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19943-NIA-01-AA-R0

Noise Impact Assessment:
Proposed Vehicle Access

Project Number
19943

Issued For
Armistead Property Ltd

EXECUTIVE SUMMARY

This noise impact assessment has been undertaken in order to assess proposals relating to a wider development of renovation and extension works to form 11 residential dwellings in a building previously in mixed commercial and residential use.

An assessment considering the wider proposed residential use of the building has been previously provided in Clement Acoustics report 19943-EBF-01-AA-R0. This assessment specifically relates to an assessment of noise generated by the proposed implementation of parking spaces at the rear of the building with associated undercroft access road.

A noise impact assessment has been undertaken in order to predict and assess any increases in noise levels that may be caused to residential premises to the north, south and east of the site, which overlook the rear and side facades where additional trips will be generated.

The impact of noise due to increased traffic on the proposed access route have been assessed according to the guidance of IEMA Guidelines for Environmental Noise Impact Assessment, Version 1.2 (November 2014).

3D noise modelling techniques have been used to inform the assessment, based on anticipated worst case traffic flow, and library data for vehicle movements and associated activities.

Proposed mitigation measures such as screening, fencing and ground treatments incorporated into the landscape design have been considered in the assessments. In addition, a noise management plan has been recommended in order to minimise the effects of noise.

Based on the results of the assessment, it is considered that noise will not be an overriding constraint to the development, provided the landscaping mitigation measures are retained in the proposals and the noise management plan is followed.

Clement Acoustics has used all reasonable skill and professional judgement when preparing this report. The report relies on the information as provided to us at the time of writing and the assumptions as made in our assessment.

This report is designed to be suitable to discharge typical noise planning conditions, as per our original scope of work. The report should not be relied upon for further reasons, such as the detailed design of mitigation measures.

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LIST OF ATTACHMENTS

19943-SP1	Indicative Site Plan
Appendix A	Glossary of Acoustic Terminology

REVISION HISTORY

Issue	Date of Issue	Author		
R0	29/01/2026			
		BSc (Hons) MIOA	BSc (Hons) MIOA	BSc (Hons) MIOA

Issue	Comment
R0	First Issue

1.0 INTRODUCTION

Clement Acoustics has been commissioned by Armistead Property Ltd to provide an assessment of the noise impact of a proposed vehicular access route associated with the residential development at 515-521 Barlow Moor Road, Manchester.

Particular focus has been given to potential night-time use of the proposed parking spaces at the rear of the building and the associated access route.

This report presents the details of 3D noise modelling procedures undertaken to predict the resulting noise levels due to the proposals and provides assessment of the calculated noise levels according to relevant standards.

An acoustic terminology glossary is provided in Appendix A.

2.0 SITE DESCRIPTION

The proposed development building is currently unused, having previously been in use as a row of ground floor commercial uses with residential apartments above. Proposals are to undertake renovation and extension works to form a total of 12 residential dwellings. No. 515 Barlow Moor Road will become a 3 storey single dwelling across ground to second floors, while No. 517 to No. 521 Barlow Moor Road will become 11 single-storey apartments across lower ground to second floors.

Latest proposals include the siting of 5 parking spaces at the rear of the site, with access to the spaces via a ground floor undercroft through the building. Figure 2.1 shows the proposed site layout, with the proposed rear parking spaces highlighted in yellow and the access route including undercroft highlighted in green.



Figure 2.1 Plan view showing proposed site layout (image © simon james arq ltd)

Proposals also include various landscaping measures including fencing to the site boundary and ground treatments to the access route.

3.0 ADOPTED NOISE CRITERIA

Applicable noise criteria have been adopted for any potential increase in noise due to the access road.

3.1 Assessment Criteria for Road Traffic Noise

The proposals will create a flow of traffic along the new access road, which will be experienced alongside traffic flow along existing local roads.

Suitable guidance for assessing changes in traffic noise levels are given in IEMA Guidelines for Environmental Noise Impact Assessment, Version 1.2 (November 2014) [IEMA].

