



Land to Rear of 221-225 Droylsden Road

Noise Impact Assessment

dBx Acoustics Ltd
Tower House
269 Walmersley Road
Bury
BL9 6NZ
0161 711 0320

26003-R01-SW
Client: Mr Yasser Mehmood
Date: 23/01/2026

TABLE OF CONTENTS

1	INTRODUCTION	3
2	ACOUSTIC DESIGN CRITERIA	4
	LOCAL AUTHORITY	4
	BS 8233:2014: 'GUIDANCE ON SOUND INSULATION AND NOISE REDUCTION FOR BUILDINGS'	5
	BS 4142:2014 + A1:2019 'METHODS FOR RATING AND ASSESSING INDUSTRIAL AND COMMERCIAL SOUND'	6
	THE BUILDING REGULATIONS 2010: OVERHEATING: APPROVED DOCUMENT O	6
	ACOUSTICS, VENTILATION AND OVERHEATING: RESIDENTIAL DESIGN GUIDE 2020 (AVO)	7
3	SITE DESCRIPTION.....	9
	PROPOSED DEVELOPMENT	10
4	ENVIRONMENTAL NOISE SURVEY.....	11
	SURVEY METHODOLOGY	11
	EQUIPMENT	12
	WEATHER CONDITIONS	12
	NOISE CLIMATE.....	12
5	SURVEY RESULTS	13
6	BUILDING ENVELOPE SOUND INSULATION	14
	OVERHEATING	15
	NOISE FROM EXTERNAL PLANT.....	17
8	BUILDING SERVICES NOISE EMISSIONS	18
9	CONCLUSION	19
	APPENDIX A – GLOSSARY OF ACOUSTIC TERMINOLOGY	20

REVISION HISTORY

Revision	Date	Revision Details	Author	Checked
R01	23/01/2026	Original Issue	Susan Witterick BSc MIOA	Ben Tomlin BSc MIOA

1 INTRODUCTION

- 1.1 dBx Acoustics Ltd has been appointed by Mr Yasser Mehmood to undertake a noise survey and noise impact assessment for a new build detached dwelling at the rear of 221-225 Droylsden Road, Manchester M40 1NY.
- 1.2 Manchester City Council (MCC) has granted planning permission for the development, application reference 14246/FO/2025. Conditions 6 and 7 relate to noise.
- 1.3 Accordingly, this report presents the results of an environmental noise survey carried out at the site, and the subsequent noise impact assessment in accordance with MCC requirements, to support discharge of planning conditions 6a and 7a.
- 1.4 Conditions 6b and 7b relate to verification measurements post-completion.
- 1.5 A glossary of acoustic terminology is provided in Appendix A.

2 ACOUSTIC DESIGN CRITERIA

Local Authority

- 2.1 This site falls under the jurisdiction of Manchester City Council (MCC).
- 2.2 MCC has granted planning permission for the development, application reference 14246/FO/2025.
- 2.3 Conditions 6a and 7a relate to noise at the design stage and are reproduced below.

Figure 1: Condition 6a

6) a) Before the development commences a scheme for acoustically insulating the proposed residential accommodation against noise from Droylsden Road shall be submitted to and approved in writing by the City Council as local planning authority. There may be other actual or potential sources of noise which require consideration on or near the site, including any local commercial/industrial premises such as the Manchester Islamic Centre.

The potential for overheating shall also be assessed and the noise insulation scheme shall take this into account. The approved noise insulation and ventilation scheme shall be completed before any of the dwelling units are occupied.

Noise survey data shall include measurements taken during a rush-hour period and night time to determine the appropriate sound insulation measures necessary.

Figure 2: Condition 7a

7) a) Any externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (LAeq) below the typical background (LA90) level at the nearest noise sensitive location. Prior to commencement of the use hereby approved the scheme shall be submitted to and approved in writing by the City Council as local planning authority in order to secure a reduction in the level of noise emanating from the site. The scheme shall be implemented in full before the use commences or as otherwise agreed in writing by the City Council as local planning authority.

BS 8233:2014: 'Guidance on sound insulation and noise reduction for buildings'

Indoor Ambient Noise Levels within Habitable Rooms

- 2.4 BS 8233 gives guidance for noise levels within residential properties for noise without a specific character. It discusses appropriate criteria for reasonable rest and sleep conditions and provides noise levels which are considered to provide appropriate conditions in accordance with WHO guidelines. The guidance on limits from the standard is reproduced in Table 1.

Table 1: Indoor Ambient Noise Limits (BS 8233)

Activity	Location	07:00 – 23:00 h	23:00 – 07:00 h
Resting	Living room	35dB _{L_{Aeq,16h}}	-
Dining	Dining room/area	40dB _{L_{Aeq,16h}}	-
Sleeping (daytime resting)	Bedroom	35dB _{L_{Aeq,16h}}	30dB _{L_{Aeq,8h}}

- 2.5 It should be noted that these levels represent the average noise level over the 16-hour day or 8-hour night period. This potentially means that higher noise levels may be experienced internally over a shorter period of time (e.g. individual passing trams or vehicles). These equivalent noise levels over a period of time are the best representation of the average noise level and are generally the main focus when it comes to evaluating noise exposure.
- 2.6 To assess the maximum noise levels, the World Health Organisation (WHO) document 'Guidelines for Community Noise: 1999' recommends that maximum noise levels (dB L_{AFmax}) do not exceed 45dB_{L_{AFmax}} more than 10-15 times a night.

