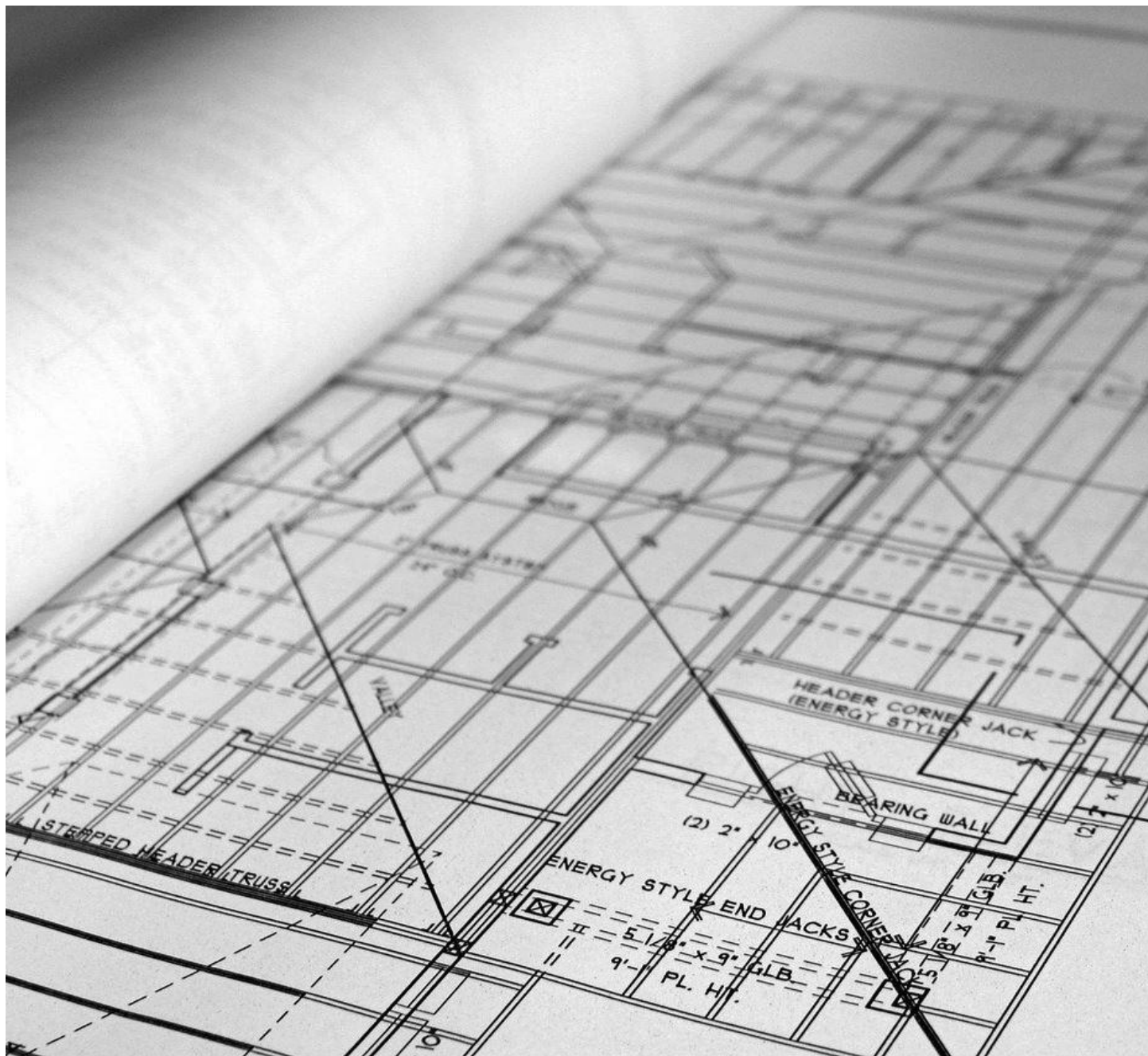




**Brigham Street, Openshaw - Discharge of Condition 15
Noise Impact Assessment Report**

Project Number: 0972023

Date: 5th October 2023



REPORT ISSUE AND STATUS LOG

	Revision Number		
	1	2	3
Author	Jordan Mayes BSc (Hons) MIOA		
Position	Director		
Date of Issue	5 th October 2023		
Comment	For Review		

