
The Martlets, Mid Sussex, Burgess Hill

Noise Impact Assessment Report
Report 31390.NIA.01 Rev B

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1.0 INTRODUCTION

KP Acoustics Ltd has been commissioned by WSP UK Limited, to undertake a noise impact assessment in support of a proposal to extend the servicing hours associated with the main retail occupier at The Martlets, Mid Sussex, Burgess Hill. The proposal is a variation to planning permission LPA Reference DM/25/1327. The original planning permission reference is DM/19/331 for the redevelopment of The Martlets shopping centre in Burgess Hill town centre.

Under the existing planning consent, servicing and delivery activities are permitted between 07:30 and 20:00. The proposed retail occupier now seeks an extension of these hours to allow servicing to commence from 06:00, as detailed within this report.

This report presents the overall methodology and results from an environmental noise survey undertaken on site, followed by calculations to assess the feasibility of extending the servicing hours while ensuring that the amenity of the closest noise-sensitive receptors is protected.

2.0 APPROVED AND PROPOSED OPERATING HOURS

The approved and proposed operating hours for the unit are detailed below.

Approved operating hours are as follows:

- 07:30 – 20:00 (working days)

Proposed operating hours:

- 06:00 – 20:00 (working days)

In summary, the proposal seeks to allow servicing activities to commence 1 hour and 30 minutes earlier on working days, while retaining the approved closing time of 20:00.

3.0 SITE SURVEYS

3.1 Site Description

As shown in Figure 3.1, the site corresponds to the service and loading area within The Martlets complex in Burgess Hill, Mid Sussex. Vehicle access is located at the north-western end of the site, through the parking area connected to Civic Way. Residential properties are situated to the north of the service yard, while the eastern and southern surroundings consist primarily of commercial buildings forming part of the wider town centre development. It is understood that loading and unloading is carried out in the internal parts of the building.

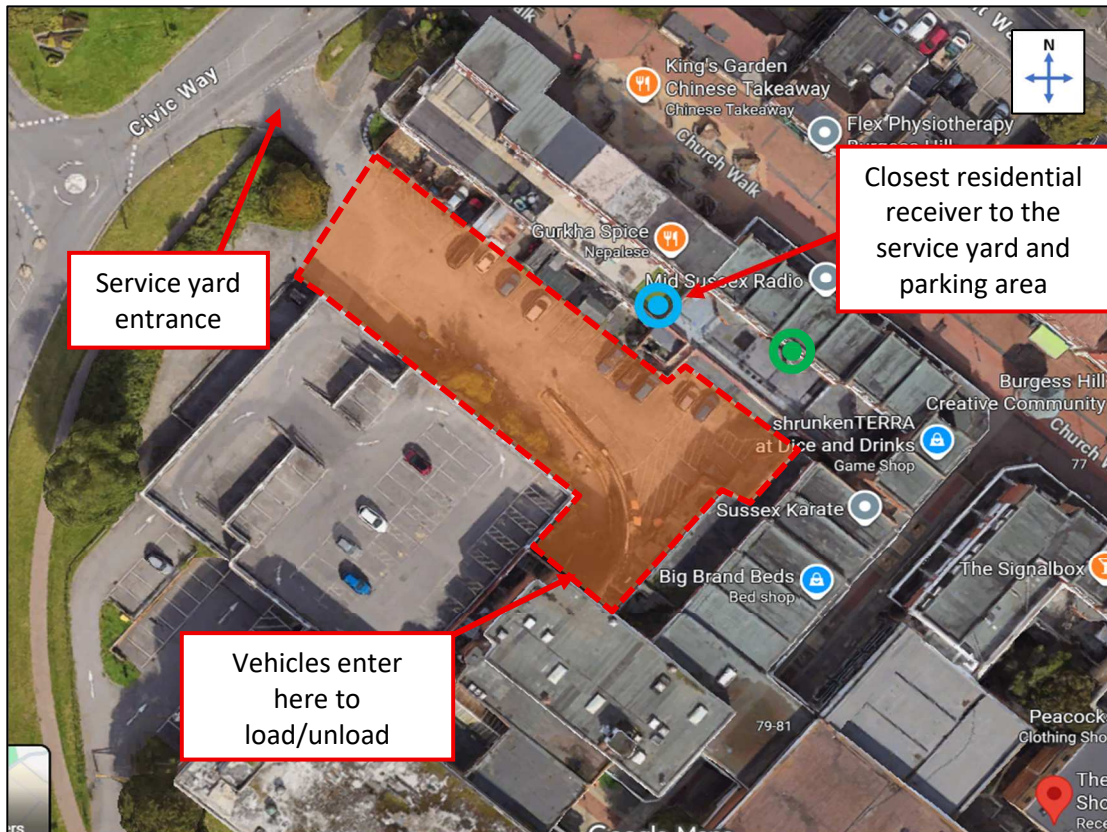


Figure 3.1 Site Location Plan (Image Source: Google Maps)

3.2 Environmental Noise Survey Procedure

In order to gain an understanding of the prevailing background noise levels on site, automated noise monitoring was undertaken at the position shown in Figure 3.1 and described in Table 3.1. The monitoring position was selected to obtain representative noise data in relation to the nearest noise-sensitive receptors surrounding the service yard. The survey was carried out between 14:30 on 14/11/2025 and 10:30 on 18/11/2025.

Initial inspection of the site revealed that the background noise profile at the monitoring location was predominantly influenced by the surrounding local roads. Additional contributions were noted from general activity within the town centre and from car movements in the adjacent parking areas. No significant construction activity or atypical noise events were observed during the survey period.

