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MR. ADRIAN JONES

NOISE IMPACT ASSESSMENT REPORT

BURTON BUILDING, 26 BRIDGE STREET, WREXHAM LL13 7HP.

Client: Mr. Adrian Jones

Report Ref: P7857-R1-V1

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REPORT VERSION CONTROL:

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		[redacted]	[redacted]	[redacted]

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1 INTRODUCTION

1.1.1 By instruction from Mr. Adrian Jones (the client), NoiseAir was commissioned to conduct a noise impact assessment (NIA) to accompany a planning application (Ref: P/2024/1069), at: Burton Building, 26 Bridge Street, Wrexham LL13 7HP, herein referred to as the 'development site'.

1.1.2 The proposals have the potential to subject occupants of neighbouring residential premises to adverse noise impacts and as such, a noise impact assessment has been requested by the Local Planning Authority (LPA) to accompany the application.

1.1.3 This noise report has been prepared to accompany a planning application and assesses the results of a noise survey carried out in accordance with current guidance, including recommendations and mitigation, as appropriate.

1.2 Site Description

1.2.1 The development site (Burton Building) is situated within the jurisdiction of Wrexham County Borough Council and comprises a three-storey Grade II listed building and cellars, with two shops to street level and four residential flats across two upper floors.

1.2.2 The site is located adjacent to Bridge Street, which accommodates regular traffic flows and is considered the dominant existing noise source.

1.2.3 The vicinity surrounding the development site is of mixed commercial/ residential nature, with the closest residential premises located directly above, and c. 20 m to the south-east and south-west respectively.

1.2.4 **Figure 1** shows an aerial photograph of the development site with respect to the local area and its context.



Figure 1: Site aerial photograph.

1.3 Development Proposals

1.3.1 At the time of writing, proposals provided to NoiseAir detail:

'Change of use of building from Class A1 (shop) to Class A3 (Bar).'

1.3.2 Client proposals indicate that the bar intends to have a relaxed atmosphere with disco/ 80's music playback, and an outdoor seating area (located to the rear) hosting gentle activities such as ping pong or shuttle boards.

1.3.3 It is understood that there is to be no live music as part of the development proposal.

1.3.4 Proposed opening hours are:

- Monday to Sunday/ Bank Holiday 18:00 – 00:00

1.3.5 It is understood that there will be a full suite of drawings to accompany the planning application, however the current proposed floor plan is reproduced within **Figure 2**.

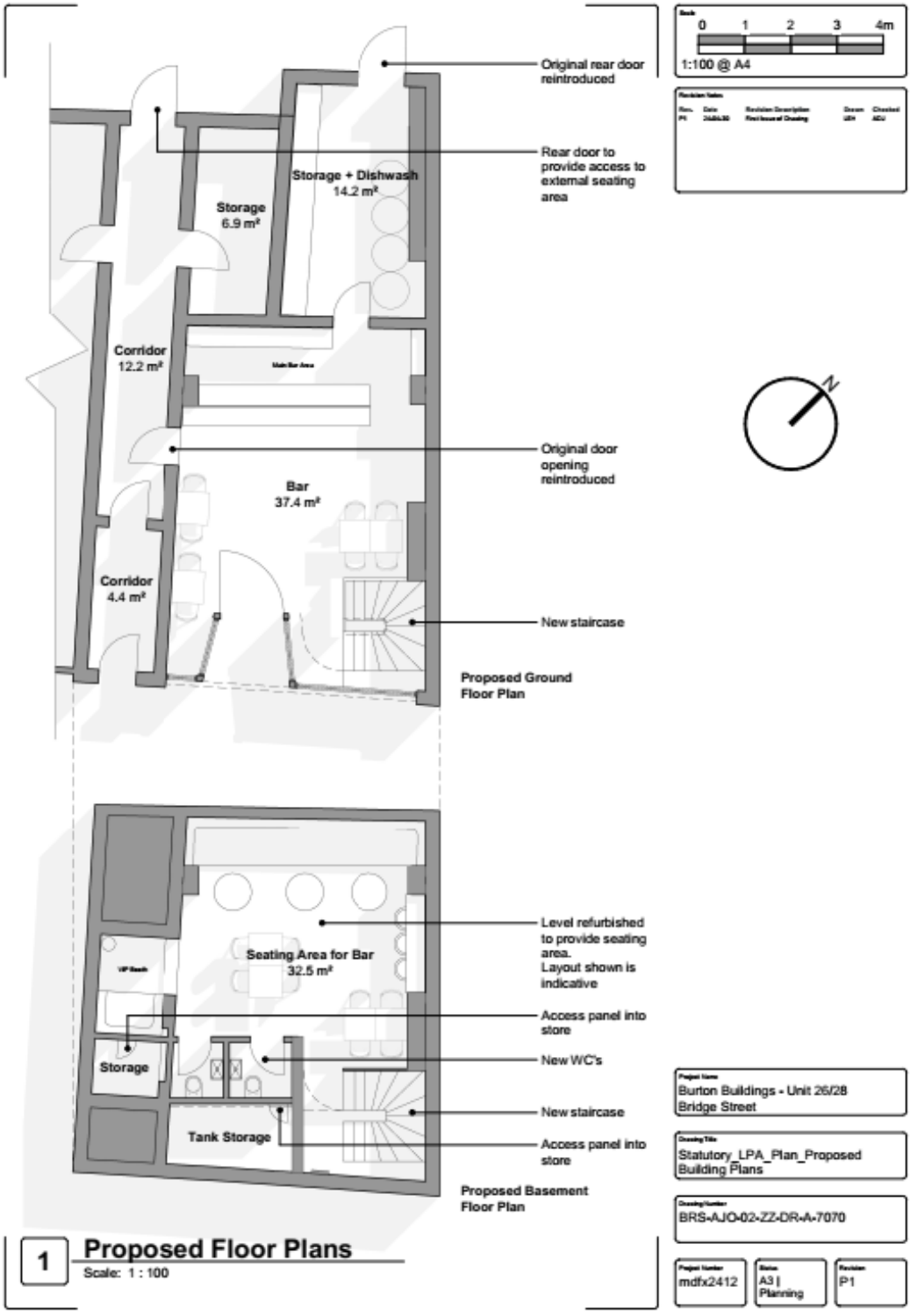


Figure 2: Proposed Floor Plan and Extraction Siting Location

2 ASSESSMENT METHODOLOGY AND SCOPE OF WORKS

2.1 Planning Guidance and Noise

2.1.1 This acoustic report has been prepared to accompany a planning application and therefore it is considered that reference should be made to the appropriate planning guidance documentation, specifically:

- Planning Policy Wales – Edition 10 (PPW), 2018; and,
- Planning Guidance (Wales) – Technical Advice Note 11 – Noise (TAN11), 1997.

2.1.2 A summary of the relevant planning documentation and its relevance with respect to noise is provided below

2.2 Planning Policy Wales [PPW 2018]

2.2.1 Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales.

2.2.2 The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the Planning (Wales) Act 2015, the Well-being of Future Generations (Wales) Act 2015 and other key legislation.

2.2.3 Section 6.7 of the PPW outlines planning policy with respect to Air Quality and Noise. PPW outlines that the planning system should maximise its contribution to achieving the well-being goals, and in particular a healthier Wales, by aiming to reduce average population exposure to air and noise pollution alongside action to tackle high pollution hotspots. In doing so, it should consider the long-term effects of current and predicted levels of air and noise pollution on individuals, society and the environment and identify and pursue any opportunities to reduce, or at least, minimise population exposure to air and noise pollution, and improve soundscapes, where it is practical and feasible to do so.

2.2.4 PPW also aligns with the agent of change principle which says that a business or person responsible for introducing a change is responsible for managing that change. In practice, for example, this means a developer would have to ensure that solutions to address air quality or noise from nearby pre-existing infrastructure, businesses or venues can be found and implemented as part of ensuring development is acceptable.

2.2.5 In proposing new development, planning authorities and developers must, therefore:

- address any implication arising as a result of its association with, or location within, air quality management areas, noise action planning priority areas or areas where there are sensitive receptors
- not create areas of poor air quality or inappropriate soundscape; and
- seek to incorporate measures which reduce overall exposure to air and noise pollution and create appropriate soundscapes.

2.2.6 Furthermore, PPW states that the potential impacts of noise pollution arising from existing development (be this commercial, industrial, transport related or cultural venues i.e. music venues, theatres or arts centres), must be fully considered to ensure the effects on new development can be adequately controlled to safeguard amenity. Any necessary measures and controls should be incorporated as part of the proposed new development. This will help to prevent the risk of restrictions or possible closure of existing premises or adverse impacts on transport infrastructure due to noise and other complaints from occupiers of new developments. It will be important that the most appropriate level of information is provided and assessment undertaken.

2.3 Technical Advice Note (Wales) – Noise [TAN 11 1997]

2.3.1 TAN 11 was introduced in 1997 and sets out guidance on the assessment of noise in Wales. It should be noted however that this document is currently under review.

2.3.2 TAN 11 sets out a series of Noise Exposure Categories (NECs) which have been derived to assist local planning authorities in their consideration of planning applications for residential development near transport related noise sources. The NECs are set out in Annex A of TAN 11.

2.3.3 Measures introduced to control the source of, or limit exposure to, noise should be proportionate and reasonable, and may include:

- engineering: reduction of noise at point of generation (e.g., using quiet machines and/or quiet methods of working); containment of noise generated (e.g., insulating buildings which house machinery and/or providing purpose-built barriers around sites); protection of surrounding noise-sensitive buildings (e.g., improving sound insulation in these buildings and/or screening them by purpose-built barriers);
- layout: adequate distance between noise source and noise-sensitive building or area; screening by natural barriers, other buildings, or non-critical rooms in a building;

- administrative: limiting operating time of noise source; restricting activities allowed on the site; specifying an acceptable noise limit.

2.3.4 TAN 11 states the following regarding noise exposure categories for dwellings:

*"When assessing a proposal for residential development near a source of noise, local planning authorities should determine into which of the four noise exposure categories (NECs) (**Table 1**) the proposed site falls, taking account of both day and night-time noise levels. Local planning authorities should then have regard to the advice in the appropriate NEC, as below:"*

Table 1: TAN 11 Noise Exposure Categories

Category	
A	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as desirable.
B	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection.
C	Planning permission should not normally be granted. Where it is considered that permission should be given, for example, because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.
D	Planning permission should normally be refused.

2.3.5 TAN 11 goes on to provide recommended noise exposure categories for new dwellings near existing noise sources. These are reproduced in **Table 2** below.

Table 2: Recommended Noise Exposure Categories for New Dwellings Near Existing Noise Sources

Noise Source	Noise Exposure Category			
	A	B	C	D
Road Traffic: 0700-2300 2300-0700	 <55 <45	 55-63 45-57	 63-72 57-66	 >72 >66
Rail Traffic: 0700-2300 2300-0700	 <55 <45	 55-66 45-59	 66-74 59-66	 >74 >66
Air Traffic: 0700-2300 2300-0700	 <57 <48	 57-66 45-57	 66-72 57-66	 >72 >66
Mixed Sources: 0700-2300 2300-0700	 <55 <45	 55-63 45-57	 63-72 57-66	 >72 >66

2.3.6 Annex B of TAN 11 outlines guidance of assessment of noise from different sources. When considering noise from industrial and commercial developments TAN 11 outlines the following guidance.

