



Polaris Acoustics | Acoustic Consultants

Environmental Noise Assessment

92 Audley Street, Reading

FECV Property Assets Ltd

P1940-PA-ZZ-NIA-REP-05

12th July 2026



Report Details

Report Title	Environmental Noise Assessment
Site	92 Audley Street, Reading
Client	FECV Property Assets Ltd
Reference	P1940-PA-REP-05

Revision History

Rev.	Issued Date	Notes	Prepared and checked by
01	1 st February 2026	Original Issue	Mathew Vaughan BA (Hons) MSc MIOA
02	2 nd February 2026	Minor Amendments	Mathew Vaughan BA (Hons) MSc MIOA
03	1 st July 2026	Amendments	Mathew Vaughan BA (Hons) MSc MIOA
04	6 th July 2026	Minor Amendments	Mathew Vaughan BA (Hons) MSc MIOA
05	12 th July 2026	Minor Amendments	Mathew Vaughan BA (Hons) MSc MIOA

Disclaimer

This report has been prepared by Mathew Vaughan (trading as and hereinafter referred to as "Polaris Acoustics"), with reasonable skill, care, and diligence, in accordance with the agreed scope of work and the instructions of the commissioning party. The findings and opinions expressed are based upon data obtained and information available at the time of preparation, which has been accepted in good faith as accurate and complete.

This document is provided for the sole use of the commissioning party and for the purpose for which it was commissioned. No responsibility is accepted to any other party who may obtain access to this report, and no warranty or representation is made as to its suitability for use by persons other than the client. No party, other than the client, may rely upon its contents without the prior written consent of Polaris Acoustics.

Polaris Acoustics accepts no liability for matters outside the scope of the agreed instruction(s).

Statement of Amendments

This amended report, comprising **Revisions 03, 04 and 05**, has been prepared following the refusal of the previous Class MA prior approval application and subsequent review of the Council's delegated report and decision notice. The amendments are intended to directly address the Council's concerns regarding noise from retained commercial premises on future occupiers of the proposed residential development. The principal amendments comprise:

Amendment	Description
Additional attended measurements	Further attended measurements and observations were undertaken on 18 June 2026, including façade sound insulation testing of the tested façade assembly, including the glazing, frames, seals and trickle ventilators in their open position.
Measured façade performance	The report now includes measured façade sound insulation results for the tested façade assembly, including the glazing, frames, seals and trickle ventilators in their open position, rather than relying on assumed glazing performance.
Retained commercial uses	The assessment has been expanded to consider The Welding Shop Ltd, Fitness4Women and Bubbles Dog Grooming separately.
Rear workshop extract/flue	The rear workshop extract/flue has been assessed using BS 4142 principles, including reference to the source level identified in the previous Battle Hospital Site noise assessment.
Separating wall construction	Additional observations of the separating wall construction have been included, together with conservative assumptions regarding the likely masonry/blockwork construction.
INSUL modelling	INSUL modelling has been undertaken to estimate the likely octave-band sound reduction performance of the existing separating wall.
Internal noise transfer	The report now includes octave-band internal noise transfer calculations for the welding workshop and Fitness4Women gym/fitness studio.
Enhanced separating wall	A robust enhanced separating wall construction has been specified, including staggered steel studs, 75 mm 22 kg/m ³ fibreglass insulation and two layers of 15 mm Gyproc DuraLine or equivalent.
Ventilation and overheating	The façade, ventilation and overheating strategy has been updated to reflect the measured façade performance and the need to avoid reliance on open windows for background ventilation at the most exposed façades.

Executive Summary

Polaris Acoustics has been commissioned by FECV Property Assets Ltd to undertake an amended Noise Assessment for the proposed Class MA change of use at 92 Audley Street, Reading, RG30 1DH.

The proposed development comprises the conversion of the western part of the existing commercial building to form residential accommodation. The remainder of the wider building would remain in commercial use, including The Welding Shop Ltd, Fitness4Women and Bubbles Dog Grooming.

A previous Class MA prior approval application was refused by Reading Borough Council. Reason 1 of the refusal stated that the applicant had failed to satisfactorily demonstrate that future occupiers would not be subject to impact from noise from commercial premises. The Council's delegated report further identified concerns regarding internal noise transfer from the retained welding workshop and gym/fitness studio and noted that the performance of the separating construction had not been sufficiently demonstrated.

This amended report has therefore been prepared to directly address the noise-related reason for refusal under paragraph MA.2(d) of Class MA of the Town and Country Planning (General Permitted Development) (England) Order 2015, as amended.

Baseline environmental noise monitoring was undertaken between Thursday 29 January 2026 and Saturday 31 January 2026. The prevailing external acoustic environment was dominated by road traffic noise from the wider surrounding road network, with secondary contributions from local vehicle movements on Audley Street. Noise from the retained commercial uses was not identified as a dominant component of the measured external noise climate during the survey period.

Additional attended measurements and observations were undertaken on 18 June 2026. This included façade sound insulation testing of the tested façade assembly, including the glazing, frames, seals and trickle ventilators in their open position. The measured façade performance was $D_{2m,nT,w} = 32$ dB and $D_{2m,nT,w} + C_{tr} = 29$ dB. Using this measured performance, predicted internal noise levels from external environmental noise are substantially below the relevant BS 8233:2014 internal noise guidelines with windows closed.

The rear extract/flue associated with the welding workshop has been assessed using BS 4142 principles. While the predicted rating level exceeds the representative daytime background sound level before context is considered, the proposed development does not include external amenity space and the controlling consideration is the internal acoustic environment. With windows closed, the measured façade performance is sufficient to reduce internal noise from the rear extract/flue to approximately 20-23 dB $L_{Aeq,T}$, which is below the BS 8233 daytime internal guideline.

Internal noise transfer from The Welding Shop Ltd and Fitness4Women has been assessed using conservative octave-band source assumptions and modelled separating wall performance. The existing separating wall is predicted to provide meaningful sound reduction and achieves an order of performance of $R_w (C; C_{tr})$ 55 (-2; -6). However, under conservative worst-case source assumptions, the

existing construction should not be relied upon alone to achieve the adopted internal commercial noise transfer target of 25 dB $L_{Aeq,T}$.

An enhanced separating wall construction has therefore been specified. The proposed construction comprises staggered steel studs, 75 mm 22 kg/m³ fibreglass insulation and two layers of 15 mm Gyproc DuraLine or equivalent high-density plasterboard, installed to the residential side of the retained separating wall.

INSUL modelling indicates an idealised laboratory performance of $R_w (C; C_{tr})$ 87 (-3; -10). A separate 5 dB model-to-site de-rating has been applied to the octave-band sound reduction values used in the receiving-room calculations to account for reasonably achievable in-situ performance, including workmanship, junction detailing, service penetrations, residual flanking transmission, and normal construction variability. On this conservative basis, the enhanced construction is predicted to reduce internal commercial noise transfer below the adopted 25 dB $L_{Aeq,T}$ design target for the assessed workshop and adjoining commercial gym/fitness use scenarios.

Bubbles Dog Grooming was not identified as a controlling noise source during the attended observations and is not considered likely to give rise to unacceptable internal noise levels within the proposed residential accommodation. The specified façade, ventilation and enhanced separating wall construction provide additional resilience against any residual dog grooming noise.

The assessment concludes that the proposed acoustic strategy provides suitable internal acoustic conditions for the intended occupiers of the development. The noise impacts from retained commercial premises have therefore been assessed on a robust, precautionary and proportionate basis, with the required acoustic mitigation specified as part of the proposed scheme.

On this basis, the proposed development satisfies the noise-related requirements of Class MA paragraph MA.2(d).

Contents

1.	Introduction	9
1.1.	Overview	9
1.2.	Planning Policy and Guidance Framework	9
1.3.	Fundamentals of Environmental Noise	10
2.	Site Description	12
2.1.	General Overview of the Site	12
2.2.	Development Proposal	14
3.	Baseline Noise Survey	15
3.1.	Overview	15
3.2.	Instrumentation and Methodology	15
3.3.	Survey Details	16
3.4.	Meteorological Conditions	17
3.5.	Measurement Results	17
3.6.	Background Sound Levels	20
4.	Additional Attended Measurements	23
4.1.	Overview	23
4.2.	Façade Sound Insulation Measurement	23
4.3.	Observations of Adjacent Commercial Uses	24
4.4.	Separating Wall Construction	26
5.	Commercial Noise	29
5.1.	Overview and Assessment Basis	29
5.2.	External Noise from the Rear Workshop Extract System	30
5.3.	Internal Noise Transfer	33
5.4.	Bubbles Dog Grooming (Dog Groomers)	39
5.5.	Mitigation and Design Recommendations	39
5.6.	Summary of the Commercial Noise Assessment	42
6.	ProPG: Stage 1 – Site Noise Risk Assessment	45
7.	ProPG: Stage 2 – Acoustic Design Statement (ADS)	47
7.1.	Overview	47
7.2.	Element 1 – Good Acoustic Design Process	47
7.3.	Element 2 – Internal Noise Levels	48
7.4.	Element 3 – External Amenity	50



7.5.	Element 4 – Other Relevant Issues	51
8.	Construction Noise	52
9.	Conclusion	53
10.	Reference Documents	56
10.1.	National and Local Planning Policy Context	56
10.2.	Technical Standards and Guidance	59
11.	Appendices	74

Tables

Table 3.1:	Summary of Noise Measurement Position	16
Table 3.2:	Summary of the measured broadband noise levels	17
Table 3.3:	Summary of the ambient maxima and 1/1 octave band noise levels	18
Table 4.1:	Façade Sound Insulation Performance	24
Table 4.2:	INSUL SRI Results – Separating Wall	28
Table 5.1:	Summary of Retained Commercial Uses and Assessment Approach	29
Table 5.2:	Predicted Specific Sound Level from Rear Workshop Extract/Flue	31
Table 5.3:	Acoustic Character Corrections Applied to Rear Workshop Extract/Flue	31
Table 5.4:	Rating Sound Level for Rear Workshop Extract/Flue	31
Table 5.5:	BS 4142 Assessment of Rear Workshop Extract/Flue	32
Table 5.6:	Predicted Internal Noise Level from Rear Workshop Extract/Flue	32
Table 5.7:	Modelled Existing Separating Wall Sound Reduction Performance	35
Table 5.8:	Welding Workshop Source Spectra and Predicted Internal Transfer (Existing)	36
Table 5.9:	Fitness4Women Source Spectra and Predicted Internal Transfer (Existing)	37
Table 5.10:	Existing Construction Performance Summary Against Internal Transfer Target	38
Table 5.11:	Enhanced Separating Wall: Modelled and Adopted Design Performance	41
Table 5.12:	Predicted Internal Transfer with Enhanced Separating Wall Construction	42
Table 6.1:	ProPG: Stage 1 Risk Assessment Summary	45
Table 7.1:	BS 8233:2014 Indoor Ambient Noise Level Guidelines for Dwellings	48
Table 7.2:	Predicted Internal Noise Levels with Windows Closed	49
Table 7.3:	Predicted Internal Noise Levels with Windows Partially Open	49
Table 9.1:	Summary of Assessment Findings	54
Table 10.1:	Summary of WHO Noise Criteria	59
Table 11.2:	BS 8233:2014 – Indoor Ambient Noise Levels for Dwellings	61



Table 10.3: Initial Site Risk Assessment in Relation to Overheating Condition	67
Table 10.4: External Noise Levels that Exclude the Simplified Method	69
Table 10.5: Possible Value & Ranges of Values for LOAELs & SOAELs	70

Figures

Figure 1.1: Decibel Chart	11
Figure 3.1: Noise Monitoring Position	16
Figure 3.2: Noise Measurements	19
Figure 3.3: Background Sound Level – Daytime (07:00 to 23:00) $L_{A90,1h}$	21
Figure 3.4: Background Sound Level – Night-time (23:00 to 07:00) $L_{A90,15min}$	22
Figure 4.1: Photo of the Internal Separating Wall	26
Figure 6.1: ProPG: Stage 1 Initial Site Noise Risk Assessment	46
Figure 10.1: ProPG: Stage 1 Initial Site Noise Risk Assessment	63
Figure 10.2: Guideline Values for Ventilation in AD: F – External L_{Aeq}	66
Figure 10.3: Guideline Values for Ventilation in AD: F – External L_{Amax}	66

Appendices

Appendix 1: Glossary	74
Appendix 2: Equipment and Calibration Certificates	76
Appendix 3: Measurement Results	82
Appendix 4: Façade Sound Insulation Test Certificate	85



1. Introduction

1.1. Overview

Polaris Acoustics (“Polaris”) has been commissioned by FECV Property Assets Ltd to prepare an amended noise assessment for the proposed residential conversion of 92 Audley Street, Reading, RG30 1DH (the “Development”). The Local Planning Authority (“LPA”) is Reading Borough Council.

The Development comprises the proposed change of use of part of the existing building from commercial, business and service use (Use Class E) to residential use (Use Class C3), under Class MA of Schedule 2, Part 3 of the Town and Country Planning (General Permitted Development) (England) Order 2015, as amended.

This amended report has been prepared following the refusal of prior approval under LPA Ref. PL/26/0356. The Council’s delegated report identified that, while external noise was considered acceptable, further information was required in relation to internal noise transfer from the retained commercial uses within the wider building, including the welding workshop and dance studio. The delegated report also noted that the performance of the separating construction should be demonstrated rather than assumed.

The purpose of this report is therefore to assess the suitability of the Development in relation to noise from commercial premises, having regard to paragraph MA.2(1)(d) of Class MA. The assessment considers external noise intrusion through the building envelope, the measured acoustic performance of the tested façade assembly, including the glazing, frames, seals and trickle ventilators in their open position, and potential airborne noise transfer through the separating wall between the proposed residential accommodation and adjoining commercial uses.

The assessment is based on a baseline environmental noise survey undertaken between Thursday 29 January 2026 and Saturday 31 January 2026. Additional site measurements and observations were undertaken on 18 June 2026 to test the acoustic performance of the tested façade assembly, including the glazing, frames, seals and trickle ventilators in their open position, and to observe the construction of the separating wall. The findings have been used to inform the façade sound insulation assessment, the review of potential internal noise transfer, and the acoustic design recommendations set out within this report.

1.2. Planning Policy and Guidance Framework

This assessment has been undertaken with reference to relevant national planning policy and guidance concerning noise, including the National Planning Policy Framework (NPPF), the Planning Practice Guidance (PPG) on Noise, and the Noise Policy Statement for England (NPSE).

The assessment has also had regard to the Professional Practice Guidance on Planning and Noise: New Residential Development (ProPG), which provides a recommended framework

for assessing noise affecting proposed residential development. Internal ambient noise level criteria and façade sound insulation requirements have been considered with reference to BS 8233:2014 Guidance on sound insulation and noise reduction for buildings.

Where relevant, consideration has also been given to Approved Document F and Approved Document O of the Building Regulations, together with the Association of Noise Consultants' Acoustics, Ventilation and Overheating: Residential Design Guide (AVO Guide). These documents are relevant to the interaction between acoustic mitigation, ventilation provision and overheating control.

Environmental noise measurements were undertaken generally in accordance with BS 7445-2:1991 Description and measurement of environmental noise - Part 2: Guide to the acquisition of data pertinent to land use. Where outdoor sound propagation calculations have been undertaken, these have been based on the principles of BS ISO 9613-2:2024 Acoustics - Attenuation of sound during propagation outdoors - Part 2: Engineering method for the prediction of sound pressure levels outdoors, using the source data, operating assumptions and calculation parameters stated within this report.

1.3. Fundamentals of Environmental Noise

Noise is commonly defined as sound that is unwanted by the recipient. While nuisance cannot be measured directly, the loudness, frequency spectrum, and character of sound can be quantified. Loudness is determined by both sound pressure and frequency, which can be measured instrumentally.

The human ear is sensitive to an exceptionally wide range of sound levels: the threshold of pain is more than one million times greater in sound pressure than the quietest audible sound. To accommodate this range, sound levels are expressed on a logarithmic decibel scale (dB), referenced to the threshold of hearing.

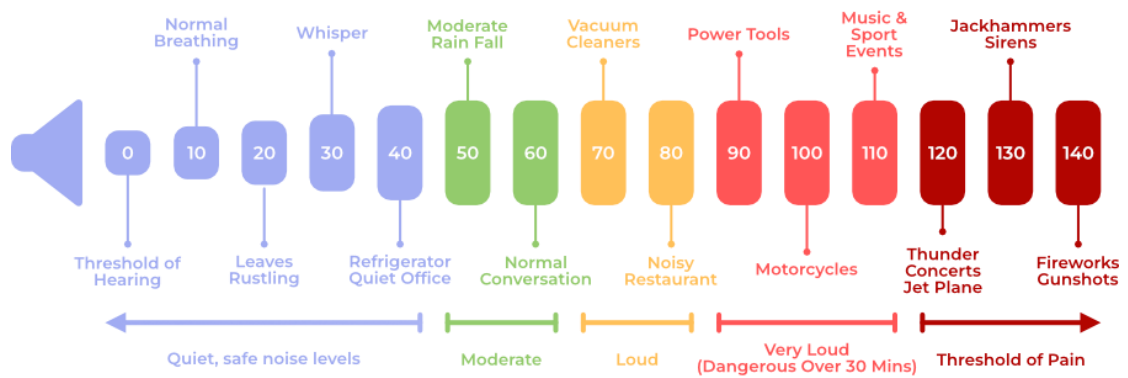
Because the ear does not respond equally across all frequencies, measured sound levels are typically frequency-weighted to approximate human hearing sensitivity. The most widely used metric is the A-weighted decibel, dB(A), which correlates closely with subjective human perception. In terms of perceptibility:

- ◆ An increase of 10 dB(A) (e.g. 60 → 70 dB(A)) is generally perceived as a doubling of loudness.
- ◆ A reduction of 10 dB(A) is perceived as a halving of loudness.
- ◆ A change of around 3 dB(A) is generally regarded as the minimum perceptible difference.

In addition to loudness, the character of noise plays an important role in perception. Sounds with tonal (distinct pitch), impulsive (sudden or sharp), or irregular features may be more intrusive than steady, broadband noise of the same level. Such characteristics are explicitly

recognised in assessment methodologies, for example BS 4142, where penalties are applied to reflect their increased impact. **Figure 1.1** presents typical noise levels for context, and a glossary of acoustic terms is provided in **Appendix 1**.

Figure 1.1: Decibel Chart



2. Site Description

2.1. General Overview of the Site

The Development site is located on the northern side of Audley Street, Reading, within a predominantly residential area with a small number of retained commercial uses present within the wider building at No. 92 Audley Street.

The host building is effectively divided into separate western and eastern parts. The western part of the building is subject to the proposed Class MA change of use from Class E commercial, business, and service use to Class C3 residential use. The eastern part of the building remains in commercial use and includes a ground-floor welding workshop. At first-floor level, the retained commercial accommodation includes a dog grooming business and a dance studio/gym use adjoining the proposed residential accommodation.

During the January 2026 baseline noise survey, noise from the retained commercial uses was not perceptible or measurable within the areas proposed for residential conversion. The welding workshop, dog grooming business and dance studio/gym are understood to be active operational uses; however, no audible noise from these sources was identified within the Development footprint during the attended observations.