The table and matrix used in this noise impact assessment is taken from a section of IEMA titled '*Example Approaches to Noise Impact Assessment from Recent Projects*'. Paragraph 7.88, the first paragraph under this heading, introduces the table and matrix as follows:

"7.88 Current Practice: example based on traffic generated onto highway network by development

This approach represents a detailed methodology which has been adopted for a number of development proposals, including housing, where noise from traffic generated onto the existing highway network is the principal consideration. It relies on an understanding of the sensitivity of the receptor and the change in noise level exposure (Table 7-10)."

In this instance, the residential dwellings surrounding the site are considered to be a 'high' sensitivity receptor. As such, thresholds for the significance of changes in noise levels have been derived from the document as summarised in Table 3.1.

Relative Change	Magnitude of Impact
2.9 dB or less change in sound level	Negligible
3 to 4.9 dB change in sound level	Small
5 to 9.9 dB change in sound level	Medium
Greater than 10 dB change in sound level	Large

Table 3.1 Derived magnitude of impact for high sensitivity receptors

Calculated changes in receptor noise levels due to the proposals will be considered in terms of the magnitudes summarised in Table 3.1.

4.0 TRANSPORT NOISE ASSESSMENT

Traffic using the new access road to access the parking spaces at the rear of the site will inherently introduce a new noise source. The impact of the new noise source will be more apparent where the existing level of noise is lower; accordingly the focus of the assessment will be on the impact during night-time hours.

4.1 Determination of Existing Climate

As part of the initial assessment of the proposed residential development, environmental noise surveys were conducted at the front and rear facades of the development building over a 48 hour period. The surveys were undertaken in March 2025 prior to the commencement of development works, at the locations shown in attached site plan 19943-SP1.

Full details of the survey methodology are shown in Clement Acoustics report 19943-EBF-01-AA-R0, which accompanied the original planning application.

Measured ambient noise levels during the surveys are summarised in Table 4.1.

Position	Time Period	Average ambient noise level $L_{Aeq,T}$, dB
UN1 Front Facade	Daytime (07:00 - 23:00)	62
	Night-time (23:00 - 07:00)	58
UN2 Rear Facade	Daytime (07:00 - 23:00)	48
	Night-time (23:00 - 07:00)	44

Table 4.1 Average measured ambient noise levels

It was observed during the surveys that the level of noise at the front of the site was dominated by road traffic noise on Barlow Moor Road, with road traffic on the more distant High Lane contributing to noise levels at the rear façade.

Based on the measured noise levels from the identified sources of noise, noise modelling has been undertaken to investigate propagation through the site, with the site as existing.

The noise model was constructed using the proprietary noise modelling software package CadnaA, utilising the following assumptions and parameters:

- Measured noise levels at each façade due to identified sources
- Locations of obstacles such as building envelopes

- Presence of reflecting surfaces
- Hardness of the ground between the sources and receivers
- Receiver heights:
 - Dwellings to the north and south have ground, first and second floor windows
 - Dwellings to the west have ground and first floor windows
- Attenuation due to atmospheric absorption
- Calculations are performed over single octave bands from 63 Hz to 8 kHz.

Figure 4.1 shows a 2D plan view of the constructed noise map, with the site as existing.

