



18 MILNROW ROAD, ROCHDALE

Environmental Noise Assessment for Planning
Application

Address

18 Milnrow Road, Rochdale,
OL16 1UD.

For

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Report Number 2526-770-04-05

Overview

Site Address: 18 Milnrow Road, Rochdale, OL16 1UD

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Contents

Cover Page

Overview

Contents

1. Introduction
2. Criteria
3. Site Description and Observations of Industrial Noise and Other Potential Noises
4. Environmental Noise Survey
5. Uncertainty
6. Results
7. Summary of Acoustic Environment
8. Building Fabric Performance
9. Conclusions

Appendices

- A. Common Environmental Acoustic Indices
- B. Environmental Noise Results

1. Introduction

- 1.1 REDFAN Solutions have been instructed by Sustainabuild to assess the background noise and impact of the proposed development at 18 Milnrow Road, Rochdale.
- 1.2 Planning consent is being sought for the change of use from commercial to residential use.
- 1.3 A noise impact report and assessment will be part of the application for the Local Authority to demonstrate that the amenity of occupiers is not adversely affected by noise.
- 1.4 This report outlines the background noise levels at the site as well also provides any acoustic performance specifications that are required to enable the internal noise criteria to be achieved.
- 1.5 Monitoring of the prevailing background noise was undertaken over a 3-day period.
- 1.6 The site is currently a shop space at ground floor and unused commercial spaces above.
- 1.7 The survey was performed from 28/04/2025 – 30/04/2025.

2. Criteria

- 2.1 Part 1 and 2 of BS 7445 establishes guidelines to quantities and procedures for environmental noise measurements and a Guide to the acquisition of data pertinent to land use. Guidance provided on instrumentation and calibration, measurement positions, meteorological effects, and information to be recorded.
 - 2.1.1 All equipment shall be calibrated and the configuration for calibration shall be in accordance with the manufacturer's instructions.
 - 2.1.2 A comprehensive recalibration at certain time intervals may be prescribed by authorities responsible for the use of measurement results.
 - 2.1.3 A field check shall be made by the user at least before and after each series of measurements, preferably including an acoustic check of the microphone.
 - 2.1.4 "Outdoor measurements near buildings": these measurements shall be carried out at places where the noise to which a receiver is exposed is of interest. If not otherwise specified, the preferred measurement positions are 1m to 2m from the façade and 1.2m to 1.5m above the ground.

2.1.5 Measurements indoors. These measurements shall be carried out in enclosures where the noise is of interest. At least 1m away from walls and 1.2m to 1.5m above the ground.

2.2 Government guidelines for planning assessment is the National Planning Policy Framework (NPPF) which came into force in March 2012, in July 2018 and the National Planning Policy Guidance (NPPG). This was undated and in the main replaces previous PPG and PPS documentation.

2.3 The NPPF 2024 sets out the Government's economic, environmental and social planning policies for England and Paragraph 187-part e states,

"preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution.

Paragraph 198 part a states,

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

a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason;

2.4 BS 4142: 2014+A1:2019 "Method for rating and assessing industrial and commercial sound".

This British Standard describes methods for rating and assessing sound of an industrial and/or commercial nature, which includes:

- sound from industrial and manufacturing processes;
- sound from fixed installations which comprise mechanical and electrical plant and equipment;
- sound from the loading and unloading of goods and materials at industrial and/or commercial premises;
- sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site.

The significance of sound impact is to be determined according to the following summary process:

- Determine the background sound levels, in terms of the index LA90, at the receptor locations of interest.
- Determine the specific sound level of the source being assessed, in terms of its LAeqT level (T = 1 hour for day or 15 minutes for night), at the receptor location of interest.
- Apply a rating level acoustic feature correction if the source sound has tonal, impulsive, intermittent, or other characteristics which attract attention.
- Compare the rating sound level with the background sound level; the greater the difference between the two, the higher the likelihood of adverse impact.
- A difference (rating – background) of around +10 dB is an indication of significant adverse impact, depending on the context; a difference of +5 dB is an indication of an adverse impact, depending on the context. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending upon context.