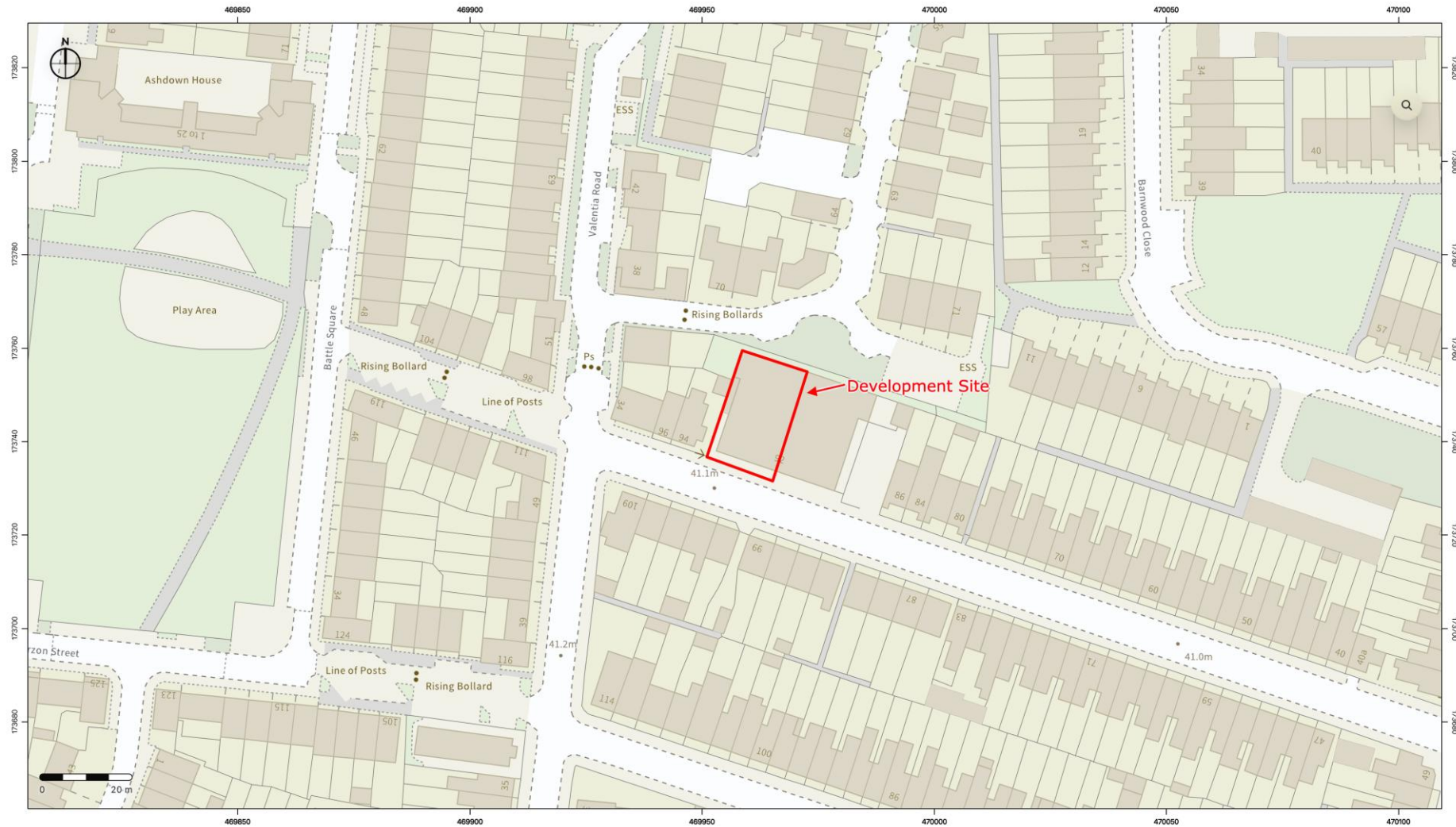
Externally, intermittent dog barking associated with the grooming premises was audible when positioned with a direct line of sight to the eastern part of the building. This noise was not audible within the western part of the building proposed for residential use. Noise from the welding workshop was generally not audible on site during the attended survey observations, despite the workshop being operational. However, adjacent to the front shutters to the workshop, low-level noise was observed during the attended measurements. No externally audible noise was identified or observed from the dance studio/gym use.

Several items of external building services plant were observed on the building, primarily comprising flues on the eastern façade serving the workshop. These were not observed as generating audible noise during the survey period. Where visible, plant identification labels and model details were recorded for reference.

The prevailing acoustic environment at the site is dominated by continuous distant road traffic noise, with intermittent contributions from local vehicle movements along Audley Street. Occasional short-duration events were also noted from vehicles stopping outside the building for dog drop-off and collection. On this basis, the baseline environmental noise climate is considered to be primarily controlled by road traffic noise from the wider surrounding road network, with secondary, low-level and intermittent contributions from local activity on Audley Street.

A Site Location Plan illustrating the site context and surrounding road network is provided in **Figure 2.1**.

Figure 2.1: Site Location Plan



2.2. Development Proposal

The proposed Development comprises the change of use of part of the existing building at 92 Audley Street from commercial, business and service use (Class E) to residential use (Class C3), pursuant to Class MA of Schedule 2, Part 3 of the Town and Country Planning (General Permitted Development) (England) Order 2015, as amended.

The proposed residential accommodation would be formed within the western part of the building, with retained commercial uses remaining within the wider building. The acoustic assessment has therefore considered both external environmental noise affecting the proposed dwellings and the potential for airborne noise transfer from adjoining commercial uses through the separating construction.

The Development is understood to involve the conversion of the existing building fabric, with the existing façade openings and glazing arrangement generally retained. Additional site measurements undertaken on 18 June 2026 included acoustic testing of the tested façade assembly, including the glazing, frames, seals and trickle ventilators in their open position, together with observations of the separating wall construction between the proposed residential areas and adjoining commercial uses.

The findings of the January 2026 baseline environmental noise survey and the June 2026 supplementary site measurements have been used to inform the acoustic design requirements for the Development. This includes consideration of façade sound insulation, ventilation strategy, and the performance of separating constructions, where relevant, to demonstrate that suitable internal noise levels can be achieved for future occupiers.

3. Baseline Noise Survey

3.1. Overview

To inform the residential environmental noise assessment, the baseline acoustic environment has been characterised with reference to the principal noise sources influencing the site. The prevailing noise climate is dominated by distant, continuous road traffic noise, which establishes a relatively steady background noise level at the site.

In addition to this dominant source, occasional and localised vehicle movements along Audley Street, immediately in front of the site, contribute intermittently to the noise environment. These vehicle pass-bys are generally infrequent and short in duration and do not materially influence the underlying ambient noise levels.

Occasional dog barking was also audible at the site, associated with customers briefly transferring dogs between parked vehicles and the adjacent dog grooming premises. These events were short-duration and infrequent, and no dog barking was audible while dogs were inside the grooming facility. As such, these events manifested as isolated maximum sound levels only and did not materially affect the underlying ambient noise climate.

Overall, the site is characterised by a stable road traffic noise environment, with only minor and intermittent localised contributions from the commercial uses.

3.2. Instrumentation and Methodology

All noise monitoring was undertaken using an ACOEM (formerly 01dB) Fusion 4G sound level meter (serial no. 14844), which conforms to the requirements of BS EN IEC 61672-1:2003 as a Class 1 precision measurement system for broadband, 1/1 and 1/3 Octave Band sound pressure level measurements.

An 01dB Cal 01 Acoustic Calibrator (serial no. 990456) was employed before and after each measurement period to verify instrument stability. The calibrator generates a sound pressure level of 94 dB re. 20 µPa at 1 kHz, with an accuracy of ±0.3 dB.

All equipment has been calibrated in accordance with BS EN IEC 61672-2:2003, with additional electrical testing of frequency filters carried out in line with BS EN IEC 61260. Sound level meters are subject to laboratory calibration on a one to two-year cycle, while field calibrators undergo laboratory calibration annually. Details of the equipment, including serial numbers and calibration certification, are provided in Appendix 2.

All monitoring was undertaken in accordance with BS 7445-2:1991 Description and measurement of environmental noise – Part 2: Guide to the acquisition of data pertinent to land use. This standard specifies the information to be recorded alongside measured noise levels, including meteorological conditions and descriptions of the prevailing noise sources.

3.3. Survey Details

A 24-hour unattended environmental noise survey was undertaken by Polaris between 29 and 31 January 2026 (inclusive). The survey comprised a single long-term measurement position, shown in blue on **Figure 3.1** and detailed in **Table 3.1**. In addition, short duration attended measurements and qualitative observations were carried out internally within the building and externally at the eastern end of the site, adjacent to the workshop and dog groomers.

The survey was undertaken by Mathew Vaughan of Polaris Acoustics. Mathew holds a BA (Hons) in Digital Music and an MSc in Applied Acoustics from Southampton Solent University and is a Full Member of the Institute of Acoustics ("MIOA").

Table 3.1: Summary of Noise Measurement Position

Location	Position	Distance from Façade	Description
MP1	Façade	1 m	Representative of the proposed receptor façade. Façade mounted microphone and Class 1 sound level meter.

Figure 3.1: Noise Monitoring Position



3.4. Meteorological Conditions

The prevailing meteorological conditions were suitable for environmental noise measurement in accordance with recognised guidance. Wind speeds remained below 5 m/s for the duration of the survey, and no periods of excessive wind-induced microphone noise were identified in the data.

Intermittent light rainfall occurred between approximately 00:00 and 06:30 on Friday 30th January 2026. Review of the time-history data confirms that these brief showers did not give rise to anomalous noise events or invalidate the measured sound levels. On this basis, the dataset is considered representative of the prevailing noise climate.

It is further noted that wet road surfaces can marginally increase road traffic noise levels due to changes in tyre-road interaction. As such, any influence of rainfall during this period would tend to represent a reasonable worst-case scenario for road traffic noise exposure, rather than an underestimation of typical conditions.

Notwithstanding the weather conditions recorded, the microphone systems were entirely weatherproofed and fitted with all-weather environmental windshields and bird-spikes.

3.5. Measurement Results

Table 3.2 provides a basic summary of the broadband free field environmental noise levels measured at Measurement Position 1 for each day of the survey.

Table 3.2: Summary of the measured broadband noise levels

Measure Location	Daytime		Nighttime		
	Ambient dB $L_{Aeq,16hrs}$	Background dB $L_{A90,1hr}$	Ambient dB $L_{Aeq,8hrs}$	Maxima dB L_{AFmax}	Background dB $L_{A90,15mins}$
MP1 29/1/26 to 30/1/26	48.3 – 57.7	41.3 – 44.6	38.3 – 56.7	58.2 – 87.8	33.9 – 44.5
MP1 30/1/26 to 31/1/26	46.6 – 56.7	40.1 – 51.3	37.4 – 54.2	56.8 – 84.6	33.3 – 45.5
MP1 31/1/26	47.6 – 53.2	41.5 – 44.5	N/A	N/A	N/A

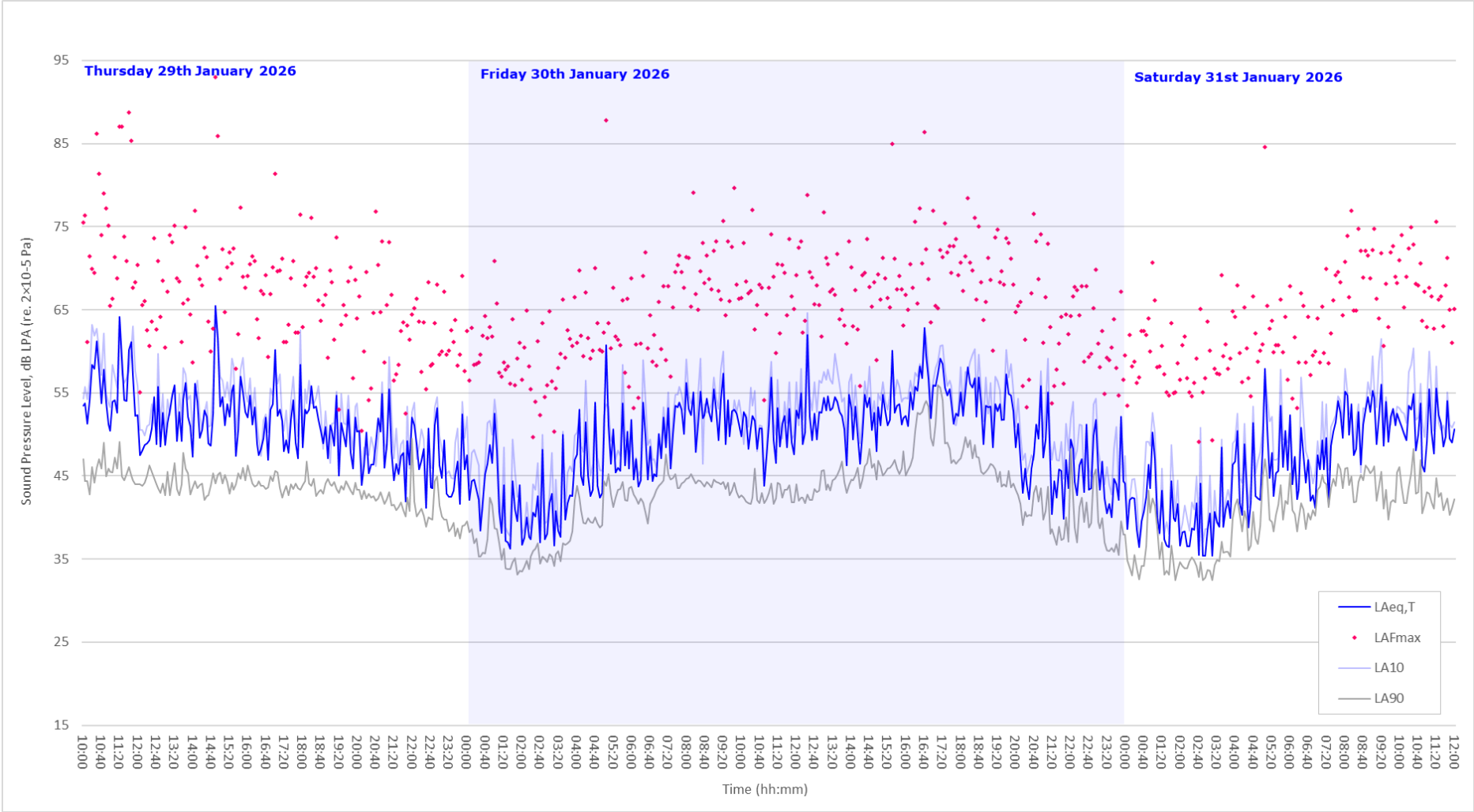
Table 3.3 provides a corresponding time-averaged daytime and nighttime ambient noise levels used for the assessment, in addition to the linear 1/1 octave band terms and the 11th highest L_{AFmax} sound levels.

Table 3.3: Summary of the ambient maxima and 1/1 octave band noise levels

Period (Hours)	Ambient SPL dB $L_{Aeq,T}$	Maxima dB $L_{AFmax,11th}$	Unweighted Sound Pressure Level dB, $L_{eq,T}$ @ Octave Band Centre Frequency, Hz							
			63	125	250	500	1k	2k	4k	8k
Measurement Position 1 (MP1) – 29/1/26 to 30/1/26										
Daytime (12:00 – 23:00)	51.4	N/A	58.1	51.8	49.1	47.9	47.1	43.5	39.1	34.7
Nighttime (23:00 – 07:00)	47.8	67.2	55.1	48.7	47.1	45.2	44.6	41.7	38.7	34.4
Measurement Position 1 (MP1) – 30/1/26 to 31/1/26										
Daytime (07:00 – 23:00)	53.2	N/A	62.8	55.7	51.6	48.9	47.8	45.7	43.4	39.7
Nighttime (23:00 – 07:00)	46.1	66.1	57.9	51.2	48.3	45.5	44.9	42.2	39.9	36.2
Measurement Position 1 (MP1) – 31/1/26										
Daytime (07:00 – 13:00)	47.3	N/A	53.5	47.3	45.6	43.3	42.7	39.8	36.6	31.9

The measured environmental noise levels are also presented below in **Figure 3.2**. The hourly summary of the environmental noise measurements is presented in **Appendix 3**.

Figure 3.2: Noise Measurements



3.6. Background Sound Levels

Background sound levels have been determined in line with BS 4142:2014+A1:2019, with reference to the Little Red Book of Acoustics (4th ed., 2024), which introduces the “LRB Method” for selecting representative background sound level values.

Earlier editions of BS 4142 often relied on the lowest measured L_{A90} , but the current standard is clear that this is not appropriate. Clause 8.1.4 states that *“there is no ‘single’ background sound level as this is a fluctuating parameter. However, the background sound level used for the assessment should be representative of the period being assessed”* Note 1 further advises that a representative level should reflect the overall range of measurements, not simply the minimum or modal value.

The LRB Method applies this by:

1. Ordering all measured background L_{A90} values for the reference periods (daytime: 1 hr; night-time: 15 min).
2. Identifying candidate values from the most frequent occurrences. Considering the lowest to highest dB values if there are ties or other data ambiguity.
3. Applying the 45% test: if more than 45% of results fall below a candidate, it is rejected until one meets the criterion.

This ensures that the adopted background sound levels are representative of the typical background sound levels during the daytime and nighttime, and not unduly influenced by outliers, lowest, average or mode values.

During the daytime periods at the measurement location (7am to 11pm), **Figure 3.3** shows that the background sound level values ranged 40–51 dB $L_{A90,1hr}$, with the highest number of occurrences at 44 dB(A). Since less than 45% of the data exists below this value, 44 dB(A) is adopted as the representative background sound level during the daytime.

During the nighttime (11pm to 7am), **Figure 3.4** shows that the background sound level values ranged 33–46 dB $L_{A90,15mins}$, with the highest number of occurrences at 34 dB(A). Since less than 45% of the data exists below this value, 34 dB(A) is adopted as the representative background sound level during the night-time.

Table 3.4: Summary of the Background Sound Levels

Period (Hours)	Representative Background Sound Level
Daytime (7am to 11pm)	44 dB(A)
Nighttime (11pm to 7am)	34 dB(A)