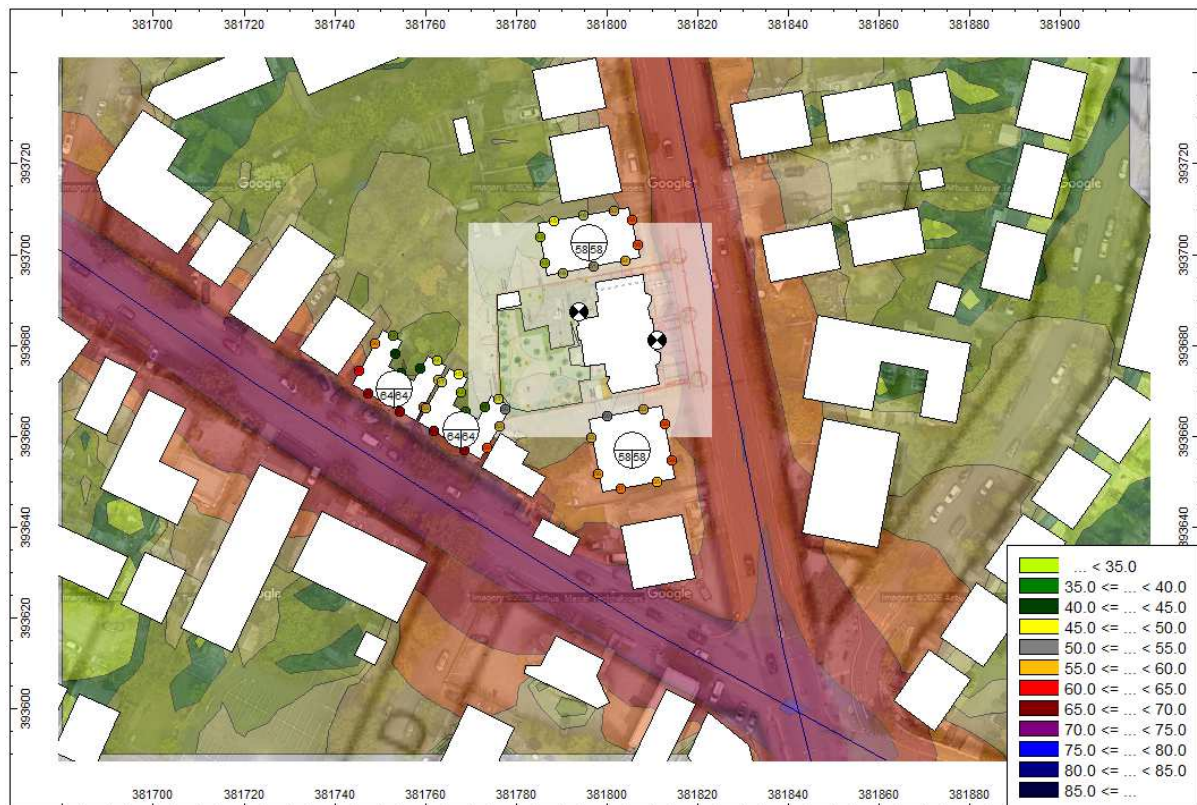


Figure 4.1 Plan view of noise model – existing site

4.2 Access Road Noise Modelling – Without Mitigation

In order to determine the change in road traffic noise, the access road and car parking areas have been added into the noise model as new noise sources.

Attended source noise measurements were undertaken at a car parking area on 15 April 2021 and will be used to inform the noise impact calculations.

Measurements were taken of a car driving up to a stopping area, the driver exiting the car, then re-entering the car and aggressively accelerating away with music playing.

The sound level meter was mounted on a tripod approximately 1.5 m above ground level under free-field conditions at a position 1 m away from both the stopping area and the car.

A summary of the source noise measurements considered in this assessment is shown in Table 4.2

Event	Duration	Noise Source Description
Vehicle Arrival	20 sec	Car pulling up with music playing while windows were down. Engine then switched off and car door slammed. Background noise of road traffic.
Vehicle Departure	20 sec	Door slammed, Car engine turned on and aggressive acceleration away with music playing while windows were down. Background noise of road traffic.

Table 4.2 Source noise measurement summary

Table 4.3 presents the spectral results of the source noise measurements carried out to inform equivalent noise level calculations and impact assessment.

Event	Duration	Sound Pressure Level (at 0.5 m, dB) in each Frequency Band, Hz								
		63	125	250	500	1k	2k	4k	8k	dB(A)
Vehicle Arrival	20 sec	73	73	69	67	66	61	57	50	70
Vehicle Departure	20 sec	75	70	69	67	66	63	59	52	71

Table 4.3 Measured source noise levels for car movements

In order to present a robust assessment, it is assumed that all parking spaces would fill with cars in a 15-minute period, and all spaces would be vacated in the same 15-minute period.

As the noise levels shown in Table 4.3 are louder for departing vehicles, this assessment uses the noise source for vehicles departing the site in all arrival and departure movements.

Vehicle movements have been modelling using moving point sources following typical paths along the access road to each parking space, with vehicles travelling at a maximum of 10 mph.