2.3.7 The likelihood of complaints about noise from industrial development can be assessed, where the Standard is appropriate, using guidance in BS 4142: 1990. Tonal or impulsive characteristics of the noise are likely to increase the scope for complaints and this is taken into account by the "rating level" defined in BS 4142. This "rating level" should be used when stipulating the level of noise that can be permitted. The likelihood of complaints is indicated by the difference between the noise from the new development (expressed in terms of the rating level) and the existing background noise. The Standard states that, 'A difference of around 10 dB or higher indicates that complaints are likely. A difference of around 5 dB is of marginal significance'. Since background noise levels vary throughout a 24 hour period it will usually be necessary to assess the acceptability of noise levels for separate periods (e.g., day and night) chosen to suit the hours of operation of the proposed development. Similar considerations apply to developments that will emit significant noise at the weekend as well as during the week. In addition, general guidance on acceptable noise levels within buildings can be found in BS 8233:1987

2.3.8 It should be noted that the British standard documents referenced in TAN 11 have been superseded, specifically BS 4142:2014 the latest main issue being in 2014, BS 4142:2014 is therefore considered the appropriate assessment document for assessment of noise from commercial and industrial sites.

2.4 Consultation and Scope of Works

2.4.1 The potential noise impact and general principles of assessment have been reviewed by NoiseAir, along with prior information provided directly from the LPA. The prior informative is reproduced below:

> *'Due to the presence of residential receptors near to the proposal this section is unable to make a recommendation based on potential noise without the submission of a music noise insulation and attenuation scheme:*
>
> *A scheme of noise insulation and attenuation measures shall be prepared by a suitably qualified and competent acoustic consultant. The scheme shall have regard to the following:*
>
> *The noise climate of the surrounding area shall be protected such that the A-weighted equivalent continuous noise level (LAeq) emanating from the application site, as*

measured 1 metre from any façade of any noise sensitive premises over any 5 minute period with entertainment taking place shall not increase by more that 3 dB as compared to the same measure, from the same position, and over a comparable period, with no entertainment taking place.

The unweighted equivalent noise level (Leq) in the 63 Hz Octave band, measured using the 'fast' time constant, inside any living room of any noise sensitive premises, with the windows open or closed, over any 5 minute period with entertainment taking place, shall show NOT increase as compared to the same measure from the same Location (S), and over a comparable period, with no entertainment taking place.'

2.4.2 Given the above, it is considered that this NIA addresses potential noise impact from:

- External music noise breakout; and,
- Internal music noise transfer across the separating party floor.

2.4.3 Although this report makes regard to Technical Advice Note (TAN) 11, it is reasoned that report this report also takes into account the most up to date British Standard, Specifically British Standard BS 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' (BS 8233:2014), which is widely adopted throughout the UK.

2.4.4 In the absence of any LPA criteria specific to internal noise transfer, this NIA reasons assessment in accordance with the criteria presented within BS 8233:2014.

2.4.5 The scope of this assessment is based upon noise at sensitive areas of the proposed development, i.e., existing residential living rooms / bedroom.

2.5 Assessment Criteria to be Adopted.

2.5.1 As there is currently no dedicated British Standard for assessment of noise from bar establishments, NoiseAir propose to adopt the criteria presented by the LPA (as detailed above within Section 2.3.2) in respect of music noise breakout.

2.5.2 In the absence of any specific criteria provided by the LPA regarding internal noise transfer, this NIA adopts criteria presented within British Standard BS 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings', a summary of which is provided below.

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

2.6.1 BS8233: 2014 sets out the following internal sound levels which are considered suitable to protect residential amenity which have been reproduced in **Table 3**.

Table 3: Summary of internal noise guidelines.			
Activity	**Location**	**0700 – 2300 hours**	**2300 – 0700 hours**
Resting	Living Room	35 dB $L_{Aeq,16hour}$	-
Dining	Dining room / area	40 dB $L_{Aeq,16hour}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$ 45 dB L_{AMax}

2.6.2 The guidelines presented in **Table 3** reflect and extend current practice contained in BS 8233:2014.

2.6.3 BS 8233:2014 states that "the acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50 – 55 dB LAeq,16hr". The standard continues… "These guideline values may not be achievable in all circumstances where development might be desirable. In such a situation, development should be designed to achieve the lowest practicable noise levels in these external amenity spaces but should not be prohibited."

3 ACOUSTIC SURVEY

3.1 Acoustic Survey Details

3.1.1 To inform the assessment, NoiseAir carried out fixed position noise monitoring between the 18th and 23rd October 2024.

3.1.2 Noise monitoring was undertaken at one monitoring location (ML1). The approximate monitoring location is demonstrated shown in **Figure 3** and summarised within **Table 4**.



Figure 3: Approx. Measurement Location.

Table 4: Summary of Noise Monitoring Locations

Monitor Location Number	Location Description	Time Period Monitored		Attended or Unattended Monitoring
		Start	End/ Duration	
ML1	Mounted upon the wall located to the rear of the development site, c. 3 m above local ground level	10:00 18/10/24	12:00 23/10/24	Unattended

3.1.3 ML1 was positioned to be representative of the environmental noise climate at the closest noise sensitive receptors in relation to the proposed development site.

3.1.4 The noise measurements were made using a Class 1, integrating sound level meter (SLM).

- The acoustic equipment was calibrated to comply with Section 4.2 of BS7445-1:2003[1] before and after the noise monitoring periods.

[1] BS7445-2003 "Description and measurement of environmental noise – Part 1: Guide to quantities and procedures.

- Details of the SLM and associated field calibration can be found in **Table 5**.
- The SLM used for survey measurements was calibrated both prior to and upon completion of the survey.

Table 5: Summary of SLM's used for survey and associated field calibration

SLM (Serial Number)	Preamp (Serial Number)	Microphone (Serial Number)	Calibrator (Serial Number)	Start Calibration	End Calibration	Drift dB
NOR140 (1402868)	NOR1209 (12320)	NOR1225 (72835)	B&K-4231 2431761	-25.2	-25.4 dB	0.2

3.1.8 The weather conditions were noted to be as outlined in **Table 6** during the site visits at the start and end of the monitoring periods.

Table 6: Summary of weather conditions noted at the start and end of the monitoring duration.

	18th October 2024	23rd October 2024
Roads (Wet / Dry)	Dry	Dry
Temperature (˚C)	11	12
Wind speed (ms^{-1})	Up to 4.6 S	< 5
Humidity (%)	87	82
Cloud Cover (%)	40	20

1.1.1 A-weighted[2] L_{eq}[3], L_{90}[4] and L_{AMax}[5] noise levels were obtained at ML1. The measured noise levels are set out in full in **Appendix B.**

3.1.10 Attending the development site at the start and end of the survey monitoring period provided opportunity for observations and detailed notes to be made of the significant noise sources which contribute to each of the measured levels.

[2] An electronic filter in a sound level meter which mimics the human ear's response to sounds at different frequencies under defined conditions.
[3] Equivalent continuous noise level; the steady sound pressure which contains an equivalent quantity of sound energy as the time-varying sound pressure levels.
[4] The noise level which is exceeded for 90% of the measurement period.
[5] The instantaneous maximum noise level recorded for a measurement period.

3.2 Environmental Noise Climate

3.2.1 Road traffic noise was considered the dominant noise source at ML1. Given proximity to the neighbouring restaurant it is considered likely that plant noise associated with kitchen extract equipment will be audible during operational periods.

3.3 3.2 Measured Sound Levels

3.3.1 Data is shown in **Figure 4** detailing a level vs. time graph of the recorded L_{Amax}, $L_{Aeq,T}$ and L_{A90} sound level over 15-minute time periods for ML1.

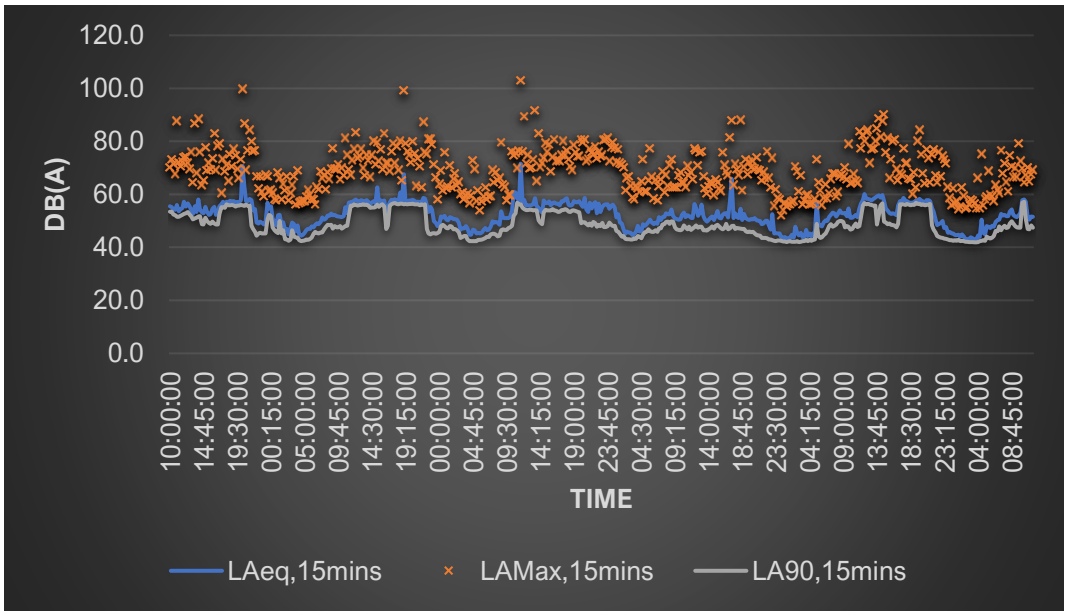


Figure 4: Level vs. time graph presenting $L_{Aeq,T}$, L_{A90} and L_{AFMax} sound levels – ML1.

3.3.2 In accordance with the criteria proposed by the LPA, results of monitoring obtained at ML1 in terms of $L_{Aeq,5min}$ and L_{eq} 63 Hz, during proposed operating hours 18:00 – 00:00 are summarised within **Table 7.**

Table 7: Average Measured Daytime and Night-time Noise Levels

Monitoring Location	Time	Measured Noise Level	
		dB $L_{Aeq,5min}$ / dB Average	63 Hz dB L_{eq} / dB Average
ML1	18:00 - 00:00	44.3 – 75.3 57.3	41.0 – 74.7 62.1

4 3D SOUND MODEL

4.1 Noise Level Predictions

4.1.1 To determine whether the identified noise level limits can be achieved, a detailed 3D sound model has been prepared based upon the proposal plans provided at the time of writing. The model extends to the surrounding area including the closest noise-sensitive receptors.

4.2 3D Sound Model

4.2.1 A 3D sound model has been constructed in SoundPLAN™ to calculate the predicted sound pressure levels at selected potential receiver locations. The model uses the calculation method from ISO 9613-2:1996[6] to account for the distance between the source and receiver and any screening or reflections provided by the surrounding buildings.

4.2.2 The 3D sound model incorporates local topography and includes ground absorption representing a hard reflective surface.

4.2.3 By default, the 3D sound model calculates the noise level that would be generated downwind from the source in question (wind direction within an angle of +/- 45 degrees of the direction connecting the source and receiver, with wind blowing from the source).

4.2.4 The 3D sound model specifically includes the following noise sources as detailed within **Table 8.**

Table 8: Noise Source and Calibration Details – 3D Sound Model

Noise Source	Source Type	Calibration Description
External Music Playback from the Proposed Rear Seating Area.	Point Source	Adopting 4 individual point sources assigned within each corner of the proposed external seating area, the 3D sound model has been calibrated to a nominal sound pressure level of 75 dB(A) and 74.8 dB Leq at 63Hz within the centre of the designated space. The spectral frequency content adopted within calculation has been sourced from within SoundPlan™'s internal sound library, representing electronic.