Figure 3.3: Background Sound Level – Daytime (07:00 to 23:00) $L_{A90,1h}$

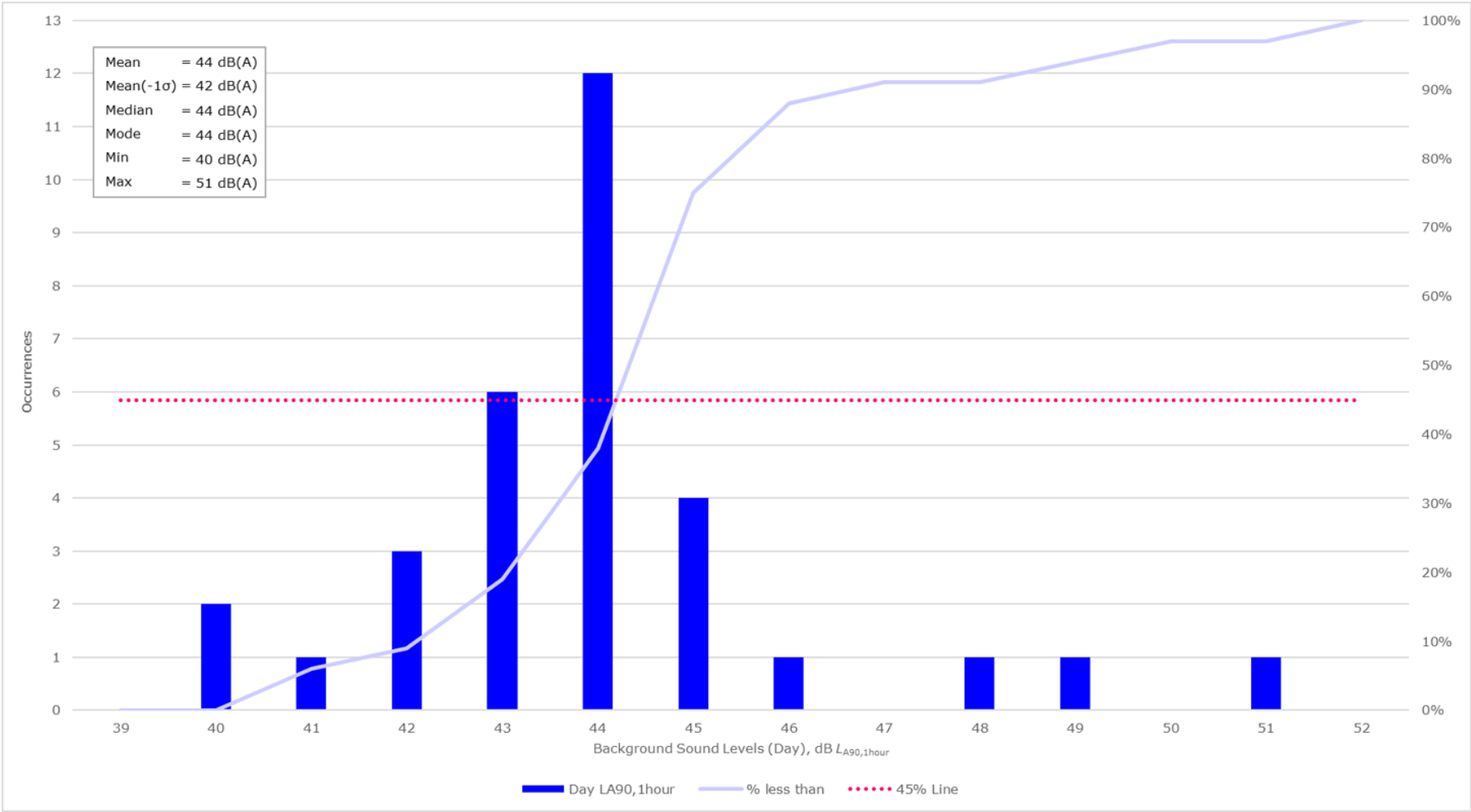
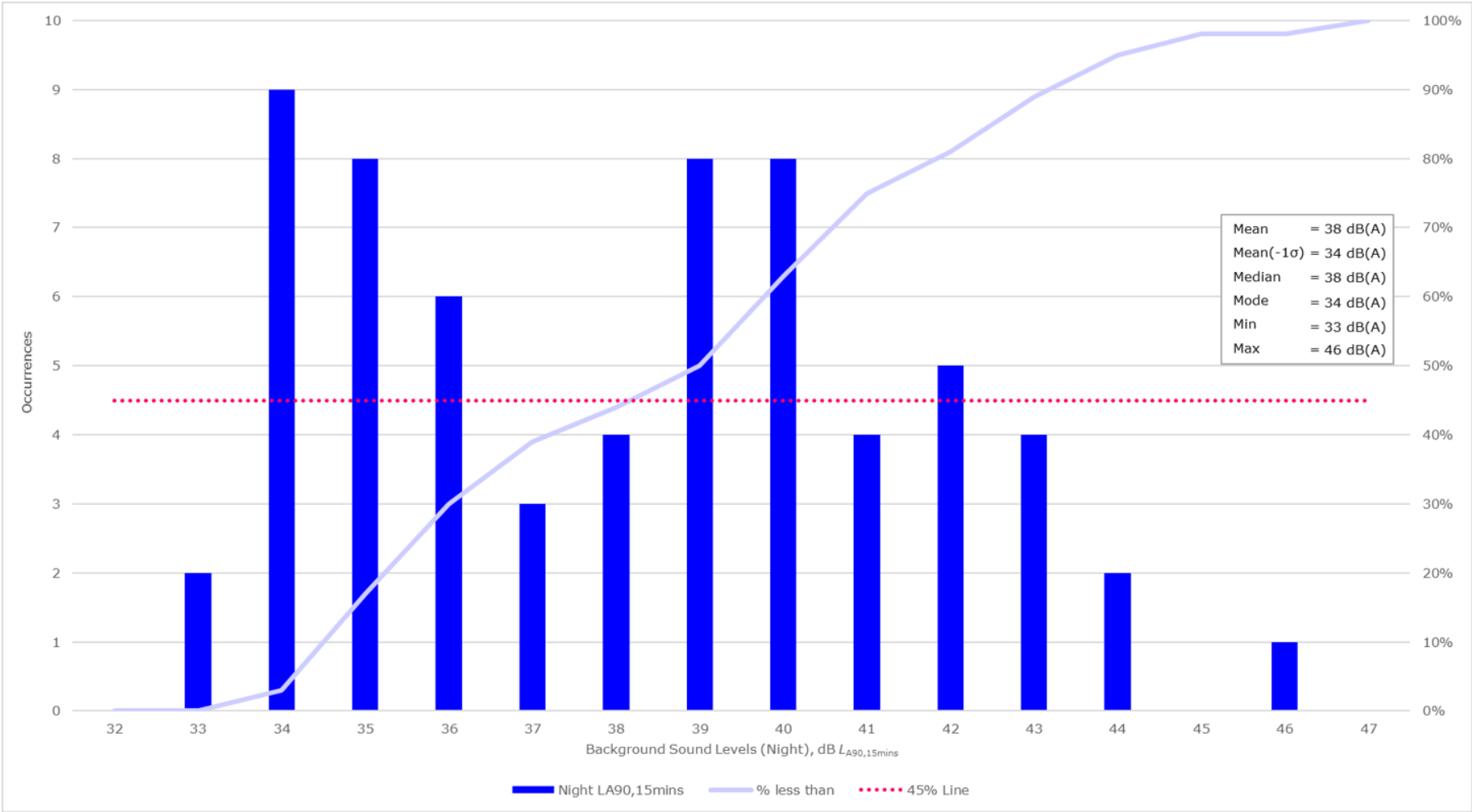


Figure 3.4: Background Sound Level – Night-time (23:00 to 07:00) $L_{A90,15min}$



4. Additional Attended Measurements

4.1. Overview

Additional attended measurements and site observations were undertaken by Polaris Acoustics on 18 June 2026. The purpose of the attendance was to supplement the January 2026 baseline noise survey and provide further evidence in response to the Council's comments regarding façade sound insulation, retained commercial uses, and the likely acoustic performance of the separating construction between the proposed residential accommodation and adjoining commercial premises.

The additional attendance was also informed by review of the Council's delegated report and decision notice, the previous noise assessment prepared for the adjacent Battle Hospital Site, Portman Road residential development, and the associated decision notice for that scheme. These documents are relevant because they identify the rear workshop extract/flue as the principal external commercial noise source previously assessed in relation to the wider site context.

This section presents the additional measured and observed data obtained on 18 June 2026. The commercial noise implications of these findings are assessed separately in Section 5. The additional attendance included:

- field measurement of the existing façade/glazing sound insulation performance;
- observations of the existing window frames, seals and trickle ventilators;
- attended observations of the retained commercial uses;
- short-duration measurements outside the welding workshop shutters;
- visual observations of the likely separating wall construction; and
- INSUL modelling of the assumed separating wall construction.

Access was not available to the adjoining commercial premises. Direct internal measurements within the welding workshop, dog grooming business or dance studio/gym could therefore not be undertaken.

4.2. Façade Sound Insulation Measurement

4.2.1. Measurement Method

The existing façade sound insulation performance was tested using an amplified pink-noise source positioned externally, with sound pressure levels measured outside the façade and within the receiving room. The measurement approach was generally based on the loudspeaker method described in BS EN ISO 16283-3 for field measurement of façade sound insulation. The result has been rated in accordance with BS EN ISO 717-1.

The tested façade comprised double-glazed units set within PVC frames installed within a masonry external wall. The window seals were present and appeared intact, with no visible defects noted during the survey. Existing trickle ventilators were installed and remained fully open throughout the façade sound insulation measurement. The reported result therefore represents the measured in-situ acoustic performance of the complete façade assembly, including the glazing, frames, seals and existing trickle ventilators in their open position.

4.2.2. Measurement Result

The measured façade sound insulation performance was as follows in **Table 4.1**. The adopted $D_{2m,nT,w} + C_{tr}$ value of 29 dB therefore already incorporates the acoustic effect of the existing trickle ventilators in their open position. The measured façade performance is therefore directly consistent with the ventilation assumptions adopted throughout this assessment, namely that background ventilation is provided with the existing trickle ventilators open and the windows closed.

No correction or additional allowance has been required between the measured façade performance and the ventilation strategy relied upon within this report. The façade sound insulation test certificate is provided in **Appendix 4**.

Table 4.1: Façade Sound Insulation Performance

Rating Descriptor	Measured Performance
$D_{2m,nT,w}$	32 dB
$D_{2m,nT,w} + C_{tr}$	29 dB
$D_{2m,nT,w} (C; C_{tr})$	32 (-1; -3) dB

4.3. Observations of Adjacent Commercial Uses

4.3.1. Overview

This section provides an overview of the observations of the retained commercial uses within the wider building, namely The Welding Shop Ltd, Bubbles Dog Grooming and Fitness4Women. These observations are used to inform the commercial noise assessment presented in Section 5.

4.3.2. Welding Workshop

During the 18th of June 2026 attendance, the welding workshop was observed externally from the ground-floor shutter area and from the rear of the building. Workshop noise was only just perceptible externally at the shutters during lulls in the prevailing environmental noise climate. The noise was typically masked by road traffic and general local activity.

Short-duration measurements were undertaken externally at the workshop shutters to determine whether general noise breakout from internal workshop activity was materially contributing to the local acoustic environment at the time of attendance.

Three consecutive 1/3-octave-band measurements were undertaken. The first two measurements were used to represent the prevailing residual noise climate in the absence of clearly perceptible workshop breakout. The third measurement included perceptible workshop activity. The first two measurements were logarithmically averaged and energetically subtracted from the third measurement to estimate the residual workshop contribution, using:

$$L_{\text{source}} = 10 \cdot \log \left(10^{\left(\frac{L_{\text{total}}}{10}\right)} - 10^{\left(\frac{L_{\text{residual}}}{10}\right)} \right)$$

The calculated workshop contribution at the shutters was approximately 46 dB $L_{\text{Aeq,T}}$. The measured residual level was approximately 44 dB L_{Aeq} , while the total measured level during perceptible workshop activity was approximately 48 dB $L_{\text{Aeq,T}}$. The derived workshop contribution was only marginally above the residual noise climate. This is consistent with the subjective observation that workshop noise was only just perceptible externally.

These measurements characterise external breakout at the shutters only. They do not provide a direct measure of internal workshop noise levels, which may be higher depending on the activity being undertaken, source location and internal reverberant conditions. Internal workshop source levels are therefore considered separately in **Section 5** using conservative proxy assumptions.

4.3.3. Rear Extract/Flue (Welding Workshop)

The previous Battle Hospital Site noise assessment identified commercial noise associated with the southern boundary of that development. The relevant source was an extract system and air compressor serving the welding workshop, for which a measured level of 65 dB(A) at approximately 2 m was reported.

That previous assessment was concerned with external noise propagation from the extract/flue towards the adjacent Battle Hospital residential development. It did not identify general noise breakout through the workshop envelope as the controlling external source. The associated decision notice required details of an acoustic fence to the southern boundary.

It is understood that an acoustic barrier has since been erected. However, based on visual observations, the barrier appears primarily relevant to ground-level receptors associated with the adjacent scheme and has not been assumed to provide reliable screening to the proposed upper-level rear-facing windows of the Development. The rear extract/flue is therefore assessed separately in **Section 5** using the previously reported source level.

4.3.4. Bubbles Dog Grooming

Intermittent dog barking associated with Bubbles Dog Grooming was audible externally in limited locations where there was a direct line of sight to the eastern part of the building. Dog

barking was not audible within the proposed residential demise during the attended observations.

The dog grooming use is therefore not considered to control the measured external noise climate at the proposed residential façade. The potential noise implications of the dog grooming business are considered further in **Section 5**.

4.3.5. Fitness4Women

At the time of the site attendance, the adjoining first-floor commercial premises were occupied by Fitness4Women and operated as a gym/fitness studio. Available imagery indicated exercise machines, mats and associated gym equipment, with apparent use of isolation feet, pads or matting.

These observations describe the current operation but are not relied upon as the sole basis of the acoustic assessment. Section 5 assesses a broader range of reasonably foreseeable gym and fitness activity within the adjoining commercial premises, including general gym use, group exercise classes incorporating amplified music and instructor speech, and an upper sensitivity scenario representing a higher operational intensity.

4.4. Separating Wall Construction

4.4.1. Onsite Observations

Visual observations of the separating wall construction were undertaken during the attended site visit. The ground-floor shutters to the retained workshop were open at the time of attendance, allowing limited visual inspection of the internal wall construction from the front façade of the building. A photograph of the exposed construction is provided in **Figure 4.1**.

Figure 4.1: Photo of the Internal Separating Wall



Figure 4.1 shows the front elevation of 90-92 Audley Street, including the open workshop shutter and visible internal wall construction. The host building is of traditional masonry construction, with red brickwork visible to the external walls and returns. Within the workshop, exposed internal masonry was also visible and appeared to comprise of dense aggregate concrete blocks.

Based on the visible external brickwork, the adjacent shutter arrangement and the exposed internal walling observed within the workshop at 92 Audley Street, the separating construction is considered likely to include a masonry/blockwork element. The visible blockwork appears consistent with concrete blockwork or similar masonry units, with a likely minimum thickness in the order of 140 mm.

It is possible that the separating construction is thicker than 140 mm, or that it comprises a double-leaf construction and/or additional linings or cavities. However, in the absence of intrusive opening-up works to confirm the exact build-up, the assessment has conservatively assumed a minimum 140 mm single-leaf masonry/blockwork element. This avoids reliance on a potentially optimistic construction assumption while remaining consistent with the available site observations.

4.4.2. INSUL Model of the Likely Sound Reduction Index

The assumed separating wall construction has been modelled using INSUL to estimate the likely airborne sound insulation performance of the existing construction. The model is a

predictive design estimate and does not constitute a direct field measurement of the separating wall performance. Actual site performance may be influenced by flanking transmission, workmanship, service penetrations, floor/ceiling junctions, wall junctions and the presence or absence of cavities or linings.

The predicted minimum sound reduction index of the assumed separating wall construction is presented in octave bands and as a single-number rating in **Table 4.2**.

Table 4.2: INSUL SRI Results – Separating Wall

Octave Band Centre Frequency, Hz	63	125	250	500	1k	2k	4k	$R_w (C; C_{tr})$
Modelled Sound Reduction, dB <i>R</i>	34	38	43	50	58	66	72	55 (-2; -6)

The modelled sound reduction index presented in **Table 4.2** is used in **Section 5.3** to assess the existing separating construction. The values represent a predictive model of the direct airborne sound insulation of the assumed wall construction and are not presented as guaranteed in-situ performance. Where INSUL modelling is subsequently used to assess the proposed enhanced separating wall in **Section 5.5.2**, a separate 5 dB model-to-site de-rating is applied to the predicted octave-band sound reduction values to account for reasonably achievable workmanship, junction detailing, service penetrations, and residual flanking transmission.

5. Commercial Noise

5.1. Overview and Assessment Basis

This section assesses the potential effect of noise from the retained commercial uses within the wider building on future occupiers of the proposed residential development. The assessment has been prepared having regard to the reason for refusal and the Council's delegated report, which identified that the previous submission had not sufficiently demonstrated that future occupiers would be protected from noise associated with the retained welding workshop, gym/fitness studio and dog grooming business.

The retained commercial uses considered within this section are summarised in **Table 5.1**.

Table 5.1: Summary of Retained Commercial Uses and Assessment Approach

Source / Use	Location	Assessment Approach
Rear workshop extract/flue	Rear/northern elevation serving the welding workshop.	BS 4142-style assessment of external commercial sound, followed by internal noise ingress assessment.
The Welding Shop Ltd	Ground floor, principally towards the rear/northern part of the building.	Internal airborne transfer assessment using conservative source data and modelled separating wall performance.
Adjoining Gym/Fitness Studio	First floor women-only gym/fitness studio.	Internal airborne transfer assessment using conservative source data and modelled separating wall performance.
Bubbles Dog Grooming	Retained commercial unit within the eastern part of the building.	Qualitative assessment based on site observations, audibility and relationship to proposed residential areas.

The assessment distinguishes between two separate noise transfer mechanisms. External commercial noise, principally from the rear workshop extract/flue, has been assessed using the principles of BS 4142:2014+A1:2019. This is appropriate because the source is fixed commercial plant/extract noise affecting the external façade of the proposed residential accommodation.

Internal noise transfer from the retained commercial uses through the shared building fabric has been assessed separately. BS 4142 is not directly intended to assess room-to-room airborne transfer within a shared building. For this aspect, the relevant question is whether the proposed residential accommodation provides suitable internal acoustic conditions. The assessment therefore uses octave-band source assumptions for the retained commercial uses, together with the modelled separating wall sound reduction performance set out in **Section 4**, to predict likely internal received levels.

The internal assessment has been undertaken with reference to the BS 8233:2014 daytime internal ambient noise guideline of 35 dB $L_{Aeq,16hr}$ for resting conditions in dwellings. To provide an additional margin of protection, and to account for the potential character and intermittency of commercial noise, a conservative design objective of 25 dB $L_{Aeq,16hr}$ has also

been adopted for internal commercial noise transfer. This represents a 10 dB betterment relative to the BS 8233 daytime guideline and is therefore considered a robust design target.

Where direct measurement of the retained commercial units was not possible, the assessment uses conservative proxy source data and clearly identifies the assumptions adopted. This approach is considered appropriate in the circumstances because access to third-party retained commercial premises was not available, but the Council's concern can still be addressed through a combination of site observations, measured façade performance, modelled separating wall performance, conservative source assumptions and the enhanced separating wall construction specified as part of the proposed scheme.

The purpose of this section is therefore to establish whether the development can provide suitable internal acoustic conditions for future occupiers without placing unreasonable constraints on the continued lawful operation of the retained commercial uses. The findings of this commercial noise assessment are then carried forward into the subsequent ProPG Stage 1 and Stage 2 assessments.

5.2. External Noise from the Rear Workshop Extract System

5.2.1. Source

The previous Battle Hospital Site noise assessment identified commercial noise associated with the rear extract system and air compressor serving the welding workshop. The reported measured level was 65 dB(A) at approximately 2 m from the extract fans and air compressor operating together.

That previous assessment was concerned with external noise propagation from the extract/flue towards the adjacent Battle Hospital residential development. It did not identify general noise breakout through the workshop envelope as the controlling external source. The rear extract/flue has therefore been assessed as the relevant external commercial noise source affecting the rear-facing façade of the proposed development.

It is understood that an acoustic barrier has since been erected to the southern boundary of the adjacent Battle Hospital development. However, based on visual observations, the barrier appears primarily relevant to ground-level receptors associated with that adjacent scheme and has not been assumed to provide reliable screening to the proposed upper-level rear-facing windows of the Development. The assessment therefore assumes direct propagation from the extract/flue to the nearest proposed rear-facing window.

5.2.2. Specific Sound Levels

The nearest proposed rear-facing residential window is approximately 12 m from the extract/flue outlet. Standard point-source distance attenuation from 2 m to 12 m is calculated as 15.6 dB $L_{Aeq,T}$.

The predicted free-field specific sound level at the nearest proposed rear-facing residential window is therefore 49.4 dB $L_{Aeq,Tr}$. Rounded to the nearest decibel, the predicted free-field



specific sound level is 49 dB $L_{Aeq,Tr}$. A corresponding façade incident level of 52 dB $L_{Aeq,Tr}$ has also been considered for the internal noise ingress assessment, allowing for a +3 dB façade reflection correction.

Table 5.2: Predicted Specific Sound Level from Rear Workshop Extract/Flue

Assessment Item	Value
Source level at 2 m	65 dB $L_{Aeq,T}$
Distance to nearest proposed rear-facing window	12 m
Distance attenuation from 2 m to 12 m	-15.6 dB
Predicted free-field specific sound level	49 dB $L_{Aeq,T}$
Predicted façade incident level	52 dB $L_{Aeq,T}$

5.2.3. Acoustic Character Corrections

BS 4142 requires consideration of whether the specific sound contains acoustic features that increase the significance of its impact, including tonality, impulsivity, intermittency, or other distinctive characteristics.

In the absence of a direct measurement at the proposed receptor location, and to ensure a cautious assessment, a +2 dB correction has been applied for just perceptible tonality, and a +3 dB correction has been applied for intermittency. The total acoustic character correction adopted is therefore +5 dB. This correction value is based on subjective observations whilst onsite.

Table 5.3: Acoustic Character Corrections Applied to Rear Workshop Extract/Flue

Characteristic	Correction
Tonality	+2 dB
Intermittency	+3 dB
Total acoustic character correction	+5 dB

5.2.4. Rating Sound Level

The BS 4142 rating sound level is calculated by adding the acoustic character correction to the predicted free-field specific sound level. The result of this calculation is presented below in **Table 5.4**.

Table 5.4: Rating Sound Level for Rear Workshop Extract/Flue

Assessment Item	Value
Predicted free-field specific sound level	49 dB $L_{Aeq,T}$
Acoustic character correction	+5 dB
Rating sound level	54 dB $L_{Ar,Tr}$

5.2.5. BS 4142 Assessment

A representative daytime background sound level of 44 dB $L_{A90,T}$ has been derived from the baseline survey presented in Section 3. The predicted rating sound level is therefore 10 dB above the representative daytime background sound level.