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1 INTRODUCTION

1.1 OVERVIEW

1.1.1 JPM Acoustics Ltd has been appointed to undertake a noise impact assessment to support an application to discharge Planning Condition 15 associated with planning application reference 136171/FO/2023.

1.1.2 The consented development associated with application reference 136171/FO/2023 is for 24 dwellings on land bounded by Bringham Street, Meech Street and the rear of Connie Street in Openshaw, Manchester.

1.1.3 Planning condition 15 is presented in full below for ease of reference:

"15) Before occupation of the development, a scheme shall be submitted to and approved in writing by the City Council as local planning authority relating to the acoustic insulation of the residential accommodation against noise from industrial uses to the west of the application site. The approved noise insulation scheme shall be implemented before the development is occupied.

b) Prior to first occupation of the residential units, a verification report shall be required to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic consultant's report. The report shall also undertake post completion testing to confirm that the internal noise criteria have been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the internal noise criteria.

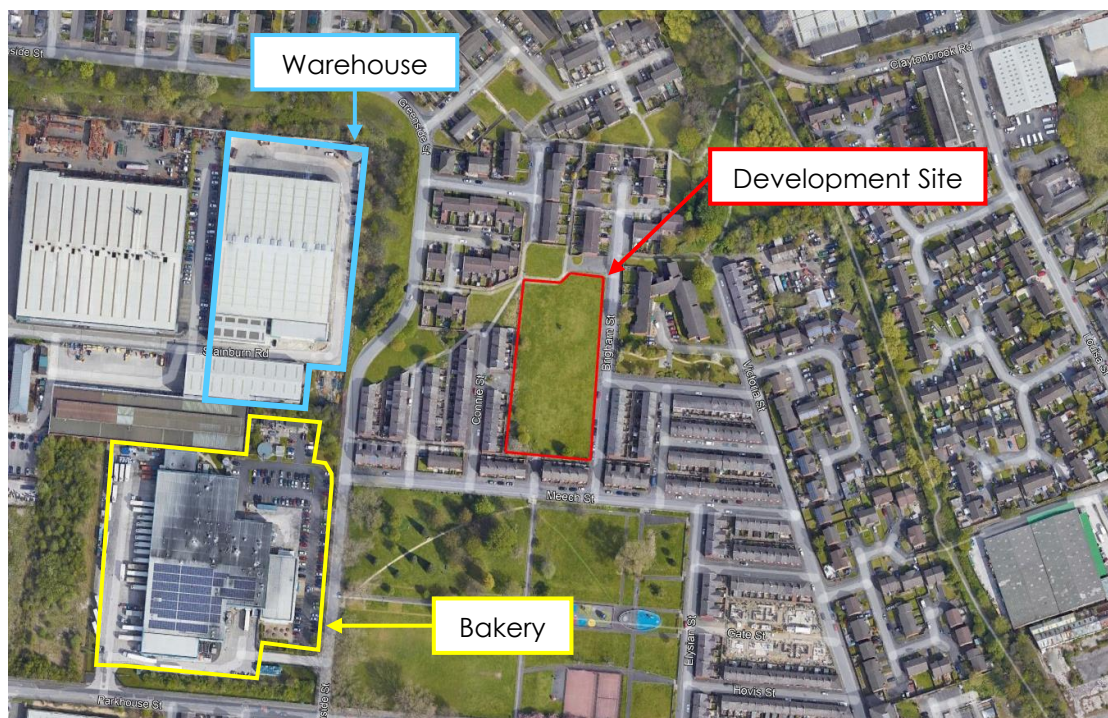
Reason - To secure a reduction in noise from industrial uses to the west of the application site and in order to protect future residents from noise nuisance, pursuant to policies SP1, H1 and DM1 of the Core Strategy for the City of Manchester."