Outdoor Noise Levels in External Amenity Areas

- 2.7 BS 8233: 2014 and the World Health Organisation (WHO) document 'Guidelines for Community Noise: 1999' present guidance for external noise levels within outdoor amenity areas of residential properties to be within 55dB_{L_{Aeq,16h}}.
- 2.8 It is, however, noted that compliance with these levels may not always be practical, and that the benefits of a development in other areas may take precedence over achieving external amenity noise levels.

BS 4142:2014 + A1:2019 'Methods for Rating and Assessing Industrial and Commercial Sound'

- 2.9 BS 4142:2014 + A1:2019 sets out a procedure for assessing noise impact whereby a Noise Rating Level is determined and compared with the existing local Background Sound Level.
- 2.10 The Rating Level ($dB_{L_{Ar,Tr}}$) is evaluated from the Specific Noise Level by including cumulative corrections to account for factors such as distinguishable tone, impulsivity, intermittency or other readily distinguishable sound characteristics.
- 2.11 The assessment of the impact depends upon the margin by which the Rating Level of the specific sound source exceeds the Background Sound Level. An initial estimate of the impact of the specific sound is made by subtracting the Background Sound Level from the Rating Level, while considering the following points:
- a) Typically, the greater this difference, the greater the magnitude of the impact.
 - b) A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.
 - c) A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.
 - d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

The Building Regulations 2010: Overheating: Approved Document O

- 2.12 Section 3 of Overheating: Approved Document O (ADO) states the following;
- 3.2 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).*
- 3.3 Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.*
- A. $40dB_{L_{Aeq,T}}$, averaged over 8 hours (between 11pm and 7am).*
 - B. $55dB_{L_{AFmax}}$, more than 10 times a night (between 11pm and 7am).*
- 3.4 Where in-situ noise measurements are used as evidence that these limits are not exceeded, measurements should be taken in accordance with the Association of Noise Consultants' Measurement of Sound Levels in Buildings with the overheating mitigation strategy in use.*
- 2.13 It is also highlighted that guidance on reducing the passage of external noise into buildings can be found in the Association of Noise Consultants' 'Acoustics, Ventilation and Overheating: Residential Design Guide' (2020).

Acoustics, Ventilation and Overheating: Residential Design Guide 2020 (AVO)

- 2.14 AVO outlines a two-level procedure to estimate the potential impact on occupants in the case of the overheating condition.
- 2.15 The AVO Level 1 assessment is used to determine the 'Potential Effect without Mitigation' and to establish if there is a requirement for a Level 2 Assessment.
- 2.16 A level 1 assessment is undertaken by comparing the external noise levels measure to the values shown on Table 3-2 of AVO, reproduced as Figure 3, below.

Figure 3: AVO Table 3-2, Guidance for Level 1 Site Risk Assessment

Table 3-2 Guidance for Level 1 site risk assessment of noise from transport noise sources ^[Note 1] relating to overheating condition

Risk category for Level 1 assessment ^[Note 5]	Potential Effect without Mitigation	Recommendation for Level 2 assessment
$L_{Aeq,T}$ ^[Note 2] during 07:00 - 23:00 $L_{Aeq,8hr}$ during 23:00 - 07:00	Increasing risk of adverse effect	Recommended Optional
65 dB 60 dB 55 dB 50 dB	55 dB 50 dB 45 dB	Use of opening windows as primary means of mitigating overheating is not likely to result in adverse effect Not required

- 2.17 If required, a Level 2 assessment is then undertaken by comparing the predicted internal noise levels to Table 3-3 of AVO, reproduced as Figure 4, below.

Figure 4: AVO Table 3-3, Guidance for Level 2 Assessment

Table 3-3 Guidance for Level 2 assessment of noise from transport noise sources^[Note 1] relating to overheating condition

