

**LESTER HOUSE, MARKET STREET, BURY
PROPOSED RESIDENTIAL CONVERSION**

NOISE ASSESSMENT

On behalf of:
Mr Blum

LESTER HOUSE, MARKET STREET, BURY PROPOSED RESIDENTIAL CONVERSION

NOISE ASSESSMENT

Report number	Prepared by	Prepared for
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TABLE OF CONTENTS

1. INTRODUCTION	1
2. PLANNING GUIDANCE AND BRITISH STANDARD	3
3. NOISE SURVEY	8
4. NOISE ASSESSMENT	10
5. SUMMARY	12
FIGURE 1: SITE LOCATION & NOISE MEASUREMENT POSITIONS	13
APPENDIX A: ACOUSTICS UNITS & INDICES	14
APPENDIX B: NOISE SURVEY RESULTS	16

1. INTRODUCTION

- 1.1 Hepworth Acoustics was commissioned to carry out a noise assessment relating to a proposed development to convert existing office space to 28 apartments on the upper three floors of Lester House on Market Street in Bury.
- 1.2 It is understood that the development will proceed under Class MA of the General Permitted Development scheme.
- 1.3 This is subject to a number of conditions, including with regards to noise:

“MA.2. – (2) Before beginning development under Class MA, the developer must apply to the local planning authority for a determination as to whether the prior approval of the authority will be required as to ...

(d) impacts of noise from commercial premises on the intended occupiers of the development...”

- 1.4 On this basis, it is necessary to consider noise impact from nearby commercial premises only. Other types of noise, such as road traffic noise, are not required to be considered.
- 1.5 Therefore, the aim of this report is to assess the likely impacts of any noise from neighbouring commercial premises on the intended occupiers of the development and to give outline advice on noise mitigation measures where required.
- 1.6 The proposed development comprises the conversion of a four-storey office building located at the junction of Market Street and Broad Street in Bury town centre. Neither road serves as a through route, and both are consequently subject to low levels of road traffic. Opposite the site are the front elevations of various retail premises, none of which feature external plant on these façades. The ground floor of Lester House is occupied by retail units, including a number of fast-food takeaways, the latest of which operates until 12:00 am.
- 1.7 The upper floors of the building remain in active use. As part of the proposed works, the second, third, and fourth floors will be converted to residential apartments, with a single apartment also proposed on the first floor. The remainder of the first floor will continue to be used as office space. Externally mounted plant serving the ground floor retail units is located to the rear of the building.
- 1.8 The building is of substantial construction with a masonry building envelope. The existing windows are double-glazed units which is assumed to be standard thermal specification (i.e. 4mm glass – nominal (10-20mm) cavity – 4mm glass).
- 1.9 The noise assessment has therefore included:
 - An inspection of the site and surrounding area;

- Measurement of noise levels at an appropriate location outside the front, side and rear elevations, in order to quantify the extent of any commercial noise incident upon the building;
- Assessment of the potential commercial noise impact on the development; and
- If necessary, recommendation of appropriate noise mitigation measures.

1.10 All recommendations in this report refer to acoustics only. Other provisions, such as thermal design, fire, security, etc. must be checked by others.

1.11 The various noise units and indices referred to in this report are described in Appendix A. All noise levels mentioned in the text have been rounded to the nearest decibel, as fractions of decibels are imperceptible.

2. PLANNING GUIDANCE AND BRITISH STANDARD

Town and Country Planning (General Permitted Development) (England) (Amendment) Order 2021

- 2.1 We understand that the development is applying to proceed under Class MA of the General Permitted Development scheme. This includes the following condition with regards to noise:

‘Development under Class MA is permitted subject to the following conditions.

(2) Before beginning development under Class MA, the developer must apply to the local planning authority for a determination as to whether the prior approval of the authority will be required as to—

(d) Impacts of noise from commercial premises on the intended occupiers of the development.

- 2.2 Based on the above, we understand that whilst noise from commercial premises impacting on the development must be taken into consideration, noise originating from sources other than commercial premises, such as road traffic, does not need to be considered in regard of this legislation.