1.1.4 This report is necessarily technical in nature. Therefore, to assist the reader, a glossary of acoustic terminology is provided in **Appendix A**.

1.2 SITE DESCRIPTION AND DETAILS OF THE PROPOSED DEVELOPMENT

- 1.2.1 The development site is identified in **Figure 1-1** and is bounded by dwellings fronting on to Connie Street to the west and Meech Street to the south. To the east, the site is bounded by Bringham Street and to the north are residential properties and a small plot of open land.
- 1.2.2 Approximately 105 m to the west of the site is a large warehouse (circa 15 m high), and circa. 130 m to the southwest of the site is a commercial bakery. It is understood that these are the “industrial uses” referenced in Planning Condition 15.

Figure 1-1: Proposed Site Location Plan



- 1.2.3 The proposed development comprises 24 semi-detached dwellings. The proposed development layout plan is identified in **Figure 1-2**.

Figure 1-2: Proposed Development Layout



2 ASSESSMENT CRITERIA

2.1 PLANNING CONDITION 15

- 2.1.1 Planning Condition 15 is included in full in Section 1 of this report.
- 2.1.2 The assessment of noise impact from commercial / industrial premises to the west of the site has been undertaken with consideration to the following British Standards relating to noise.

2.2 BS 4142:2014+A1:2019: METHODS FOR RATING AND ASSESSING INDUSTRIAL AND COMMERCIAL SOUND (BS 4142)

- 2.2.1 The method described in the Standard uses outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling. In accordance with the assessment methodology, the specific sound level ($L_{Aeq,T}$) of the noise source being assessed is corrected by the application of penalties for characteristic features, such as tonal qualities and/or distinct impulses, to give a rating level ($L_{A,r,T}$). The Standard then uses the difference between the rating level and the typical background sound level ($L_{A90,T}$), which is measured in the absence of the noise source being assessed, to determine the likely impact.
- 2.2.2 It is advised that the time interval ('T') of the background sound measurement should be sufficient to obtain a representative or typical value of the background sound level at the time(s) when the noise source in question is likely to operate or is proposed to operate in the future.
- 2.2.3 Comparing the rating level with the background sound level, BS 4142 states:

"Typically, the greater this difference, the greater the magnitude of impact.

A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.

A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

The lower the rating level is relative to the measured background 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."

2.3 BS 8233:2014: GUIDANCE ON SOUND INSULATION AND NOISE REDUCTION FOR BUILDINGS (BS 8233)

- 2.3.1 BS 8233 provides guidance for the control of noise in and around buildings and recommends internal and external noise level criteria for residential dwellings.
- 2.3.2 The Standard states that it is desirable that internal ambient noise levels do not exceed the guideline values from Table 4 of the Standard, which is replicated in **Table 2-1**.

Table 2-1: Desirable Guideline Values for Dwellings

Activity	Location	Period	
		07:00 to 23:00 Hours, i.e. Daytime	23:00 to 07:00 Hours, i.e. Night-time
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}

- 2.3.3 With respect to external amenity space such as gardens and patios, it is stated that it is desirable that the noise level does not exceed 50 dB L_{Aeq,T}, with an upper guideline value of 55 dB L_{Aeq,T} which would be acceptable in noisier environments.