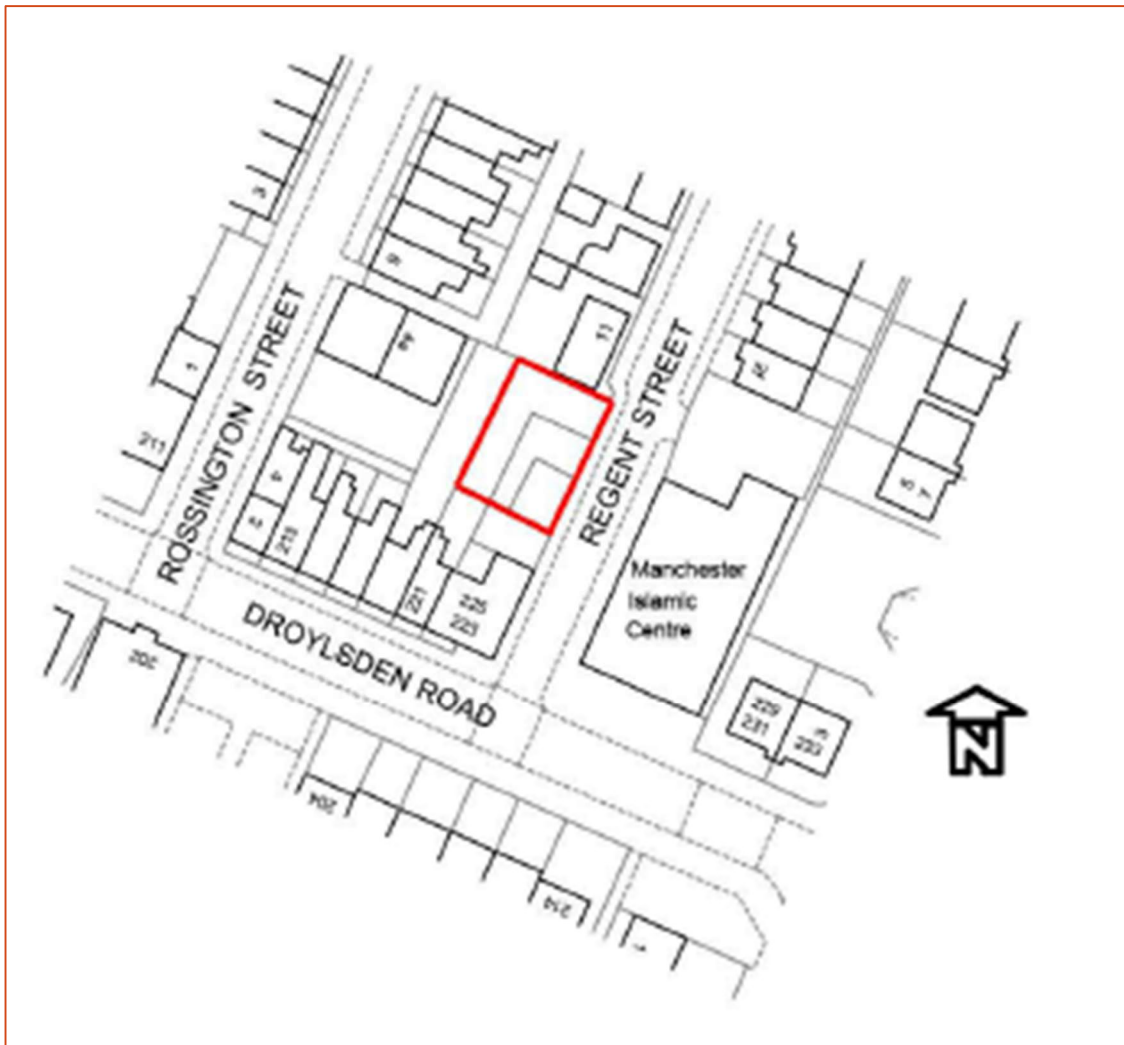
Internal ambient noise level ^[Note 2]			Examples of Outcomes ^[Note 3]	
$L_{Aeq,T}$ ^[Note 4] during 07:00 – 23:00 ^[Note 5]	$L_{Aeq,T}$ during 23:00 – 07:00	Individual noise events during 23:00 – 07:00 ^[Note 6]		
> 50 dB	> 42 dB	Normally exceeds 65 dB L_{Amax}	Noise causes a material change in behaviour e.g. having to keep windows closed most of the time	Avoiding certain activities during periods of intrusion. Having to keep windows closed most of the time because of the noise. 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.
 Increasing noise level			Increasing likelihood of impact on reliable speech communication during the day or sleep disturbance at night	At higher noise levels, more significant behavioural change is expected and may only be considered suitable if occurring for limited periods. As noise levels increase, small behaviour changes are expected e.g. turning up the volume on the television; speaking a little more loudly; having to close windows for certain activities, for example ones which require a high level of concentration. Potential for some reported sleep disturbance. Affects the acoustic environment inside the dwelling such that there is a perceived change in quality of life. At lower noise levels, limited behavioural change is expected unless conditions are prevalent for most of the time. ^[Note 8]
≤ 35 dB	≤ 30 dB	Do not normally exceed $L_{Aeq,max}$ 45 dB more than 10 times a night	Noise can be heard, but does not cause any change in behaviour	Noise can be heard, but does not cause any change in behaviour, attitude, or other physiological response ^[Note 9] . Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.

- 2.18 It can be seen from the figures above that there are no strict numerical limits for an acceptable level of noise within residences during the overheating condition.
- 2.19 Table 3-3, however, does suggest that night-time noise levels of $\geq 42 \text{ dB}_{L_{Aeq,8\text{hour}}}$, or $65 \text{ dB}_{L_{Amax,F}}$ can be considered upper limits for acceptable noise levels in rooms in which overheating is controlled by the use of open windows.

3 SITE DESCRIPTION

- 3.1 The site is located to the rear of 221-225 Droylsden Road, accessed from Regent Street. Figure 5, below, illustrates the site location.