Table 5.5: BS 4142 Assessment of Rear Workshop Extract/Flue

Assessment Item	Value
Rating sound level	54 dB $L_{Ar,Tr}$
Representative daytime background sound level	44 dB $L_{A90,T}$
Difference between rating and background sound level	+10 dB

On a numerical BS 4142 basis, before context is considered, a rating level approximately 10 dB above the background sound level may be an indication of significant adverse impact, depending on context. However, the standard requires that the outcome is interpreted with regard to the full context of the assessment, including the absolute level of sound, the sensitivity of the receptor, the character of the area and the nature of the development.

5.2.6. Context

The rear extract/flue is an existing commercial source associated with a retained lawful commercial use. The proposed development does not include external amenity space to the rear. Therefore, while the BS 4142 comparison is relevant to understanding the external acoustic context, the principal planning consideration for the proposed residential development is whether suitable internal acoustic conditions are provided for the intended occupiers.

The measured façade sound insulation performance of the tested façade assembly, including the glazing, frames, seals and trickle ventilators in their open position is $D_{2m,nT,w} + C_{tr} = 29$ dB, as set out in **Section 4.2**. Using this measured façade performance, the predicted internal noise level from the rear extract/flue is presented in **Table 5.6**.

Table 5.6: Predicted Internal Noise Level from Rear Workshop Extract/Flue

Scenario	External Level	Façade Performance	Predicted Internal Level
Free-field basis	49 dB $L_{Aeq,T}$	29 dB	20 dB $L_{Aeq,T}$
Façade incident basis	52 dB $L_{Aeq,T}$	29 dB	23 dB $L_{Aeq,T}$

With windows closed, the predicted internal level from the rear extract/flue is below the BS 8233 daytime internal ambient noise guideline of 35 dB $L_{Aeq,T}$ by more than 10 dB.

With windows open, the level difference through a partially open window is typically in the order of 10-15 dB. On this basis, the predicted internal level from the extract/flue would be approximately 34-39 dB $L_{Aeq,T}$ when windows are open. Open windows should therefore not

be relied upon as the sole means of providing background ventilation to the most exposed rear-facing habitable rooms when the extract/flue is operating.

The proposed ventilation strategy therefore provides suitable background ventilation with windows closed, while retaining openable windows for purge ventilation and occupant choice. This approach is consistent with BS 8233, ProPG and the AVO Guide, which recognise that where closed windows are required to achieve internal acoustic conditions, suitable alternative ventilation should be provided.

5.3. Internal Noise Transfer

5.3.1. Overview

This section assesses the potential for internal noise transfer from the retained commercial uses within the wider building into the proposed residential accommodation. This directly responds to the Council's delegated report, which identified that insufficient information had been provided regarding internal noise transfer from the welding workshop and gym/fitness studio, and that the performance of the separating construction had not been adequately demonstrated.

Direct airborne sound insulation testing of the separating wall was not possible because access was not available to the retained commercial premises. The assessment has therefore adopted a conservative predictive calculation approach using:

- the observed separating wall construction described in Section 4.4;
- the INSUL-modelled octave-band sound reduction values presented in Section 4.4.2;
- conservative internal source spectra for the welding workshop and Fitness4Women gym/fitness studio;
- octave-band room-to-room transmission calculations; and
- a conservative allowance for room geometry, receiving-room absorption and minor flanking uncertainty.

The purpose of the assessment is not to define the precise noise level within the retained commercial units at all times. Rather, it is to determine whether, using conservative but reasonable source assumptions, the proposed residential accommodation provides suitable internal acoustic conditions.

5.3.2. Assessment Method and Design Target

The predicted receiving-room sound pressure level has been calculated by octave band using:

$$L_{p2} = L_{p1} = R + C$$

Where:

L_{p1}	Assumed source-room SPL, by octave-band
L_{p2}	Predicted receiving-room SPL, by octave-band
R	Adopted separating-wall SRI, by octave-band
C	+5 dB correction for receiving room geometry and absorption

In a detailed room-to-room calculation, the correction term would normally include the relationship between the separating-wall area and receiving-room absorption, expressed as $10\log(S/A)$. To avoid reliance upon favourable receiving-room dimensions or absorption conditions, a conservative +5 dB receiving-room correction has been applied in place of a detailed $10\log(S/A)$ calculation.

The +5 dB receiving-room correction is separate from the allowance made for the difference between idealised INSUL-modelled performance and reasonably achievable site performance. For the existing separating wall, the raw INSUL values are used because the purpose of the calculation is to demonstrate that the existing construction should not be relied upon alone.

For the proposed enhanced separating wall, each INSUL-predicted octave-band sound reduction value has additionally been reduced by 5 dB before calculating the receiving-room level. The adopted 5 dB model-to-site de-rating specifically accounts for the recognised difference between idealised INSUL-modelled laboratory performance and reasonably achievable in-situ performance, including construction and workmanship tolerances, junction detailing, service penetrations, residual flanking transmission, and normal construction variability.

The design target adopted for internal commercial noise transfer is 25 dB $L_{Aeq,T}$ within habitable rooms. This is 10 dB below the BS 8233 daytime internal ambient noise guideline of 35 dB $L_{Aeq,T}$ for resting conditions and is therefore a deliberately conservative design objective.

5.3.3. Existing Separating Wall Performance

The existing separating wall performance used in the assessment is based on the INSUL model presented in **Section 4.4.2**. The model assumes a conservative minimum masonry/blockwork construction, informed by site observations, rather than relying on a potentially optimistic double-leaf or high-mass construction. The modelled existing separating wall performance is reproduced in **Table 5.7**.

Table 5.7: Modelled Existing Separating Wall Sound Reduction Performance

Octave Band Centre Frequency, Hz	63	125	250	500	1k	2k	4k	R _w (C; C _{tr})
Modelled Sound Reduction, dB R	34	38	43	50	58	66	72	55 (-2; -6)

The modelled single-number performance of R_w (C; C_{tr}) of 55 (-2; -6) is consistent with the order of performance identified by the Council as being necessary to demonstrate. However, the assessment does not rely on the single-number R_w value alone. The octave-band performance is used because low-frequency transfer is likely to be the controlling factor for music, gym activity, and some workshop activity.

5.3.4. Adjoining Welding Workshop (The Welding Shop Ltd)

Internal Noise Levels

The Welding Shop Ltd occupies the ground floor of the retained commercial part of the building, with the principal workshop area understood to be positioned towards the rear/northern part of the building. The ground-floor shutter/garage area appears to act as an entrance and access area to the workshop.

During the 18 June 2026 attended measurements, workshop noise was only just perceptible externally at the ground-floor shutters during lulls in the residual acoustic environment. Measurements at the shutters indicated a workshop contribution of approximately 46 dB $L_{Aeq,T}$, compared with a residual level of approximately 44 dB $L_{Aeq,T}$ and a total level during perceptible activity of approximately 48 dB $L_{Aeq,T}$. Most of the measured sound energy at this location was therefore associated with the residual noise environment, and it was difficult to robustly disaggregate the workshop contribution.

The shutter measurements confirm that external breakout from the workshop envelope was low at the time of attendance. However, they do not define the internal workshop source level, which may be materially higher depending on the activity, source location and internal reverberant conditions.

For assessment purposes, conservative internal source levels have therefore been adopted. HSE guidance identifies that welding, and associated fabrication activities can generate elevated operator-position noise levels, including MMA welding at 85-95 dB(A), MIG welding at 95-102 dB(A), plasma cutting at 98-105 dB(A), and grinding at 95-105 dB(A) (HSE welding

noise guidance). HSE engineering guidance also identifies general fabrication shop noise levels in the order of 85-95 dB(A), with grinding and other metalworking activities often higher (HSE noise in engineering).

On this basis, two conservative workshop scenarios have been considered:

1. a busy welding/fabrication hour, normalised to 95 dB LAeq,1hr; and
2. an upper sensitivity case, normalised to 100 dB LAeq,1hr, allowing for more intensive grinding/cutting activity.

Internal Noise Transfer

Using the previously noted existing octave band separating wall values, identify the level difference, i.e. internal noise level subtract the performance of wall. The adopted welding workshop source spectra and predicted receiving-room levels are presented in **Table 5.8**. ISO 717-1:2020 identifies that the source spectrum 'C' is synonymous with factories emitting mainly medium- and high-frequency noise. This would be considered representative of the welding workshop and fitness studio uses.

Table 5.8: Welding Workshop Source Spectra and Predicted Internal Transfer (Existing)

Octave Band Centre Frequency, Hz	63	125	250	500	1k	2k	4k	Broadband
Workshop Source - Busy Hour, dB L_{Zeq}	74	78	82	86	89	90	87	95 dB L_{Aeq}
Existing Wall Sound Reduction, dB R	34	38	43	50	58	66	72	$R_w + C$ 53
Predicted Receiving Level, incl. +5 dB allowance	45	45	44	41	36	29	20	42 dB L_{Aeq}
Workshop Source - Upper Sensitivity, dB L_{Zeq}	79	83	87	91	94	95	92	100 dB L_{Aeq}
Existing Wall Sound Reduction, dB R	34	38	43	50	58	66	72	R_w 55
Predicted Receiving Level, incl. +5 dB allowance	50	50	49	46	41	34	25	47 dB L_{Aeq}

The calculations indicate that, on the basis of the conservative source assumptions and the modelled existing separating wall performance, the existing construction should not be relied upon in isolation to achieve the 25 dB $L_{Aeq,T}$ design target during worst-case workshop activity.

It should be noted that these calculations assume incident source-room noise levels of 95 dB $L_{Aeq,1hr}$ and 100 dB $L_{Aeq,1hr}$. These are deliberately conservative internal source assumptions intended to represent a busy workshop hour and an upper sensitivity case respectively.

It is also relevant that, during the attended observations, activity within the welding workshop was only just perceptible externally at the workshop shutters and was not audible within the proposed residential demise. This indicates that the existing building fabric already provides a material degree of acoustic separation under the operating conditions observed. Nevertheless, to provide a robust response to the Council's concerns, enhanced separating construction is recommended as set out in **Section 5.5**.

5.3.5. Adjoining Gym/Fitness Studio (Fitness4Women)

Internal Noise Levels

At the time of the attended surveys, the adjoining first-floor premises were occupied by Fitness4Women and operated as a gym/fitness studio. No music, instructor speech, equipment noise or impact noise associated with the premises was audible within the proposed residential demise during the survey periods.

The assessment does not, however, rely upon the current occupier's precise timetable, equipment, class programme or observed operating level. To provide a conservative assessment of reasonably foreseeable gym and fitness activity within the adjoining commercial premises, the following proxy scenarios have been adopted:

- general gym use, normalised to 80 dB $L_{Aeq,1hr}$;
- energetic group exercise or class activity incorporating amplified music and instructor speech, normalised to 85 dB $L_{Aeq,1hr}$; and
- an upper sensitivity gym/fitness scenario, normalised to 90 dB $L_{Aeq,1hr}$.

The 90 dB $L_{Aeq,1hr}$ scenario is intended to represent the upper end of reasonably foreseeable gym and fitness operation, including energetic group exercise with amplified music and instructor speech. It provides resilience to changes in occupier, class type and operational intensity within a broadly comparable gym/fitness use and is not dependent upon Fitness4Women remaining the occupier or maintaining its present operating arrangements.

Internal Noise Transfer

The adopted Fitness4Women source spectra and predicted receiving-room levels are presented in Table 5.9.

Table 5.9: Fitness4Women Source Spectra and Predicted Internal Transfer (Existing)

Octave Band Centre Frequency, Hz	63	125	250	500	1k	2k	4k	Broadband
General Gym Use Source, dB L_{Zeq}	66	72	75	76	75	72	68	80 dB L_{Aeq}
Predicted Receiving Level, incl. +5 dB allowance	37	39	37	31	22	11	1	32 dB L_{Aeq}
Class Activity Source, dB L_{Zeq}	72	78	81	82	80	76	72	85 dB L_{Aeq}

Predicted Receiving Level, incl. +5 dB allowance	43	45	43	37	27	15	5	38 dB L_{Aeq}
Upper Sensitivity Source, dB L_{Zeq}	78	84	87	86	84	80	76	90 dB L_{Aeq}
Predicted Receiving Level, incl. +5 dB allowance	49	51	49	41	31	19	9	43 dB L_{Aeq}

The calculations indicate that the general gym use scenario is predicted to be below the BS 8233 daytime internal guideline of 35 dB $L_{Aeq,T}$, but above the more conservative 25 dB $L_{Aeq,T}$ design objective. Class activity with portable amplified music and instructor speech is predicted to exceed both the 25 dB design objective and the BS 8233 daytime guideline if the existing construction is relied upon in isolation.

The upper sensitivity case demonstrates that enhanced separating construction is appropriate and provides resilience against higher-noise class activity and future changes in occupier or operational intensity within a reasonably foreseeable gym/fitness use.

5.3.6. Interpretation of the Existing Construction Performance

The existing separating wall model indicates a single-number performance of R_w 55 (-2; -6), which is consistent with the order of airborne sound insulation performance identified by the Council. However, the octave-band calculations demonstrate that single-number R_w performance alone is not a sufficient basis for determining acceptability, because low and mid-frequency transfer can control the received internal level.

The assessment indicates that:

1. external breakout from the welding workshop was low during the attended survey;
2. workshop noise was only just perceptible externally at the shutters and was not audible within the proposed residential demise;
3. Fitness4Women was not audible during the January 2026 baseline survey or the 18 June 2026 attendance;
4. Bubbles Dog Grooming was not audible within the proposed residential demise;
5. the modelled existing separating wall provides meaningful sound reduction; but
6. under conservative proxy source assumptions, the existing separating wall should not be relied upon alone to achieve the 25 dB $L_{Aeq,T}$ internal commercial noise transfer target.

The predicted existing-construction results are summarised in **Table 5.10**.

Table 5.10: Existing Construction Performance Summary Against Internal Transfer Target

Source Scenario	Predicted Internal Level dB L_{Aeq}	Conservative Design Target dB L_{Aeq}	Difference dB
-----------------	--	--	------------------

Welding workshop – busy hour	42	25	+17
Welding workshop – upper sensitivity	47	25	+22
Gym/fitness studio – general use	32	25	+7
Gym/fitness studio – class activity	38	25	+13
Gym/fitness studio – upper sensitivity	43	25	+18

On this basis, the assessment adopts a precautionary design approach. The existing construction should be enhanced on the residential side where it adjoins retained commercial uses, as set out in **Section 5.5**.

5.4. Bubbles Dog Grooming (Dog Groomers)

Bubbles Dog Grooming occupies part of the retained commercial area. During the attended observations, intermittent dog barking was audible externally in limited locations where there was a direct line of sight to the eastern part of the building. Dog barking was not audible within the proposed residential demise during the attended observations and did not control the measured noise climate at the proposed residential façade.

The dog grooming use is not understood to have the same direct adjoining relationship to the proposed residential accommodation as the separating construction associated with the welding workshop and Fitness4Women. On this basis, and having regard to the attended observations, dog grooming noise is not considered to be the controlling commercial noise source.

A quantified internal transfer calculation has not been undertaken for Bubbles Dog Grooming because no internal source measurements were available, the source was not identified as controlling during the attended observations, and the more onerous internal transfer cases are considered to be the welding workshop and Fitness4Women class activity. The enhanced separating wall and façade/ventilation measures recommended within this report would also provide additional resilience against any residual dog grooming noise.

5.5. Mitigation and Design Recommendations

5.5.1. Façade Noise Ingress

The attended observations and baseline measurements indicate that adjacent commercial noise was not readily distinctive at the proposed residential façade, with the exception of the rear extract/flue considered in **Section 5.2**.

The measured façade sound insulation performance of the tested façade assembly, including the glazing, frames, seals and trickle ventilators in their open position, $D_{2m,nT,w} + C_{tr} = 29$ dB, is sufficient to reduce the predicted internal noise level from the rear extract/flue to approximately 20-23 dB $L_{Aeq,T}$ with windows closed. This is below the BS 8233 daytime internal ambient noise guideline of 35 dB $L_{Aeq,T}$.

However, with windows open, the predicted internal level from the extract/flue would be approximately 34-39 dB $L_{Aeq,T}$, based on a typical partially open window sound reduction of 10-15 dB. While windows should remain openable for purge ventilation and occupant choice, they should not be relied upon as the sole means of providing background ventilation to the most exposed rear-facing habitable rooms.

The measured façade result already incorporates the existing trickle ventilators in their open position. Where the tested façade assembly and ventilators are retained without material alteration, the measured $D_{2m,nT,w} + C_{tr}$ value of 29 dB may be relied upon for the closed-window background-ventilation condition. Any replacement or additional ventilators shall be selected so that the completed façade achieves an overall acoustic performance no worse than the tested condition. Openable windows may remain available for purge ventilation and occupant choice but shall not be relied upon as the sole means of background ventilation to the most exposed habitable rooms.

5.5.2. Enhanced Separating Wall Construction

The internal transfer calculations in Section 5.3 indicate that the modelled existing separating wall construction does not provide sufficient control, on its own, to achieve the conservative 25 dB $L_{Aeq,T}$ commercial noise transfer target under the adopted worst-case workshop and fitness class scenarios.

Additional INSUL modelling has therefore been undertaken for the enhanced separating wall construction forming part of the proposed scheme. The enhanced construction shall be provided on the residential side of the separating wall where the proposed residential accommodation adjoins retained commercial uses.

The enhanced wall model is based on retaining the existing masonry/blockwork separating wall and adding an independent acoustic lining to the residential side. The proposed lining comprises staggered steel studs, 75 mm 22 kg/m³ fibreglass insulation and two layers of 15 mm Gyproc DuraLine or equivalent high-density plasterboard.

INSUL predicts the direct airborne sound reduction of the idealised construction. The adopted 5 dB de-rating has been applied specifically to account for the difference between idealised laboratory model performance and reasonably achievable in-situ performance. This allowance encompasses normal construction tolerances, workmanship, junction detailing, service penetrations, residual flanking transmission, and other practical installation effects that commonly reduce field performance relative to idealised predictions. Consequently, the assessment is not based upon the full INSUL-predicted R_w 87 dB performance but upon a deliberately reduced design performance considered representative of a robust real-world installation.

The raw INSUL results and the de-rated design values adopted for the assessment are presented in **Table 5.11**.

Table 5.11: Enhanced Separating Wall: Modelled and Adopted Design Performance

Octave Band Centre Frequency, Hz	63	125	250	500	1k	2k	4k	Rw (C; Ctr)
Modelled Sound Reduction, dB R	48	62	78	85	93	98	98	87 (-3; -10)

The proposed enhanced separating wall construction comprises the following:

- retention of the existing masonry/blockwork separating wall;
- staggered steel stud framing installed on the residential side;
- framing installed independently from the existing wall, with no rigid connection or bridging to the retained masonry/blockwork where practicable;
- 75 mm fibreglass insulation, minimum density 22 kg/m³, installed within the stud zone;
- two layers of 15 mm Gyproc DuraLine board, or an equivalent board with equal or greater mass and acoustic performance;
- staggered board joints between layers;
- all board joints, perimeter junctions, floor junctions, ceiling junctions and abutments sealed with acoustic sealant;
- isolation tape or resilient perimeter detailing where the new lining abuts floors, ceilings and return walls;
- avoidance of back-to-back sockets, recessed boxes or untreated service penetrations;
- any sockets, ducts, cables or pipe penetrations to be acoustically sealed and boxed where required;
- no direct fixing of kitchen units, heavy furniture, services or other rigid elements through the independent lining into the retained masonry wall;
- careful treatment of floor, ceiling and side-wall junctions to reduce flanking transmission; and
- installation by a competent contractor in accordance with the manufacturer's acoustic detailing guidance.

The enhanced construction is a substantive acoustic mitigation measure forming part of the proposed scheme, rather than a cosmetic lining. Its acoustic performance is based on continuity, airtightness, isolation and appropriate workmanship. The specification has been assessed on the conservative basis of a minimum 140 mm single-leaf masonry/blockwork separating wall and therefore does not rely on a more favourable existing wall construction being confirmed by opening-up works. Using the enhanced wall performance in **Table 5.11**, the predicted internal levels are presented in **Table 5.12**.