3 BASELINE NOISE SURVEY

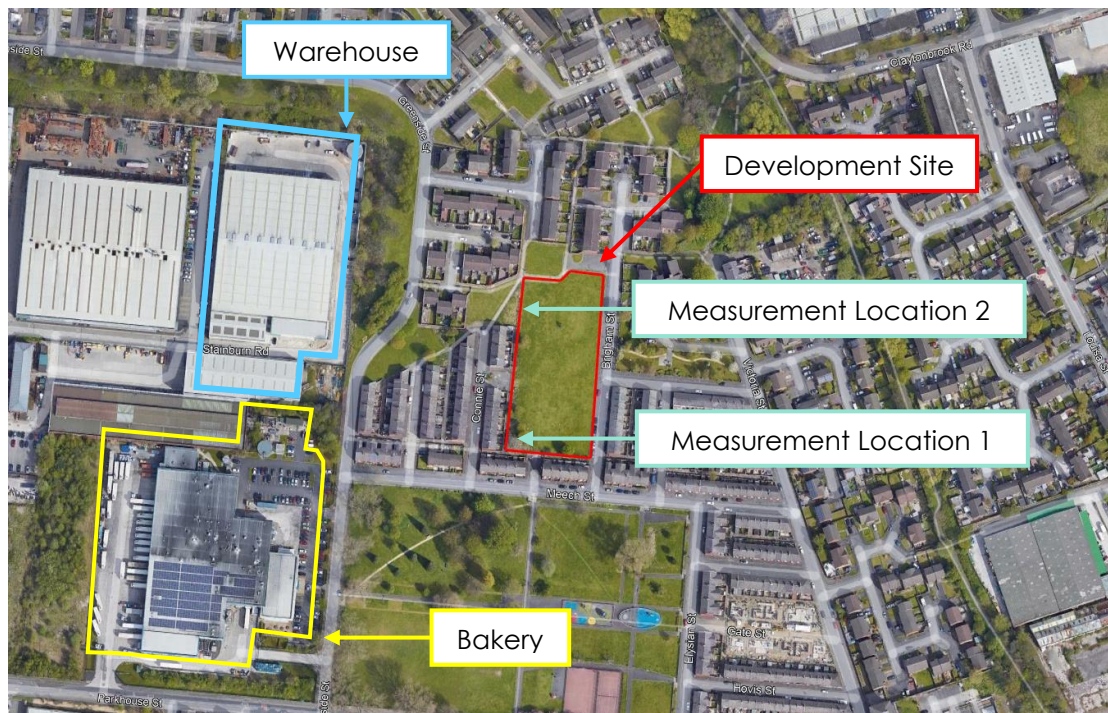
3.1 OVERVIEW

- 3.1.1 A baseline noise survey has been undertaken to determine noise levels incident on the development site as a result of operations at the industrial premises to the west.

3.2 MEASUREMENT LOCATIONS

- 3.2.1 During the survey, noise monitoring was undertaken at the Measurement Locations identified in **Figure 3-1**.

Figure 3-1: Baseline Noise Survey Measurement Locations



- 3.2.2 Attended noise monitoring at Measurement Location 1 (ML1) was undertaken during the following periods:

- 13:00 until 13:30 on Wednesday 13th September 2023
- 20:00 until 20:30 on Wednesday 13th September 2023
- 22:30 until 23:00 on Wednesday 13th September 2023
- 01:10 until 01:40 on Thursday 14th September 2023

3.2.3 Attended noise monitoring at Measurement Location 2 (ML2) was undertaken during the following periods:

- 13:35 until 14:15 on Wednesday 13th September 2023
- 20:35 until 21:05 on Wednesday 13th September 2023
- 21:55 until 22:25 on Wednesday 13th September 2023
- 00:35 until 01:05 on Thursday 14th September 2023

3.2.4 Noise monitoring at ML1 and ML2 was attended throughout. The microphone at ML1 and ML2 was established in free-field conditions at a height of 1.5 m above local ground level.

3.2.5 The noise climate at ML1 and ML2 during daytime periods was dominated by anonymous road traffic from the local road network. Noise from the warehouse or the commercial bakery to the west was not noted to be audible during daytime periods.

3.2.6 During evening and night-time periods noise from distant, anonymous mechanical noise was noted to be faintly audible at ML1 as the contribution from road traffic seemed to reduce.