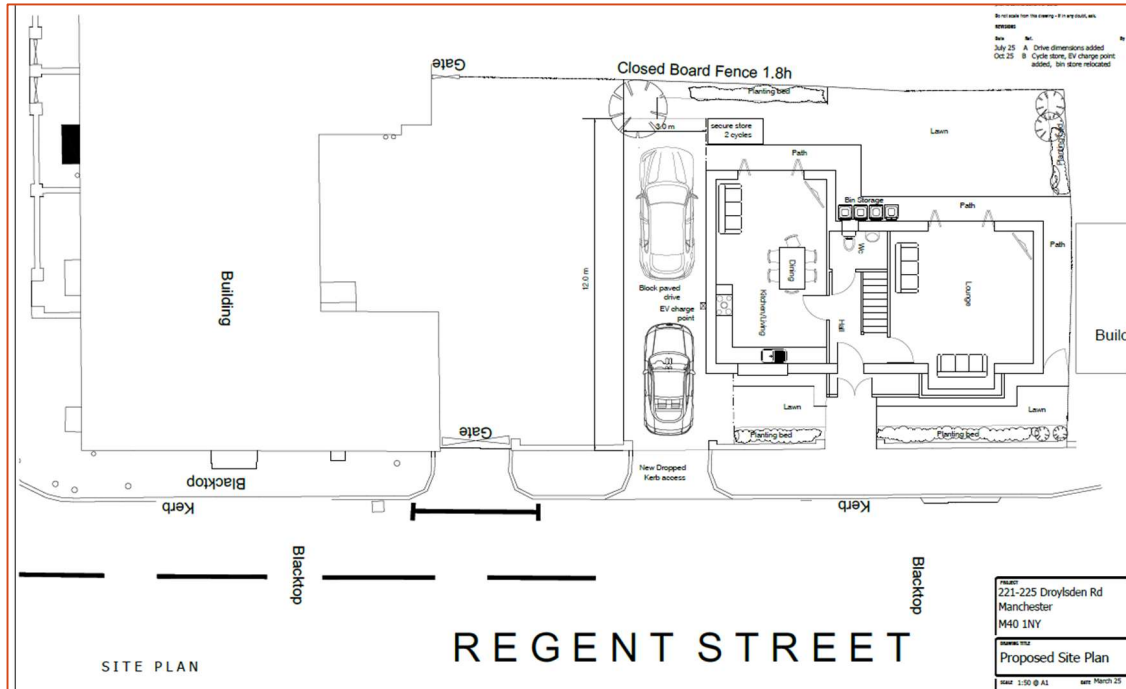
Figure 5: Site Location



Proposed Development

- 3.2 The development comprises a detached two-storey dwelling, with kitchen / dining / living rooms to the ground floor, and bedrooms at first floor.
- 3.3 The ground floor plan, in relation to the existing area, is shown as Figure 6, below. The existing storage shed on the site is to be demolished.

Figure 6: Proposed Ground Floor

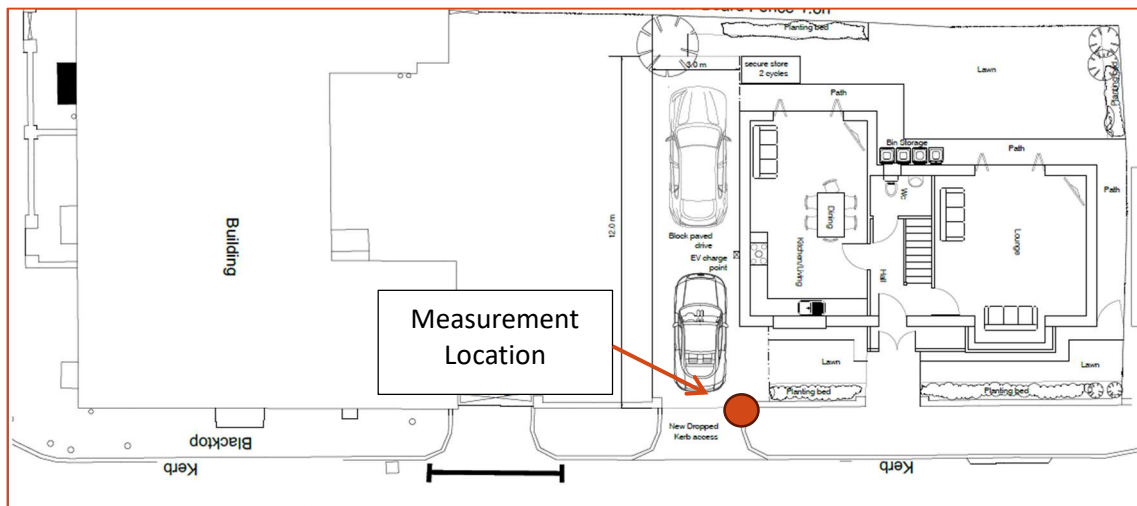


4 ENVIRONMENTAL NOISE SURVEY

Survey Methodology

- 4.1 Continuous noise monitoring was undertaken between 12:30h on Monday 19th January 2026 and 12:00h on Tuesday 20th January 2026.
- 4.2 Noise levels were measured continuously throughout, in 15-minute periods. In accordance with the requirements of Planning Condition 6a, the measurements included both the rush-hour and night-time periods.
- 4.3 The microphone was positioned on a pole extended above the site entrance on Regent Road at around 2.5m, in free-field conditions.
- 4.4 Figure 7, below, shows the noise monitoring location in relation to the proposed dwelling.

Figure 7: Noise Monitoring Location



Equipment

- 4.5 The equipment used during the environmental noise survey is detailed in Table 2, below.

Table 2: Equipment Used in Environmental Noise Survey

Equipment	(Manufacturer & Part No./ Serial Number)	Serial Number
Meter	Casella C633C	1716934
Pre-Amp	CEL 495	001773
Microphone	CEL 251	000847
Calibrator	CEL 120/1	1530668

- 4.6 The sound level meter was calibrated before and after measurements, with no significant drift recorded. An accredited laboratory calibrated the equipment not more than two years prior to the measurements being made, except for the calibrator, which had been calibrated not more than one year prior to the survey.