4.2.5 A noise contour plot demonstrating propagation of sound from source to receiver is presented within **Figure 5.** Receptor locations adopted for assessment are subsequently demonstrated within **Figure 6**.

[6] ISO9613-2:1996 "Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation"

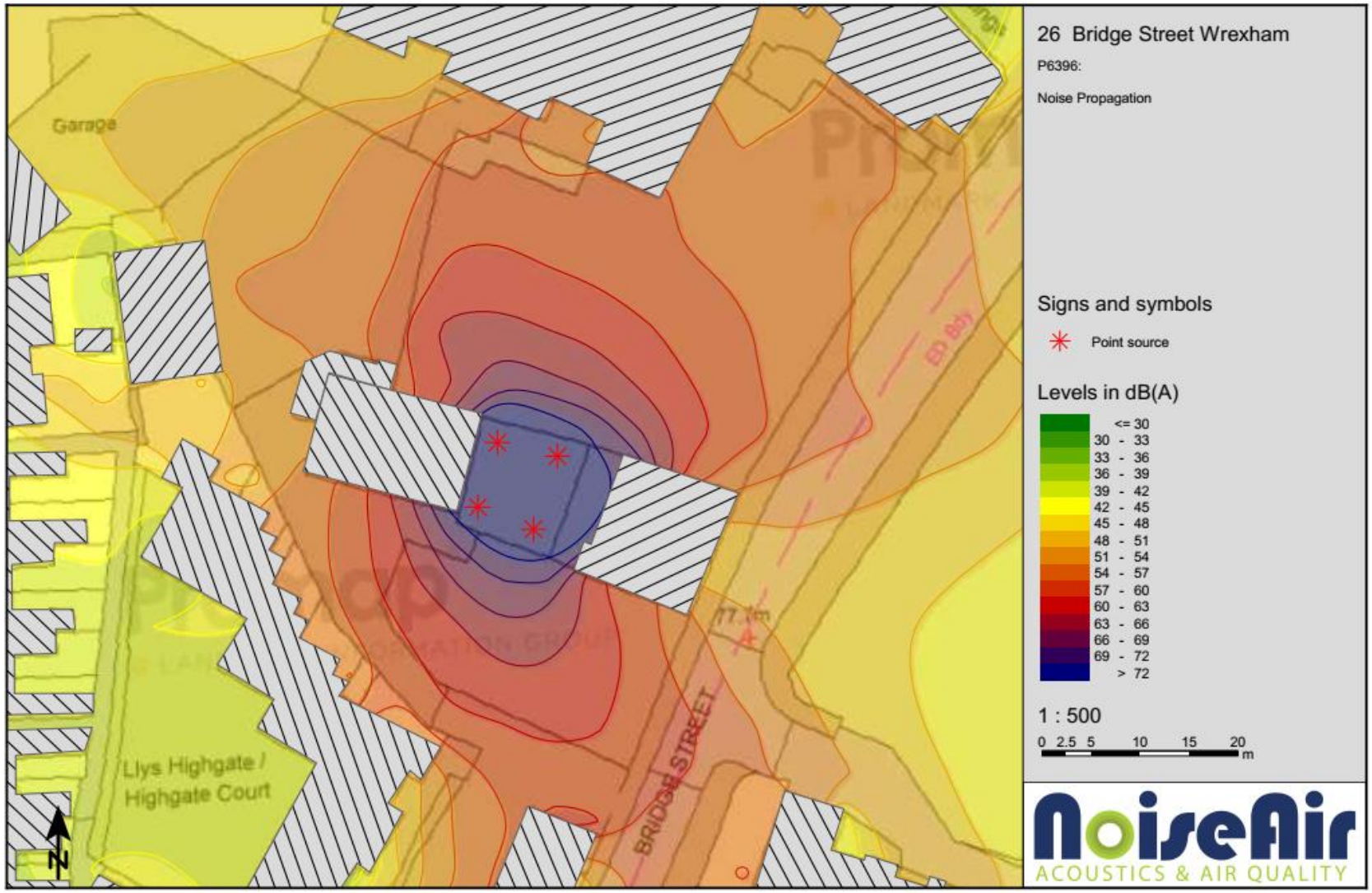


Figure 5: Noise propagation of sound – dB $L_{Aeq,}$

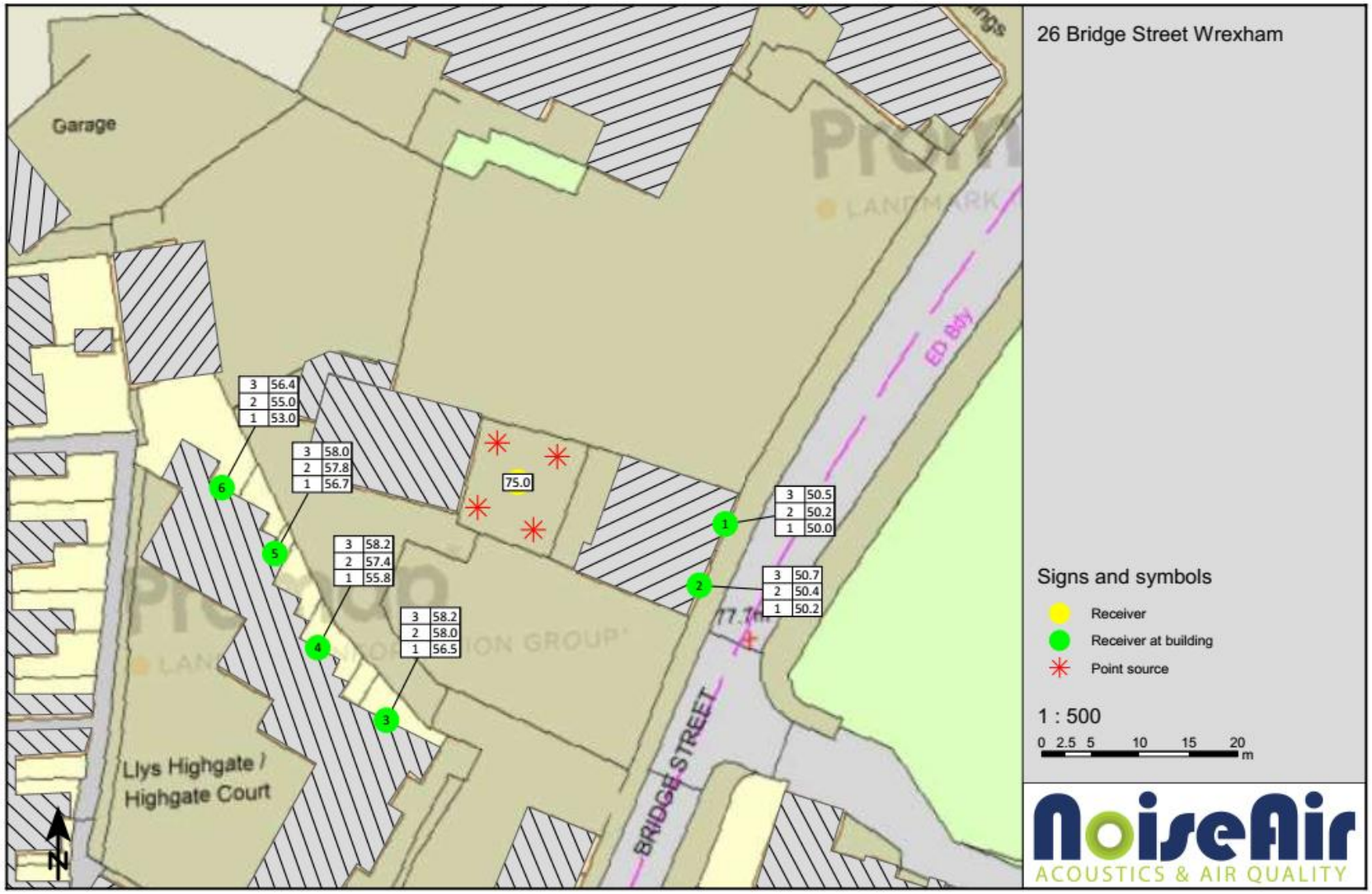


Figure 6: Plot detailing receptor locations

4.2.6 It should be noted that receptor locations have been established in relation to the likely location of windows to habitable rooms (such living rooms and bedrooms). The client has advised that there are no windows to habitable rooms at the rear or sides of the development site, and as such, receptors have been assigned to the front facing façade only.

4.2.7 **Table 9** details the worst-case calculated noise levels across all floors at receptor locations due to music noise breakout from the development site.

Table 9: Worst-Case Calculated Noise Levels at Receptor Locations – Music Noise Breakout

Rec#	Noise Breakout dB L_{Aeq}	Noise Breakout 63 Hz dB L_{eq}
1	50.5	51.0
2	50.7	51.2
3	58.2	57.7
4	58.2	57.6
5	58.0	56.7
6	56.4	55.5

5 NOISE IMPACT ASSESSMENT

5.1 Criteria

5.1.1 As detailed within section 2.4, in the absence of any underpinning British Standard, this NIA adopts the criteria presented by the LPA.

5.1.2 As such, it is reasoned that the target criterion for external music noise breakout should be such that:

- The A-weighted equivalent continuous noise level (L_{Aeq}) 1 meter from the worst-affected building façade with entertainment taking place, shall exceed no more than +3 dB, as compared to the same measure, from the same position, and over a comparable period, with no entertainment taking place.
- The Un-weighted equivalent noise level (Leq) in the 63 Hz Octave band with entertainment taking place, shall not increase as compared to the same measure, from the same Location (S), and over a comparable period, with no entertainment taking place.'

5.1.3 In each instance, the above shall be considered against the decibel average presented within **Table 7.**

5.2 External music playback in relation to nearby noise sensitive receptors.

5.2.1 Based on the calculated results detailed within **Table 9** and the assessment criteria justified within this report, an assessment of potential noise intrusion has been conducted at the worst-affected receptor, and is detailed below within **Table 10**.

Table 10: Worst-Case Calculated Noise Levels at Receptor Locations – External Music Playback Noise

Rec#	Music Noise Level, dB L_{Aeq}	Criteria (As Reasoned within Section 2.4) dB $L_{Aeq,5min}$	Measured Average dB $L_{Aeq,5min}$	Calculated Music Noise Level dB (A)	Excess Above Target, dB (A).	Exceed Criteria
3	75	+ 3 dB against the measured noise climate	57.3	58.2	+ 0.9	No
Rec#	**Music Noise Level, dB at 63 Hz**	**Criteria (As Reasoned within Section 2.4) dB $L_{Aeq,5min}$**	**Measured Average dB L_{eq} at 63 Hz**	**Calculated Music Noise Level dB**	**Excess Above Criteria, dB (A).**	**Exceed Criteria**
3	74.8	Not to exceed	62.1	57.7	- 4.4	No

5.2.2 Results of the assessment detailed within **Table 10** indicate that with an external music noise limit of 75 dB $L_{Aeq,5min}$ and c. 75 dB Leq at 63 Hz, calculated noise levels are likely to remain below LPA criteria.

5.2.3 The above being said, it is regarded that further consideration should be given to effectively managing noise breakout from the premises. Further recommendations are provided with Section 7.

5.2.4 By implementing the mitigation recommendations within this report, namely good noise management techniques, it is regarded that potentially adverse levels of noise can be minimised and controlled.

6 SOUND INSULATION BETWEEN GROUND-FLOOR COMMERCIAL AND FIRST-FLOOR RESIDENTIAL

6.1 Internal Noise Level

6.1.1 At the time of writing, proposals are for a bar to be established at ground-floor level with low level music playback for background ambience.