BS 4142:2014+A1:2019 ‘Methods for rating and assessing industrial and commercial sound’

- 2.3 British Standard 4142:2014+A1:2019 ‘Methods for rating and assessing industrial and commercial sound’ (referred to hereafter as BS 4142) provides methods for rating and assessing sound of an industrial and/or commercial nature. BS 4142 requires the ‘rating’ sound level for the operation to be compared with the L_{A90} background sound level in the absence of the operational noise. The rating level ($L_{A,r,Tr}$) is derived based on the ‘specific’ ($L_{Aeq,Tr}$) sound level attributable to the operation, corrected for ‘residual’ sound if necessary, and a ‘character correction’ added for any sound sources where ‘certain acoustic features can increase the significance of impact’.
- 2.4 An initial estimate of the impact of the operation is determined by subtracting the background level from the rating level. BS 4142 states that:
- 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;
 - The lower the rating level is relative to the measured background level, the less likely it is that the operation will have an adverse impact or a significant adverse impact.

- 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.

2.5 Where the initial estimate of the impact needs to be modified due to the context, BS 4142 states that all pertinent factors should be taken into account in determining whether the initial estimate of the impact needs to be modified, including:

- The absolute level of sound, including “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 background. This is especially true at night.”
- The character and level of the residual sound.
- The sensitivity of the receptor and whether dwellings will already incorporate design measures that secure good internal and/or outdoor acoustic conditions, such as façade sound insulation treatment.

BS 8233:2014 ‘Guidance on Sound Insulation and Noise Reduction for Buildings’

2.6 British Standard 8233: 2014 ‘Guidance on sound insulation and noise reduction for buildings’ (referred hereafter as BS 8233) recommends guidance on design criteria for acceptable noise levels within residential accommodation. BS 8233 guidelines for the daytime (07:00-23:00) and night-time (23:00-07:00) periods are summarised in Table 1.

Table 1: BS 8233:2014 Recommended Acoustic Design Criteria

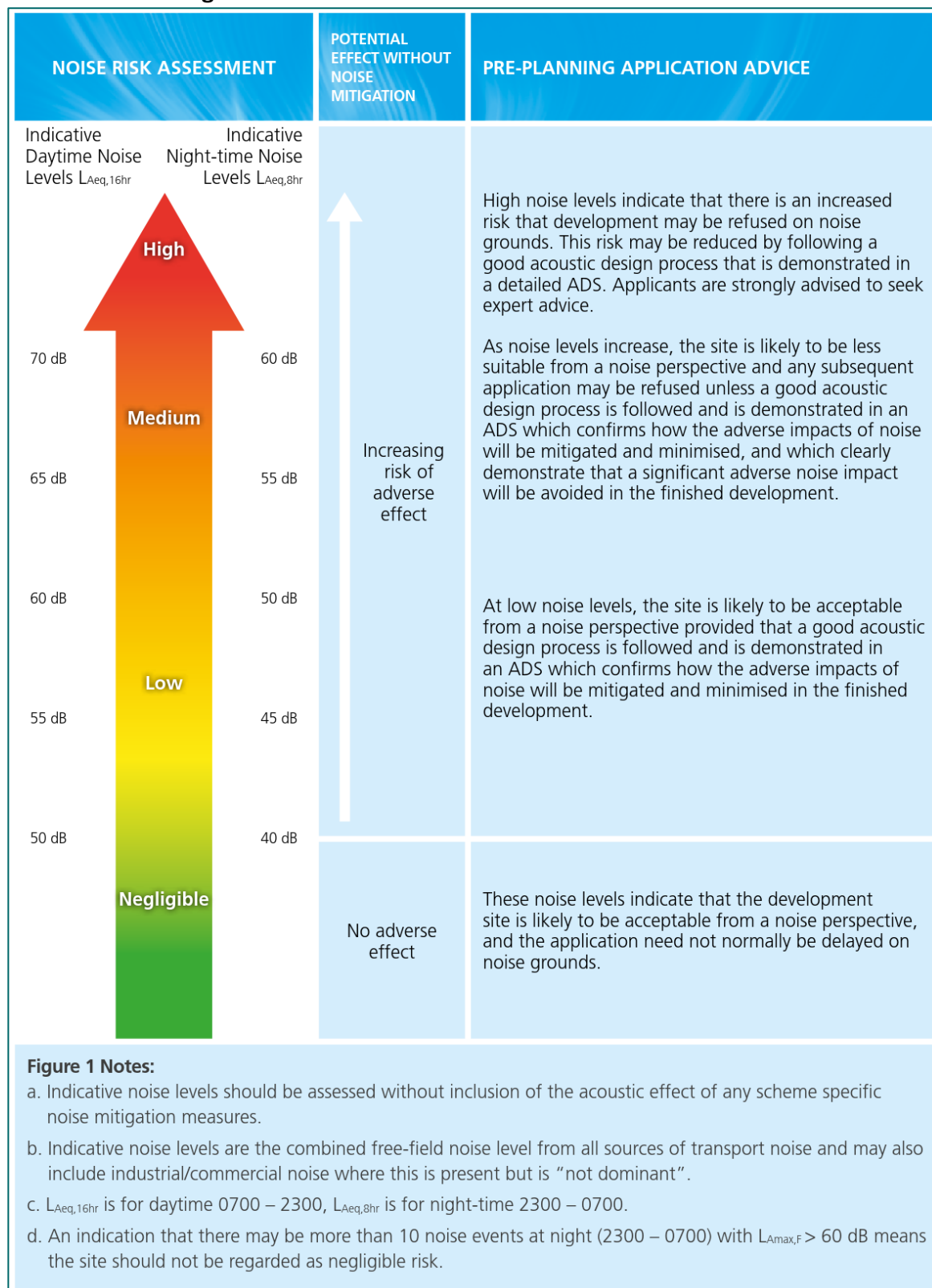
Activity	Location	Daytime (07:00 - 23:00)	Night-time (23:00 - 07:00)
Resting	Living room	35 dB $L_{Aeq,16hr}$	-
Dining	Dining room/area	40 dB $L_{Aeq,16hr}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$