Weather Conditions

- 4.7 Weather conditions during noise monitoring were generally cool and dry with temperatures of 4-10°C.
- 4.8 There was no precipitation during the survey.
- 4.9 Wind speeds were within suitable parameters for the measurement of environmental noise (i.e., generally under 5 ms⁻¹). The measurement microphone was protected with a windshield for the duration of the survey.

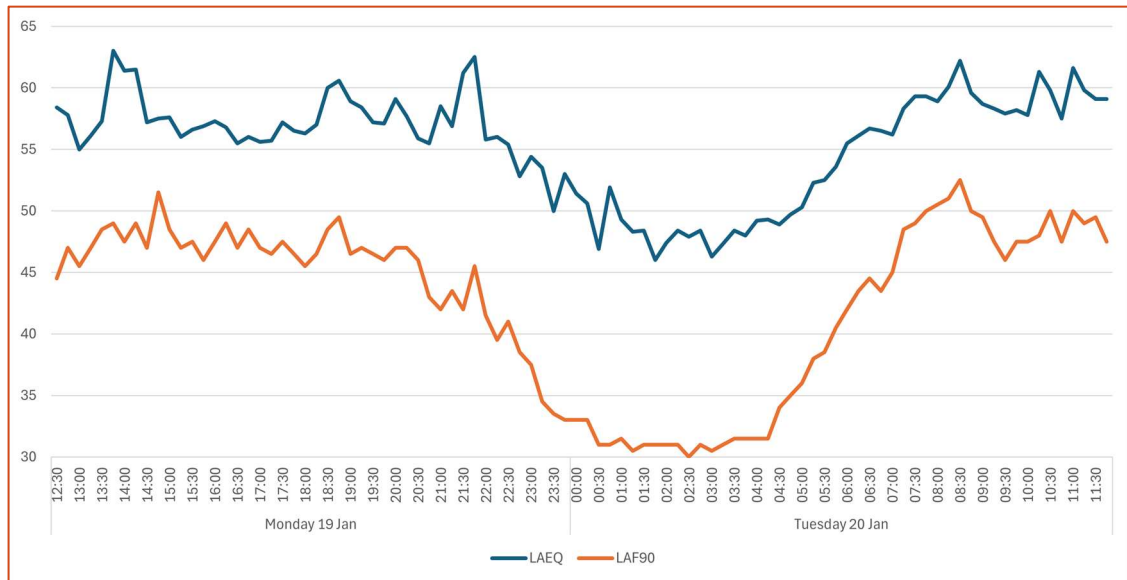
Noise Climate

- 4.10 During the attended portions of the noise survey, the noise climate was dominated by road traffic noise from Droylsden Road.
- 4.11 The Islamic Centre did not appear to be in use at the time of the survey. The centre website (nasfatmanchester.org.uk) did not indicate any scheduled events or worship sessions. An external condensing unit is mounted on the Regent Street façade. The potential noise impact from this when in operation is considered within this assessment.
- 4.12 There are two external condensing units to the rear of the shop at 221-225 Droylsden Road, at first floor level, facing the development site. It is noted that there are no windows proposed in the façade facing these units.
- 4.13 Noise from these units was not audible during the attended periods of the noise survey.
- 4.14 No other commercial or industrial noise sources were observed.

5 SURVEY RESULTS

5.1 Figure 8 shows the measured ambient and background noise levels throughout the survey.

Figure 8: Noise Survey Data



5.2 Table 3, below, summarises the day and night-time ambient ($dB_{LAeq,T}$) and background noise level ($dB_{LA90,T}$), as well as the typical night-time maximum noise level, $dB_{LAmax,F}$.

Table 3: Measured Noise Levels

Period	Ambient Noise Level, $dB_{LAeq,T}$	Typical Background Noise, $dB_{LA90,T}$	Typical Maximum Noise Level, $dB_{LAmax,F}$
Daytime 07:00h-23:00h	59	47	--
Night-Time 23:00h-07:00h	52	31	71

5.3 The background noise levels presented are the modal value of the 15-minute dB_{LA90} values measured during each period, while a logarithmic average has been used to establish the corresponding ambient noise ($dB_{LAeq,T}$) value.

5.4 The typical maximum noise levels consider the highest values measured, excluding one off atypical events, that are not exceeded more than 5 to 10 times per night in two minute periods, to comfortably meet Manchester City Council's requirements.

6 BUILDING ENVELOPE SOUND INSULATION

- 6.1 An external noise break-in assessment has been undertaken to determine the minimum sound insulation performance of the glazing and ventilation required to meet the internal noise criteria.
- 6.2 Based on a typical reduction in external noise levels to indoor noise levels of 15dB for a partially opened window (based on WHO guidance), allowable external noise levels for compliance with BS8233 (and RBC requirements) are therefore 50dB_{L_{Aeq,T}} outside living rooms in the day, and 45dB_{L_{Aeq,T}} and 60dB_{L_{Amax,F}} outside bedrooms at night.
- 6.3 With reference to Table 3, and the allowable external noise levels detailed above, it can be seen the required indoor noise levels can only be achieved with closed windows and an alternative means of ventilation.
- 6.4 Calculations have therefore been undertaken, based on the noise levels detailed in Table 3, above, and the sizes of the rooms and windows provided, to determine the sound insulation performance of the glazing and ventilators required to achieve the BS8233 noise limits, as detailed in Table 4, below.