6.1.2 Noise levels can vary depending on various factors such as size of the development however, NoiseAir consider conservative sound levels of around 75 dB L_{Aeq}. As such an internal noise limit of 75 dB L_{Aeq} has been adopted for the basis of this report.

6.2 Performance Requirement

6.2.1 At the time of writing, it is understood that residential accommodation exists directly above the proposed ground-floor premises.

6.2.2 BS 8233:2014 details target internal noise criteria of 35 dB L_{Aeq} within residential living rooms and bedrooms during daytime hours (07:00 – 23:00) and 30 dB L_{Aeq} in bedrooms during night-time hours (23:00 – 07:00). It is noted however that this noise level criterion is based on ambient noise without any distinguishable features. It is therefore considered that a conservative approach be adopted and that the acceptable level of noise break-in from the ground-floor bar be reduced to 25 dB $L_{Aeq.}$

6.2.3 Given the aforementioned, a minimum sound insulation performance $D_{nT,w}+ C_{tr}$ of 50 dB will be required across the separating ceiling partition between the proposed ground-floor commercial and existing residential located directly above.

6.3 Performance of Existing Construction

6.3.1 At the time of writing, the ceiling construction was at a completed stage. As such, only limited visual inspection could be conducted, with the subsequent assumption that the structure was likely a basic timber detail.

6.3.2 The existing ceiling partition was tested onsite on 23/10/2024.

6.3.3 Testing was conducted from the source room (the proposed ground-floor bar area) into the receiving room (first-floor residential living room) located directly above.

6.3.4 Results of testing demonstrated an insitu sound reduction performance of $D_{nT,w} + C_{tr}$ of 41 dB.

6.3.5 Measurements of Standardised level difference (D_{nT}) were carried out in accordance with BS EN ISO 140-4: 1998.

6.3.6 A full breakdown of the partition performance is presented within the 'Sound Insulation Performance Certificates' displayed below in **Figure 7.**

6.3.7 **Table 11** details a summary of associated equipment used for sound insulation testing and field calibration:

Table 11: Summary of associated equipment used for sound insulation testing procedures

Item	Make	Model/Serial Number	Microphone/Serial Number
Amplifier	Solution	SPA600X	-
Signal Generator	Minirator	MR1 52DBU	-
Dodecahedron Speaker	DO12	2156	-
Field Calibrator (Class 1)	B&K 4231 - 2431761	10808	-
Sound Level Meter (Class 1)	Norsonic	NOR140/ 1405677	1225/ 33192

Standardised level difference according to ISO 140-4. Field measurements of airborne sound insulation between rooms

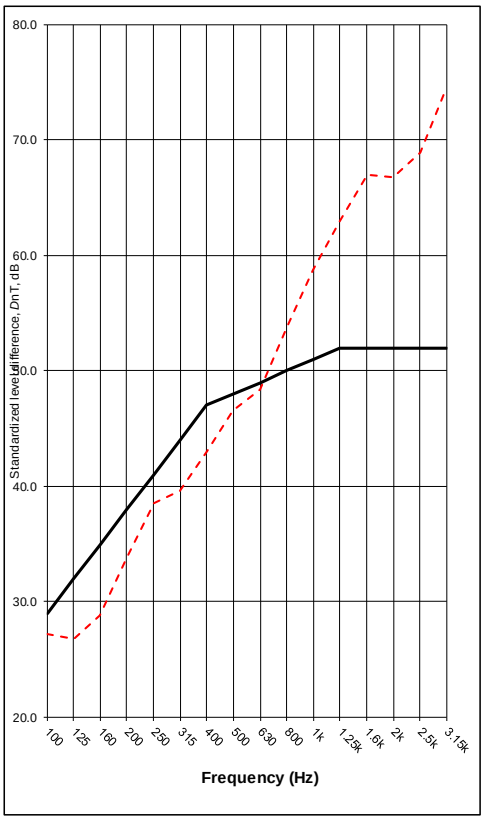
Client: Mr. Adrian Jones Test date: 23/10/2024 **Test: AB1**
Site: Burton Building

Source room: GF Bar Area Receive room: 1F Living Room

Floor construction: Basic Timber - Specific construction unknown.

Construction type number: 1

Freq (Hz)	Limit	D_{nT}, dB	Corr
50	≥	17.2	B
63	≥	26.2	B
80		28.1	
100		27.2	
125		26.8	
160		28.8	
200		33.8	
250		38.6	
315		39.6	
400		43.0	
500		46.6	
630		48.4	
800		53.8	
1000		58.8	b
1250		63.0	b
1600		67.0	b
2000		66.8	b
2500	≥	68.9	B
3150	≥	74.5	B
4000	≥	79.5	B
5000	≥	82.6	B



Rating according to ISO 717-1

$D_{nT,w}$ = 48 dB **$D_{nT,w}+C_{tr}$ = 41 dB** $D_{nT,w}+C$ = 46 dB

Evaluation based on field measurement results obtained in one-third octave bands by an engineering method

Signature:

MSM

Figure 7: Sound Insulation Performance Certificates

6.3.8 Results of the insitu performance testing detailed above demonstrate that the partition separating the ground-floor premises from the first floor flat does not achieve the minimum level of sound reduction reasoned within this report, with a shortfall of 9 dB (A).

6.3.9 As limited visual inspection was only possible at the time of assessment, any clear structural limitation such as lack of mass/ flanking pathways (airborne or structural) beneath the surface could not be identified. The reason for the shortfall between the ground-floor and first-floor flat cannot be determined at this stage.

6.3.10 In the first instance, it is advised that an invasive inspection be conducted of the insitu partition to identify the likely cause and that subsequent enhancement is applied throughout the structure.

6.3.11 It is the view of NoiseAir that enhancements to the separating ceiling structure should be designed to achieve a further (minimum) of 9 dB $D_{nT,w} + C_{tr}$; however, to allow for real-world factors such as workmanship and flanking, it is highly advised that an additional 10 dB is applied.

6.3.12 The above being said, the client has advised that any such enhancement to the separating partition is not possible due to the listed status of the building.

6.3.13 As such, it is recommended that an internal noise limit is adopted, such that ambient background music does not exceed 70 dB (A) during operational hours 18:00 – 23:00 and 65 dB (A) during the proposed final hour 23:00 – 00:00.

7 ASSESSMENT RECOMMENDATIONS

Music noise limits

7.1.1 It is recommended that the following noise level limits are implemented:

- 75 dB (A), and 75 dB L_{eq} at 63 Hz when measured within the centre of the external seating area; and,
- 70 dB (A) internally during operational hours 18:00 – 23:00, reduced to 65 dB (A) during the hour 23:00 – 00:00.

7.1.2 It is advised that a 1/3 Octave Band noise limiting device is installed across internal and external elements of the public address system (P.A system). This will provide facility personal/ management with a larger degree of control (particularly with respect to low frequency content).

7.1.3 Speakers should be of a directional response, focused towards patron areas and evenly displaced across designated areas to minimise the need to elevate operational levels (often required to project sound to a more distant area). Ceiling mounted speakers should be avoided internally, and where possible speakers should be mounted on anti-vibration stands and/or resilient (anti-vibration) wall mounts.

Further recommendations

7.1.4 It is recommended that a comprehensive noise management plan is composed by the applicant to accompany this noise impact assessment provided. This should be submitted to the local authority for written approval.

7.1.5 Any suitable noise management plan should (as a minimum) provide residents with a 24-hour complaints procedure whereby complaints can be handled in a positive and time effective manner (should they arise).

7.1.6 It is recommended that signage is clearly displayed, advising patrons utilising internal and external areas of the importance of keeping noise to a minimum with regard to protecting residential amenity.

7.1.7 By implementing the above recommendations, it is reasoned that levels of external noise breakout, along with levels of internal noise transfer can be suitably managed and potential adverse impact from noise minimised and controlled.

8 CONCLUSIONS

8.1.1 By instruction from Mr. Adrian Jones (the client), NoiseAir was commissioned to conduct a noise impact assessment (NIA) to accompany a planning application (Ref: P/2024/1069), at: Burton Building, 26 Bridge Street, Wrexham LL13 7HP, herein referred to as the 'development site'.

8.1.2 At the time of writing, proposals provided to NoiseAir detail a new bar with external seating loacted to the rear of the premises.

8.1.3 This noise impact assessment reasons the following potential noise sources:

- External music noise breakout; and,
- Internal music noise transfer across the separating party floor.

8.1.4 To inform the assessment, a 3D sound model has been constructed based upon the above noise sources and extends to the nearest noise sensitive receptors. In addition, in situ performance sound testing has been conducted to inform the current level of sound reduction attributed to the ground to first floor separating partition.

8.1.5 Results of assessment demonstrate that by implementing the recommendations detailed within this report (specifically the implementation of music noise limits), external noise criteria presented by the LPA, along with internal music noise criteria reasoned within this report, can be achieved.

8.1.6 Recommendations are discussed in detail within Section 7.

APPENDIX A - REPORT LIMITATIONS

This report is presented to Mr. Adrian Jones and may not be used or relied on by any other person or by the client in relation to any other matters not covered specifically by the scope of this report.

Notwithstanding anything to the contrary contained in the report, NoiseAir Limited is obliged to exercise reasonable skill, care and diligence in the performance of the services required by Mr. Adrian Jones and NoiseAir shall not be liable except to the extent that it has failed to exercise reasonable skill, care and diligence, and this report shall be read and construed accordingly.

This report has been prepared by NoiseAir Limited. No individual is personally liable in connection with the preparation of this report. By receiving this report and acting on it, the client or any other person accepts that no individual is personally liable whether in contract, tort, for breach of statutory duty or otherwise.

The conclusions and recommendations contained in this report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from who it has been requested and that such information is accurate. Information obtained by NoiseAir Limited has not been independently verified by NoiseAir Limited unless otherwise stated in the report and should be treated accordingly.

Where assessments of works or costs identified in this report are made, such assessments are based upon the information available at the time and where appropriate are subject to further investigations or information which may become available.

Where / if estimates and projects are made within this report, are made based on reasonable assumptions as of the date of this report, such statements however by their very nature involve risks and uncertainties that could cause actual results to differ materially from the results predicted. NoiseAir Limited specifically does not guarantee or warrant any estimates or projects contained in this report.