2.5 BS 4142 introduced the concept of 'context' to the process of identifying noise impact. Section 11 of BS 4142: 2014+A1:2019 explains "The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs" (our emphasis). An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context" (our emphasis).

There are many context points to consider when undertaking an assessment of sound impact including:

- The absolute level of sound;
- The character and level of the specific sound in the context of the existing noise climate; for example, is the sound to occur in a location already characterised by similar activities as those proposed?
- The sensitivity of the receptors;
- The time and duration that the specific sound is to occur;
- The conclusions of assessments undertaken using alternative assessment methods, for example, WHO guidelines noise values or change in noise level;

2.6 BS4142:2014+A1:2019 notes that:

"Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact." BS4142:2014+A1:2019 outlines guidance for the consideration of the context of the potential impact including

consideration of the existing residual sound levels, location and/or absolute sound levels.

To account for the acoustic character of proposed sound sources, BS4142:2014+A1:2019 provides the following with respect to the application of penalties to account for *“the subjective prominence of the character of the specific sound at the noise-sensitive locations and the extent to which such acoustically distinguishing characteristics will attract attention”*.

- **Tonality** – *“For sound ranging from not tonal to predominantly tonal the Joint Nordic Method gives a correction of between 0dB and +6dB for tonality. Subjectively, this can be converted to a penalty of 2dB for a tone which is just perceptible at the noise receptor, 4dB where it is clearly perceptible and 6dB where it is highly perceptible;*
- **Impulsivity** – *A correction of up to +9dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be converted to a penalty of 3dB for impulsivity which is just perceptible at the noise receptor, 6dB where it is clearly perceptible, and 9dB where it is highly perceptible;*
- **Intermittency** – *When the specific sound has identifiable on/off conditions, the specific sound level ought to be representative of the time period of length equal to the reference time interval which contains the greatest total amount of on time. If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied; and*
- **Other Sound Characteristics** – *Where the specific sound features characteristics that are neither tonal nor impulsive, though otherwise are readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied.”*

2.7 It is therefore entirely possible that whilst the numerical outcome of a BS 4142: 2014+A1:2019 assessment is indicative of adverse or significant adverse impact, when the proposal is considered in context the significance of the impact is reduced to an acceptable level.

2.8 The NPPG introduces the concept of a noise exposure hierarchy based on likely average response. The guidance contained in the NPPG is summarised in the table below:

Table 1: Noise Exposure Hierarchy Perception Examples

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Noticeable and Intrusive	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Noticeable and not intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly	No Observed Adverse	No specific measures

	affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	Effect	required
Lowest Observed Adverse Effect Level			
Noticeable and Intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Noticeable and Disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, 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.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Adverse Effect Prevent

2.9 In March 2010 the Department for Environment, Food and Rural Affairs (DEFRA) produced "Noise Policy Statement for England" (NPSE), which states three policy aims, as follows:

"Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

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

2.10 The "Noise Policy Statement for England", (NPPF) and (NPPG) state that no significant adverse impact should occur through development, but where noise levels fall between a lowest observable adverse effect and a level which represents a significant observed adverse effect, then according to the explanatory notes in the statement:

"... all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur."

2.11 BS8233:2014 Local Authorities usually stipulate internal noise criteria for new build residential uses based on British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings'.

2.12 BS 8233:2014 provides references and guideline values for desirable indoor ambient noise levels for dwellings as shown in Table 2.9 below.

2.13 BS 8233:2014 Desirable Internal Ambient Noise Levels for Dwellings

Table 4 Indoor ambient noise levels for dwellings

Activity	Location	07:00 to 23:00	23:00 to 07:00
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 $L_{Aeq,8hour}$

2.14 The table is noted to apply to external noise as it affects the internal acoustic environment from sources without a specific character.

2.15 The above internal ambient noise levels are therefore considered appropriate within this assessment.

2.16 BS 8233:2014 states that 'for traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed an upper guideline value of 55dB LAeq, which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances...in higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited'.