Table 5.12: Predicted Internal Transfer with Enhanced Separating Wall Construction

Source Scenario	Predicted Internal Level with Enhanced Wall dB L_{Aeq}	Conservative Design Target dB L_{Aeq}	Difference dB
Welding workshop - busy hour	11	25	-14
Welding workshop - upper sensitivity	16	25	-9
Fitness4Women - general gym use	2	25	-23
Fitness4Women - class activity	8	25	-17
Fitness4Women - upper sensitivity	14	25	-11

The results indicate that the enhanced separating wall construction would achieve internal commercial noise levels below the adopted 25 dB $L_{Aeq,T}$ design target for the assessed workshop and Fitness4Women scenarios. This provides a robust margin below the BS 8233 daytime internal ambient noise guideline of 35 dB $L_{Aeq,T}$.

The adopted 90 dB $L_{Aeq,1hr}$ upper sensitivity scenario represents a deliberately conservative assessment of reasonably foreseeable gym and fitness activities capable of operating within the adjoining Class E commercial premises. It encompasses high-intensity group exercise, amplified music, instructor speech and energetic occupancy levels and is not dependent upon the identity of the current occupier, its operating practices, class timetable or equipment.

The assessment is therefore based upon the reasonably foreseeable acoustic characteristics of a gym/fitness use rather than the specific operation of Fitness4Women. A materially different use characterised by nightclub-style sound systems, substantial low-frequency music reproduction or entertainment-led operation would constitute a different planning use and falls outside the scope of the assessed commercial premises.

5.6. Summary of the Commercial Noise Assessment

This section has assessed the potential effects of retained commercial noise on future occupiers of the proposed residential development, with specific regard to paragraph MA.2(d) of Class MA of the Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended). The assessment has considered whether noise from the retained commercial premises would result in unacceptable living conditions for the intended occupiers of the Development.

The retained commercial uses considered include the rear workshop extract/flue, The Welding Shop Ltd, Fitness4Women and Bubbles Dog Grooming. The assessment

distinguishes between external commercial noise affecting the building façade and internal noise transfer through the shared building fabric.

The rear workshop extract/flue has been assessed using BS 4142 principles. The rating sound level is predicted to exceed the representative daytime background sound level before context is considered. However, the proposed development does not include external amenity space, and the controlling consideration in this case is the internal acoustic environment. With windows closed, the measured façade performance is sufficient to reduce internal extract/flue noise to approximately 20-23 dB $L_{Aeq,T}$, which is below the BS 8233 daytime internal guideline.

Open windows should not be relied upon as the sole means of background ventilation to the most exposed rear-facing habitable rooms. Suitable background ventilation should therefore be provided with windows closed, while retaining openable windows for purge ventilation and occupant choice.

Internal noise transfer from The Welding Shop Ltd and the adjoining gym/fitness premises has been assessed using conservative octave-band source assumptions and the modelled performance of the existing separating wall. The gym/fitness assessment considers source levels of 80, 85 and 90 dB $L_{Aeq,1hr}$, representing general gym use, amplified group exercise and a conservative upper sensitivity scenario for reasonably foreseeable gym and fitness activity. The assessment is not dependent upon Fitness4Women remaining as the occupier or upon its current operating arrangements.

The existing separating wall is predicted to provide meaningful sound reduction and achieves an indicative order of performance of R_w (C; C_{tr}) 55 (-2; -6). However, under the conservative source assumptions adopted, the existing construction should not be relied upon alone to achieve the 25 dB $L_{Aeq,T}$ internal commercial noise transfer design target.

An enhanced separating wall construction has therefore been specified as part of the acoustic design response. The enhanced construction is based on staggered steel studs, 75 mm 22 kg/m³ fibreglass insulation and two layers of 15 mm Gyproc DuraLine or equivalent high-density plasterboard. INSUL modelling predicts an indicative laboratory sound reduction performance of R_w (C; C_{tr}) 87 (-3; -10).

A separate 5 dB model-to-site de-rating has been applied within the internal noise transfer calculations to account for the difference between idealised modelled performance and reasonably achievable in-situ performance, including normal construction tolerances, workmanship, junction detailing, service penetrations, and residual flanking transmission. The assessment therefore does not rely upon the full modelled R_w 87 dB performance being achieved on site.

Bubbles Dog Grooming was not identified as a controlling source during the attended observations and is not considered likely to give rise to unacceptable internal noise levels within the proposed residential accommodation. The specified façade, ventilation and

enhanced separating wall construction provide additional resilience against any residual dog grooming noise.

On the basis of the measured façade performance, attended observations, conservative internal transfer calculations, specified ventilation strategy and proposed enhanced separating wall construction, the impacts of noise from commercial premises on the intended occupiers of the Development are suitably controlled. The Development therefore satisfies the noise-related requirements of Class MA paragraph MA.2(d).

The findings of this commercial noise assessment are carried forward into the ProPG Stage 1 and Stage 2 assessment in the following sections.

6. ProPG: Stage 1 – Site Noise Risk Assessment

The Professional Planning Guidance: Planning and Noise (“ProPG”), provides a risk-based assessment framework to assist with delivering high quality sustainable development by promoting good health and wellbeing by the effective management of noise through good acoustic design. The ProPG provides a 2-stage systematic approach as follows:

1. An initial noise risk assessment of the proposed Development;
2. Stage 2– Systematic consideration of four key elements:
 - a. Good Acoustic Design Process
 - b. Internal Noise Levels
 - c. External Amenity Noise Levels
 - d. Consideration of other relevant issues

The Stage 1 assessment provides an early indication if the noise levels across a proposed development site are likely to provide greater acoustic challenges, based on a sliding scale of Risk of Adverse Effect, as replicated in **Figure 4.1**.

Table 4.1 below provides a summary of the Stage 1 assessment. Please note that all measured levels were conducted at a façade position. Accordingly, a 3 dB correction has been applied to obtain the representative free field sound levels. The highest $L_{Aeq,16hr}$ and $L_{Aeq,8hr}$ sound levels are presented below.

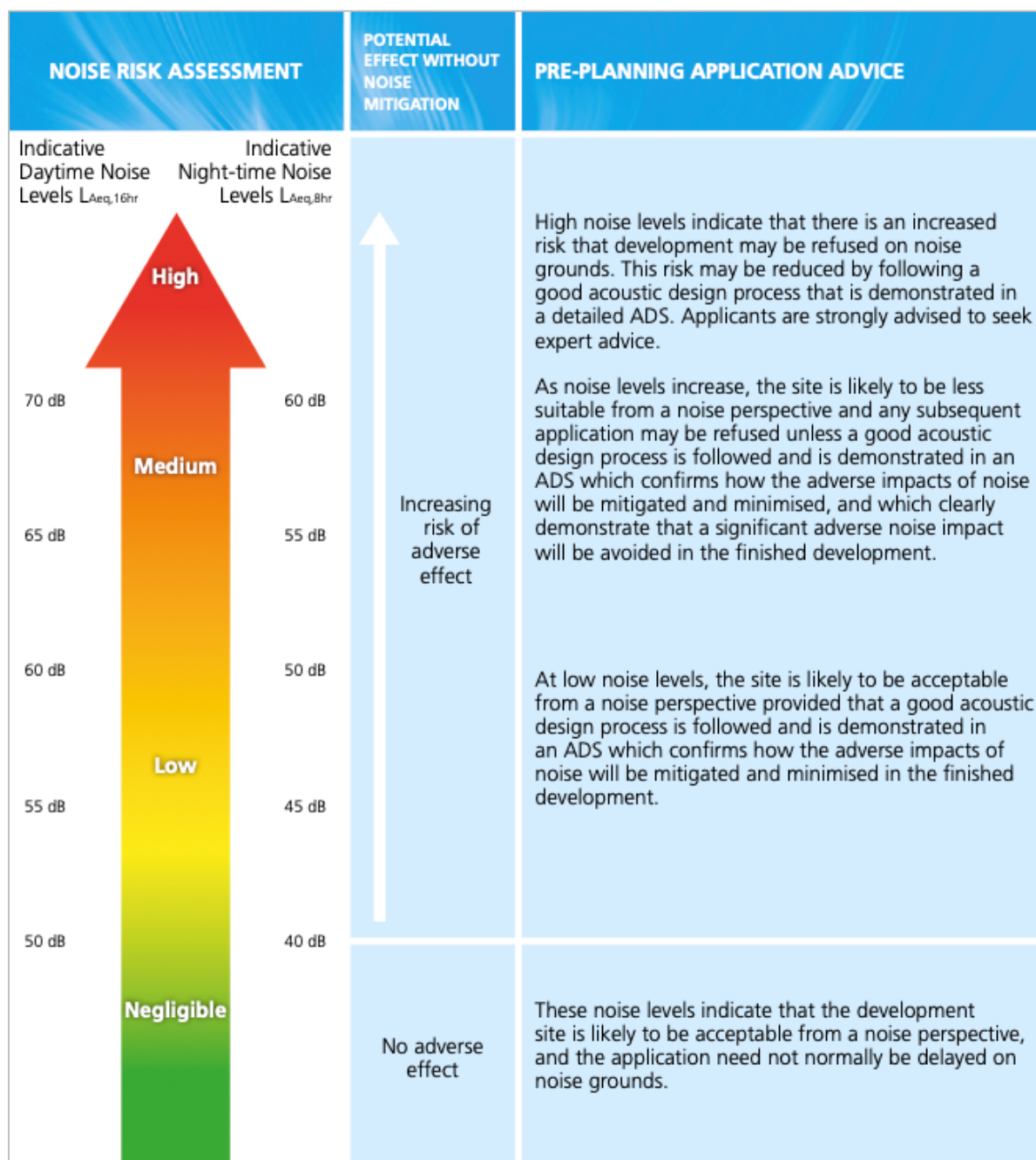
Table 6.1: ProPG: Stage 1 Risk Assessment Summary

Period (Hours)	Daytime (07:00 – 23:00) dB $L_{Aeq,16hrs}$	Nighttime (23:00 – 07:00) dB $L_{Aeq,8hrs}$
Results	49	45
ProPG Noise Risk	Negligible	Low
Action	A ProPG Stage 2 Assessment with Acoustic Design Assessment is required.	

The ProPG Stage 1 assessment indicates that the site falls within a “Low” noise risk category overall, based on the measured external environmental noise climate. Commercial noise from retained uses has been assessed separately in **Section 5** and is not relied upon as part of the Stage 1 risk classification.

It should be noted that this assessment principally considers noise at the measurement location, which is at a location representative of the southern facade fronting Audley Street, which is expected to represent a ‘worst-case’ monitoring location.

Figure 6.1: ProPG: Stage 1 Initial Site Noise Risk Assessment

**Figure 1 Notes:**

- Indicative noise levels should be assessed without inclusion of the acoustic effect of any scheme specific noise mitigation measures.
- Indicative noise levels are the combined free-field noise level from all sources of transport noise and may also include industrial/commercial noise where this is present but is "not dominant".
- $L_{Aeq,16hr}$ is for daytime 0700 – 2300, $L_{Aeq,8hr}$ is for night-time 2300 – 0700.
- An indication that there may be more than 10 noise events at night (2300 – 0700) with $L_{Amax,F} > 60$ dB means the site should not be regarded as negligible risk.

7. ProPG: Stage 2 – Acoustic Design Statement (ADS)

7.1. Overview

The Stage 1 assessment identifies a “Low” noise risk. A Stage 2 Acoustic Design Statement is provided to demonstrate the good acoustic design process and to confirm how internal noise, ventilation, overheating and any other relevant acoustic issues have been addressed.

The assessment of commercial uses is provided in **Section 5** and is carried forward into the Stage 2 assessment as an “*other relevant issue*” and as part of the internal noise design strategy.

7.2. Element 1 – Good Acoustic Design Process

Following a good acoustic design process is an implicit requirement of Government planning and noise policy and is a central principle of ProPG. Acoustic considerations should inform the design from the outset, rather than being deferred or treated as a matter to be resolved after consent.

The proposed development has been reviewed having regard to the following acoustic design principles:

1. controlling external environmental noise ingress through the existing façade and glazing;
2. ensuring that background ventilation can be provided without relying on open windows where this would result in increased internal noise levels;
3. assessing retained commercial noise sources separately from the wider environmental noise climate;
4. enhancing the separating construction between the proposed residential accommodation and retained commercial uses;
5. controlling flanking transmission, penetrations and workmanship risks; and
6. specifying the acoustic mitigation measures as part of the proposed scheme.

The additional attended measurements undertaken on 18 June 2026 provide measured façade sound insulation data for the tested façade assembly, including the glazing, frames, seals and trickle ventilators in their open position. The retained commercial uses have also been assessed separately in **Section 5**, including the rear workshop extract/flue, The Welding Shop Ltd, Fitness4Women and Bubbles Dog Grooming.

The assessment demonstrates that suitable internal acoustic conditions are achieved through the measured façade performance, suitable background ventilation provision, and the proposed enhanced separating wall construction where the residential accommodation adjoins retained commercial uses. This represents a proportionate good acoustic design

response to the site constraints and directly addresses the Council's concerns regarding commercial noise affecting future occupiers.

7.3. Element 2 – Internal Noise Levels

7.3.1. Internal Noise Level Criteria

BS 8233:2014 provides appropriate internal ambient noise level guidelines for dwellings. The relevant criteria are reproduced in **Table 7.1**.

Table 7.1: BS 8233:2014 Indoor Ambient Noise Level Guidelines for Dwellings

Activity	Location	07:00 to 23:00	23:00 to 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 $L_{Aeq,8hr}$
Night-time noise events	Bedroom	-	45 dB L_{AFmax} ^{NOTE}

Note: L_{AFmax} events should not exceed 45 dB by more than 10-15 times.

The ProPG supplements BS 8233 by advising that, in noise-sensitive rooms at night, individual noise events should not normally exceed 45 dB L_{AFmax} more than 10 times during the night-time period.

For internal commercial noise transfer from retained adjoining uses, this report adopts a more conservative design objective of 25 dB $L_{Aeq,T}$ within habitable rooms, as set out in **Section 5.3.2**.

This represents a 10 dB betterment relative to the BS 8233 daytime internal ambient noise guideline and provides a robust margin of protection against the potential character and intermittency of commercial noise.

7.3.2. Façade Sound Insulation

Additional attended measurements were undertaken on 18 June 2026 to determine the sound insulation performance of the existing façade glazing and frames. The measured performance was:

- $D_{2m,nT,w} = 32$ dB
- $D_{2m,nT,w} + C_{tr} = 29$ dB

For the assessment of external environmental noise ingress, the lower $D_{2m,nT,w} + C_{tr}$ value of 29 dB has been used, as this provides a more appropriate allowance for road traffic and low-frequency weighted environmental noise.

The predicted internal ambient noise levels from external environmental noise are shown in **Table 7.2**.

Table 7.2: Predicted Internal Noise Levels with Windows Closed

Assessment Item	Daytime	Night-time
External free-field noise level	49 dB $L_{Aeq,16hr}$	45 dB $L_{Aeq,8hr}$
Measured façade performance	29 dB $D_{2m,nT,w} + C_{tr}$	
Predicted internal noise level	20 dB $L_{Aeq,16hr}$	16 dB $L_{Aeq,8hr}$
BS 8233 guideline	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$
Margin below guideline	15 dB	14 dB

The predicted internal ambient noise levels, based on the measured glazing performance and simplified procedure of BS 8233 are substantially below the relevant BS 8233 internal noise guidelines. On this basis, the existing façade/glazing performance is suitable for controlling external environmental noise ingress with windows closed.

7.3.3. Ventilation

The ProPG encourages designers to aim, where practicable, to achieve the internal noise guidelines with windows open. Where this is not practicable, internal noise levels may be assessed with windows closed, provided that suitable alternative background ventilation is available and any façade ventilation openings are assessed in their open condition.

The predicted internal noise levels with partially open windows are shown in **Table 7.3**, assuming a typical open-window level difference of 13 dB.

Table 7.3: Predicted Internal Noise Levels with Windows Partially Open

Assessment Item	Daytime	Night-time
External free-field noise level	49 dB $L_{Aeq,16hr}$	45 dB $L_{Aeq,8hr}$
Assumed partially open window level difference	13 dB	13 dB
Predicted internal noise level	36 dB $L_{Aeq,16hr}$	32 dB $L_{Aeq,8hr}$
BS 8233 guideline	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$
Difference relative to guideline	+1 dB	+2 dB

The results indicate that, with windows partially open for background ventilation, internal noise levels may marginally exceed the BS 8233 guideline values. Accordingly, open windows should not be relied upon as the sole means of providing background ventilation.

Because the façade sound insulation measurement was undertaken with the existing trickle ventilators open, the measured $D_{2m,nT,w} + C_{tr}$ value of 29 dB directly represents the closed-

window background-ventilation condition for the tested façade. Where the existing ventilators are retained without material alteration, no additional acoustic deduction is required. Any replacement or additional façade ventilation device shall be selected so that the overall completed façade performance is no worse than the tested condition. Openable windows may remain available for purge ventilation and occupant choice.

7.3.4. Overheating

The interaction between acoustics, ventilation and overheating has been considered having regard to Approved Document O and the AVO Guide.

The acoustic assessment indicates that windows should not be relied upon as the primary means of background ventilation where this would result in marginal exceedance of the BS 8233 internal noise guidelines. If openable windows are also proposed as part of the overheating mitigation strategy, the design team should ensure that the overheating strategy is compatible with the acoustic constraints identified in this report.

Where mechanical ventilation, acoustically attenuated vents or mechanical cooling are proposed, the systems should be designed so that:

- the required ventilation and overheating mitigation rates can be achieved with windows closed, where necessary;
- the acoustic performance of any façade openings is sufficient to maintain suitable internal noise levels;
- system self-noise does not exceed appropriate internal noise limits; and
- the design remains consistent with the AVO Guide's integrated approach to acoustics, ventilation and overheating.

Openable windows may remain available for purge ventilation and occupant choice. The internal ambient noise criteria are not intended to apply to short-duration purge ventilation conditions.

7.4. Element 3 – External Amenity

No private or communal external amenity space is proposed as part of the development. Accordingly, there is no on-site external amenity area requiring assessment against the BS 8233 garden guideline values.

The absence of on-site external amenity space does not alter the principal acoustic conclusion in respect of Class MA paragraph MA.2(d), which relates to the impact of noise from commercial premises on intended occupiers. In this case, the controlling consideration is the internal acoustic environment within the proposed dwellings.

The assessment presented in **Sections 5** and **7** demonstrates that suitable internal acoustic conditions are achieved through the specified façade, ventilation, and separating wall measures.

7.5. Element 4 – Other Relevant Issues

Other relevant acoustic issues include retained commercial noise and construction noise.

Retained commercial noise has been assessed in detail in **Section 5**. This includes the rear workshop extract/flue, The Welding Shop Ltd, Fitness4Women and Bubbles Dog Grooming. The assessment confirms that external commercial noise can be controlled internally by the measured façade performance and suitable ventilation provision, and that internal transfer from retained commercial uses can be controlled through the enhanced separating wall construction specified in **Section 5.5.2**. Construction noise should be managed through Best Practicable Means, as set out in **Section 8**.

7.5.1. Advice to the Decision Maker

The assessment provides sufficient information for the Local Planning Authority to determine the noise matter under paragraph MA.2(d) of Class MA.

The previous refusal identified that the applicant had not satisfactorily demonstrated that future occupiers would be protected from noise from commercial premises. This report addresses that matter by:

- measuring the existing façade sound insulation performance;
- assessing the rear workshop extract/flue using BS 4142 principles;
- assessing internal noise transfer from retained commercial uses using conservative octave-band source assumptions;
- modelling the existing separating wall performance;
- specifying an enhanced separating wall construction;
- addressing ventilation and overheating interactions; and
- specifying the acoustic mitigation measures as part of the proposed scheme.

On this basis, the proposed development provides suitable internal acoustic conditions for the intended occupiers. The acoustic design principles and required mitigation are established within this assessment and are not deferred to a later assessment, validation exercise, or unresolved design process.