DISCLAIMER- This report was prepared by NoiseAir Limited. The material in it contains NoiseAir Limited best judgment in light of the information available at the time of preparation of this report. Any use which a third party makes of this report, or any reliance on, or decisions based on it are the responsibility of such third parties. NoiseAir Limited accept no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

APPENDIX B – METER READINGS

ML1

Start Date	Start Time	Duration	LAeq	LAFMax	LA90
dd/mm/yyyy	hh:mm:ss	hh:mm:ss	dB	dB	dB
18/10/2024	10:00:00	00:15:00	55.5	70.2	53.5
18/10/2024	10:15:00	00:15:00	55.2	73.2	53.5
18/10/2024	10:30:00	00:15:00	54.4	71.5	52.4
18/10/2024	10:45:00	00:15:00	54.2	67.7	52.1
18/10/2024	11:00:00	00:15:00	56.0	87.7	51.5
18/10/2024	11:15:00	00:15:00	53.6	72.1	51.5
18/10/2024	11:30:00	00:15:00	54.3	70.5	51.9
18/10/2024	11:45:00	00:15:00	54.8	72.2	52.2
18/10/2024	12:00:00	00:15:00	57.2	74.0	52.6
18/10/2024	12:15:00	00:15:00	55.4	74.2	52.9
18/10/2024	12:30:00	00:15:00	56.6	71.9	53.3
18/10/2024	12:45:00	00:15:00	55.6	69.7	52.5
18/10/2024	13:00:00	00:15:00	54.0	76.0	51.6
18/10/2024	13:15:00	00:15:00	52.6	64.6	50.6
18/10/2024	13:30:00	00:15:00	55.5	86.8	50.9
18/10/2024	13:45:00	00:15:00	53.3	68.1	51.2
18/10/2024	14:00:00	00:15:00	58.0	88.5	51.7
18/10/2024	14:15:00	00:15:00	54.3	76.0	51.8
18/10/2024	14:30:00	00:15:00	53.2	63.5	48.8
18/10/2024	14:45:00	00:15:00	52.9	65.2	48.6
18/10/2024	15:00:00	00:15:00	55.3	77.6	51.2
18/10/2024	15:15:00	00:15:00	53.5	69.0	49.9
18/10/2024	15:30:00	00:15:00	52.2	71.8	49.2
18/10/2024	15:45:00	00:15:00	52.5	69.4	48.9
18/10/2024	16:00:00	00:15:00	54.6	73.6	49.7
18/10/2024	16:15:00	00:15:00	55.3	83.0	49.0
18/10/2024	16:30:00	00:15:00	52.3	69.2	48.6
18/10/2024	16:45:00	00:15:00	53.2	78.4	48.6
18/10/2024	17:00:00	00:15:00	55.5	79.3	52.6
18/10/2024	17:15:00	00:15:00	56.3	60.6	55.2
18/10/2024	17:30:00	00:15:00	57.2	73.4	55.1
18/10/2024	17:45:00	00:15:00	56.3	68.6	54.9
18/10/2024	18:00:00	00:15:00	57.2	71.1	56.2
18/10/2024	18:15:00	00:15:00	57.0	65.1	55.9
18/10/2024	18:30:00	00:15:00	57.6	75.1	55.9
18/10/2024	18:45:00	00:15:00	57.3	70.6	56.0
18/10/2024	19:00:00	00:15:00	57.4	77.1	55.9
18/10/2024	19:15:00	00:15:00	57.1	74.6	55.4
18/10/2024	19:30:00	00:15:00	57.1	69.5	55.7
18/10/2024	19:45:00	00:15:00	57.0	66.2	55.8
18/10/2024	20:00:00	00:15:00	57.8	73.2	56.0
18/10/2024	20:15:00	00:15:00	70.7	99.9	55.9
18/10/2024	20:30:00	00:15:00	62.8	86.7	55.6
18/10/2024	20:45:00	00:15:00	57.5	69.2	56.1
18/10/2024	21:00:00	00:15:00	57.5	76.6	55.6
18/10/2024	21:15:00	00:15:00	58.3	84.3	55.8
18/10/2024	21:30:00	00:15:00	57.8	80.0	48.2
18/10/2024	21:45:00	00:15:00	53.9	76.4	46.9

Start Date	Start Time	Duration	LAeq	LAFMax	LA90
dd/mm/yyyy	hh:mm:ss	hh:mm:ss	dB	dB	dB
18/10/2024	22:00:00	00:15:00	54.4	76.7	45.9
18/10/2024	22:15:00	00:15:00	49.4	66.9	44.4
18/10/2024	22:30:00	00:15:00	49.0	62.2	45.2
18/10/2024	22:45:00	00:15:00	49.7	66.7	45.5
18/10/2024	23:00:00	00:15:00	49.2	60.9	45.2
18/10/2024	23:15:00	00:15:00	48.6	59.2	45.2
18/10/2024	23:30:00	00:15:00	49.5	67.3	45.3
18/10/2024	23:45:00	00:15:00	56.8	66.7	50.6
19/10/2024	00:00:00	00:15:00	54.7	61.3	52.2
19/10/2024	00:15:00	00:15:00	55.5	61.7	51.8
19/10/2024	00:30:00	00:15:00	50.9	60.5	47.5
19/10/2024	00:45:00	00:15:00	49.3	58.3	46.4
19/10/2024	01:00:00	00:15:00	48.3	57.8	45.8
19/10/2024	01:15:00	00:15:00	52.1	68.2	45.4
19/10/2024	01:30:00	00:15:00	52.2	66.3	49.9
19/10/2024	01:45:00	00:15:00	48.6	58.1	45.2
19/10/2024	02:00:00	00:15:00	49.5	64.0	46.5
19/10/2024	02:15:00	00:15:00	46.7	61.5	43.1
19/10/2024	02:30:00	00:15:00	46.9	66.7	43.0
19/10/2024	02:45:00	00:15:00	44.9	57.8	42.5
19/10/2024	03:00:00	00:15:00	47.2	60.5	43.0
19/10/2024	03:15:00	00:15:00	49.3	63.5	46.5
19/10/2024	03:30:00	00:15:00	48.7	66.7	44.1
19/10/2024	03:45:00	00:15:00	46.0	56.2	43.8
19/10/2024	04:00:00	00:15:00	48.3	69.0	43.7
19/10/2024	04:15:00	00:15:00	44.9	56.9	42.7
19/10/2024	04:30:00	00:15:00	44.4	57.1	42.4
19/10/2024	04:45:00	00:15:00	44.6	57.6	42.5
19/10/2024	05:00:00	00:15:00	45.5	57.6	42.6
19/10/2024	05:15:00	00:15:00	46.5	59.2	42.9
19/10/2024	05:30:00	00:15:00	47.1	61.7	42.8
19/10/2024	05:45:00	00:15:00	46.9	59.8	43.2
19/10/2024	06:00:00	00:15:00	47.9	58.3	43.7
19/10/2024	06:15:00	00:15:00	47.5	58.1	45.1
19/10/2024	06:30:00	00:15:00	48.5	56.2	45.8
19/10/2024	06:45:00	00:15:00	49.1	62.8	45.4
19/10/2024	07:00:00	00:15:00	48.8	61.8	45.2
19/10/2024	07:15:00	00:15:00	49.6	68.7	45.6
19/10/2024	07:30:00	00:15:00	51.3	66.2	45.6
19/10/2024	07:45:00	00:15:00	50.4	67.2	46.8
19/10/2024	08:00:00	00:15:00	50.8	61.8	47.7
19/10/2024	08:15:00	00:15:00	52.0	68.2	48.5
19/10/2024	08:30:00	00:15:00	51.9	65.9	48.4
19/10/2024	08:45:00	00:15:00	52.7	69.8	48.5
19/10/2024	09:00:00	00:15:00	52.1	77.2	47.1
19/10/2024	09:15:00	00:15:00	52.2	69.7	48.0
19/10/2024	09:30:00	00:15:00	51.8	69.7	47.5
19/10/2024	09:45:00	00:15:00	51.6	71.3	47.6
19/10/2024	10:00:00	00:15:00	51.5	65.5	48.0

Start Date	Start Time	Duration	LAeq	LAFMax	LA90
dd/mm/yyyy	hh:mm:ss	hh:mm:ss	dB	dB	dB
19/10/2024	10:15:00	00:15:00	51.4	70.0	47.1
19/10/2024	10:30:00	00:15:00	51.8	67.2	47.6
19/10/2024	10:45:00	00:15:00	55.2	81.3	48.0
19/10/2024	11:00:00	00:15:00	52.8	74.8	48.1
19/10/2024	11:15:00	00:15:00	56.8	69.4	51.6
19/10/2024	11:30:00	00:15:00	57.1	67.3	55.7
19/10/2024	11:45:00	00:15:00	57.2	73.0	55.6
19/10/2024	12:00:00	00:15:00	57.7	77.1	56.3
19/10/2024	12:15:00	00:15:00	58.0	83.3	56.0
19/10/2024	12:30:00	00:15:00	57.3	73.8	55.8
19/10/2024	12:45:00	00:15:00	57.3	74.5	56.0
19/10/2024	13:00:00	00:15:00	57.8	77.1	56.0
19/10/2024	13:15:00	00:15:00	57.3	70.0	56.2
19/10/2024	13:30:00	00:15:00	57.4	67.1	56.0
19/10/2024	13:45:00	00:15:00	57.8	74.9	56.1
19/10/2024	14:00:00	00:15:00	57.2	72.8	55.8
19/10/2024	14:15:00	00:15:00	56.3	66.5	54.9
19/10/2024	14:30:00	00:15:00	57.0	74.9	55.0
19/10/2024	14:45:00	00:15:00	57.5	80.1	55.0
19/10/2024	15:00:00	00:15:00	56.6	71.2	55.1
19/10/2024	15:15:00	00:15:00	62.6	79.6	56.1
19/10/2024	15:30:00	00:15:00	57.2	72.6	55.3
19/10/2024	15:45:00	00:15:00	57.7	76.9	56.0
19/10/2024	16:00:00	00:15:00	57.4	69.4	56.3
19/10/2024	16:15:00	00:15:00	57.7	82.9	55.4
19/10/2024	16:30:00	00:15:00	51.6	71.8	46.9
19/10/2024	16:45:00	00:15:00	55.2	71.9	48.2
19/10/2024	17:00:00	00:15:00	57.0	68.9	55.8
19/10/2024	17:15:00	00:15:00	57.9	76.2	56.2
19/10/2024	17:30:00	00:15:00	57.7	79.3	56.6
19/10/2024	17:45:00	00:15:00	58.2	71.9	56.7
19/10/2024	18:00:00	00:15:00	57.7	78.1	56.4
19/10/2024	18:15:00	00:15:00	57.3	69.2	56.3
19/10/2024	18:30:00	00:15:00	60.7	80.1	56.5
19/10/2024	18:45:00	00:15:00	57.2	65.3	56.5
19/10/2024	19:00:00	00:15:00	67.6	99.1	56.2
19/10/2024	19:15:00	00:15:00	57.5	79.3	56.4
19/10/2024	19:30:00	00:15:00	57.5	76.3	56.2
19/10/2024	19:45:00	00:15:00	57.7	74.9	56.4
19/10/2024	20:00:00	00:15:00	57.7	72.1	56.4
19/10/2024	20:15:00	00:15:00	57.9	79.9	56.5
19/10/2024	20:30:00	00:15:00	57.6	75.5	56.3
19/10/2024	20:45:00	00:15:00	57.1	63.1	56.3
19/10/2024	21:00:00	00:15:00	57.2	73.6	56.3
19/10/2024	21:15:00	00:15:00	57.1	70.6	55.9
19/10/2024	21:30:00	00:15:00	56.9	62.6	56.2
19/10/2024	21:45:00	00:15:00	58.6	87.3	56.0
19/10/2024	22:00:00	00:15:00	58.4	76.0	56.2
19/10/2024	22:15:00	00:15:00	55.9	75.3	47.0