Table 4: Glazing and Ventilation Sound Insulation Requirements

Room	Glazing Sound Insulation Performance, dB R _w (+ C _{tr})	Example Glazing Construction, mm	Ventilator Sound Insulation Performance, dB D _{n,e,w}	Example Ventilator
Bedrooms	31 (-6)	4mm/TC/4mm	33	RW Simon Framevent
Living / Dining Rooms				

TC = Thermal Cavity

- 6.5 The sound insulation performances detailed must be achieved by the glazing unit as a whole, including frames, seals, opening lights etc, as opposed to the glass panels alone. Windows can be openable at occupant discretion (e.g. for purge ventilation) but must be well sealed when closed.
- 6.6 The glazing configuration shown above is a suggestion only, and alternative configurations may be acoustically suitable.
- 6.7 Calculations indicate that the external wall and roofs in residential habitable rooms must also achieve a sound insulation performance of at least 41dB_{R_w}.
- 6.8 The external walls comprise rendered brickwork, which will readily meet this requirement.
- 6.9 The roof is a traditional slate tile construction. The ceiling within the house should be formed from at least one layer of 15mm high density plasterboard (e.g. British Gypsum SoundBloc or Fireline), with a 50mm mineral fibre quilt laid to the rear.

Overheating

- 6.1 At this stage, a thermal comfort assessment has not been undertaken. This initial guidance is therefore presented on the basis that an overheating condition may arise, but will need to be reviewed as the scheme progresses.
- 6.2 An assessment has therefore been made in accordance with Approved Document O.
- 6.3 Approved Document O is based on guidance in the Association of Noise Consultants' document 'Acoustics, Ventilation and Overheating Guide' (2020) (AVO).

AVO Level 1 Assessment

- 6.4 The AVO Level 1 Assessment is used to determine the 'Potential Effect without Mitigation' and to establish if there is a requirement for a Level 2 Assessment.
- 6.5 AVO indicates that a Level 2 assessment is 'recommended' when $65\text{dBL}_{\text{Aeq},16\text{hour}}$ (daytime) and $55\text{dBL}_{\text{Aeq},8\text{hour}}$ (night-time) is exceeded.
- 6.6 Furthermore, AVO mentions that 'where $78\text{dBL}_{\text{AF},\text{max}}$ is normally exceeded during the night-time period, a Level 2 assessment is recommended'.
- 6.7 The Level 1 Assessment is summarised in Table 5, below.

Table 5: AVO Level 1 Assessment

Typical Daytime Noise Levels, $\text{dBL}_{\text{Aeq},16\text{hour}}$	Typical Night-time Noise Levels, $\text{dBL}_{\text{Aeq},8\text{hour}}$	Typical Maximum Noise Level, $\text{dBL}_{\text{AF},\text{max}}$	Risk Category (day/night)
59	52	71	Medium / Medium

- 6.8 On this basis, a Level 2 Assessment is presented below.

AVO Level 2 Assessment

- 6.9 For the Level 2 assessment, there are no definitive criteria proposed, only a sliding scale of *'Increasing likelihood of impact on reliable speech communication during the day or sleep disturbance at night'*.
- 6.10 However, internal noise level limits of $50\text{dBL}_{\text{Aeq},16\text{hour}}$ in the day, and $42\text{dBL}_{\text{Aeq},8\text{hour}}$ and $65\text{dBL}_{\text{Amax},\text{F}}$ at night are the limits at which *'Noise causes a material change in behaviour e.g. having to keep windows closed most of the time....Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep.'*
- 6.11 These limits would therefore appear to be a worst-case upper limit. Furthermore, any adverse effects relating to noise are affected by both the noise level itself, and the duration (how long overheating occurs) and frequency (how many times per year/month) the overheating condition occurs.
- 6.12 AVO specifies an expected reduction from external to internal noise levels of -13dB when a window is open. On this basis, the predicted indoor ambient noise levels (IANL) assuming windows open for the control of overheating are shown in Tables 6 and 7, below.

Table 6: AVO Level 2 Assessment, Ambient Noise Level

Parameter	Daytime	Night-Time
External Ambient Noise Level, $\text{dBL}_{\text{Aeq},16\text{hr}}$	59	52
Reduction, open window, dB	-13	
IANL ($\text{dBL}_{\text{Aeq},\text{T}}$)	46	39
Upper Limit Outlined in AVO	$>50\text{dBL}_{\text{Aeq},16\text{h}}$	$>42\text{dBL}_{\text{Aeq},8\text{h}}$
Exceedance	-4dB	-3dB

Table 7: AVO Level 2 Assessment, Maximum Noise Level

Parameter	Night-Time
External Maximum Noise Level, $dB_{LA_{max,F}}$	71
Reduction, open window, dB	-13
IANL ($dB_{LA_{F,Max}}$)	59
Upper Limit Outlined in AVO	$>65dB_{LA_{max,F}}$
Exceedance	-6dB

- 6.10 It can be seen that the IANL with windows open to control overheating is compliant with AVO recommendations during both the day and night time periods. As such, control of overheating by means of open windows is an acoustically appropriate strategy.