3.2.7 Noise levels measured at ML1 and ML2 are considered to be representative of those incident on the elements of the site most affected by noise emanating from the warehouse and / or commercial bakery to the west.

3.3 MEASUREMENT EQUIPMENT

3.3.1 The baseline noise survey was undertaken using the Class 1 specification noise measurement equipment detailed in **Table 3-1**. Measurement equipment was calibrated using a portable calibrator before and after the measurements with no significant drift in calibration observed. The sound level meter, pre-amplifier and microphone were calibrated to traceable standards within 24 months prior to the measurements. The portable calibrator was calibrated within 12 months prior to the measurements.

Table 3-1: Equipment Details

Position	Equipment	Make & Model	Serial Number	Calibration Due
ML1 and ML2	Sound Level Meter	Svantek 971A	113221	14/02/2024
	Microphone	Aco Pacific 7152	80629	
	Preamp	Svantek SV18A	113722	
	Calibrator	01dB-Stell Cal 21	34675335	06/09/2024

3.4 WEATHER CONDITIONS

- 3.4.1 Weather conditions during the survey were conducive to environmental noise monitoring, it being dry with negligible winds. Temperatures were noted to range between 14 – 22 degrees Celsius, and cloud cover during the survey was negligible.

3.5 RESULTS

- 3.5.1 **Table 3-2** and **Table 3-3** present a summary of sound pressure levels measured at ML1 and ML2 respectively.

Table 3-2: Summary of Measured Sound Pressure Levels at ML1

Description	Start Date and Time	Duration	Measured Sound Pressure Levels		
			dB LAeq,T	dB LA90,T	dB LAfmax
Daytime	13/09/2023 13:00	30-mins	50	46	62
	13/09/2023 20:00	30-mins	46	44	60
	13/09/2023 22:30	30-mins	44	42	62
Night-time	14/09/2023 01:10	15-mins	43	41	59
	14/09/2023 01:25	15-mins	43	41	62

Table 3-3: Summary of Measured Sound Pressure Levels at ML2

Description	Start Date and Time	Duration	Measured Sound Pressure Levels		
			dB LAeq,T	dB LA90,T	dB LAfmax
Daytime	13/09/2023 13:35	30-mins	49	45	60
	13/09/2023 20:35	30-mins	47	45	63
	13/09/2023 21:55	30-mins	45	42	65
Night-time	14/09/2023 00:35	15-mins	42	40	60
	14/09/2023 00:50	15-mins	43	41	61

4 ASSESSMENT

4.1 BS 4142 ASSESSMENT

- 4.1.1 During daytime periods there was no audible noise noted at any position on the site which could be attributable to the warehouse or commercial bakery to the west and southwest of the site.
- 4.1.2 During night-time periods, noise from mechanical plant believed to be associated with the commercial bakery to the southwest, was noted to be faintly audible. The faintly audible plant noise was noted to operate continuously and at the same noise level.
- 4.1.3 Where a new noise sensitive receptor is introduced in proximity to an existing industrial or commercial operation, BS 4142 states that it should be recognised that the industrial or commercial sound forms a component of the acoustic environment at that receptor. In such circumstances, the Standard suggests that other guidance and criteria in addition to or alternative to that outlined in BS 4142 may be used to inform the appropriateness of both introducing the new noise-sensitive receptors and the extent of required noise mitigation.
- 4.1.4 In this instance, the faintly audible noise from mechanical plant associated with nearby commercial operations is considered to form an integral part of the background noise climate at the development site. Given that the noise source is operational constantly, and at the same noise level, it is considered that an assessment in accordance with BS 4142 would be unsuitable and that an assessment of noise impact using alternative guidance and Standards would be more appropriate.