8. Construction Noise

Given the limited scale of the proposed conversion works, a quantitative construction noise and vibration assessment has not been undertaken. Instead, construction noise should be managed through the adoption of Best Practicable Means, in accordance with the principles of BS 5228.

To minimise potential noise impacts during construction, it is recommended that works are restricted to standard construction hours:

- Monday to Friday: 08:00 to 18:00
- Saturday: 08:00 to 13:00
- Sundays and Public Holidays: No noisy works

The appointed contractor should adopt Best Practicable Means to reduce potential noise impacts on nearby residents and retained commercial occupiers. Measures should include, where practicable:

- adherence to agreed working hours;
- advance notification to neighbouring occupiers of particularly noisy works;
- selection of quieter plant and methods where reasonably practicable;
- regular maintenance of plant and machinery;
- use of effective exhaust silencers and acoustic covers on plant;
- shutting down or throttling down plant during periods of inactivity;
- careful handling of materials to avoid unnecessary impact noise;
- locating noisy plant away from sensitive receptors where practicable;
- use of temporary screening or hoarding where beneficial;
- good site management and communication procedures; and
- compliance with the relevant guidance in BS 5228.

Where required, these measures may be formalised within a Construction Environmental Management Plan.

9. Conclusion

This Noise Assessment has been prepared in support of the proposed Class MA change of use at 92 Audley Street, Reading. The report has been prepared with specific regard to paragraph MA.2(d) of Class MA of the Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended), which requires consideration of the impacts of noise from commercial premises on the intended occupiers of the development.

The assessment has also been prepared in direct response to the previous refusal and delegated report, which identified that insufficient information had been provided to demonstrate that future occupiers would be protected from noise associated with retained commercial uses within the wider building.

Baseline environmental noise monitoring indicates that the external noise climate at the site is dominated by road traffic noise, with measured free-field levels of approximately 49 dB $L_{Aeq,16hr}$ during the daytime and 45 dB $L_{Aeq,8hr}$ during the night-time. The ProPG Stage 1 assessment therefore identifies the site as Low noise risk overall.

Additional attended measurements were undertaken on 18 June 2026. This included façade sound insulation testing of the tested façade assembly, including the glazing, frames, seals and trickle ventilators in their open position, which achieved $D_{2m,nT,w} = 32$ dB and $D_{2m,nT,w} + C_{tr} = 29$ dB. Using the measured façade performance, predicted internal noise levels from external environmental noise are substantially below the relevant BS 8233 internal noise guidelines with windows closed.

The rear workshop extract/flue has been assessed using BS 4142 principles. While the rating sound level is predicted to exceed the representative daytime background sound level before context is considered, the proposed development does not include external amenity space, and the controlling consideration is the internal acoustic environment. With windows closed, the measured façade performance is sufficient to reduce internal extract/flue noise to approximately 20-23 dB $L_{Aeq,Ti}$, which is below the BS 8233 daytime internal guideline.

Open windows should not be relied upon as the sole means of background ventilation to the most exposed rear-facing habitable rooms. Suitable background ventilation should therefore be provided with windows closed, while retaining openable windows for purge ventilation and occupant choice.

Internal noise transfer from The Welding Shop Ltd and Fitness4Women has been assessed using conservative octave-band source assumptions and modelled separating wall performance. The existing separating wall is predicted to provide meaningful sound reduction and achieves an order of performance of $R_w (C; C_{tr}) = 55 (-2; -6)$. However, under conservative worst-case source assumptions, the existing construction should not be relied upon alone to achieve the adopted 25 dB $L_{Aeq,T}$ internal commercial noise transfer target.

An enhanced separating wall construction has therefore been specified as part of the proposed scheme. The enhanced construction comprises staggered steel studs, 75 mm 22 kg/m³ fibreglass insulation and two layers of 15 mm Gyproc DuraLine or equivalent high-density plasterboard. INSUL modelling predicts an indicative laboratory sound reduction performance of $R_w (C; C_{tr})$ 87 (-3; -10) for the enhanced construction, based on correct acoustic detailing, airtightness and control of flanking paths.

Bubbles Dog Grooming was not identified as a controlling noise source during the attended observations and is not considered likely to give rise to unacceptable internal noise levels within the proposed residential accommodation. The specified façade, ventilation and separating wall measures provide additional resilience against any residual dog grooming noise. **Table 9.1** provides a summary of the assessment findings.

Table 9.1: Summary of Assessment Findings

Assessment Matter	Finding	Outcome
Baseline external noise climate	External noise climate dominated by road traffic and local vehicle movements. Retained commercial uses were not dominant during monitoring.	Suitable for residential use with the specified acoustic design.
Existing façade/glazing performance	Measured façade performance of $D_{2m,nT,w} = 32$ dB and $D_{2m,nT,w} + C_{tr} = 29$ dB.	Sufficient to achieve BS 8233 internal criteria with windows closed.
Rear workshop extract/flue	BS 4142-style assessment identifies potential external impact before context, but internal level with windows closed predicted at approximately 20-23 dB $L_{Aeq,T}$.	Internal amenity protected with closed windows and suitable background ventilation.
Open windows / ventilation	Open windows may result in internal levels marginally above BS 8233 targets at most exposed façades.	Open windows should not be relied upon for background ventilation; alternative background ventilation required.
Existing separating wall	Existing wall modelled as $R_w (C; C_{tr})$ 55 (-2; -6), informed by site observations and conservative assumptions.	Provides meaningful attenuation but not relied upon alone for worst-case commercial noise transfer.
The Welding Shop Ltd	Conservative internal transfer assessment undertaken using proxy workshop source spectra.	Enhanced separating wall specified to control worst-case transfer.

Assessment Matter	Finding	Outcome
Adjoining gym/fitness studio	Assessed using 80, 85 and 90 dB $L_{Aeq,1hr}$ proxy scenarios representing general gym use, amplified group exercise, and an upper sensitivity level. The assessment is not dependent upon the current occupier or its present operating arrangements.	Enhanced separating wall specified to control reasonably foreseeable gym and fitness noise transfer.
Bubbles Dog Grooming	Occasional barking audible externally in limited locations but not within proposed residential demise.	Not controlling; mitigation provides additional resilience.
Enhanced separating wall	Separating wall construction as part of the enhanced mitigation is modelled as R_w (C; C_{tr}) 87 (-3; -10).	Predicted to reduce internal commercial noise transfer below 25 dB $L_{Aeq,T}$ design target.
Class MA MA.2(d)	Noise from commercial premises has been assessed and mitigation specified.	Noise-related Class MA matter is satisfactorily addressed.

On the basis of the measured façade performance, attended observations, conservative internal transfer calculations, specified ventilation strategy and proposed enhanced separating wall construction, the impacts of noise from commercial premises on the intended occupiers of the development are suitably controlled.

The proposed development therefore satisfies the noise-related requirements of Class MA paragraph MA.2(d).

10. Reference Documents

10.1. National and Local Planning Policy Context

10.1.1. National Planning Policy Framework (NPPF) (2024)

The National Planning Policy Framework (NPPF), first published in 2012 and most recently updated in December 2024, sets out the Government's planning policies for England and how they should be applied. It establishes the framework for Local Planning Authorities (LPAs) to prepare local and neighbourhood plans, which must reflect the needs and priorities of their communities.

The NPPF confirms: "The purpose of the planning system is to contribute to the achievement of sustainable development, including the provision of homes, commercial development, and supporting infrastructure in a sustainable manner" (Paragraph 7).

Sustainable development should be delivered across the economic, social and environmental dimensions (P. 8).

A presumption in favour of sustainable development lies "at the heart of the Framework" (Paragraph 10). In relation to the environment, the NPPF requires:

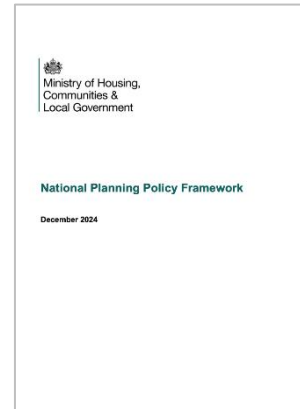
"Planning policies and decisions should contribute to and enhance the natural and local environment by... preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability" (Paragraph 187).

With regard to noise, Paragraph 198 specifies that planning should:

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

Paragraph 200 also highlights the "Agent of Change" principle, ensuring that:

"New development can be integrated effectively with existing businesses and community facilities... Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established... the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed".

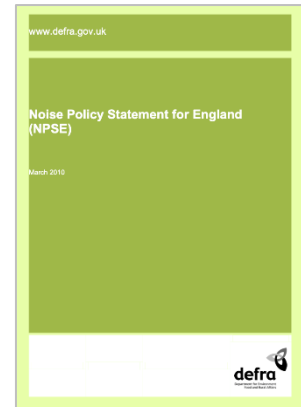


10.1.2. Noise Policy Statement for England (NPSE) (2010)

The Noise Policy Statement for England (NPSE) provides additional guidance relevant to the NPPF. It states:

“Within the context of sustainable development:

- ◆ *avoid significant adverse impacts on health and quality of life;*
- ◆ *mitigate and minimise adverse impacts on health and quality of life; and*
- ◆ *where possible contribute to the improvement of health and quality of life”.*



The NPSE introduces three key concepts, adapted from toxicology and applied to noise impacts:

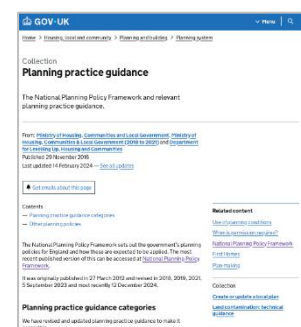
- ◆ **NOEL – No Observed Effect Level:** the level of noise below which no effect can be detected. In other words, noise at or below this level has no observable impact on health or quality of life.
- ◆ **LOAEL – Lowest Observed Adverse Effect Level:** the level of noise above which adverse effects on health and quality of life can be detected.
- ◆ **SOAEL – Significant Observed Adverse Effect Level:** the level above which significant adverse effects on health and quality of life occur.

The NPSE further notes: *“it is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available”.*

10.1.3. Planning Practice Guidance (PPG)

The Noise Planning Practice Guidance (NPPG), first published in 2014 and most recently updated in July 2019, provides supporting guidance to the NPPF. It expands on the concepts of NOEL, LOAEL and SOAEL introduced in the NPSE and sets out how noise should be considered in planning decisions.

The NPPG states: “Local planning authorities’ plan-making and decision taking should take account of the acoustic environment and in doing so consider:



- ◆ whether or not a significant adverse effect is occurring or likely to occur;
- ◆ whether or not an adverse effect is occurring or likely to occur; and
- ◆ whether or not a good standard of amenity can be achieved.”

The guidance highlights the **subjective nature of noise**, noting that impacts depend on factors such as the source and timing of noise, its frequency, tonal or spectral content, and the sensitivity of the local context. It also advises that cumulative impacts, external amenity areas, and specific site characteristics should be considered.

The NPPG introduces a noise impact hierarchy, showing how effects relate to NOEL, LOAEL and SOAEL. Importantly, only noise that is “noticeable and very disruptive” is considered unacceptable and should be prevented. Other outcomes may be acceptable depending on the level of mitigation proposed.

In relation to existing businesses, the NPPG reinforces the “Agent of Change” principle from the NPPF:

“The applicant (or ‘agent of change’) will need to clearly identify the effects of existing businesses that may cause a nuisance (including noise...) and the likelihood that they could have a significant adverse effect on new residents/users... The agent of change will also need to define clearly the mitigation being proposed to address any potential significant adverse effects”.

10.1.4. The Town and Country Planning (General Permitted Development etc.) (England) (Amendment) Order 2021

The Town and Country Planning (General Permitted Development) (England) Order 2015 (as amended, including the 2021 amendments) introduces Class MA, which permits the change of use of buildings and associated curtilage from Use Class E (Commercial, Business and Service) to Use Class C3 (Dwellinghouses).

Development under Class MA is subject to a prior approval process, whereby the Local Planning Authority must determine whether prior approval is required in respect of specified matters. These include consideration of the potential impacts of noise from commercial premises on the intended occupiers of the development, among other factors.

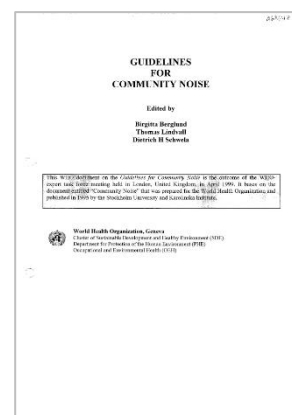


10.2. Technical Standards and Guidance

10.2.1. WHO Guidelines for Community Noise (1999)

The World Health Organisation's (WHO) 1999 Guidelines for Community Noise provide recommended maximum internal and external noise levels for a range of situations. These values were developed from a comprehensive review of the scientific evidence on community noise exposure and its associated health and social effects.

Although not adopted as formal policy, the 1999 guidelines have been widely cited and have strongly influenced subsequent national and international standards. Their recommendations form the basis of the criteria set out in BS 8233:2014 (Guidance on sound insulation and noise reduction for buildings) and other related guidance documents. A summary of the 1999 guideline values is presented in **Table 10.1**.



In 2018, the WHO issued the Environmental Noise Guidelines for the European Region, lowering several recommended limits—particularly for transport noise—based on evidence of links to cardiovascular disease, sleep disturbance, and reduced quality of life. However, BS 8233:2014 remains based on the 1999 WHO guidance and does not incorporate the 2018 updates, creating a gap between UK practice and the more precautionary WHO recommendations.

Table 10.1: Summary of WHO Noise Criteria

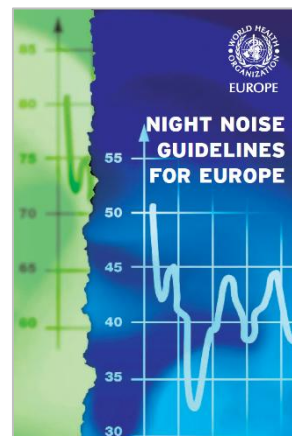
Residential Environment	Critical Health Effect	L_{Aeq}	L_{AFmax}	Time Base
Outdoor living area	Serious annoyance, daytime and evening	55	-	07:00-23:00
	Moderate annoyance, daytime and evening	50	-	07:00-23:00
Dwelling, indoors	Speech intelligibility and moderate annoyance, daytime and evening	35	-	07:00-23:00
Inside bedrooms	Sleep disturbance, night-time	30	45	23:00-07:00
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	60	23:00-07:00

10.2.2. WHO Night Noise Guidelines for Europe (2009)

In 2009, the World Health Organization released the Night Noise Guidelines for Europe as a partial revision and expansion of the Guidelines for Community Noise, focusing on advances in scientific understanding of night-time noise exposure.

The 2009 document advises that an $L_{\text{night, outside}}$ level of 40 dB should be the goal of the Night Noise Guideline (NNG) to safeguard the population, particularly vulnerable groups such as children, older adults, and those with chronic illnesses.

Recognising that this benchmark is not realistically attainable in many contexts, the guidelines also propose an interim target of 55 dB $L_{\text{night, outside}}$ for countries where the 40 dB objective cannot be met in the near term and where policymakers pursue a gradual, stepwise implementation.

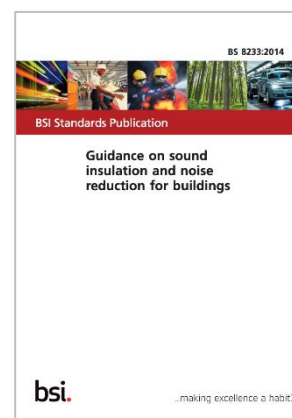


10.2.3. BS 8233:2014

British standard BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings' was originally published in 1999. The current version of the standard was published in 2014.

BS 8233:2014 indicates that to control external noise ingress into a proposed development, a number of planning stages should occur as follows:

1. Site Assessment:
 - a. Identify significant existing and potential noise sources
 - b. Measure and/or estimate noise levels
 - c. Evaluate layout options of the proposed scheme.
2. Establish design noise levels for internal and external spaces.
3. Determine the building envelope performance, including sound insulation and the ventilation strategy.



BS 8233:2014 also provides recommended design noise levels for different types of buildings. For dwellings, flats, and other residential rooms (when unoccupied), the values are given in **Table 11.2** below (reproduced from Table 4, Section 7.7.2 of BS 8233:2014).

The guidance states: "In general, for steady external noise sources, it is desirable that the internal ambient noise level does not exceed the guideline values."

Table 10.2: BS 8233:2014 – Indoor Ambient Noise Levels for Dwellings

Activity	Locations	07:00 to 23:00	23:00 to 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 $L_{Aeq,8hr}$
Night-time Maxima Events	Bedroom	–	45 dB L_{Amax} ^{NOTE}

NOTE: In noise sensitive rooms at night (e.g. bedrooms), individual noise events (from all sources) should not normally exceed 45 dB L_{AFmax} more than 10 times at night.

When considering the internal and external noise criteria set out in BS 8233, the following points should be noted:

1. BS 8233:2014 advises that its criteria should be applied flexibly. *“Where development is considered necessary or desirable... the internal target level may be relaxed by up to 5 dB and reasonable internal conditions still achieved.”*
2. The quoted noise levels are annual averages and *“do not need to be achieved in all circumstances”* (e.g. New Year’s Eve, fireworks night).
3. The internal values apply primarily to steady external noise sources (e.g. traffic, fixed plant). Unlike BS 8233:1999, the 2014 version does not prescribe criteria for maximum noise events. Instead, it notes: *“Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$ depending on the character and number of events per night. Sporadic noise events could require separate values.”* For sites affected by such events, it is appropriate to refer to the WHO Guidelines on Community Noise, which advise that good sleep is generally protected where internal L_{AFmax} does not exceed 45 dB more than 10–15 times per night.
4. Where compliance with BS 8233 relies on closed windows, the standard emphasises the need for *“appropriate alternative ventilation that does not compromise the facade insulation or resulting noise level.”*
5. BS 8233 also provides guidance on external amenity spaces, stating: *“It is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$ with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments.”* However, it recognises this is not always achievable. In locations such as city centres or near strategic transport corridors, a balance may be required between higher external noise levels and other planning considerations. In such cases, development should

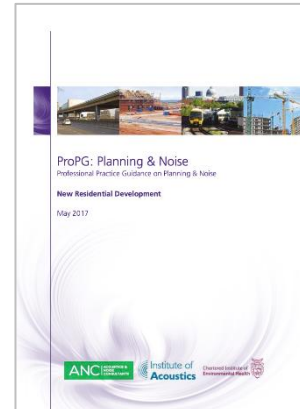
aim for the lowest practicable external levels, but noise should not be a barrier to development.

10.2.4. ProPG: Professional Practice guidance on Planning & Noise

The Professional Practice Guidance on Planning and Noise (ProPG, 2017) sets out a proportionate, risk-based approach for assessing noise in new residential developments.

It involves two stages:

- **Stage 1 – Initial Risk Assessment:** External noise is assessed against the risk of adverse effects, indicating the site's likely acoustic challenges.
- **Stage 2 – Detailed Assessment:** Four key elements are considered to confirm site suitability, ensuring good acoustic design, compliance with internal noise limits in habitable rooms, and acceptable noise levels in gardens and outdoor spaces. This stage functions as an acoustic design statement (ADS).



This framework helps developers, practitioners, and decision-makers gauge the acoustic suitability of a site, with higher-risk sites recognised as requiring more robust mitigation.

Figure 10.1 sets out the initial site risk assessment. Stage 2 then considers whether the site is suitable for housing, ensuring that good acoustic design principles are applied from the outset, with appropriate internal noise levels in habitable rooms and acceptable external levels in gardens and amenity spaces.

The ProPG promotes “good acoustic design for all developments with the aim of protecting future residents from the effects of noise.”

Para 2.21 highlights that suitable internal noise levels should first be achieved with windows open:

“Using fixed unopenable glazing for sound insulation purposes is generally unsatisfactory and should be avoided; occupants generally prefer the ability to have control over the internal environment using openable windows, even if the acoustic conditions would be considered unsatisfactory when open. Solely relying on sound insulation of the building envelope ... is not regarded as good acoustic design.”