- 2.7 BS 8233 also states that, “where development is considered necessary or desirable ... the internal target levels [i.e. those in Table 1] may be relaxed by up to 5 dB and reasonable internal conditions still achieved”.
- 2.8 BS 8233 clarifies that the above guidance relates only to noise without specific character (e.g. such as that which has a distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low-frequency content) and that where such characteristics are present, lower noise limits might be appropriate.
- 2.9 Further, BS 8233 states that if there is a reliance on closed windows to meet the guide values, “*there needs to be an appropriate alternative ventilation that does not compromise the façade insulation or the resulting noise level*”. Further, it is stated that assessments should be based on a room with “adequate ventilation provided (e.g. trickle ventilators should be open)”.

- 2.10 BS 8233 also recognises that regular individual noise events at night can cause sleep disturbance. Peaks of noise from individual events are usually described in terms of L_{Amax} values. These can be highly variable, so for design purposes it is usual to take into account the findings of research described in WHO Community Noise Guidelines. These states, “for a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB L_{Amax} more than 10-15 times per night”.

ProPG: Planning & Noise

- 2.11 There is also guidance in ‘ProPG: Planning & Noise – New Residential Development’ (2017), although this guidance does not constitute official government guidance and has no legal standing. The ProPG describes a staged approach to the assessment of noise impact on proposed new residential development sites. Stage 1 is an initial site noise risk assessment, indicating whether the proposed site is considered to pose a negligible, low, medium or high risk from a noise perspective.
- 2.12 The scope of the ProPG is restricted to sites that are exposed predominantly to noise from transportation sources. However, the recommended approach is also stated as being suitable where some industrial or commercial noise contributes to the acoustic environment provided that it is “*not dominant*”.
- 2.13 The ProPG initial site noise risk assessment criteria are shown in Chart 1.

Chart 1: ProPG Stage 1: Initial Site Noise Risk Assessment Criteria

2.14 Chart 1 broadly sets out indicative noise levels that define the element of risk of noise impact on proposed residential development land, ranging from 'Negligible' to 'High'.

- 2.15 The guidance states that these noise levels “*should be interpreted flexibly having regard to the locality, the project and the wider context*”.
- 2.16 Stage 2 of the ProPG approach is a more detailed assessment in the form of an Acoustic Design Statement (ADS). However, the acoustic design criteria that are specified in ProPG, and which form the basis of the ADS, are essentially the same as those recommended in BS 8233, as summarised previously in Table 1 of this report.
- 2.17 Similarly, to BS 8233, ProPG recognises that regular individual noise events at night can cause sleep disturbance. The ProPG guidance suggests that for design purposes, wherever practicable, peaks of noise inside bedrooms from external sources should not exceed 45 dB L_{AFmax} more than 10 times per night.