2.17 The following table summarises the response to changes in noise level (known as the Semantic Scale).

Table 2: Change in noise level – response and impact.

Change in noise level LAeqT dB	Response	Impact
<3	Imperceptible	None
3 – 5	Perceptible	Slight
6 – 10	Up to a doubling	Significant
11 – 15	More than a doubling	Substantial
> 15	-	Severe

2.18 For good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45dB LAmax more than 10–15 times per night.

2.19 WHO Guidelines for Community Noise

2.19.1 The WHO Guidelines (1999) recommends indoor nighttime guidelines in order to avoid sleep disturbance, the document states these to be 30dB (LAeq) and 45dB (LAfmax) for continuous and individual noise events respectively.

2.19.2 The document states that the number of noise events should also be considered and that individual noise events should not exceed 45dB (LAfmax) more than 10 – 15 times per night.

2.20 The unattended survey was undertaken between 12:00 on 28/04/2025 and 10:00 on 30/04/2025. Monitoring equipment was placed at front facade of the property facing on to Milnrow Road. Measurements taken were (LAeq), (LA90), (LA10), (LAmax) and (LcfMax) 1/1 octaves (63Hz – 8kHz).

Approved Document E (2003) Resistance to The Passage of Sound [Ade]

2.21 The table below presents the minimum sound insulation values as set out in ADE for purpose build residential flats.

2.22 Party walls and floors between the flats in the proposed development should achieve these performance standards.

Test Type	Location	Approved Document E 2003 Criteria
Airborne Sound Insulation	Wall	$D_{nT,w} + C_{tr} \geq 43 \text{ dB}$
	Floor	$D_{nT,w} + C_{tr} \geq 43 \text{ dB}$
Impact Sound Insulation	Floor	$L'_{nT,w} \leq 64 \text{ dB}$

Higher values of $D_{nT,w} + C_{tr}$ represent better airborne sound insulation.

Lower values of $L'_{nT,w}$ represent better impact sound insulation

3. Site Description and Observations

- 3.1 The proposed construction area hereafter referred to as 'the site', is a proposed development of flats at 18 Milnrow Road, Rochdale, OL16 1UD.
- 3.2 The site is near the centre of Rochdale, and sits almost on the corner of Milnrow Road and Oldham Road, a busy 2-way road with the surrounded area being mainly shops and eateries at ground level with residential flats and offices above. There is building site approximately 40m east of the site that appears to be in the early stages of construction. There are no traditional external areas that are used for amenity space, such as gardens and patios therefore outside spaces will not be assessed in this report.

Noise Sources

- 3.3 The noise survey was unmanned but whilst at site setting up and collecting the equipment the main noise sources was the road traffic noise, this was from both Milnrow Road and the surrounding local traffic. Secondary noise that is considered to not be dominant was from pedestrians using the local businesses and walkways and the general hum associated with cities.
- 3.4 Red lines outline approximate site, and green dot shows position tested.



4. Environmental Noise Survey

4.1 The unattended survey was undertaken between 12:00 on 28/04/2025 and 10:00 on 30/04/2025.

4.2 The testing position was chosen to completely encompass the surrounding acoustic environment. positions.

4.3 Ambient (L_{Aeq}), (L_{A90}), (L_{cfMax}) and (L_{cfMax}) level measurements were taken for a continuous 1-hour period in 5- and 15-minute increments.

4.4 The recordings were taken in 5 minute and 15-minute intervals to prevent any other single noises that would be seen as not representational from affecting the measurements. Prior knowledge of any out of the ordinary potential noise was limited and could have had an impact on the test.

4.5 The sound level meter was not positioned as for an outdoor free field measurement and were less the 1m from the façade of buildings. The microphone was between 1.2m to 1.5m above the ground. A 3dB reduction of noise with be made to account for the reverberation of noise from the building façade. The positions were chosen to best represent the ambient noise environment.

4.6 Equipment used for the survey.

Item	Make/Model	Serial No	Calibration Cert No
Calibrator	Norsonic 1255	125526735	U48992
Sound Level Meter	Norsonic 140	1404520	U48312

4.7 Measurements were made following procedures in BS7445:1991 (ISO1966-2:1987) Description and Measurement of Environmental Noise Part 2- Acquisition of data pertinent to land use and BS4142:2014 Method for rating and assessing industrial and commercial sound.