Where open-window conditions cannot achieve targets, the ProPG (notes to Figure 2) advises:

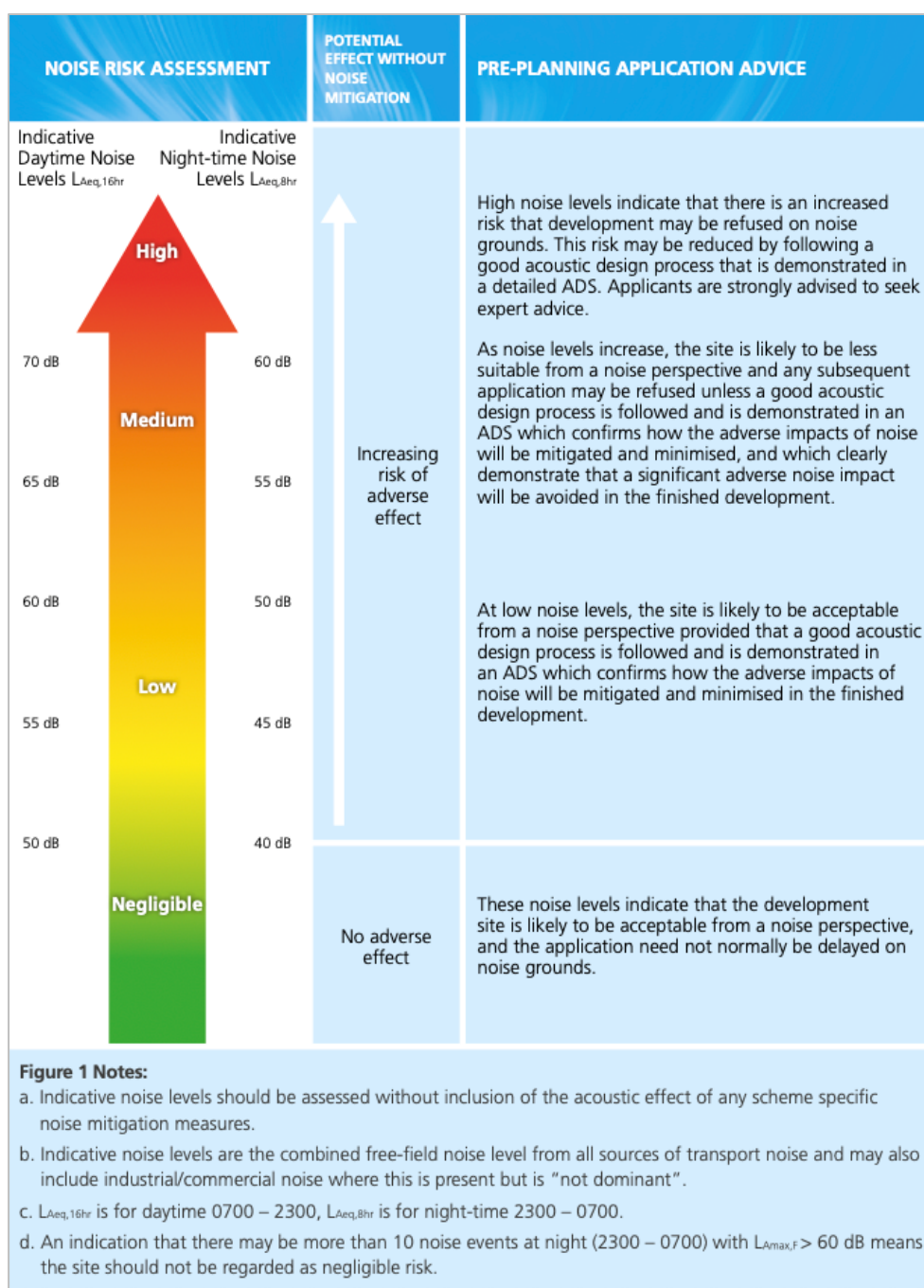
“Designing the site layout and the dwellings so that the internal target levels can be achieved with open windows in as many properties as possible demonstrates

good acoustic design. Where it is not possible ... internal noise levels can be assessed with windows closed...

In such cases, ventilation and overheating must also be considered. Para 2.36 notes:

“Where a scheme is reliant on open windows to mitigate overheating, it is also necessary to consider the potential noise impact during the overheating condition. In this case a more detailed assessment of the potential impact on occupants should be provided.”

Figure 10.1: ProPG: Stage 1 Initial Site Noise Risk Assessment



10.2.5. Acoustics, Ventilation and Overheating (AVO) Guide (2020)

The AVO Guide, published by the Association of Noise Consultants (ANC), sets out an approach for acoustic assessments that recognises the interdependence of acoustics, ventilation, and overheating. Its purpose is to ensure the ventilation strategy is considered as part of the acoustic design process.

The Guide emphasises:

“The starting position when considering mitigation of noise impact on new residential development is to apply good acoustic design, site-wide, as described in the ProPG.”



Since the ProPG prioritises attempting to achieve suitable internal noise levels with windows open, the AVO Guide should only be applied after good acoustic design principles have been addressed.

Ventilation and Overheating Conditions

The Guide distinguishes between:

- ADF ventilation condition – whole-house ventilation, required at all times; and
- Overheating condition – additional ventilation to prevent overheating, required only part of the time.

“In terms of noise effect, the important distinction between these two situations is that the ADF ventilation condition applies for the entire time whereas the overheating condition applies only for part of the time.”

Three-Step Process

The AVO Guide sets out a three-step process:

1. Quantify external noise levels – as in a standard ProPG assessment.
2. Assess noise & ventilation – evaluate the effect of ventilation strategies on noise levels in bedrooms and living rooms.
3. Assess noise & overheating – categorise rooms (Negligible, Low, Medium, High risk) to establish the need for further analysis or mitigation, including mechanical system noise.

Step 2 – Ventilation Condition

Internal noise levels must remain acceptable when adequate ventilation is provided. Figures 3.2 and 3.3 of the AVO Guide provide guidance on suitable strategies based on external noise.

At the time of publication, these strategies aligned with Approved Document F (ADF) systems¹:

System 1 – Background ventilators & intermittent extract fans

System 2 – Passive stack ventilation

System 3 – Continuous mechanical extract (MEV)

System 4 – Mechanical supply & extract with heat recovery (MVHR)

In practice, **Figures 10.2** and **10.3** assume:

- Systems 1/2 include two trickle vents,
- System 3 includes one trickle vent,
- System 4 requires none.

Step 3 – Overheating Condition

The Guide accepts some flexibility under overheating conditions:

“It is considered reasonable to allow higher levels of internal ambient noise from transport sources when higher rates of ventilation are required in relation to the overheating condition... occupants may, at their own discretion, be more willing to accept higher short-term noise levels in order to achieve better thermal comfort. The importance of control is relevant to daytime exposure, but not to night time exposure where the consideration is sleep disturbance.”

Assessment follows a two-level approach:

- **Level 1** – Compare external noise against risk categories, assuming a 13 dB attenuation for open windows.
 - Negligible sites: open windows are sufficient.
 - Medium/high-risk sites: proceed to Level 2.
- **Level 2** – Calculate internal noise with windows open to assess impacts when windows are used for cooling.

¹ Note: The 2021 revision of ADF (effective June 2022) replaced the “System 1–4” terminology with descriptive names (e.g. Natural Ventilation, MEV, MVHR) and no longer provides detailed guidance for System 2 (Passive Stack Ventilation).

Figure 10.2: Guideline Values for Ventilation in AD: F – External L_{Aeq}

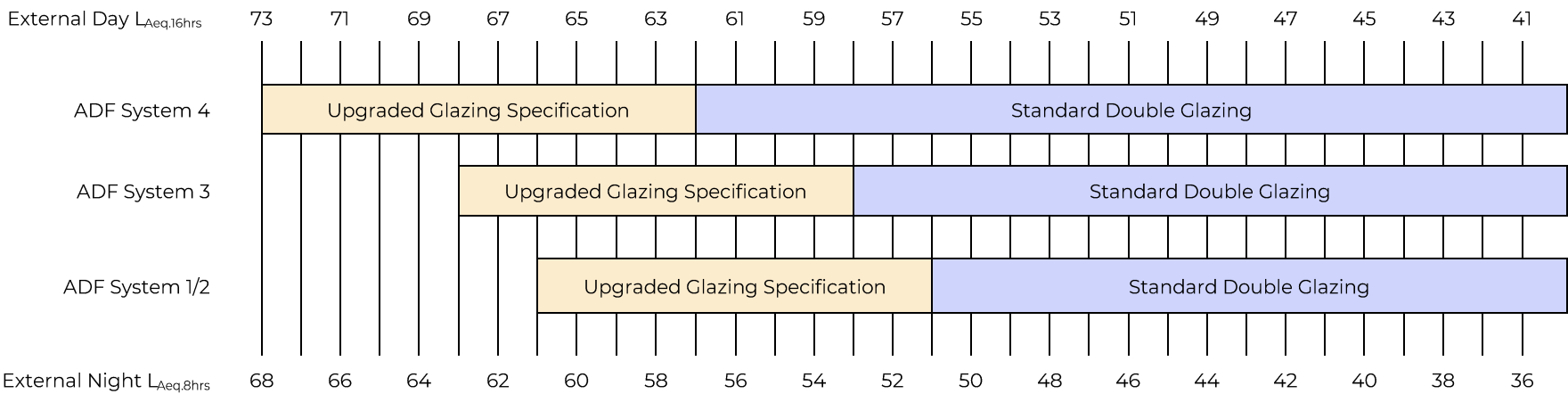
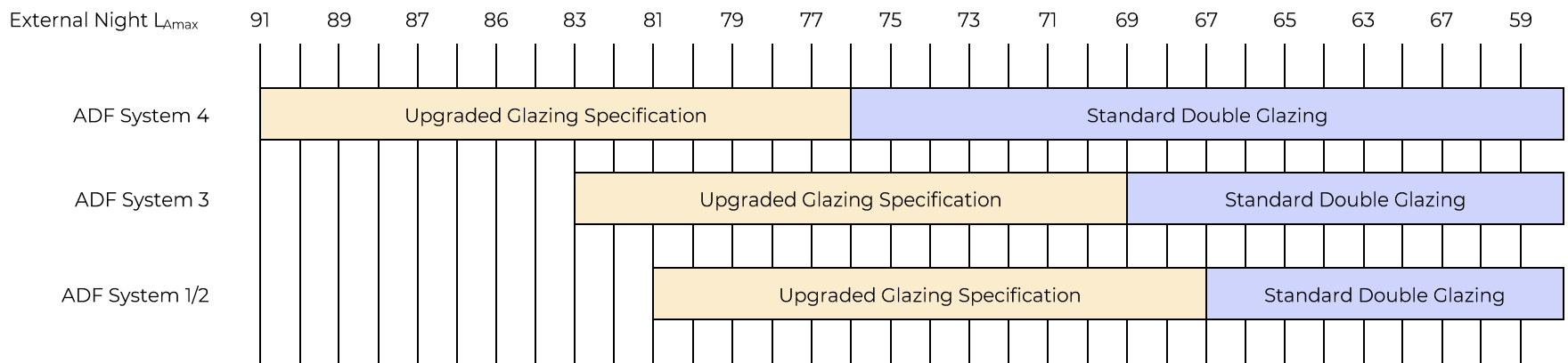


Figure 10.3: Guideline Values for Ventilation in AD: F – External L_{Amax}



Note: The above external L_{Amax} values should not be exceeded more than 10 times per day. Standard double glazing refers to units with a minimum SRI (R_w) of 33 dB.

Table 10.3: Initial Site Risk Assessment in Relation to Overheating Condition

Daytime dB $L_{Aeq,16hr}$	Night-time dB $L_{Aeq,8hr}$	Night-time dB L_{AFmax}	Level 1 Risk	Level 2 Assessment	Outcome	Openable Windows?
≤ 48 dB(A)	≤ 43 dB(A)	-	Negligible	Not Required	Noise can be heard, but does not cause any change in behaviour or attitude	Yes
> 48 dB(A) to ≤ 53 dB(A)	> 43 dB(A) to ≤ 48 dB(A)	-	Low	Optional	Limited behavioural change is expected unless conditions are prevalent for most of the time.	Yes
> 53 dB(A) to ≤ 63 dB(A)	> 48 dB(A) to ≤ 55 dB(A)	Normally Exceeds > 74 dB(A) to ≤ 78 dB(A)	Medium	Recommended	At higher noise levels, more significant behavioural change is expected and may only be considered suitable if occurring for limited periods.	Yes, Depending on Duration
> 63 dB(A)	> 55 dB(A)	Normally Exceeds 78 dB(A) at night	High	Recommended	Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	No



10.2.6. Overheating: Approved Document O

Approved Document O (AD-O), Overheating, was published in December 2021 and came into effect in England on 15 June 2022. Its purpose is to protect occupant health and welfare by reducing the risk of excessively high indoor temperatures.

AD-O requires that residential buildings:

- limit unwanted solar gains in summer; and
- provide adequate means of removing excess heat.

When meeting these requirements:

- the safety and reasonable enjoyment of occupants must be considered; and
- mechanical cooling should only be used where natural and mechanical ventilation cannot adequately remove heat.

Although AD-O is a Building Regulations requirement rather than a planning requirement, overheating and the amenity of future residents are material planning considerations. As such, AD-O should be considered as part of a development's overall glazing, ventilation, and overheating strategy.

Methods of Compliance

AD-O sets out two routes to compliance:

1. **Simplified Method** – limits glazing areas depending on dwelling location, orientation, and cross-ventilation.
2. **Dynamic Thermal Modelling Method** – required if the Simplified Method is not met. This involves detailed modelling and may require additional measures such as opening windows, ventilation louvres in external walls or mechanical ventilation.

Noise Considerations

Paragraph 3.2 highlights:

“In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).”

Paragraph 3.3 further notes that windows are likely to be closed at night if internal noise in bedrooms exceeds:

- 40 dB $L_{Aeq,8h}$ (11pm–7am); and
- 55 dB L_{AFmax} more than 10 times per night.



10.2.7. Approved Document O: Noise Guide (2024)

The Approved Document O Noise Guide was published in November 2024 by the Institute of Acoustics (IOA) and the Association of Noise Consultants (ANC). It was produced to support acoustic professionals in demonstrating compliance with Approved Document O (AD-O) of the Building Regulations.

While AD-O sets internal noise limits for situations where open windows cannot be used to manage overheating, the IOA/ANC Guidance translates these into external noise thresholds.

Table 10.4 identifies the external levels above which the Simplified Method cannot be used to demonstrate compliance with AD-O. The Guidance notes:

“It may be possible to increase these values and still satisfy the requirements of the simplified method using acoustically specified balconies.”

It further cautions:

“Based on the external noise levels presented in (Table 3.5), it is likely that external noise will be an issue for many sites exposed to only modest levels of noise.”



Table 10.4: External Noise Levels that Exclude the Simplified Method

Parameter	High Risk Location ¹	Moderate Risk Location ²
$L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am)	45 dB $L_{Aeq,8hr}$	50 dB $L_{Aeq,8hr}$
L_{AFmax} , more than 10 times per night (between 11pm and 7am)	60 dB L_{AFmax}	65 dB L_{AFmax}

Note 1: High Risk Locations have been identified in Appendix C of AD-O as certain postcodes in London and select postcodes in Central Manchester.

Note 2: Moderate Risk Locations are all other locations in England not previously identified as High-Risk Locations.

If noise levels exceed those in Table 3.5, compliance with AD-O must be demonstrated using the Dynamic Thermal Modelling Method. However, exceeding the thresholds does not automatically mean that windows cannot be opened or that mechanical ventilation is required. In some cases, sufficient heat removal may still be achieved using smaller openable window areas (e.g. restricted panels) in combination with ventilation louvres in external walls. The AVO Guide offers more detailed guidance on when windows can and cannot be relied upon in relation to noise.

10.2.8. Possible Options for the identification of SOAELs and NOAELs in Support of the NPSE (2014)

Commissioned by Defra and prepared by AECOM, Possible Options for the Identification of SOAELs and NOAELs in Support of the NPSE sought to assign values to the concepts of SOAEL (Significant Observed Adverse Effect Level) and NOAEL (No Observed Adverse Effect Level) introduced by the Noise Policy Statement for England (NPSE).

Following the withdrawal of PPG24: Planning and Noise in 2012, which provided Noise Exposure Categories with defined numerical boundaries, the NPSE was criticised for lacking specific numerical guidance. Although both the NPSE and NPPF promote developing location-specific criteria, in practice the absence of benchmarks made implementation difficult.

The Defra project therefore proposed both specific values and ranges of values for SOAELs and NOAELs across different noise sources. These are summarised in **Table 10.5**.

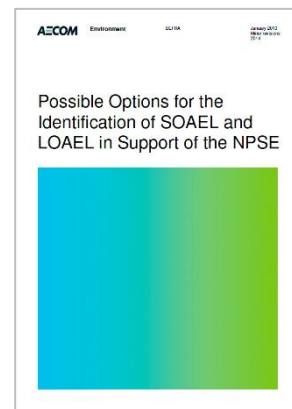


Table 10.5: Possible Value & Ranges of Values for LOAELs & SOAELs

Source	Effect	LOAEL	SOAEL
Road	Annoyance (Daytime)	56 (53-59)	66 (64-68)
	Sleep (Night-time)	46 (43-52)	56 (51-64)
Rail	Annoyance (Daytime)	63 (61-66)	72 (70-74)
	Sleep (Night-time)	55 (52-63)	68 (61-77)
Air	Annoyance (Daytime)	52 (50-54)	60 (58-62)
	Sleep (Night-time)	41 (40-49)	53 (47-60)

10.2.9. BS 4142:2014+A1:2019

British Standard BS 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound', sets out how to measure and rate industrial or industrial-type noise against background levels outside dwellings in mixed residential/industrial areas. The rating level is applied to the "specific noise source" and compared with the background level to indicate the likelihood of complaints.

The guidance states:

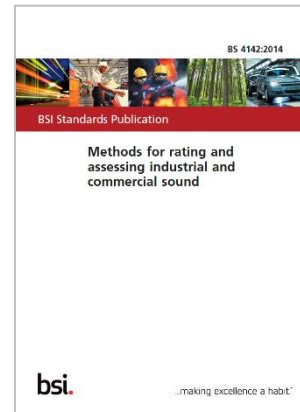
- ◆ "A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context."
- ◆ "A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context".
- ◆ "The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact ... Where the rating level does not exceed the background sound level, this is an indication of ... low impact, depending on the context".

"Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact."

BS 4142 further notes:

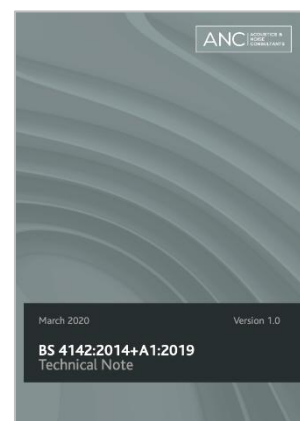
"Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night".

Accordingly, assessments should also consider absolute noise levels at the receptor, with reference to the relevant BS 8233 and WHO guidelines.



10.2.10. BS 4142:2014+A1:2019 Technical Note (2020)

In March 2020, the Association of Noise Consultants (ANC) published a Technical Note to support BS 4142. The Note recognises "concerns for some users of BS 4142" and aims "to assist readers with a reasonable interpretation and application of BS 4142 as a whole". While not official guidance, it provides clarification and examples of best practice. The following points are most relevant to this assessment.



Internal Noise Levels

The Note confirms that BS 4142 *“is not intended to be applied to the assessment of indoor sound levels”* and therefore cannot be used for façade design. While BS 4142 can help assess the likelihood of adverse impacts, internal design and mitigation should be guided by other standards, notably BS 8233, subject to its scope and limitations.

New Noise-Sensitive Receptors

A limitation of BS 4142 is its lack of differentiation between new noise sources and new receptors. Subclause 8.5 acknowledges that when introducing a new receptor, existing industrial/commercial sound is part of the acoustic environment, and *“other guidance and criteria ... can also inform the appropriateness”* of development and mitigation.

The Technical Note advises maintaining BS 4142's core principles while supplementing with other standards where appropriate, for example:

- ◆ **BS 8233:** where continuous industrial/commercial sound is present near new housing;
- ◆ **ProPG:** where night-time maxima are critical;
- ◆ **DMRB:** where traffic changes dominate;
- ◆ **BS 5228:** for temporary/construction-type activity.