Noise from External Plant

- 6.11 As noted above, there is an external ventilation unit mounted on the wall of the Manchester Islamic Centre, facing the proposed development.
- 6.12 This is assumed to operate only during use of the Centre. As discussed, there are currently no scheduled regular event or worship times. As such, use of this unit is assumed to be only occasional.
- 6.13 The unit is a Mitsubishi “Inverter”; the model number is not known but, based on the likely age of the unit, is likely to be a SUZ-KA35VAD, with a sound power level of $61dB_{L_{WA}}$.
- 6.14 On this basis, and correcting for distance to the proposed development of approximately 15m, the resultant sound pressure level at the residential façade would be around $30dB_{LA_{eq,T}}$.
- 6.15 This can be compared to the typical daytime background noise level of $47dB_{LA_{90,16hr}}$ and ambient noise level of $59dB_{LA_{eq,T}}$; on this basis, operation of this unit would have no impact on the proposed dwelling and would be expected to be inaudible externally to the property.

7 EXTERNAL AMENITY AREA

- 7.1 A lawned garden is proposed to the rear of the property. This will be fully screened from road traffic noise by the building itself.
- 7.2 The daytime ambient noise level measured was 59dBL_{Aeq,16hr}. Allowing for screening, the ambient noise level within the garden area is predicted to not exceed 50dBL_{Aeq,16hr}.
- 7.3 This is therefore compliant with the recommendations set out in BS8233:2014.

8 BUILDING SERVICES NOISE EMISSIONS

- 8.1 Condition 7a requires that any new items of building services plant should cumulatively achieve a Rating Level of at least 5dB below the typical background noise level at the nearest noise sensitive receptors when assessed in accordance with BS 4142:2014 + A1:2019.
- 8.2 Based on the background noise levels detailed in Table 3, suitable limits to which the cumulative plant noise level should adhere are set in Table 10, below.

Table 10: Plant Noise Emission Limits

Nearest Noise Sensitive Receptor	Plant Noise Emission Limit dBL _{Ar,Tr}	
	Daytime Period (07:00h – 23:00h)	Night-time Period (23:00h – 07:00h)
Rear of 221-225 Droylsden Road	42	26

- 8.3 At the time of writing, there are no proposals for building services plant associated with the development.

9 CONCLUSION

- 9.1 dBx Acoustics Ltd has been appointed by Mr Yasser Mehmood to undertake a noise survey and noise impact assessment for a new build detached dwelling at the rear of 221-225 Droylsden Road, Manchester M40 1NY.
- 9.2 Manchester City Council (MCC) has granted planning permission (with conditions) for the development, under application reference 14246/FO/2025. Conditions 6 and 7 relate to noise.
- 9.3 Accordingly, this report presents the results of an environmental noise survey carried out at the site, and the subsequent noise impact assessment in accordance with MCC requirements, to support discharge of planning conditions 6a and 7a.
- 9.4 Calculations have been undertaken to determine the acoustic performance requirements of glazing and ventilation for compliance with MCC criteria.
- 9.5 Consideration has been given to building services plant at the Manchester Islamic Centre, which faces the proposed development. It is determined that operation of this unit would have no impact at the residential dwelling.
- 9.6 An outline AVO overheating assessment indicates that control of overheating by means of open windows is acoustically acceptable for this site.
- 9.7 No building services plant is associated with the development at this stage, however, noise emission limits have been set in accordance with the requirements of MCC.
- 9.8 On this basis, Conditions 6a and 7a of planning permission reference 14246/FO/2025 can be discharged.

APPENDIX A – GLOSSARY OF ACOUSTIC TERMINOLOGY

Decibel, dB	A unit of level derived from the logarithm of the ratio between the value of a quantity and a reference value. For sound pressure level (L_p) the reference quantity is 2×10^{-5} N/m ² . The sound pressure level existing when microphone measured pressure is 2×10^{-5} N/m ² is 0 dB, the threshold of hearing.
L	Instantaneous value of Sound Pressure Level (L_p) or Sound Power Level (L_w).
Frequency	Number of cycles per second, measured in hertz (Hz), related to sound pitch.
A-weighting	Arithmetic corrections applied to values of L_p according to frequency. When logarithmically summed for all frequencies, the resulting single "A weighted value" becomes comparable with other such values from which a comparative loudness judgement can be made, then, without knowledge of frequency content of the source.
$L_{eq,T}$	Equivalent continuous level of sound pressure which, if it actually existed for the integration time period T of the measurement, would possess the same energy as the constantly varying values of L_p actually measured.
$L_{Aeq,T}$	Equivalent continuous level of A weighted sound pressure which, if it actually existed for the integration time period, T, of the measurement would possess the same energy as the constantly varying values of L_p actually measured.
$L_{n,T}$	L_p which was exceeded for n% of time, T.
$L_{An,T}$	Level in dBA which was exceeded for n% of time, T.
L_{Fmax}	The instantaneous maximum sound pressure level which occurred during the measurement. F indicates that the fast time-weighting is used.
L_{AFmax}	The instantaneous maximum A weighted sound pressure level which occurred during the measurement. F indicates that the fast time-weighting is used.
$L_{Ar,Tr}$	The rating level: the equivalent continuous A-weighted sound pressure level of the noise, plus any adjustment for the characteristic features of the noise.
Reverberation Time, T	The time that would be required for the sound pressure level to decrease by 60 dB after the sound source has stopped. The descriptor T, often includes other nomenclature to describe the type of reverberation time measurement or if the reverberation time is an average taken for specific frequencies. For example, a T_{mf} is the mid-frequency reverberation time.
Absorption Coefficient, α	The fraction of reverberant sound energy absorbed by a material. It is expressed as a value between 1.0 which equates to perfect absorption and 0 which equates to zero absorption.
Acoustic Class, A - E	Classification of sound absorbers into Sound Absorption Classes A-E, according to BS EN ISO 11654, including frequencies 200-5000 Hz
NRC	A single-number rating system used to compare the sound-absorbing characteristics of building materials. A measurement of the acoustical absorption performance of a material, calculated by averaging its Sound Absorption Coefficients at 250, 500, 1000 and 2000 Hz
STI	Speech Transmission Index , Metric ranging between 0 and 1 representing the transmission quality of speech with respect to intelligibility by a speech transmission channel
R	Sound Reduction Index , the laboratory measured sound insulation properties of a material or building element in octave or third octave bands.
R_w	Weighted Sound Reduction Index , a single number which represents the sound reduction of a material. It is derived by plotting the sound reduction index against a set of reference curves. The curves are shifted until a best-fit is established and the curve which best fits the sound reduction spectrum is used to represent the single figure value.
D_w	Weighted Level Difference , the weighted level difference between a pair of rooms, stated as a single figure.