4.8 The weather during the survey was generally dry with light winds, which made the conditions suitable for the measurement of environmental noise. Wind had no set direction throughout the test and speeds did not exceed (<5m/s), cloud cover varied throughout testing.

4.9 The noise monitoring equipment used was calibrated before and after both the noise survey periods. No significant drift was recorded for either. Equipment calibration certificates can be provided upon request.

5. Uncertainty

5.1 All measurements onsite were taken with a sound level meter manufacturer's margin of uncertainty at typically +/- 1.1dB. It is due to the tolerances associated with Class 1 sound level meters and calibrator equipment used to measure background noise.

6. Results

6.1 The table below gives the Baseline Noise Survey readings taken at site.

Location	Time Period	Sound pressure level dB (L_{Aeq})
Test Position 1	Daytime (07:00-23:00hrs)	64dB
	Nighttime (23:00-07:00hrs)	60dB

6.2 The average ambient (L_{Aeq}) noise levels at the measurement position during the survey has been based on an analysis of the monitored data.

6.3 The table below shows the L_{Amax} level which has been exceeded more than 10 times in a nighttime period.

Position	Time Period	24/03/2025
POS 1	Nighttime (23:00-07:00hrs)	74dB

7. Summary of Acoustic Environment

7.1 18 Milnrow Road is situated near the centre of Rochdale and approximately 500m to the main shopping and "centre" area of the town. The site is mainly surrounded by traditional suburb businesses including shops and restaurants. Oldham Road behind the site has a car repair centre and on the corner of Milnrow Road and Wood Street there is a second-hand motorcycle dealer. There is a pub to the rear of the site (The Eagle) which is a traditional drinking pub but has no outside spaces and has a traditional closing time of 11pm.

7.2 There is little data for car repair facilities however from previous surveys on mechanical workshops and high street workshops (Kwik-Fit etc) a survey can be undertaken as a worst-case daytime L_{eq} T of 74dB using a table of source noise below. The car repair facility is completely obscured from the site.

Activity	Distance	L_{eq} T dB (A)	Typical Duration
Roller Shutter Door (opening/closing)	1	71	35
Car entering/leaving garage	5	64	20-30
4-post jack-up ramp	1	76	30
Wheel nut removal/fitting – Pneumatic Impact Wrench	1	85	10
Tyre Removal - tyre changer machine	1	69	60
Tyre Fitting, inflating and seating	1	81	75 
Tyre Reaming - pneumatic drill	1	92	6
Tyre Buffing - pneumatic tyre buffer	1	92	9
Wheel Balancing	1	51	20
Air Compressor	1	73	On/off

7.3 This illustrative assessment of a typical garage assumes a normal daytime operation. Assessments of a typical sized garage with two ramps/ indicate a worst-case hour could involve 3 to 4 vehicles, i.e. a maximum of 16 tyres. This 'worst case' scenario is considered robust. Our predictions are therefore based on the following worst-case 1 hour of activities carried out at a garage, with an external compressor running for 50% of the time. Our assessment allows for the unit doors to be fully open.

7.4 Calculation.

Noise type and Distance nearest site window	Combined sound pressure of air handling and heat source	Character correction BS4142	Barrier attenuation	Noise at position after distance propagation correction & screening dB(A)
Garage Noise 30(m)	74 dB @ 1m dB(A)	+5dB*	-10dB	39

*2dB for tonality and 3dB for intermittency

7.5 The calculation of noise produced by the all the assessed noise noises fall below the recorded site levels.

7.6 The site is to the east side of the city centre and as such with the exception of 1 premises there are no late-night venues within 400m of the site. Venues at this distance will have no impact acoustically at the site and except for locals living in and around the site, there will be no impact from passerby or public transport associated with late night venues. The only late-night venue is the "Cask and Feathers" which is a pub and music bar with bands and Live DJ sets which is approximately 160m away from the site the venue appears to only open from Friday to Sunday and has only a small courtyard seating area which is behind the venue itself and there is no direct line of site.