4.2 NOISE LEVELS IN EXTERNAL AMENITY SPACES

- 4.2.1 BS 8233 suggests that it is desirable that noise levels in external amenity spaces should achieve 50 dB $L_{Aeq,16hr}$ during daytime periods, with an upper limit of 55 dB $L_{Aeq,16hrs}$.
- 4.2.2 Noise levels measured at ML1 during daytime periods were noted to range between 50 and 44 dB $L_{Aeq,30mins}$. Noise levels in external amenity spaces across the site therefore achieve the 50 dB desirable guideline value for external amenity spaces. As such, no mitigation is considered necessary.

4.3 INTERNAL NOISE LEVELS

- 4.3.1 Based on the measurement results presented in **Table 3-2** the daytime and night-time sound pressure levels at a location representative of the portion of the site which is worst affected by noise from industrial / commercial operations to the west, is 50 dB $L_{Aeq,30mins}$ during the day and 43 dB $L_{Aeq,30mins}$ at night.
- 4.3.2 In accordance with guidance from BS 8233, a partially open window for ventilation can be assumed to provide approximately 15 dB of attenuation from outside to inside.
- 4.3.3 Predicted internal noise levels in the worst affected dwellings with windows open for ventilation or cooling are therefore anticipated to be 35 dB $L_{Aeq,T}$ during daytime periods and 28 dB $L_{Aeq,T}$ at night.
- 4.3.4 The predicted internal levels in the worst affected plots are therefore below the desirable guideline values in bedrooms during both daytime and night-time periods from BS 8233, as detailed in **Table 2-1**. As such, no mitigation measures are considered necessary.

5 CONCLUSION

- 5.1.1 JPM Acoustics Ltd has been appointed to undertake a noise impact assessment to support an application to discharge Planning Condition 15 associated with planning application reference 136171/FO/2023.
- 5.1.2 Planning Condition 15 requires an assessment to be undertaken to determine a scheme of sound insulation necessary to mitigate noise impact from industrial units to the west of the development site.
- 5.1.3 Drawing on the results of a baseline noise survey undertaken on the site, it is considered that noise levels in external amenity spaces will achieve compliance with the recommended noise level limits outlined in BS 8233 without the need for any mitigation measures.
- 5.1.4 Furthermore, the survey results also suggest that the desirable guideline values from BS 8233 in bedrooms will be achieved during both daytime and night-time periods with windows open for ventilation.
- 5.1.5 As such, it is considered that no scheme of mitigation is required to control noise from the commercial units to the west of the site.

APPENDIX A: TECHNICAL GLOSSARY

Term	Descriptions
Sound Pressure	Sound, or sound pressure, is a fluctuation in air pressure over the static ambient pressure.
Sound Pressure Level	The sound level is the sound pressure relative to a standard reference pressure of 20 μPa (20×10^{-6} Pascals) on a decibel scale.
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds S_1 and S_2 is given by $20 \log_{10} (S_1/S_2)$. The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is 20 μPa .
A-weighting, dB(A)	The unit of sound level, weighted according to the increased sensitivity of the human ear at some frequencies.
Noise Level Indices	Noise levels usually fluctuate over time, so it is often necessary to consider an average or statistical noise level. This can be done in several ways, so a number of different noise indices have been defined, according to how the averaging or statistics are carried out.
$L_{eq,T}$	A noise level index called the equivalent continuous noise level over the time period T . This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{max,T}$	A noise level index defined as the maximum noise level during the period T . L_{max} is sometimes used for the assessment of occasional loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.
$L_{90,T}$	A noise level index. The noise level exceeded for 90% of the time over the period T . L_{90} can be considered to be the "average minimum" noise level and is often used to describe the background noise.
Free-Field	Far from the presence of sound reflecting objects (except the ground), usually taken to mean at least 3.5 m.
Façade	At a distance of 1 m in front of a large sound reflecting object such as a building façade.
Fast/Slow Time Weighting	Averaging times used in sound level metres.
Octave Band	A range of frequencies whose upper limit is twice the frequency of the lower limit.