Acoustic Design Criteria

- 2.18 Therefore, we recommend the following noise criteria be adopted with windows closed and mechanical ventilation provided:
- Daytime noise below 35 dB $L_{Aeq,16hr}$ inside living rooms and bedrooms, 40 dB $L_{Aeq,16hr}$ inside dining rooms; and,
 - Night-time noise levels not exceeding 30 dB $L_{Aeq,8hr}$ and generally not exceeding 45 dB L_{AmaxF} in bedrooms (i.e. no more than 10 times per night).

3. NOISE SURVEY

- 3.1 Our assessment has focussed on any potential commercial noise incident upon the front, side and rear elevations of the building.
- 3.2 Continuous noise monitoring was undertaken in sequential 5-minute samples at two locations on the site between approximately 10:30 on Thursday 19th June and 10:30 on Friday 20th June 2025.
- 3.3 The noise survey locations were as follows:
- Location 1: One metre from outside of the Market Street elevation on 3rd Floor
 - Location 2: One metre from outside of the Broad Street elevation on 3rd Floor
- 3.4 Noise measurements were undertaken using NTi Audio Class 1 sound level meters. An XL3 (serial number: A3A-01451-F0) was used at Location 1, while an XL2 (serial number: A2A-20361-E0) was used at Location 2.
- 3.5 The microphone of the sound level meter was mounted onto a pole protruding approximately 1m outside the building façade on the flat roof. Calibration checks of the sound level meter were carried out both before and after the measurements with no variance in levels noted.
- 3.6 Octave band frequency analysis was also carried out to assist with the design of sound insulation measures where required.
- 3.7 In addition to noise measurements, audio recording was also carried out. Weather conditions during the surveys were hot dry, with clear skies and a light breeze (<2 m/s).
- 3.8 The full results of the noise surveys are shown in Appendix A. The daytime and night-time noise levels are shown in Table 2 below.

Table 2: Summary of Measured Noise Levels in dB(A)

Location	Daytime (07:00 - 23:00)	Night (23:00 - 07:00)	
	$L_{Aeq,16hr}$	$L_{Aeq,8hr}$	$L_{Amax,f}$
1. Market Street	58	53	89-49
2. Broad Street	57	52	89-50

- 3.9 The primary source of noise at the site was intermittent road traffic from nearby local routes. Although traffic volumes were low, vehicle movements were observed to contribute noticeably to the ambient sound environment. As the site is located within an urban centre, it was not feasible to exclude road traffic noise from the measurements.

- 3.10 No significant noise was observed from commercial or industrial sources during the survey period. Other typical urban sounds, such as distant pedestrian activity or occasional service deliveries, were present at low levels but did not materially affect the measurement data.
- 3.11 Peaks of noise (L_{Amax}) during the night time period ranged between 89 dB and 49 dB L_{Amax} all the highest peaks were due to motorcycles passing the site. The 10th highest peak of noise at Location 1 was 70 dB L_{Amax} and 67 dB L_{Amax} at Location 2.
- 3.12 Noise measurements were carried to the rear of the building to assess noise from the kitchen extract systems serving the fast food takeaway and Subway sandwich store. Each system comprises a large vertical extract flues that run the full height of the building and discharges above roof level. Due to the lack of suitable and secure locations for unattended monitoring, measurements were carried out as attended measurements.
- 3.13 The measurements were carried out between 10:30 and 11:30 on Thursday 19th June 2025 using a Brüel & Kjær Type 2250 Class 1 sound level meter (serial number: 3011706). Readings were taken from accessible positions near the ductwork at the rear of the building.
- 3.14 It was not possible to obtain measurements at or near the flue termination points, as these are located above roof height and were not accessible. Furthermore, measurements could not be carried out from outside the upper floor windows due to the offices being occupied at the time of the survey.
- 3.15 It is noted that windows on each floor provide a clear view of the extract flues. Measured noise levels at approximately 1 metre from the exposed sections of the ductwork ranged from 58 to 59 dB L_{Aeq} .
- 3.16 Our noise mitigation recommendations are described in Section 4.0.