D_{nT}	Standardised Level Difference, a frequency-dependent measurement of airborne sound insulation, calculated using the following formula: $D_{nT} = L_1 - L_2 + 10\log(T/T_0)$ dB Where: L_1 is the energy-averaged sound pressure level due to the pink noise source measured in the source room using a sweep technique. L_2 is the energy-averaged sound pressure level measured in the receiving room using a sweep technique. T is the mean receiving room reverberation time (derived from T_{30} measured in seconds). T_0 is the reference reverberation time (= 0.5s for dwellings).
$D_{nT,w}$	Weighted Standardised Level Difference, a single-figure value of airborne sound insulation performance, derived according to procedures in BS EN ISO 717-1, based on the D_{nT} values at different frequencies (100-3150 Hz third octave bands).
$D_{n,F,w}$	Weighted, Normalised Flanking Level Difference, the normalised, weighted difference in sound level between a pair of rooms via a flanking element, such as mullion or ceiling detail. The level difference in octave bands is first normalized to a reference amount of absorption and then plotted against a set of reference curves to establish a single figure value.
D_{ne}	Normalised Element Level Difference. The normalised difference in sound level between a pair of rooms via a small element such as a trickle ventilator. The level difference in octave bands is normalized to a reference amount of absorption.
$D_{n,e,w}$	Weighted, Normalised Element Level Difference. The normalised, weighted difference in sound level between a pair of rooms via a small element such as a trickle ventilator, stated as a single figure. The level difference in octave bands is normalized to a reference amount of absorption and then plotted against a set of reference curves to establish a single figure value.
C_{tr}	Spectrum Adaptation Term, a correction term applied to the sound insulation single-number values (R_w, D_w, and $D_{nT,w}$) in accordance with BS EN ISO 717-1. Applying the C_{tr} penalises a construction's performance if its low frequency performance is poor in relation its performance at higher frequencies.
Impact Sound	The noise generated by an impact on a structure. This is normally used to describe the noise created by people walking or moving furniture on a floor structure.
L_{nT}	Standardised Impact Sound Pressure Level, a frequency dependent measurement of impact sound insulation, calculated using the following formula: $L_{nT} = L_1 + 10\log(T/T_0)$ dB Where: L_1 is the mean sound pressure level due to the tapping machine measured in the receiving room using a sweep technique. T is the mean receiving room reverberation time (derived from T_{30} measured in seconds). T_0 is the reference reverberation time (0.5s for dwellings)
$L'_{nT,w}$	Weighted Standardised Impact Sound Pressure Level, a single-figure value (@ 500 Hz) of impact sound insulation, performance, derived according to BS EN ISO 717-2, based on the L_{nT} values at different frequencies (100Hz- 3150 Hz third octave bands).
Insertion Loss, IL	The reduction of noise level due to the presence of a noise control device such as an attenuator, excluding any regeneration noise created by its presence.
NR	The Noise Rating level. This is a single figure value derived by plotting a noise spectrum against a set of curves. The curve under which the spectrum fits is the resulting NR level.

This report (including any enclosures and attachments) has been prepared by dBx Acoustics with reasonable skill and care in accordance with generally accepted acoustic principles and the terms agreed between dBx Acoustics and our Client. Any information provided by third parties and referred to herein may not have been checked or verified by dBx Acoustics unless expressly stated otherwise. This document contains confidential information, and no part of this report should be reproduced, distributed or communicated to any third party without express prior written consent from dBx Acoustics. We do not accept any liability if this report is used for an alternative purpose from that for which it is intended, nor to any third party in respect of this report. Where a noise survey has been undertaken, this report is based on the noise climate at the site at the time of the survey and no warranty is given as to the possibility of changes at differing times.

Registered Office: Tower House, 269 Walmersley Road, Bury BL9 6NZ

Registered in England and Wales, Company Number 08371474