Figure 4.2 and Figure 4.3 show the calculated façade noise levels at surrounding receiver facades with and without the development access road respectively. On each figure, the façade point where the most pronounced increase in noise levels is observed are highlighted in turquoise.



Figure 4.2 Plan view of noise propagation as existing

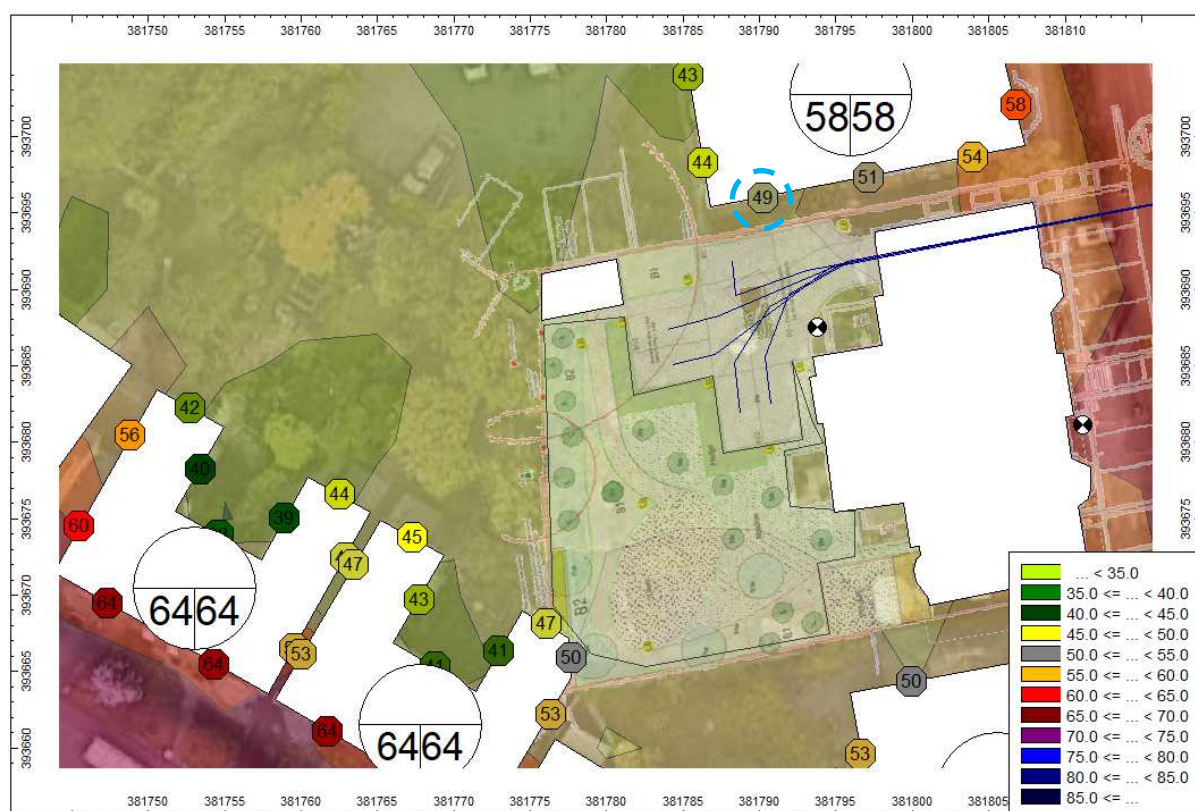


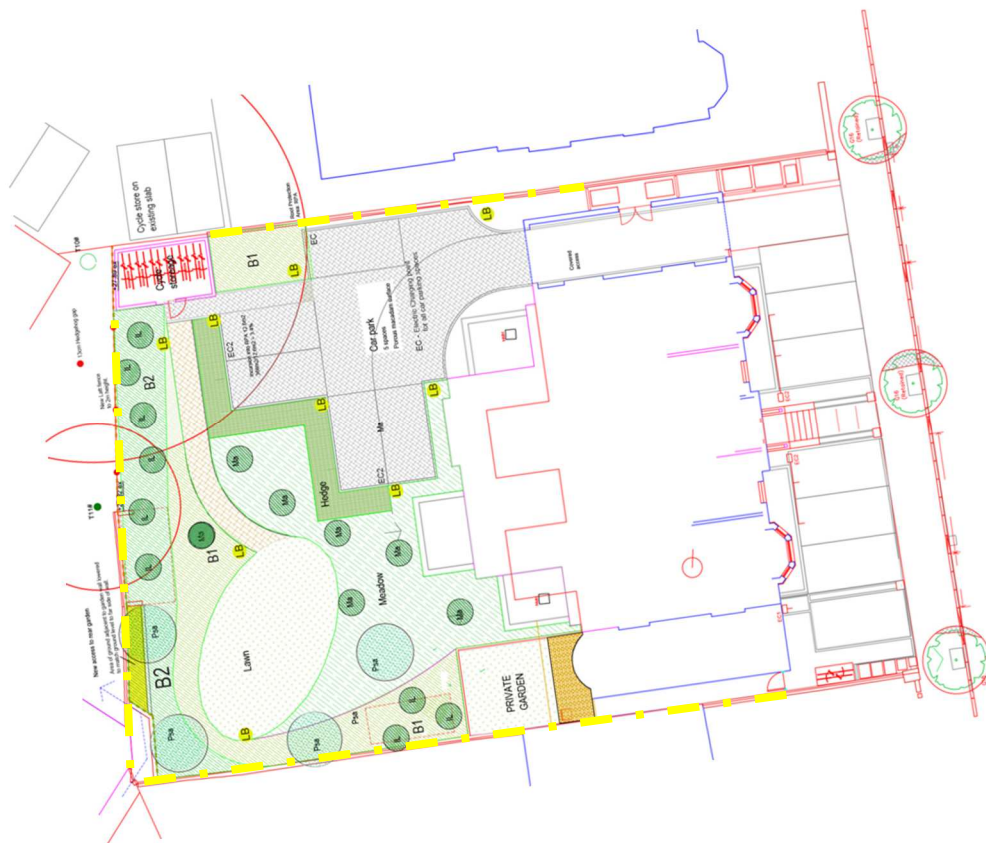
Figure 4.3 Plan view of noise propagation with proposed development (without mitigation)

Receiver	Loudest Façade Noise Level due to Existing Traffic Flow	Loudest Façade Noise Level due to Existing and Proposed Traffic Flow	Difference	Magnitude of Impact
Dwelling to North	48 dB(A)	49 dB(A)	+1 dB	Negligible

As shown in Table 4.4, the calculated difference in noise level due to traffic associated with the proposed access road is negligible.

Although mitigation is not a material requirement based on the outcome of the assessment, certain measures are proposed.

Proposals are to install a 2 m high fence around the perimeter of the rear garden area. The recommended position of screening is highlighted in yellow in Figure 4.4.



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Fencing should take the form of solid panels to a minimum height of 2 m, with a minimum surface density of 8 kg/m².

4.3.2 Proposed Road Surface

Proposals are to use ground treatments on the access road and parking areas to limit reradiated sound. We would recommend using one of the following as a suitable option:

- Grassed surface reinforced with suitable reinforcement grid
- Porous asphalt surface (e.g. surface commonly seen in children's play areas)

We would not recommend hard surfaces such as concrete or cobbles, which provide high levels of reflection to generated noise, or loose surfaces such as gravel, which cause increased noise levels as vehicle tyres pass over them.

4.3.3 Proposed Speed Limit

Imposing a speed limit would minimise noise due to revving and fast movement of cars. Due to the narrow nature of the undercroft, we would recommend that a speed limit of 5 mph would be suitable and would be expected to further reduce noise emissions due to cars passing along the access road.

4.4 Noise Modelling – With Mitigation

The same scenario has been used to remodel noise propagation with mitigation incorporated. The proposed fencing has been incorporated as a barrier, the absorption co-efficient of the access road surface has been increased and the speed limit has been introduced to the traffic flow along the access road.