4. NOISE ASSESSMENT

- 4.1 The overall noise levels presented in Table 2 fall within the 'low' risk category as defined in Stage 1 of the ProPG: Planning & Noise guidance at the front and side façades of the building during both the daytime and night-time periods.
- 4.2 To the rear of the building, noise levels also fall within the low risk category during the daytime. However, it is noted that the rear façades are exposed to noise from kitchen extract systems associated with the fast food takeaway units. Given the operating hours of these premises, which may extend into the night-time period, the ProPG risk classification would be 'high'.
- 4.3 As set out in Section 2.0, consideration of the road traffic noise is not necessary under Class O of the General Permitted Development scheme. However, consideration of the overall (commercial and traffic) noise levels provides a highly robust basis in this case for taking account of any noise associated with the adjacent commercial uses.

Glazing

- 4.4 Windows of standard well-fitted thermal double glazing (4mm glass – 4mm glass) have a typical sound reduction performance of 25 dB $R_w + C_{tr}$. Therefore, where external noise levels exceed 60 dB $L_{Aeq,(16 \text{ hour})}$ during the daytime and/or 55 dB $L_{Aeq,(8 \text{ hour})}$ and/or 70 dB L_{Amax} at night, higher specification glazing will be necessary (Note $R_w + C_{tr}$ is sometimes notated as R_{tra}).
- 4.5 Therefore, for all apartments on the development, standard double glazing of 4mm glass - nominal (8-20mm) cavity - 4mm glass (25 dB $R_w + C_{tr}$) will suffice.
- 4.6 Based on the client's intention to retain the existing double-glazed windows, it is recommended that, in all areas where these will form part of the fenestration for habitable rooms, these are checked to ensure they are in good condition with all panes intact, and that they are well fitting in their frames.

Ventilation

- 4.7 Internal ambient noise levels in accordance with BS 8233:2014 and the ProPG guidance are expected to be achieved with windows closed. However, in order to ensure that occupants are not reliant on openable windows for background ventilation—particularly during periods when external noise may be elevated—it is recommended that an alternative means of ventilation be provided. Specifically, the use of acoustically treated ventilation systems, such as acoustic trickle ventilators is advised to maintain acceptable internal noise levels while meeting ventilation requirements in accordance with Building Regulations.
- 4.8 Therefore, in order to provide alternative means of ventilation with windows closed, we recommend that for habitable rooms specialist acoustic vents are fitted instead of standard window frame slot vents.

4.9 Various types of acoustic vents are commercially available. However, in terms of acoustic performance, instead of standard window frame slot vents, we would recommend either:

- Aereco EHA2 Acoustic Trickle Ventilator with acoustic canopy and sleeve (44 dB $D_{n,e,w}$); or
- Rytons AAC125HP Super Acoustic Controllable LookRyt AirCore Ventilator (43 dB $D_{n,e,w}$); or
- Alternative ventilation system with a good acoustic performance (i.e. above 42 dB $D_{n,e,w}$).

4.10 By following the above recommendations, we conclude that suitable protection from commercial noise sources can be achieved for the new residents of the proposed apartments.

5. SUMMARY

- 5.1 Hepworth Acoustics has undertaken a noise assessment relating to a Prior Approval application for converting the upper floors of Lester House in Bury, which is an existing commercial to residential use.
- 5.2 The assessment considers the potential impact of noise from nearby commercial premises on the future occupiers of the development, in compliance with the requirements of The Town and Country Planning (General Permitted Development) (England) (Amendment) Order 2021.
- 5.3 A noise survey has been undertaken at the site and daytime and night-time noise levels have been determined. The noise impact from commercial and industrial noise sources has been found to be low.
- 5.4 Based on the results of the noise survey, the noise levels at the site have been assessed with reference to relevant British Standards and guidance documents and are considered to be low impact.
- 5.5 Recommendations for glazing and ventilation to the new residences have been provided.
- 5.6 By following the recommendations in this report, the building is capable of providing suitable levels of protection from commercial and industrial noise sources for the occupants of the new dwellings.