It cautions that using BS 4142 for new receptors can be problematic, as separating *“legitimate commercial residual sources”* from background may exaggerate adverse outcomes. In such cases, *“alternative guidance and standards should be referenced,”* with careful regard to their scope. Different approaches may be required depending on whether the source is continuous, intermittent, or dominated by one premises.

Background Sound Levels

BS 4142 gives no fixed method for determining background sound levels. The Technical Note similarly avoids prescribing one but advises that a single value may not always be appropriate. Instead, *“a range of values over one or more time periods may be more appropriate”*, with assessments focusing on the period of greatest interest (e.g. quietest night period or complaint time).

It stresses that background levels must be representative of typical conditions, supported by time histories, histograms, and cumulative data. The ANC Working Group noted that *“there are no ‘correct’ answers, only judgement and justification”*.

Context

BS 4142 requires consideration of context but provides little detail. The Technical Note clarifies that absolute sound levels may outweigh relative differences when both background and rating levels are low. For instance, a 30 dB rating level exceeding a 20 dB background

(normally indicating a significant adverse impact) may in practice be acceptable. Conversely, low absolute levels could sometimes worsen perceived impact.

Although BS 4142 does not define “low,” the 1997 version suggested <30 dB L_{A90} as very low background and <35 dB $L_{A,T,r}$ as low rating levels. The Working Group noted these values “*would not be unreasonable*” but should be applied with professional judgement. Other contextual factors include:

- ◆ neighbourhood character;
- ◆ legitimacy of the industrial use (e.g. planning consent, permits);
- ◆ implementation of best practicable means;

Examples highlight how context may alter conclusions, such as recent vs historic industrial activity, or a drive-thru adjacent to a busy road where baseline noise already masks impacts.

10.2.11. The Little Red Book of Acoustics (4th ed., 2024)

First published in 2007, The Little Red Book of Acoustics: A Practical Guide remains a widely used reference, valued for its clarity and inclusion in Institute of Acoustics reading lists.

The 4th edition (2024) incorporates updates to BS 8233 and BS 4142 and introduces the LRB Method for determining representative background sound levels under BS 4142. Recognising the absence of a fixed method in BS 4142, the LRB Method applies a modal approach with a distribution threshold:

1. Count the frequency of each background s_{ound} level value.
2. Start with the most common value (or lowest if multiple are tied).
3. Test whether $\leq 45\%$ of data fall below it.
 - a. If more than 45% fall below, reject the candidate.
 - b. If $\leq 45\%$, accept it as the representative level.

This method provides a structured approach to identifying representative background sound levels while aligning with the principles of BS 4142.

11. Appendices

Appendix 1: Glossary

Term	Explanation
Absorption Coefficient	Fraction of incident sound absorbed by a material (0 = none, 1 = complete absorption).
AD-F (Approved Document F)	UK Building Regulations guidance on ventilation. Formerly described “Systems 1–4”; now uses descriptive names (Natural Ventilation, MEV, MVHR).
AD-O (Approved Document O)	UK Building Regulations guidance on overheating. Requires mitigation strategies that consider external noise constraints on open windows.
Ambient Noise	All-encompassing background sound at a location, including natural and man-made sources.
Background Sound Level	In BS 4142, the A-weighted sound level exceeded for 90% of the time, representing the underlying sound environment.
BS 8233	<i>Guidance on Sound Insulation and Noise Reduction for Buildings</i> . Provides internal and external noise criteria for residential and non-residential buildings.
BS 4142	<i>Methods for rating and assessing industrial and commercial sound</i> . Describes how to assess industrial/commercial noise against background levels.
Context	In BS 4142, consideration of wider acoustic and site-specific factors beyond numerical results.
dB(A)	A-weighted decibels. Adjusts measurements to reflect the sensitivity of human hearing. Standard in environmental noise assessment.
Decibel (dB)	Logarithmic unit for sound level, expressing a ratio relative to a reference pressure (20 µPa). Used for sound pressure levels, changes in level, and sound insulation.
$D_{n,e,w}$	Weighted element-normalised level difference. Field measure of façade or external element sound insulation.
$D_{nT,w}$	Weighted standardized level difference. Field measure of airborne sound insulation between rooms.

Frequency (Hz)	Unit of frequency, equal to one cycle per second. Determines pitch.
Hertz (Hz)	See <i>Frequency</i> .
$L_{A10,T}$	A-weighted sound level exceeded for 10% of the period. Historically used to describe road traffic noise.
$L_{A90,T}$	A-weighted level exceeded for 90% of the period. Used as background sound level in BS 4142.
$L_{Aeq,T}$	Equivalent continuous A-weighted sound level over a given period T. Represents the energy-averaged noise level. Used in BS 8233 and ProPG.
L_{AFmax}	Maximum A-weighted sound level recorded during a measurement period. Relevant to sleep disturbance criteria.
LOAEL	Lowest Observed Adverse Effect Level – where adverse effects begin to be observed.
SOAEL	Significant Observed Adverse Effect Level – where significant adverse effects begin to be observed.
NOAEL	No Observed Adverse Effect Level – below which no adverse effects are observed.
ProPG	<i>Professional Practice Guidance on Planning and Noise</i> (2017). Provides staged risk-based approach for residential noise assessment.
Rating Level (LA_r,Tr)	In BS 4142, the specific sound level with penalties for acoustic features (e.g. tonality, impulsivity).
Reverberation Time (RT60 / T60)	Time for sound to decay by 60 dB after the source stops. Indicates room “liveliness.”
Rw (or SRI)	Weighted sound reduction index. Laboratory measure of a building element's sound insulation. Higher = better.

Appendix 2: Equipment and Calibration Certificates

Equipment Type	Manufacturer	Serial Number	Last Calibration	Next Calibration
Fusion 4G Sound & Vibration Analyser	ACOEM	14388	24 th October 2024	October 2026
40CD Microphone Capsule	G.R.A.S.	470605	24 th October 2024	October 2026
PRE22 Pre-Amplifier	ACOEM	2138080	24 th October 2024	October 2026
CAL-01 Calibrator (Class 1)	ACOEM	990456	24 th October 2025	October 2026
DMK01 Weather Protection Kit	ACOEM	Not Applicable		
RAL 135-5M 5m Cable for PRE 22	ACOEM/LEMO	Not Applicable		



Tests report

TR-REP-10875.xls

ISSUED FOR :

ACOUSTIC1

Acoustic1

Overdale

Manordeilo

SA19 7BD Llandeilo

United Kingdom

Name and location of the laboratory of tests:

Acoustic1 - Overdale Manordeilo, Llandeilo

Carmathenshire UK SA19 7BD

TESTED INSTRUMENT

Designation :

Integrator Sound Level Meter

Manufacturer :

01dB

Type :

FUSION + DMK

Serial number :

14388

Identification number :

Date of issue :

24/10/2024

This report includes 7 pages

The measurements are performed according to the IEC 61672-3, Electroacoustics, - Sound level meters – Part 3: Periodic tests.

Steve THOMAS

Head of calibration laboratory at Acoustic 1

THIS REPORT is compliant with THE FD X 07-012 STANDARD DOCUMENTATION

This document may not be reproduced other than in full, except with the prior written approval of the laboratory.

01dB-Metravib SAS - Head Office: 200 chemin des Ormeaux - F-69578 Limonest Cedex - France // Phone: +33 4 72 52 48 00 - Fax: +33 4 72 52 47 47 // acoemgroup.com

A simplified joint stock company with a capital of 7,331,298 EUR - SIRET: 409 869 708 00019 - Lyon Trade Register: 409 869 708 - European VAT number: FR 82 409 869 708

01dB • ECOTECH • METRAVIB • ONEPROD • FIXTURLASER • MEAX



Tests report:
TR-REP-10875.xls

Page 3 of 7

Instruments used for tests:

Designation	Manufacturer	Type	Serial number	Identification number
Insulated chamber	SKC Acoustic	-	-	-
Waveform generator	KEYSIGHT	33500B	MY57301384	-
Programmable Attenuator	ACOEM	OUT1694000	17-10-208	-
Electrostatic actuator	GRAS	14AA	288498	-
Thermometer, hygrometer, barometer	TESTO	622	39517641/806	-
Calibrator	ACOEM	CAL 21	34675324	-

Results:

Mentioned expanded uncertainties correspond to two standard uncertainty types ($k=2$). Standard uncertainties are calculated including different uncertainty components, reference standards, instruments used, environmental conditions, calibrated instrument contribution, repeatability...

The indicated Maximum Permissible Errors (M.P.E.) are the ones defined in the standard 61672-1 for a class 1 sound level meter.

Indication at the calibration check frequency

Initial indication	Correction	Adjusted indication	Tolerance
(dB)	(dB)	(dB)	(dB)
93.6	0.4	93.8	+/- 1.0

Self-generated noise

0° RA208 + short windscreen

Microphone replaced by the electrical input-signal device	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 14	9.9
Leq dBB	< 15	9.8
Leq dBC	< 20	11.6
Leq dBZ	< 21	17.8

Microphone installed	Nominal value (dB)	Displayed value (dB)
Leq dBA	< 20	15.4

● 01dB

ACOEM Group

Tests report:
TR-REP-10875.xls

Page 4 of 7

Acoustical signal tests of a frequency weightings

0° RA208 + short windscreen	Measurement error		Uncertainty (dB)	Maximum Permissible Error (dB)
	C (dB)			
125 Hz	-0.1		0.3	+/- 1,0
1000 Hz	0.0		0.3	+/- 0,7
8000 Hz	-1.2		0.5	-2.5 : +1.5

Electrical signal tests of frequency weightings

0° RA208 + short windscreen	Measurement error			Uncertainty (dB)	Maximum Permissible Error (dB)
	Z (dB)	A (dB)	C (dB)		
63 Hz	-0.2	-0.2	-0.2	0.4	+/- 1,0
125 Hz	-0.2	-0.3	-0.1	0.4	+/- 1,0
250 Hz	-0.1	-0.2	-0.1	0.4	+/- 1,0
500 Hz	0.0	-0.1	0.0	0.4	+/- 1,0
1000 Hz	0.0	0.0	0.0	0.4	+/- 0,7
2000 Hz	0.1	0.1	0.1	0.4	+/- 1,0
4000 Hz	0.5	0.5	0.5	0.6	+/- 1,0
8000 Hz	-0.5	-1.0	-1.0	0.6	-2,5 ; +1,5
16000 Hz	-3.1	-8.4	-8.4	0.4	-16,0 ; +2,5

Frequency and time weightings at 1 kHz

0° RA208 + short windscreen	Displayed value (dB)	Measurement error (dB)	Uncertainty (dB)	M.P.E. (dB)
Lp dBA / 1000 Hz Fast	94.1	Reference	0.0	
Lp dBA / 1000 Hz Slow	94.1	0.0	0.0	+/- 0,1
LEQ dBA / 1000 Hz	94.0	0.1	0.0	+/- 0,1
Lp dBC / 1000 Hz Fast	94.1	0.0	0.0	+/- 0,2
Lp dBZ / 1000 Hz Fast	94.1	0.0	0.0	+/- 0,2

Long-term stability

0° RA208 + short windscreen

Displayed value (dB)		Measured deviation (dB)	Uncertainty (dB)	Maximum Permissible Error (dB)
Initial indication	Final indication			
94.0	94.0	0.0	0.1	+/- 0,1



ACOEM Group

Tests report:
TR-REP-10875.xls

Page 7 of 7

Conclusion

CEI 61672-3 CEI:2013 Chapter:	Tests	Results
5	Preliminary inspection	Compliant
7	Environmental conditions	Compliant
10	Indication at the calibration check frequency	Compliant
11	Self-generated noise	Compliant
12	Acoustical signal tests of a frequency weighting	Compliant
13	Electrical signal tests of frequency weightings	Compliant
14	Frequency and time weightings at 1 kHz	Compliant
15	Long-term stability	Compliant
16	Level linearity on the reference level range	Compliant
18	Toneburst response	Compliant
19	C-weighted peak sound level	Compliant
20	Overload indication	Compliant
21	High-level stability	Compliant

FUSION user manual	DOC1131 version M February 2018
Type-approval certificate	France: LNE-27092 revision 2 dated 04/04/2017 Deutschland: DE-16-M-PTB-0006 dated 28/09/2016

#REF!

End of tests report

Sound Calibrator Certificate



Calibrator: 01dB 01DB CAL 01

Serial no: 990456
Level: 94.02 dB
Frequency: 1000.03 Hz

Reference conditions:
Pressure: 101.325 kPa
Temperature: 23.0 °C
Relative humidity: 50 %RH

The stated level is valid at measurement conditions.
Frequency stability: 0.00 %

Measurement conditions:
Pressure: 99.845 ± 0.005 kPa
Temperature: 23.3 ± 1.0 °C
Relative humidity: 51.5 ± 2.0 %RH

Measured according to IEC 60942.
The stated level is relative to 20µPa.
All results quoted are directly traceable to the National Physical Laboratory, London
with a calculated uncertainty less than 0.10 dB (2×sd).

Appendix 3: Measurement Results

Thursday 29th to Friday 30th January 2026

Time	dB $L_{Aeq,T}$	dB L_{AFmax}	dB L_{A10}	dB L_{A50}	dB L_{A90}
07:00	-	-	-	-	-
08:00	-	-	-	-	-
09:00	-	-	-	-	-
10:00	56.1	86.2	57.2	50.4	44.9
11:00	57.5	88.7	57.2	50.2	46.1
12:00	53.9	85.3	53.8	47.2	44.6
13:00	52.9	75.1	53.9	47.5	44.2
14:00	52.5	76.9	53.2	46.9	43.7
15:00	57.7	93.0	56.8	48.5	44.4
16:00	52.7	77.3	53.6	47.1	44.5
17:00	53.4	81.4	53.8	46.7	43.9
18:00	53.3	76.4	54.1	46.6	44.0
19:00	50.7	73.7	51.1	45.8	43.8
20:00	48.5	76.8	49.0	44.6	42.9
21:00	50.4	73.2	50.7	43.8	41.9
22:00	48.3	68.3	48.7	43.2	41.3
23:00	47.5	68.0	48.2	42.9	40.2
00:00	45.7	69.1	46.6	40.1	37.4
01:00	46.1	70.9	46.1	39.7	36.9
02:00	40.1	64.9	41.6	36.8	34.7
03:00	43.5	66.2	43.1	37.4	35.6
04:00	48.5	70.0	49.3	42.6	40.2
05:00	52.1	87.8	49.8	44.8	42.3
06:00	48.8	71.9	49.3	44.0	42.0
$L_{Aeq,16hr}$	53.0	93.0	53.3	46.8	43.9
L_{day}	53.7	93.0	54.8	47.9	44.5
$L_{evening}$	49.6	76.8	49.9	44.4	42.5
L_{night}	47.8	87.8	46.8	41.0	38.7

Friday 30th to Saturday 31st January 2026

Time	dB $L_{Aeq,T}$	dB L_{AFmax}	dB L_{A10}	dB L_{A50}	dB L_{A90}
07:00	50.2	70.4	50.3	46.1	44.3
08:00	53.2	79.1	54.1	46.7	44.3
09:00	53.4	75.7	54.0	46.2	43.9
10:00	51.3	79.7	52.4	45.5	42.7
11:00	51.2	74.1	51.8	45.9	42.9
12:00	54.3	78.8	54.5	46.2	42.5
13:00	53.2	76.7	56.4	48.5	44.6
14:00	52.2	73.5	53.9	48.0	45.0
15:00	53.8	85.0	54.5	48.8	46.0
16:00	56.3	86.4	56.4	51.0	48.7
17:00	56.7	76.9	57.8	53.2	51.3
18:00	55.1	78.4	56.1	49.7	47.8
19:00	53.2	74.6	54.8	47.3	45.2
20:00	50.2	76.5	50.5	44.4	42.0
21:00	50.1	74.1	50.8	43.1	40.1
22:00	46.6	67.8	49.0	42.9	40.4
23:00	46.0	69.8	47.5	41.0	38.9
00:00	44.3	67.2	43.4	38.2	35.3
01:00	44.2	70.7	45.0	39.9	37.6
02:00	38.9	61.8	41.0	36.3	34.1
03:00	41.6	69.2	41.6	36.6	34.4
04:00	46.3	67.9	46.7	40.9	38.9
05:00	50.2	84.6	50.4	44.6	41.1
06:00	47.8	67.8	48.7	43.6	40.8
$L_{Aeq,16hr}$	53.2	86.4	53.6	47.1	44.5
L_{day}	53.8	86.4	54.4	48.0	45.3
$L_{evening}$	50.6	76.5	51.3	44.4	41.9
L_{night}	46.1	84.6	45.5	40.1	37.6

Saturday 31st January 2026

Time	dB $L_{Aeq,T}$	dB L_{AFmax}	dB L_{A10}	dB L_{A50}	dB L_{A90}
07:00	47.6	69.9	48.9	44.5	42.9
08:00	52.1	76.9	52.5	47.3	44.5
09:00	53.2	74.7	54.9	46.4	43.9
10:00	51.9	74.9	54.0	47.6	43.8
11:00	51.6	75.6	53.1	46.5	42.6
12:00	51.3	71.2	52.2	44.0	41.5
13:00	-	-	-	-	-
14:00	-	-	-	-	-
15:00	-	-	-	-	-
16:00	-	-	-	-	-
17:00	-	-	-	-	-
18:00	-	-	-	-	-
19:00	-	-	-	-	-
20:00	-	-	-	-	-
21:00	-	-	-	-	-
22:00	-	-	-	-	-
23:00	-	-	-	-	-
00:00	-	-	-	-	-
01:00	-	-	-	-	-
02:00	-	-	-	-	-
03:00	-	-	-	-	-
04:00	-	-	-	-	-
05:00	-	-	-	-	-
06:00					
$L_{Aeq,16hr}$	47.3	76.9	52.6	46.0	43.2
L_{day}	48.6	76.9	52.6	46.0	43.2
$L_{evening}$	-	-	-	-	-
L_{night}	-	-	-	-	-

Appendix 4: Façade Sound Insulation Test Certificate

Standardised level difference measured in accordance with ISO 16283-3			
Field measurement of façade sound insulation			
Project No:	P1940	Date of Test:	18th June 2026
Client:	FECV Property Assets Ltd	Transmission Path:	External to receiving room
Location:	92 Audley Street, Reading	Building Element:	Façade
Description:	The tested façade comprised double-glazed units set within PVC frames, installed within a masonry brick/blockwork external wall. Window seals were present and appeared intact. Trickle ventilators were in the open position during the measurement.		
Approximate room volume:	140 m ³		

Frequency <i>f</i> Hz	Standardised Level Diff. <i>D</i> _{2m,nT} (dB)
50	
63	
80	
100	20.0
125	21.1
160	24.8
200	18.4
250	30.8
315	30.5
400	30.4
500	34.1
630	34.9
800	33.4
1000	33.9
1250	30.5
1600	33.7
2000	36.7
2500	32.7
3150	27.4
4000	
5000	

Rating in accordance with ISO 717-1:	
<i>D</i>_{2m,nT,w} = 32 dB	<i>D</i>_{2m,nT,w} + <i>C</i>_{tr} = 29 dB
Rating according to BS EN ISO 717-1:	<i>C</i> ₅₀₋₃₁₅₀ = -1 dB <i>C</i> _{tr,50-3150} = -4 dB
<i>D</i>_{2m,nT,w} (<i>C</i>; <i>C</i>_{tr}) : 32 (-1; -3) dB	<i>C</i> ₁₀₀₋₃₁₅₀ = -1 dB <i>C</i> _{tr,100-3150} = -3 dB
Evaluation based on field measurement using results obtained by an engineering method.	<i>C</i> ₅₀₋₅₀₀₀ = -1 dB <i>C</i> _{tr,50-5000} = -4 dB
	<i>C</i> ₁₀₀₋₅₀₀₀ = -1 dB <i>C</i> _{tr,100-5000} = -3 dB

Test Report #:	P1940	Consultant:	Mathew Vaughan BA (Hons) MSc MIOA	
Date:	18th June 2026	Signature:		