Figure 4.5 shows the calculated façade noise levels at surrounding receiver facades with the development access road and mitigation introduced.



6.0 CONCLUSION

A noise impact assessment has been undertaken in order to assess possible changes in noise levels due to proposals associated with the residential development at 515-521 Barlow Moor Road, Manchester.

Assessments have focussed on changes to traffic noise levels, considering proposals to provide 5 parking spaces at the rear of the site with an associated access route.

Relevant standards have been used to derive appropriate and robust design targets for noise emissions from the site.

Calculations undertaken using 3D noise modelling techniques demonstrate that compliance with the established design targets is expected.



Not to scale

Description:

Indicative site plan showing noise monitoring positions

Date	29 January 2026
Reference	19943-SP1
Project Name	515-521 Barlow Moor Road
Image ©	Google Earth

Key:

Unattended Noise Survey Position

GLOSSARY OF ACOUSTIC TERMINOLOGY

Absorption Coefficient α	The absorption coefficient of a material, usually measured for each octave or third-octave band and ranging between zero and one. For example, a value of 0.85 for an octave band means that 85% of the sound energy within that octave band is absorbed on coming into contact with the material. Conversely, a low value below about 0.1 means the material is acoustically reflective.
Acceleration	The rate of change of velocity, often measured in ms^{-2} . Commonly used to assess human response to vibration and for machine condition monitoring.
Accelerometer	A vibration transducer sensor that is used to measure acceleration.
Airborne noise	Noise which is fundamentally transmitted by way of the air and can be attenuated by the use of barriers and walls placed physically between the noise source and receiver.
Ambient Vibration	The all-encompassing vibration occurring at a given location, at a given time, composed of all vibration sources near and far.
Audible Range	The limits of frequency which are audible or heard as sound. The normal hearing in a typical young adult detects ranges from 20 Hz to 20 kHz, although some people can detect sound with frequencies outside these limits. Typically, as a person ages their audible hearing range decreases.
A-Weighting	A filter applied to the sound recording made by a microphone to approximate the response of the human ear.
Axis	A fixed reference line for the measurement for the measurement of vibration in a particular direction. Vibration is commonly measured in transverse (T), longitudinal (L) and vertical (V) axes (or X, Y and Z).
Background Noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation. The L_{90} parameter, i.e. the level exceeded for not more than 90% of the time is often used as a descriptor of "background noise" for environmental impact studies.
Background Vibration	The underlying level of vibration in the ambient environment, measured in the absence of the vibration sources of interest.
Continuous Vibration	Vibration that continues uninterrupted over a defined period.
dB(A)	The human ear is less sensitive to low (below 12 5Hz) and high (above 16 kHz) frequency sounds. A sound level meter duplicates the ear's variable sensitivity to sound of different frequencies. This is achieved by building a filter into the instrument with a similar frequency response to that of the ear. This is called an A-weighting filter. Measurements of sound made with this filter are called A-weighted sound level measurements and the unit is dB(A).
Decibel [dB]	The unit that sound is measured in. Decibels are a logarithmic scale hence two equally intense sound sources operating together produce a sound level which is 3 dB higher than one alone and 10 sources produce a 10 dB higher sound level.
Distance Attenuation	Sound which propagates from a point source in free air attenuates by 6 dB for each doubling of distance from the noise source. Sound energy from line sources (e.g. stream of cars) drops off by 3 dB for each doubling of distance.
$D_{nT,w}$	Weighted Standardised Field Level Difference A measure of sound insulation performance of a building element. It is characterised by the difference in noise level on each side of a wall or floor. It is measured in-situ. It is a field measurement that relates to the R_w laboratory measured value but is not equal to it because an in-situ space is not of the same quality as a laboratory space. The value is indicative of the level of speech privacy between spaces. The higher its value the better the insulation performance.
Flanking	Flanking is the transfer of sound through paths around a building element rather than through the building element material directly. For example, sound travelling through a gap underneath a door or a gap at the top of a wall.
Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch, and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz. In the case of vibration, frequency is the number of oscillations that occurs per second. Frequency is measured in units of Hertz (Hz).
Ground-Borne Noise	Vibration propagated through the ground and then radiated as noise by vibrating building elements such as wall and floor surfaces. This noise is more noticeable in rooms that are well insulated from other airborne noise. An example would be vibration transmitted from an underground rail line radiating as sound in a bedroom of a building located above.
Impact Noise	Impact noise / structure-borne noise is generated when an object impacts with a separating element, causing that element to vibrate and re-radiate as noise in the receiving room. Common domestic examples of impact noise include footsteps and dropping objects.
Impulsive Noise	Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.