7.7 The trainline runs 360m to the east of the site, there is little impact of noise at the site in previous assessments of train noise and average SEL of 64dB @10m was recorded for passenger trains. These were all pass by movements and are considered louder than the arrivals and departures giving a worst-case scenario for train noise. A single train movement would be 33dB which is considerably below the noise levels recorded at site.

7.8 There is a small industrial estate to the south of the site (130m) which mainly contains builders merchant companies. The businesses all operate standard working hours with no late-night activities and the site is fully obscured by other buildings. A mixture of activities will take place at the merchants including forklifts movements lorry movements and reversing sirens as well as customers using the company. Exact levels are difficult to predict however, BS5228 have noise level guidance, and a robust assessment of the noise produced can be predicted.

A scenario of 8 lorry movements an hour (4 arrivals and 4 departures), 30 forklift movements, 8 reversing sirens (one for each movement) 30 car door slams. General car noise and activities will not affect at the distance.

By converting the Sound Exposure Level (LAE) into an Equivalent Continuous Sound Level (LAeq), using the scenario outlined gives a combined noise activity level produced by the builder's merchants of 68dB(A)1hr @10m. (levels outlined in BS5228 and previous REDFAN Solution surveys)

Noise type and Distance nearest site window	Combined sound pressure of air handling and heat source	Character correction BS4142	Barrier attenuation	Noise at position after distance propagation, correction & screening dB(A)
Merchant noise (130m)	68 dB @ 10m dB(A)	+5dB*	-10dB	40

*2dB for tonality and 3dB for intermittency

7.9 There is a diner, two properties along which operates in the mornings and afternoons, there will likely be an exhaust and air inlet.

7.10 Sound pressures for both plant equipment and extract vent are from previous surveys performed by REDFAN Solutions of similar situation equipment.

Noise type and Distance nearest site window	Combined sound pressure of air handling and heat source	Character correction BS4142	Barrier attenuation	Noise at position after distance propagation correction and screening dB(A)
Extract equipment (12m)	48 dB @ 10m dB(A)	+5dB*	-10dB	41dB

*2dB for tonality and 3dB for intermittency

7.11 There are 3 late night take aways "Atalanta Chicken" (2am closure), "Arizona Chicken" (2am Closure) and "Players Rochdale" (12am closure) which are all approximately 100m from the site, given that the these restaurants are out of the centre of the city and have large enough interiors to completely accommodate their patrons it is unlikely given the distance and the position of the sites there will be any impact from the establishments.

7.12 There is a convenience store directly next to the site. The proposed flats do not look onto these properties with any windows. A site inspection was performed but no plant equipment was visible.

7.13 Given the distances and calculation methodology all noise sources will not impact the site.

8. Building Fabric Performance

8.1 The following Design Review is based on proposed construction and targets for internal noise levels set out in section 2.

8.2 It has been assumed that all non-glazed elements, i.e. façade walls and the roof systems, will provide the following minimum sound insulation performance, if tested in accordance with ISO 10140-2:2010.

Element	Rw
Double skinned external brick, plastered	55-58dB

8.3 The acoustic performance requirements for glazing of the noise-sensitive rooms are given in the table below, based on the monitoring data and predicted facade levels.

Façade/Room	Minimum single figure weighted sound reduction figure
Milnrow Road facing bedrooms	30dB
Milnrow Road facing living rooms	29dB

8.4 It is important that the quoted minimum sound reduction specifications are met by the panels and windows, including frames, seals, etc. Glass performance alone is not an acceptable means of demonstrating compliance with the specification for window performance.

8.5 For window attenuation, this should include the Rw (C;Ctr). The window supplier should supply test data or modelled predictions for the window system proposed to show compliance with the attenuation detailed. This is critical to ensure that the sound insulation requirements will be met. Good levels of workmanship are required throughout the build.