Start Date	Start Time	Duration	LAeq	LAFMax	LA90
dd/mm/yyyy	hh:mm:ss	hh:mm:ss	dB	dB	dB
19/10/2024	22:30:00	00:15:00	53.3	80.9	45.2
19/10/2024	22:45:00	00:15:00	55.3	80.9	44.9
19/10/2024	23:00:00	00:15:00	54.2	79.0	45.2
19/10/2024	23:15:00	00:15:00	49.8	71.3	45.4
19/10/2024	23:30:00	00:15:00	49.2	66.4	45.1
19/10/2024	23:45:00	00:15:00	48.0	58.2	45.4
20/10/2024	00:00:00	00:15:00	48.7	64.0	45.8
20/10/2024	00:15:00	00:15:00	51.7	69.1	48.0
20/10/2024	00:30:00	00:15:00	51.3	61.6	48.5
20/10/2024	00:45:00	00:15:00	51.9	75.9	48.0
20/10/2024	01:00:00	00:15:00	50.5	62.3	47.3
20/10/2024	01:15:00	00:15:00	50.2	63.0	47.2
20/10/2024	01:30:00	00:15:00	51.4	71.0	48.0
20/10/2024	01:45:00	00:15:00	51.2	62.5	47.9
20/10/2024	02:00:00	00:15:00	50.7	65.9	46.8
20/10/2024	02:15:00	00:15:00	50.7	68.0	47.0
20/10/2024	02:30:00	00:15:00	50.5	63.4	46.5
20/10/2024	02:45:00	00:15:00	49.2	64.7	45.6
20/10/2024	03:00:00	00:15:00	46.7	60.2	43.6
20/10/2024	03:15:00	00:15:00	47.2	60.8	43.9
20/10/2024	03:30:00	00:15:00	47.2	58.2	44.3
20/10/2024	03:45:00	00:15:00	48.0	59.6	44.3
20/10/2024	04:00:00	00:15:00	47.1	60.2	42.9
20/10/2024	04:15:00	00:15:00	44.8	56.8	42.4
20/10/2024	04:30:00	00:15:00	44.8	59.5	42.3
20/10/2024	04:45:00	00:15:00	46.7	72.9	42.4
20/10/2024	05:00:00	00:15:00	46.5	69.7	42.3
20/10/2024	05:15:00	00:15:00	45.2	57.5	42.4
20/10/2024	05:30:00	00:15:00	45.5	61.5	42.8
20/10/2024	05:45:00	00:15:00	45.2	54.0	42.8
20/10/2024	06:00:00	00:15:00	45.6	57.3	42.9
20/10/2024	06:15:00	00:15:00	46.6	59.2	43.2
20/10/2024	06:30:00	00:15:00	47.3	62.5	43.5
20/10/2024	06:45:00	00:15:00	46.5	58.1	44.0
20/10/2024	07:00:00	00:15:00	46.7	59.3	43.9
20/10/2024	07:15:00	00:15:00	47.8	59.4	44.9
20/10/2024	07:30:00	00:15:00	49.8	69.2	45.1
20/10/2024	07:45:00	00:15:00	49.4	64.5	45.1
20/10/2024	08:00:00	00:15:00	49.6	68.2	44.8
20/10/2024	08:15:00	00:15:00	49.3	65.3	44.2
20/10/2024	08:30:00	00:15:00	48.5	66.2	44.4
20/10/2024	08:45:00	00:15:00	53.6	79.6	46.5
20/10/2024	09:00:00	00:15:00	51.2	63.7	46.8
20/10/2024	09:15:00	00:15:00	51.1	62.9	46.6
20/10/2024	09:30:00	00:15:00	51.1	57.8	46.6
20/10/2024	09:45:00	00:15:00	51.1	59.7	47.3
20/10/2024	10:00:00	00:15:00	51.4	59.9	47.6
20/10/2024	10:15:00	00:15:00	53.9	76.3	48.1
20/10/2024	10:30:00	00:15:00	60.9	74.6	51.9

Start Date	Start Time	Duration	LAeq	LAFMax	LA90
dd/mm/yyyy	hh:mm:ss	hh:mm:ss	dB	dB	dB
20/10/2024	10:45:00	00:15:00	60.7	75.7	52.9
20/10/2024	11:00:00	00:15:00	58.4	70.0	56.9
20/10/2024	11:15:00	00:15:00	57.7	76.4	56.2
20/10/2024	11:30:00	00:15:00	71.6	103.0	56.3
20/10/2024	11:45:00	00:15:00	56.8	76.2	54.9
20/10/2024	12:00:00	00:15:00	57.9	89.4	54.4
20/10/2024	12:15:00	00:15:00	55.7	71.7	54.1
20/10/2024	12:30:00	00:15:00	55.9	74.8	54.1
20/10/2024	12:45:00	00:15:00	55.8	69.9	54.2
20/10/2024	13:00:00	00:15:00	56.0	70.3	54.2
20/10/2024	13:15:00	00:15:00	56.2	73.1	54.0
20/10/2024	13:30:00	00:15:00	58.5	91.6	54.1
20/10/2024	13:45:00	00:15:00	55.5	65.1	53.9
20/10/2024	14:00:00	00:15:00	54.9	83.1	50.2
20/10/2024	14:15:00	00:15:00	53.9	70.4	49.4
20/10/2024	14:30:00	00:15:00	53.1	71.8	48.7
20/10/2024	14:45:00	00:15:00	57.7	73.7	53.2
20/10/2024	15:00:00	00:15:00	56.7	79.4	54.2
20/10/2024	15:15:00	00:15:00	56.7	76.1	54.0
20/10/2024	15:30:00	00:15:00	57.3	79.0	53.9
20/10/2024	15:45:00	00:15:00	55.9	68.5	53.9
20/10/2024	16:00:00	00:15:00	56.7	74.1	54.4
20/10/2024	16:15:00	00:15:00	57.0	80.6	53.9
20/10/2024	16:30:00	00:15:00	56.5	72.5	53.8
20/10/2024	16:45:00	00:15:00	56.5	72.9	53.3
20/10/2024	17:00:00	00:15:00	55.9	72.7	53.5
20/10/2024	17:15:00	00:15:00	57.5	74.9	54.1
20/10/2024	17:30:00	00:15:00	57.3	80.2	54.1
20/10/2024	17:45:00	00:15:00	58.2	75.0	54.4
20/10/2024	18:00:00	00:15:00	58.5	76.7	54.2
20/10/2024	18:15:00	00:15:00	56.0	73.2	53.5
20/10/2024	18:30:00	00:15:00	55.7	70.5	53.4
20/10/2024	18:45:00	00:15:00	56.0	69.2	53.9
20/10/2024	19:00:00	00:15:00	57.4	78.6	54.0
20/10/2024	19:15:00	00:15:00	57.1	75.8	53.7
20/10/2024	19:30:00	00:15:00	57.0	74.4	53.5
20/10/2024	19:45:00	00:15:00	57.5	74.5	53.2
20/10/2024	20:00:00	00:15:00	56.1	80.8	49.1
20/10/2024	20:15:00	00:15:00	55.3	79.5	49.5
20/10/2024	20:30:00	00:15:00	58.7	80.6	49.5
20/10/2024	20:45:00	00:15:00	54.3	72.7	48.9
20/10/2024	21:00:00	00:15:00	53.3	73.4	48.3
20/10/2024	21:15:00	00:15:00	56.8	77.1	49.0
20/10/2024	21:30:00	00:15:00	54.7	75.8	48.2
20/10/2024	21:45:00	00:15:00	56.4	75.1	49.6
20/10/2024	22:00:00	00:15:00	57.1	78.0	49.1
20/10/2024	22:15:00	00:15:00	52.8	73.5	47.8
20/10/2024	22:30:00	00:15:00	56.5	76.1	48.5
20/10/2024	22:45:00	00:15:00	53.4	74.4	48.0

Start Date	Start Time	Duration	LAeq	LAFMax	LA90
dd/mm/yyyy	hh:mm:ss	hh:mm:ss	dB	dB	dB
20/10/2024	23:00:00	00:15:00	55.3	74.9	49.2
20/10/2024	23:15:00	00:15:00	56.0	80.5	47.7
20/10/2024	23:30:00	00:15:00	56.3	80.8	47.7
20/10/2024	23:45:00	00:15:00	56.3	81.4	48.0
21/10/2024	00:00:00	00:15:00	54.6	72.7	49.3
21/10/2024	00:15:00	00:15:00	55.6	77.7	48.5
21/10/2024	00:30:00	00:15:00	56.1	79.6	48.0
21/10/2024	00:45:00	00:15:00	54.9	77.5	48.1
21/10/2024	01:00:00	00:15:00	51.3	72.3	46.2
21/10/2024	01:15:00	00:15:00	52.5	77.0	45.8
21/10/2024	01:30:00	00:15:00	49.4	71.8	45.0
21/10/2024	01:45:00	00:15:00	49.0	71.3	44.1
21/10/2024	02:00:00	00:15:00	47.0	70.2	44.3
21/10/2024	02:15:00	00:15:00	45.1	61.5	43.2
21/10/2024	02:30:00	00:15:00	46.0	66.3	43.1
21/10/2024	02:45:00	00:15:00	45.6	66.8	43.1
21/10/2024	03:00:00	00:15:00	45.5	63.3	42.9
21/10/2024	03:15:00	00:15:00	44.6	58.8	43.0
21/10/2024	03:30:00	00:15:00	45.1	58.2	43.4
21/10/2024	03:45:00	00:15:00	45.9	63.3	43.2
21/10/2024	04:00:00	00:15:00	48.1	62.4	44.3
21/10/2024	04:15:00	00:15:00	46.0	61.0	44.0
21/10/2024	04:30:00	00:15:00	46.1	64.8	43.4
21/10/2024	04:45:00	00:15:00	48.8	73.3	44.8
21/10/2024	05:00:00	00:15:00	48.2	61.1	45.7
21/10/2024	05:15:00	00:15:00	48.6	61.2	45.9
21/10/2024	05:30:00	00:15:00	49.6	65.2	46.8
21/10/2024	05:45:00	00:15:00	50.4	77.2	46.1
21/10/2024	06:00:00	00:15:00	49.3	66.5	45.9
21/10/2024	06:15:00	00:15:00	48.8	58.5	45.8
21/10/2024	06:30:00	00:15:00	49.3	65.4	46.5
21/10/2024	06:45:00	00:15:00	48.9	57.7	45.9
21/10/2024	07:00:00	00:15:00	51.4	63.0	47.2
21/10/2024	07:15:00	00:15:00	50.3	65.7	47.2
21/10/2024	07:30:00	00:15:00	51.4	68.6	48.6
21/10/2024	07:45:00	00:15:00	51.5	60.8	48.7
21/10/2024	08:00:00	00:15:00	52.8	67.3	49.6
21/10/2024	08:15:00	00:15:00	52.5	63.1	49.7
21/10/2024	08:30:00	00:15:00	52.5	71.1	48.9
21/10/2024	08:45:00	00:15:00	54.3	73.1	49.8
21/10/2024	09:00:00	00:15:00	51.9	62.6	49.7
21/10/2024	09:15:00	00:15:00	50.9	62.9	47.5
21/10/2024	09:30:00	00:15:00	50.7	62.5	46.8
21/10/2024	09:45:00	00:15:00	50.5	67.2	46.6
21/10/2024	10:00:00	00:15:00	50.6	68.3	46.5
21/10/2024	10:15:00	00:15:00	52.2	64.4	46.7
21/10/2024	10:30:00	00:15:00	53.1	64.3	48.3
21/10/2024	10:45:00	00:15:00	51.4	62.8	47.5
21/10/2024	11:00:00	00:15:00	52.1	70.7	46.8

