggests that lower internal noise level limits may be appropriate where noise sources have specific character. In this case, a -5dB penalty has been applied to the internal noise limits above to account for the noise source having a specific character.
- 5.12 Assuming that a partially open window provides -15dB attenuation from outside to inside, the required reduction in noise level would be around 16dB in order to achieve an internal noise level of 30dBA for the daytime period (0700-2300h).

6.0 CONCLUSIONS

- 6.1 Acoustic & Engineering Consultants Limited (AEC) has been appointed to undertake a noise impact assessment as part of a retrospective planning application relating to the external mechanical plant installed at the premises at 125 Manchester Road, Chorlton.
- 6.2 Attended source and background noise measurements were undertaken by AEC to assess the noise impact of the operation of the mechanical plant in November 2025 in accordance with BS4142.
- 6.3 The noise level from the operation from the plant is 20dB higher than the prevailing background noise level, resulting in an indication of the sound source having a significant adverse impact at the nearest noise sensitive properties in accordance with the guidance provided in BS4142. The calculated noise level derived from the manufacturer data provided is around 10dB lower than the measured noise level.
- 6.4 Mitigation measures are required in order to achieve the Manchester City requirement of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location. The implemented measures will need to achieve a reduction of around 25dB.
- 6.5 Mitigation measures will need to achieve a reduction in noise levels of around 16dB in order to achieve appropriate internal noise levels for the daytime period (0700-2300) when the plant is operational.

APPENDIX A – Acoustic Terminology

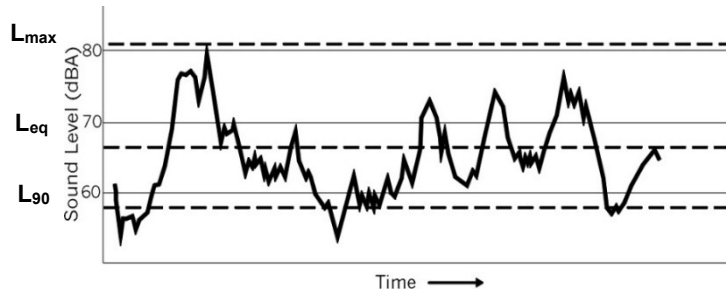
General

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 discrete 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.



Map data @2022 Google United Kingdom	
$L_{Amax,F/S}$	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.
$L_{A10,T}$	The (A-weighted) sound level exceeded for 10% of a measurement period. It is the value often used to describe traffic noise.
$L_{A1,T}$	The (A-weighted) sound level exceeded for 1% of a measurement period. It is the value generally used to indicate a 'typical' maximum noise level.
L_{AE}	The sound exposure level is a notional noise level and describes the average L_{Aeq} noise level of an event over a given time period as if it occurred during a one second period. This allows the L_{Aeq} to be determined over a time period with a number of distinct events

Free-field Level	This refers to the sound level measured outside, away from reflecting surfaces.
Façade Level	This refers to the sound level measured outside, at 1m from a hard reflecting surface, typically 3dB greater than the free-field level.
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.
Rating Level, $L_{Ar, Tr}$	Specific sound level plus any adjustment for the characteristic features of the sound
Residual Sound, $L_{Aeq, T}$	Ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound.
Specific Sound Level, $L_{Aeq, Tr}$	Equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, t_r .