Impulsive Vibration	Vibration that rapidly builds up to a peak followed by a damped decay. May consist of multiple impulsive events, typically less than two seconds in duration.
Intermittent Noise	The level suddenly drops to that of the background noise several times during the period of observation.
Intermittent Vibration	Either interrupted periods of continuous vibration or repeated periods of impulsive vibration.
L_{10}	This is the level exceeded for not more than 10% of the time. This parameter is often used as a “not to exceed” criterion for noise
L_{90}	This is the level exceeded for not more than 90% of the time. This parameter is often used as a descriptor of “background noise” for environmental impact studies.
L_{eq}	The sound from noise sources often fluctuates widely during a given period of time. An average value can be measured, the equivalent sound pressure level L_{eq} . The L_{eq} is the equivalent sound level which would deliver the same sound energy as the actual fluctuating sound measured in the same time period.
L_{max}	This is the maximum sound pressure level that has been measured over a period.
$L_{nT,w}$	Weighted Standardised Field Impact Sound Pressure Level As for $L_{n,w}$ but measured in-situ and therefore subject to the inherent accuracies involved in such a measurement. The equivalent measurement in a laboratory is the $L_{n,w}$. A lower value indicates a better performing floor.
Noise	Unwanted sound.
Octave	An octave represents a doubling or halving in frequency. Noise or vibration levels across a frequency spectrum are commonly given in octave or one-third octave frequency bands.
PPV	Peak Particle Velocity. The absolute maximum value of the vibration velocity signal measured in any axis during a given time interval.
Reflection	Sound wave reflected from a solid object obscuring its path.
R_w	Weighted Sound Reduction Index A measure of the sound insulation performance of a building element. It is measured in very controlled conditions in a laboratory. The related field measurement is the $D_{nT,w}$. The higher the value the better the acoustic performance of the building element.
Sound	A fluctuation of air pressure which is propagated as a wave through air.
Sound Absorption	The ability of a material to absorb sound energy by conversion to thermal energy.
Sound Insulation	Sound insulation refers to the ability of a construction or building element to limit noise transmission through the building element. The sound insulation of a material can be described by the R_w and the sound insulation between two rooms can be described by the $D_{nT,w}$.
Sound Level Meter	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.
Sound Power Level	Ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power of 1 pico watt.
Sound Pressure Level	The level of noise, usually expressed in decibels, as measured by a standard sound level meter with a microphone referenced to 20 micro Pascal.
Structure-borne Noise	Audible noise generated by vibration induced in the ground and/or a structure. Vibration can be generated by impact or by solid contact with a vibrating machine. Examples of structure-borne noise include the noise of trains in underground tunnels heard to a listener above the ground, the sound of footsteps on the floor above a listener and the sound of a lift car passing in a shaft.
Tonal Noise	Sound containing a prominent frequency and characterised by a definite pitch.
Transmission Loss	The sound level difference between one room or area and another, usually of sound transmitted through an intervening partition or wall. Also the vibration level difference between one point and another. For example, if the sound level on one side of a wall is 100 dB and 65 dB on the other side, it is said that the transmission loss of the wall is 35 dB. If the transmission loss is normalised or standardised, it then becomes the R_w or R'_w or $D_{nT,w}$.
VDV	Vibration Dose Value. A measure of tactile vibration levels used to assess intermittent vibration.
Velocity	The rate of change of vibration displacement, usually measured in mms^{-1} .
Vibration	A mechanical phenomenon whereby oscillations occur about an equilibrium point; a periodic back-and-forth motion of an elastic body or medium, commonly resulting when almost any physical system is displaced from its equilibrium condition.