Start Date	Start Time	Duration	LAeq	LAFMax	LA90
dd/mm/yyyy	hh:mm:ss	hh:mm:ss	dB	dB	dB
21/10/2024	11:15:00	00:15:00	51.9	67.1	47.8
21/10/2024	11:30:00	00:15:00	51.2	68.3	46.6
21/10/2024	11:45:00	00:15:00	51.0	65.7	47.1
21/10/2024	12:00:00	00:15:00	56.4	77.4	47.7
21/10/2024	12:15:00	00:15:00	54.8	76.6	48.3
21/10/2024	12:30:00	00:15:00	51.9	70.9	47.4
21/10/2024	12:45:00	00:15:00	52.8	75.8	47.8
21/10/2024	13:00:00	00:15:00	56.1	76.3	47.8
21/10/2024	13:15:00	00:15:00	51.8	66.9	46.5
21/10/2024	13:30:00	00:15:00	50.4	62.1	46.4
21/10/2024	13:45:00	00:15:00	49.7	60.4	46.3
21/10/2024	14:00:00	00:15:00	50.3	63.0	46.8
21/10/2024	14:15:00	00:15:00	51.2	64.9	47.3
21/10/2024	14:30:00	00:15:00	51.7	63.7	47.9
21/10/2024	14:45:00	00:15:00	50.3	59.8	47.1
21/10/2024	15:00:00	00:15:00	51.8	65.6	48.1
21/10/2024	15:15:00	00:15:00	53.7	64.6	48.5
21/10/2024	15:30:00	00:15:00	51.2	62.3	47.9
21/10/2024	15:45:00	00:15:00	50.9	61.3	47.2
21/10/2024	16:00:00	00:15:00	52.2	75.8	46.8
21/10/2024	16:15:00	00:15:00	52.8	71.1	47.3
21/10/2024	16:30:00	00:15:00	52.8	68.5	48.9
21/10/2024	16:45:00	00:15:00	51.3	67.3	46.8
21/10/2024	17:00:00	00:15:00	57.7	81.5	47.2
21/10/2024	17:15:00	00:15:00	65.9	87.9	48.0
21/10/2024	17:30:00	00:15:00	51.0	63.5	48.1
21/10/2024	17:45:00	00:15:00	52.8	71.5	47.0
21/10/2024	18:00:00	00:15:00	51.4	69.4	47.3
21/10/2024	18:15:00	00:15:00	51.0	67.3	47.2
21/10/2024	18:30:00	00:15:00	54.6	88.1	47.1
21/10/2024	18:45:00	00:15:00	50.3	61.6	46.9
21/10/2024	19:00:00	00:15:00	52.6	70.4	47.0
21/10/2024	19:15:00	00:15:00	51.0	73.3	46.1
21/10/2024	19:30:00	00:15:00	50.6	67.5	45.7
21/10/2024	19:45:00	00:15:00	50.3	72.2	46.0
21/10/2024	20:00:00	00:15:00	50.7	70.2	45.7
21/10/2024	20:15:00	00:15:00	50.6	72.6	45.9
21/10/2024	20:30:00	00:15:00	51.1	69.5	45.3
21/10/2024	20:45:00	00:15:00	50.2	74.0	44.6
21/10/2024	21:00:00	00:15:00	50.1	69.4	44.5
21/10/2024	21:15:00	00:15:00	49.9	69.1	44.4
21/10/2024	21:30:00	00:15:00	48.8	65.2	43.5
21/10/2024	21:45:00	00:15:00	49.0	68.4	43.5
21/10/2024	22:00:00	00:15:00	50.0	66.3	43.6
21/10/2024	22:15:00	00:15:00	50.1	76.3	43.4
21/10/2024	22:30:00	00:15:00	48.4	66.2	42.9
21/10/2024	22:45:00	00:15:00	46.7	62.5	43.0
21/10/2024	23:00:00	00:15:00	52.5	73.8	42.7
21/10/2024	23:15:00	00:15:00	45.3	55.6	42.5

Start Date	Start Time	Duration	LAeq	LAFMax	LA90
dd/mm/yyyy	hh:mm:ss	hh:mm:ss	dB	dB	dB
21/10/2024	23:30:00	00:15:00	45.4	61.8	42.4
21/10/2024	23:45:00	00:15:00	45.2	58.7	42.6
22/10/2024	00:00:00	00:15:00	45.2	58.1	42.6
22/10/2024	00:15:00	00:15:00	43.8	52.1	42.5
22/10/2024	00:30:00	00:15:00	43.5	54.2	42.2
22/10/2024	00:45:00	00:15:00	43.9	56.7	42.2
22/10/2024	01:00:00	00:15:00	43.0	55.5	42.0
22/10/2024	01:15:00	00:15:00	43.6	56.2	42.2
22/10/2024	01:30:00	00:15:00	43.7	56.3	42.3
22/10/2024	01:45:00	00:15:00	44.8	57.2	42.1
22/10/2024	02:00:00	00:15:00	43.7	57.4	42.1
22/10/2024	02:15:00	00:15:00	47.8	70.5	42.1
22/10/2024	02:30:00	00:15:00	45.4	68.5	42.3
22/10/2024	02:45:00	00:15:00	44.5	61.2	42.0
22/10/2024	03:00:00	00:15:00	45.5	67.2	42.1
22/10/2024	03:15:00	00:15:00	43.8	56.3	42.3
22/10/2024	03:30:00	00:15:00	44.1	57.7	42.3
22/10/2024	03:45:00	00:15:00	46.6	59.6	42.8
22/10/2024	04:00:00	00:15:00	44.3	59.7	42.3
22/10/2024	04:15:00	00:15:00	45.2	56.4	42.8
22/10/2024	04:30:00	00:15:00	44.2	56.4	42.5
22/10/2024	04:45:00	00:15:00	45.2	56.5	42.8
22/10/2024	05:00:00	00:15:00	45.7	58.3	42.9
22/10/2024	05:15:00	00:15:00	57.1	73.1	48.9
22/10/2024	05:30:00	00:15:00	48.6	64.5	44.3
22/10/2024	05:45:00	00:15:00	48.3	61.4	43.5
22/10/2024	06:00:00	00:15:00	47.9	56.0	43.8
22/10/2024	06:15:00	00:15:00	49.5	58.7	44.6
22/10/2024	06:30:00	00:15:00	50.2	63.8	45.2
22/10/2024	06:45:00	00:15:00	50.0	58.5	46.4
22/10/2024	07:00:00	00:15:00	51.5	60.4	48.2
22/10/2024	07:15:00	00:15:00	52.2	65.9	48.7
22/10/2024	07:30:00	00:15:00	53.1	67.8	47.8
22/10/2024	07:45:00	00:15:00	52.9	67.8	48.1
22/10/2024	08:00:00	00:15:00	51.7	59.1	48.6
22/10/2024	08:15:00	00:15:00	52.6	60.9	49.6
22/10/2024	08:30:00	00:15:00	53.9	67.0	50.0
22/10/2024	08:45:00	00:15:00	53.0	67.5	50.0
22/10/2024	09:00:00	00:15:00	52.8	66.5	49.6
22/10/2024	09:15:00	00:15:00	53.0	70.3	47.6
22/10/2024	09:30:00	00:15:00	51.8	65.7	48.0
22/10/2024	09:45:00	00:15:00	54.7	79.1	47.8
22/10/2024	10:00:00	00:15:00	51.2	64.2	46.7
22/10/2024	10:15:00	00:15:00	51.2	64.7	46.9
22/10/2024	10:30:00	00:15:00	51.6	67.7	48.0
22/10/2024	10:45:00	00:15:00	52.3	65.0	49.0
22/10/2024	11:00:00	00:15:00	51.4	64.3	47.7
22/10/2024	11:15:00	00:15:00	54.7	83.6	48.0
22/10/2024	11:30:00	00:15:00	56.5	77.3	51.4

Start Date	Start Time	Duration	LAeq	LAFMax	LA90
dd/mm/yyyy	hh:mm:ss	hh:mm:ss	dB	dB	dB
22/10/2024	11:45:00	00:15:00	57.8	82.3	55.7
22/10/2024	12:00:00	00:15:00	60.1	80.1	56.7
22/10/2024	12:15:00	00:15:00	58.3	83.5	56.3
22/10/2024	12:30:00	00:15:00	58.3	84.3	56.5
22/10/2024	12:45:00	00:15:00	58.0	71.8	56.1
22/10/2024	13:00:00	00:15:00	57.7	77.1	56.0
22/10/2024	13:15:00	00:15:00	58.3	77.2	55.8
22/10/2024	13:30:00	00:15:00	58.8	80.1	55.8
22/10/2024	13:45:00	00:15:00	59.2	84.9	48.6
22/10/2024	14:00:00	00:15:00	59.6	88.7	52.3
22/10/2024	14:15:00	00:15:00	58.8	81.7	55.7
22/10/2024	14:30:00	00:15:00	59.7	87.8	56.6
22/10/2024	14:45:00	00:15:00	57.6	90.2	49.7
22/10/2024	15:00:00	00:15:00	54.6	75.8	49.3
22/10/2024	15:15:00	00:15:00	54.0	81.2	48.8
22/10/2024	15:30:00	00:15:00	53.0	66.3	49.0
22/10/2024	15:45:00	00:15:00	52.6	73.2	48.5
22/10/2024	16:00:00	00:15:00	52.9	80.1	48.4
22/10/2024	16:15:00	00:15:00	52.6	80.6	48.3
22/10/2024	16:30:00	00:15:00	52.1	69.7	47.6
22/10/2024	16:45:00	00:15:00	55.7	65.2	48.9
22/10/2024	17:00:00	00:15:00	57.5	68.1	56.3
22/10/2024	17:15:00	00:15:00	57.3	67.4	56.3
22/10/2024	17:30:00	00:15:00	58.7	77.2	56.3
22/10/2024	17:45:00	00:15:00	57.6	71.7	56.0
22/10/2024	18:00:00	00:15:00	57.4	72.0	56.4
22/10/2024	18:15:00	00:15:00	56.8	66.0	56.1
22/10/2024	18:30:00	00:15:00	56.8	65.6	55.9
22/10/2024	18:45:00	00:15:00	56.9	60.1	56.1
22/10/2024	19:00:00	00:15:00	57.1	68.3	56.0
22/10/2024	19:15:00	00:15:00	57.7	62.5	56.9
22/10/2024	19:30:00	00:15:00	57.6	80.2	56.4
22/10/2024	19:45:00	00:15:00	58.3	84.4	56.5
22/10/2024	20:00:00	00:15:00	57.7	75.1	56.0
22/10/2024	20:15:00	00:15:00	57.3	67.9	56.2
22/10/2024	20:30:00	00:15:00	56.9	64.1	55.9
22/10/2024	20:45:00	00:15:00	57.8	76.9	56.0
22/10/2024	21:00:00	00:15:00	57.8	73.7	56.3
22/10/2024	21:15:00	00:15:00	57.4	64.5	56.4
22/10/2024	21:30:00	00:15:00	54.9	75.1	48.3
22/10/2024	21:45:00	00:15:00	53.5	77.0	46.7
22/10/2024	22:00:00	00:15:00	50.6	67.1	45.6
22/10/2024	22:15:00	00:15:00	48.4	64.4	44.3
22/10/2024	22:30:00	00:15:00	48.9	76.0	43.9
22/10/2024	22:45:00	00:15:00	49.1	66.8	43.7
22/10/2024	23:00:00	00:15:00	50.0	74.5	43.5
22/10/2024	23:15:00	00:15:00	47.3	73.2	43.3
22/10/2024	23:30:00	00:15:00	47.7	71.6	43.2
22/10/2024	23:45:00	00:15:00	45.5	62.8	43.0