8.6 Below is the window make up and their attenuation.

Unit make up	Rw	Ctr	C
4/20/4	33 dB	28 dB	29 dB
6/16/6	33 dB	28 dB	32 dB
6/12/10	37 dB	34 dB	36 dB
6/16/6.4	33 dB	28 dB	32 dB
6/16/6.8A	39 dB	33 dB	37 dB

*Based on Pilkington Glass Laboratory testing

8.7 There are no traditional external spaces involved in the current design therefore an assessment of the noise impact on external spaces is not included in this report.

9. Conclusion

- 9.1 Measurements have been made of the prevailing noise climate at 18 Milnrow Road, Rochdale, OL16 1UD.
- 9.2 The assessment outlined national and local guidance and considers this in relation to the likely operational activity and use of the building.
- 9.3 The surveyed and predicted noise levels have been assessed to determine the minimum sound reduction requirements of the external building façade elements to achieve suitable internal noise levels based on the requirements of BS8233:2014.
- 9.4 Mitigation measures including acoustically specified double-glazing have been recommended.
- 9.5 An industrial noise assessment in line with BS4142:2014 has been used to assess the industrial noise potentially generated from sources local to the site. The assessment has concluded that the specified mitigation of building façade and glazing from the anonymous environmental noise is strong enough and no extra attenuation is required for the industrial noise produced to achieve internal noise levels outlined in BS8233:2014.
- 9.6 A review of the proposed internal building fabric was carried out with reference to Approved Document E (2003).
- 9.7 Given the assessment undertaken, it is considered that a good level of residential amenity will be provided for residents and that the noise impacts associated with the development can be controlled to acceptable level now and in the future.



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Appendices

1. These are the main noise indices in use in the UK.

- **dB(A):** The human ear does not hear all frequencies with the same intensity. It is most sensitive to sounds in the 500Hz-8kHz range. Above and below, this range the ear becomes progressively less sensitive. To compensate for this, sound level meters incorporate electronic filtering to correspond with the varying sensitivity of the ear. This filtering is called A-weighting and Sound Pressure Levels obtained with this weighting are referred to as A-weighted and signified as dB(A).
- **LA90:** The sound level (in dBA) exceeded for 90% of the time. This unit gives an indication of the sound level during the quieter periods of time in any given sample. It is used to describe the "background noise level" of an area.
- **LAeq,T:** The equivalent continuous sound pressure level over a period of time, T; (in dBA) This unit may be described as "the notional steady noise level that would provide, over a period, the same energy as the varying noise in question". In other words, the energy average level. This unit is now used to measure a wide variety of different types of noise of an industrial or commercial nature, as well as road traffic, aircraft and trains.
- **LA1:** The sound pressure level (in dBA) exceeded for 1% of the time. This unit can give an indication of a regular maximum noise level from such activities as dance music.
- **LAe:** The sound exposure level, (previously denoted SEL) is the noise level of an event, such as a train or aircraft event, normally expressed in a 1 second time period.
- **L Amin:** The minimum sound pressure level (in dBA) measured over the time period.
- **L Amax:** The maximum level of sound (in dBA), i.e. the peak level of sound measured in any given period. This unit is used to measure and assess transient noises, i.e. gun shots, individual vehicles, etc.
- **LArT:** sound rating level, the a-weighted, leq sound level of an industrial noise during a specified time period, adjusted for tonal character and impulsiveness.

POS 1

time	L _{Aeq}
12:30	64
12:45	63
13:00	65
13:15	64
13:30	64
13:45	65
14:00	64
14:15	64
14:30	64
14:45	64
15:00	64
15:15	64
15:30	61
15:45	61
16:00	60
16:15	61
16:30	60
16:45	60
17:00	58
17:15	59
17:30	59
17:45	60
18:00	59
18:15	62
18:30	59
18:45	58
19:00	61
19:15	62
19:30	63
19:45	62
20:00	64
20:15	66
20:30	70
20:45	68
21:00	61
21:15	61
21:30	66
21:45	63
22:00	63
22:15	61
22:30	61
22:45	61

23:00	61
23:15	60
23:30	63
23:45	65
00:00	64
00:15	63
00:30	58
00:45	58
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