Do not scale from this figure

Key:

← x - Noise Measurement Position

Project: P25-252

Ref: **Figure 1**

Title: Site location & Noise Measurement Positions

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APPENDIX A: ACOUSTICS UNITS & INDICES

Sound and the decibel

A sound wave is a small fluctuation of atmospheric pressure. The human ear responds to these variations in pressure, producing the sensation of hearing. The ear can detect a very wide range of pressure variations. In order to cope with this wide range of pressure variations, a logarithmic scale is used to convert the values into manageable numbers. Although it might seem unusual to use a logarithmic scale to measure a physical phenomenon, it has been found that human hearing also responds to sound in an approximately logarithmic fashion. The dB (decibel) is the logarithmic unit used to describe sound (or noise) levels. The usual range of sound pressure levels is from 0 dB (threshold of hearing) to 120 dB (threshold of pain).

Due to the logarithmic nature of decibels, when two noises of the same level are combined together, the total noise level is (under normal circumstances) 3 dB(A) higher than each of the individual noise levels e.g. 60 dB(A) plus 60 dB(A) = 63 dB(A). In terms of perceived 'loudness', a 3 dB(A) variation in noise level is a relatively small (but nevertheless just noticeable) change. An increase in noise level of 10 dB(A) generally corresponds to a doubling of perceived loudness. Likewise, a reduction in noise level of 10 dB(A) generally corresponds to a halving of perceived loudness.

The ear is not equally sensitive to sound at all frequencies. It is less sensitive to sound at low and very high frequencies, compared with the frequencies in between. Therefore, when measuring a sound made up of different frequencies, it is often useful to 'weight' each frequency appropriately, so that the measurement correlates better with what a person would actually hear. This is usually achieved by using an electronic filter called the 'A' weighting, which is built into sound level meters. Noise levels measured using the 'A' weighting are denoted dB(A) or dBA.

Frequency and Hertz (Hz)

As well as the loudness of a sound, the frequency content of a sound is also very important. Frequency is a measure of the rate of fluctuation of a sound wave. The unit used is cycles per second, or hertz (Hz). Sometimes large frequency values are written as kiloHertz (kHz), where 1 kHz = 1000 Hz.

Young people with normal hearing can hear frequencies in the range 20 Hz to 20 kHz. However, the upper frequency limit gradually reduces as a person gets older.

Glossary of Terms

When a noise level is constant and does not fluctuate, it can be described adequately by measuring the dB(A) level. However, when the noise level varies with time, the measured dB(A) level will vary as well. In this case it is therefore not possible to represent the noise climate with a simple dB(A) value. In order to describe noise where the level is continuously varying, a number of other indices can be used. There are also a number of ways to describe sound insulation performance.

The indices used in this report are described below:

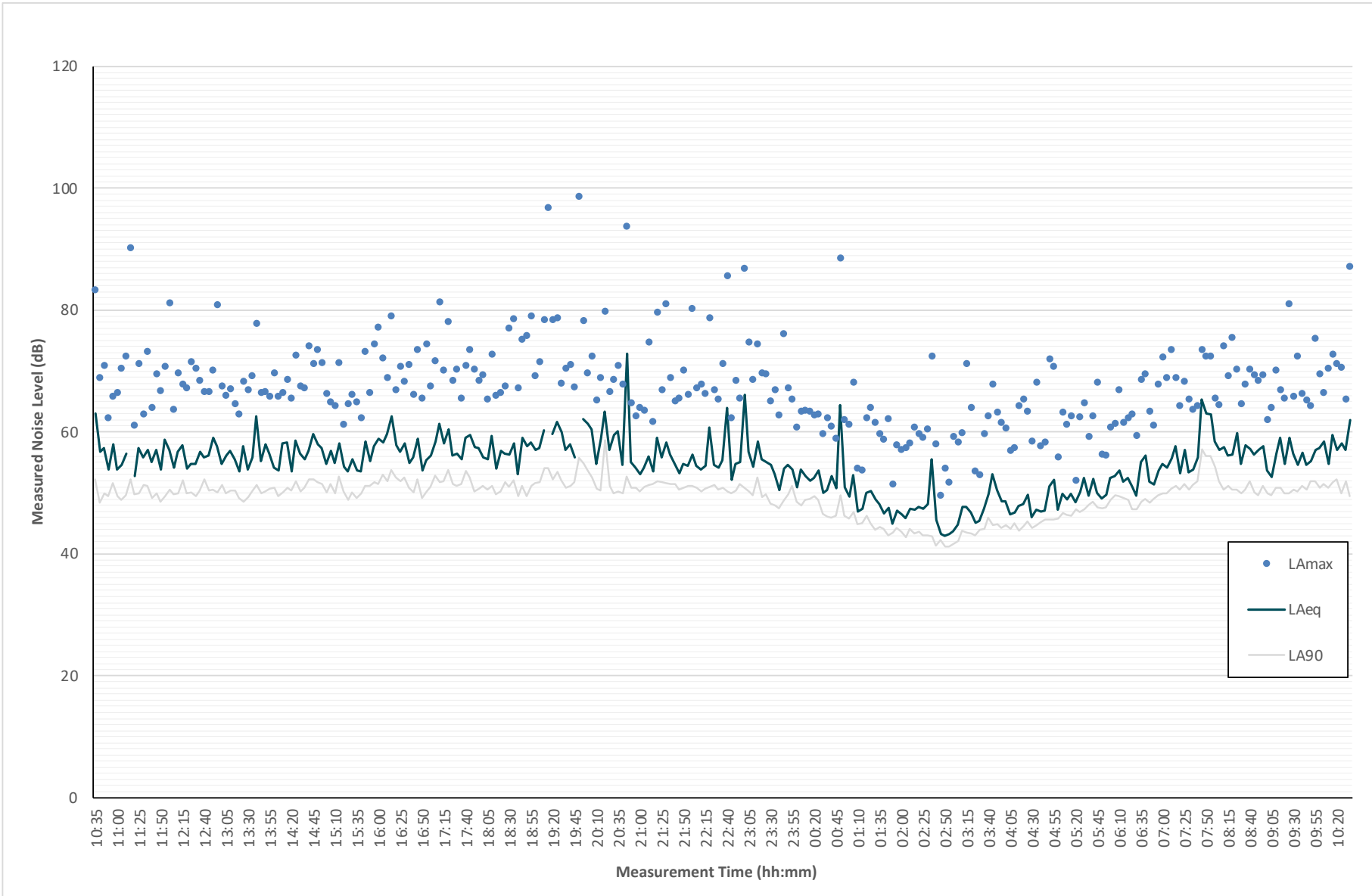
- $L_{Aeq,T}$** **A-weighted Equivalent Continuous Sound Level:** An average of the total sound pressure measured over a specified time period (T). In other words, $L_{Aeq,T}$ is the level of a steady sound which has the same total A-weighted sound pressure as the real fluctuating noise, measured over the same time period. It is increasingly being used as the preferred parameter for most forms of environmental noise.
- L_{Amax}** **Maximum A-weighted Sound Level with Fast Time-weighting:** The maximum A-weighted sound pressure level during the measurement period, using the Fast time-weighting of 125ms. L_{Amax} used in this report refers throughout to L_{AFmax} with the Fast time weighting, denoted L_{AFmax} or $L_{Amax,f}$ in other documents but L_{Amax} in BS 8233:2014 standard notation.
- $L_{A90,T}$** **A-weighted 90 Percentile Level:** The A-weighted sound level exceeded for 90% of a measurement time period (T). $L_{A90,T}$ is generally used as a measure of Background Sound Level.
- C_{tr}** **Transport Noise Spectral Adaptation Term:** A term used with single figure broadband sound insulation metrics (e.g. R_w , $D_{n,e,w}$ or $D_{nT,w}$) to account for the spectral composition of typical transport noise sources.
- $D_{n,e,w}$** **Weighted Element Normalised Level Difference:** A frequency weighted single figure laboratory value quantifying the sound insulation performance of a building element, such as an air vent.
- R_w** **Weighted Sound Reduction Index:** A single figure frequency weighted laboratory sound insulation performance metric of a building element or construction arrangement (e.g. a wall).

APPENDIX B: NOISE SURVEY RESULTS

Date(s)	Thursday 19 June – Friday 20 June 2025
Equipment	NTi Audio XL2-TA ‘Class 1’ sound analyser (s/n: A2A-20361-E0) NTi Audio XL3-TA ‘Class 1’ sound analyser (s/n: A3A-01451-F0) B&K 2250 ‘Class 1’ sound analyser (s/n: 3011706) with associated calibrator(s) and tripod(s)/environmental outdoor monitoring kit(s)
Weather	Daytime: 17 – 27 °C, slightly overcast, dry, SW wind <3 m/s Night-time: 11– 17 °C, slightly overcast, dry, SW wind <3 m/s

Charts overleaf.

Location 1: Market Street



Location 2: Broad Street