Start Date	Start Time	Duration	LAeq	LAFMax	LA90
dd/mm/yyyy	hh:mm:ss	hh:mm:ss	dB	dB	dB
23/10/2024	00:00:00	00:15:00	45.8	58.7	42.7
23/10/2024	00:15:00	00:15:00	45.3	56.0	42.7
23/10/2024	00:30:00	00:15:00	45.3	62.1	42.5
23/10/2024	00:45:00	00:15:00	44.7	56.5	42.7
23/10/2024	01:00:00	00:15:00	44.6	57.6	42.5
23/10/2024	01:15:00	00:15:00	44.8	54.4	42.8
23/10/2024	01:30:00	00:15:00	44.0	55.5	42.4
23/10/2024	01:45:00	00:15:00	44.9	62.6	42.5
23/10/2024	02:00:00	00:15:00	44.2	59.4	42.4
23/10/2024	02:15:00	00:15:00	43.1	54.7	42.1
23/10/2024	02:30:00	00:15:00	43.1	55.1	42.1
23/10/2024	02:45:00	00:15:00	43.2	56.4	42.0
23/10/2024	03:00:00	00:15:00	43.8	58.1	42.0
23/10/2024	03:15:00	00:15:00	43.4	57.6	42.0
23/10/2024	03:30:00	00:15:00	43.0	56.5	41.9
23/10/2024	03:45:00	00:15:00	42.8	54.8	41.9
23/10/2024	04:00:00	00:15:00	44.5	66.3	42.0
23/10/2024	04:15:00	00:15:00	43.9	54.9	42.3
23/10/2024	04:30:00	00:15:00	50.4	75.3	42.5
23/10/2024	04:45:00	00:15:00	45.5	55.8	42.7
23/10/2024	05:00:00	00:15:00	44.9	58.3	42.5
23/10/2024	05:15:00	00:15:00	48.0	59.3	44.1
23/10/2024	05:30:00	00:15:00	47.7	68.9	43.6
23/10/2024	05:45:00	00:15:00	47.3	59.7	43.3
23/10/2024	06:00:00	00:15:00	48.2	59.1	43.7
23/10/2024	06:15:00	00:15:00	47.8	57.5	44.3
23/10/2024	06:30:00	00:15:00	49.6	63.6	46.2
23/10/2024	06:45:00	00:15:00	50.3	61.7	46.1
23/10/2024	07:00:00	00:15:00	50.5	60.6	47.9
23/10/2024	07:15:00	00:15:00	52.6	76.5	46.4
23/10/2024	07:30:00	00:15:00	52.0	68.0	47.5
23/10/2024	07:45:00	00:15:00	52.2	71.7	48.1
23/10/2024	08:00:00	00:15:00	51.8	64.7	47.3
23/10/2024	08:15:00	00:15:00	51.8	61.2	47.5
23/10/2024	08:30:00	00:15:00	53.5	74.7	49.0
23/10/2024	08:45:00	00:15:00	54.3	70.5	49.8
23/10/2024	09:00:00	00:15:00	52.2	66.5	49.0
23/10/2024	09:15:00	00:15:00	51.7	70.0	48.0
23/10/2024	09:30:00	00:15:00	51.4	66.5	47.6
23/10/2024	09:45:00	00:15:00	52.1	79.2	47.4
23/10/2024	10:00:00	00:15:00	53.0	72.5	47.4
23/10/2024	10:15:00	00:15:00	57.8	69.9	56.9
23/10/2024	10:30:00	00:15:00	58.1	64.5	57.2
23/10/2024	10:45:00	00:15:00	57.2	67.3	50.7
23/10/2024	11:00:00	00:15:00	51.4	70.3	47.0
23/10/2024	11:15:00	00:15:00	50.5	64.8	46.8
23/10/2024	11:30:00	00:15:00	51.6	67.5	48.3
23/10/2024	11:45:00	00:15:00	51.5	69.2	47.4

APPENDIX C - GLOSSARY

A-weighted sound pressure, p_A	Value of overall sound pressure, measured in pascals (Pa), after the electrical signal derived from a microphone has been passed through an A-weighting network. *NOTE: The A-weighting network modifies the electrical response of a sound level meter with frequency in approximately the same way as the sensitivity of the human hearing system.*
A-weighted sound pressure level, L_{pA}	Quantity of A-weighted sound pressure in decibels (dBA).
Acoustic environment	Sound from all sound sources as modified by the environment [BS ISO 12913-1:2013].
Ambient sound	Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far. *NOTE: The ambient sound comprises the residual sound and the specific sound when present.*
Ambient sound level, $L_a = L_{Aeq,T}$ (BS4142:2014)	Equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, T *NOTE: The ambient sound level is a measure of the residual sound and the specific sound when present.*
Background sound	Underlying level of sound over a period, *T*, which might in part be an indication of relative quietness at a given location.
Background sound level, $L_{A90,T}$ (BS4142:2014)	A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting F and quoted to the nearest whole number of decibels.
Break-in	Noise transmission into a structure from outside.
Break-out	Noise transmission from inside a structure to the outside.
Cross-talk	Noise transmission between one room and another room or space via a duct or other path.
C_{tr}	Correction term applied against the sound insulation single-number values (R_w, D_w, and $D_{nT,w}$) to provide a weighting against low frequency performance. *NOTE: The reference values used within the C_{tr} calculation are based on urban traffic noise.*
Equivalent continuous A-weighted sound pressure level, $L_{Aeq,T}$	Value of the A-weighted sound pressure level in decibels (dB) of a continuous, steady sound that, within a specified time interval, T, has the same mean-squared sound pressure as the sound under consideration that varies with time.
Equivalent continuous A-weighted sound pressure level, $L_{Aeq,T}$ (BS4142:2014)	Value of the A-weighted sound pressure level in decibels of continuous steady sound that, within a specified time interval, $T = t_2 - t_1$, has the same mean-squared sound pressure as a sound that varies with time.
Equivalent sound absorption area of a room, A	Hypothetical area of a totally absorbing surface without diffraction effects, expressed in square metres (m2), which, if it were the only absorbing element in the room, would give the same reverberation time as the room under consideration
Facade level	Sound pressure level 1 m in front of the façade. *NOTE: Facade level measurements of L_{pA} are typically 1 dB to 2 dB higher than corresponding free-field measurements because of the reflection from the facade.*
Free-field level	Sound pressure level away from reflecting surfaces. *NOTE: Measurements made 1.2 m to 1.5 m above the ground and at least 3.5 m away from other reflecting surfaces are usually regarded as free-field. To minimize the effect of reflections the measuring position has to be at least 3.5 m to the side of the reflecting surface (i.e. not 3.5 m from the reflecting surface in the direction of the source). Estimates of noise from aircraft overhead usually include a correction of 2 dB to allow for reflections from the ground.*

Impact sound pressure level, L_i	Average sound pressure level in a specific frequency band in a room below a floor when it is excited by a standard tapping machine or equivalent.
Indoor ambient noise	Noise in a given situation at a given time, usually composed of noise from many sources, inside and outside the building, but excluding noise from activities of the occupants. *NOTE: The location(s) within the room at which the ambient indoor noise is to be measured or calculated ought to be considered.*
Measurement time interval, T_m (BS4142:2014)	Total time over which measurements are taken. *NOTE: This may consist of the sum of a number of non-contiguous, short-term measurement time intervals.*
Noise criteria	Numerical indices used to define design goals in a given space.
Noise rating, NR	Graphical method for rating a noise by comparing the noise spectrum with a family of noise rating curves.
Normalised impact sound pressure level, L_n	Impact sound pressure level normalized for a standard absorption area in the receiving room. *NOTE: Normalised impact sound pressure level is usually used to characterize the insulation of a floor in a laboratory against impact sound in a stated frequency band.*
Octave band	Band of frequencies in which the upper limit of the band is twice the frequency of the lower limit.
Percentile level, $L_{AN,T}$	A-weighted sound pressure level obtained using time-weighting "F", which is exceeded for *N*% of a specified time interval.
Reference time interval, T_r (BS4142:2014)	Specified interval over which the specific sound level is determined. *NOTE: This is 1 h during the day from 07:00 h to 23:00 h and a shorter period of 15 min at night from 23:00 h to 07:00 h.*
Residual sound (BS4142:2014)	Ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound.
Residual sound level, $L_r = L_{Aeq,T}$ (BS4142:2014)	Equivalent continuous A-weighted sound pressure level of the residual sound at the assessment location over a given time interval, T.
Rating level, $L_{Ar,Tr}$	Equivalent continuous A-weighted sound pressure level of the noise, plus any adjustment for the characteristic features of the noise. *NOTE: This is used in BS 7445 and BS 4142 for rating industrial noise, where the noise is the specific noise from the source under investigation.*
Reverberation time, *T*	Time that would be required for the sound pressure level to decrease by 60 dB after the sound source has stopped.
Sound exposure level, *L*AE	Level of a sound, of 1 s duration, that has the same sound energy as the actual noise event considered.
Sound level difference, *D*	Difference between the sound pressure level in the source room and the sound pressure level in the receiving room.
Sound pressure, *p*	Root-mean-square value of the variation in air pressure, measured in pascals (Pa) above and below atmospheric pressure, caused by the sound.
Sound pressure level, L_p	Quantity of sound pressure, in decibels (dB).
Sound reduction index, *R*	Laboratory measure of the sound insulating properties of a material or building element in a stated frequency band.

Specific sound level, $L_s = L_{Aeq,Tr}$ (BS4142:2014)	Equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, T_r.
Specific sound source (BS4142:2014)	Sound source being assessed.
Standardised impact sound pressure level, L'_{nT}	Impact sound pressure level normalized to a reverberation time in the receiving room of 0.5 s.
Standardised level difference, D_{nT}	Difference in sound level between a pair of rooms, in a stated frequency band, normalized to a reference reverberation time of 0.5 s for dwellings.
Groundborne noise	Audible noise caused by the vibration of elements of a structure, for which the vibration propagation path from the source is partially or wholly through the ground. *NOTE Common sources of ground-borne noise include railways and heavy construction work on adjacent construction sites.*
Structure-borne noise	Audible noise caused by the vibration of elements of a structure, the source of which is within a building or structure with common elements. *NOTE Common sources of structure-borne noise include building services plant, manufacturing machinery and construction or demolition of the structure.*
Third octave band	Band of frequencies in which the upper limit of the band is 2% times the frequency of the lower limit.
Weighted level difference, D_w	Single-number quantity that characterizes airborne sound insulation between rooms, but which is not adjusted to reference conditions. *NOTE Weighted level difference is used to characterize the insulation between rooms in a building as they are. Values cannot normally be compared with measurements made under other conditions (see BS EN ISO 717-1).*
Weighted normalised impact sound pressure level, $L'_{n,w}$	Single-number quantity used to characterize the impact sound insulation of floors over a range of frequencies.
Weighted sound reduction index, R_w	Single-number quantity which characterizes the airborne sound insulating properties of a material or
Weighted standardised impact sound pressure level $L'_{nT,w}$	Single-number quantity used to characterize the impact sound insulation of floors over a range of frequencies.
Weighted standardised level difference, $D_{nT,w}$	Single-number quantity that characterizes the airborne sound insulation between rooms.

Symbols

D_w	Weighted level difference (dB)
D_{nT}	Standardized level difference (dB)
$D_{nT,w}$	Weighted standardized level difference (dB)
L_{Amax}	Maximum noise level (dB)
$L_{Ar,Tr}$	Rating level (dB)
L_n	Normalised impact sound pressure level (dB)
L'_{nT}	Standardised impact sound pressure level (dB)
$L'_{nT,w}$	Weighted standardised impact sound pressure level (dB)
$L'_{n,w}$	Weighted normalised impact sound pressure level (dB)
L_p	Sound pressure level (dB)
L_{pA}	A-weighted sound pressure level (dB)
$L_{AN,T}$	Percentile level (dB)
L_{AE}	Sound exposure level (dB)
$LAeq,T$	Equivalent continuous A-weighted sound pressure level (dB)
p	Sound pressure (Pa)
p_A	A-weighted sound pressure (dB)
$p_{A(t)}$	Instantaneous A-weighted sound pressure (Pa)

R	Sound reduction index (dB)
R_w	Weighted sound reduction index (dB)
T	Time interval (also used for reverberation time) (s)
t_0	Reference time interval (s)

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