The weather during the course of the survey was generally dry with wind speeds within acceptable tolerances and therefore suitable for the measurement of environmental noise. The measurement procedure complied with ISO 1996-2:2017 Acoustics *"Description, measurement and assessment of environmental noise - Part 2: Determination of environmental noise levels"*.

The measurement positions are described in Table 3.1 and shown in Figure 3.1.

Icon	Descriptor	Location Description
	Noise Measurement Position	The microphone was installed on a first-floor window of the façade facing the service yard, as shown in Figure 3.1. The microphone was located within approximately 3.5 metres of nearby reflective surfaces and therefore includes local reflections.
	Closest Noise Sensitive Receiver	Second-floor window of the nearest residential property located to the north of the service yard

Table 3.1 Measurement position and description

3.3 Equipment

The equipment calibration was verified before and after use and no abnormalities were observed. The equipment used is described within Table 3.2.

Measurement instrumentation		Serial no.	Calibration Date	Cert no.
Noise Kit 38	NTI Audio XL2 Class 1 Sound Level Meter	A2A-23182-E1	12/09/2025	TCRT25/1690
	Free-field microphone NTI Acoustics MC230A	A25833		
	Preamp NTI Acoustics MA220	13818		
	NTI Audio External Weatherproof Shroud	-	-	-
B&K Type 4231 Class 1 Calibrator		2147411	10/09/2025	UCRT25/2295

Table 3.2 Measurement instrumentation

3.4 Results

The results from the continuous noise monitoring are shown as a time history of $L_{Aeq: 5min}$, $L_{Amax: 5min}$, $L_{A10: 5min}$ and $L_{A90: 5min}$ in Figure 31390.TH1 for monitoring position 1.

Ambient and background noise levels within the key periods of existing, and proposed extended operating hours are shown in Table 3.3.

Time Period	Ambient and background noise level, dB(A)	
	Ambient, LAeq	Background, LA90
Saturday (06:00-07:00)	40	34
Saturday (07:00-08:00)	43	36
Sunday (06:00-07:00)	37	26
Sunday (07:00-08:00)	42	30
Monday (06:00-07:00)	45	36
Monday (07:00-08:00)	47	41
Tuesday (06:00-07:00)	48	43
Tuesday (07:00-08:00)	51	47

Table 3.3 Ambient and background noise levels

The background noise environment at the monitoring location is dominated by the surrounding local roads. Occasional vehicle movements within the service yard and general activity associated with the surrounding commercial premises and nearby parking areas are also expected to have contributed to a lesser extent.

No construction works or atypical noise events were observed during the monitored period, and the sound levels presented are considered representative of the background sound environment during early-morning hours.

For the purpose of this assessment, the representative background noise level has been taken from the measurements obtained on Saturday 15th November 2025, as this is the quietest day which is understood to be likely to have deliveries/servicing. Noise levels measured on Sunday were quieter, but we have been informed that Sunday is generally not used for deliveries/servicing.

4.0 BS4142 ASSESSMENT

Due to the proximity of the residential properties located to the north of the service yard at The Martlets, an assessment has been undertaken to ensure that noise from early morning delivery activities does not adversely affect residential amenity.

British Standard BS4142:2014 '*Methods for rating and assessing industrial and commercial sound*' describes a method 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, and
- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes.

This Standard compares the Rating Level due to the noise source/s under assessment for a one-hour period during the daytime (07:00 – 23:00 hours) and a fifteen-minute period during the night-time (23:00 – 07:00 hours) with the existing background noise level in terms of an L_{A90} when the noise source is not operating.

It should be noted that the Rating Level is the Specific Sound Level in question (L_{Aeq, T_r}), including any relevant acoustic feature corrections, as follows:

- **Tonality** – *‘For sound ranging from not tonal to prominently 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** – *‘If the intermittency is readily distinctive against the residual acoustic environment, a penalty of 3dB can be applied’*
- **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’*

Once the Rating Level has been obtained, the representative background sound level is subtracted from the Rating Level to obtain an initial estimate of the impact, as follows:

- Typically, the greater this difference, the greater the magnitude of the 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 could 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 there will be an adverse impact or significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound having a low impact, depending on the context

NOTE: Adverse impacts may include but not be limited to annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.

The initial estimate of the impact may then be modified by taking consideration of the context in which the sound occurs.

4.1 Noise Assessment of Deliveries Operations

In order to assess the combined impact of the specific sound sources associated with delivery operations at The Martlets, a hypothetical worst case scenario has been considered for the early morning operating period between 06:00-07:00. The data represents typical sound levels for a heavy goods vehicle (HGV) during arrival and departure. Loading is understood to be carried out internally and is, therefore, significantly quieter than the noise of arriving and departing vehicles; no loading noise has been considered in the below assessment.

Following discussion with the client, it has been agreed that electric heavy goods vehicles (HGVs) should be used for deliveries made between the hours of 06:00-07:00. After 07:00, standard internal combustion engines are proposed to be used. As this assessment covers the extended earlier opening times, the assessment considers the electric vehicles.

MAN Truck & Bus reports a measured noise level for its electric HGV of 45.7dBA at 7.5 metres, reversing without a warning tone. Data has been adjusted to an equivalent 15-minute reference period in line with night-time assessment requirements of BS 4142, and corrected to a minute and 30 second on time. This on-time is consistent with data received from the client and is based on deliveries at the supermarket chain proposed to occupy the site.

It is also noted that, based on typical operational practice at comparable sites, reversing alarms are generally disabled during early morning deliveries as part of standard noise

management procedures. We recommend that this is observed at this site during the 06:00–07:00 delivery period, and the assessment has been carried out on this basis.

Table 4.2 presents the predicted noise level from all specific sources combined, adjusted to a 15-minute night-time reference period, as required by BS 4142 for the 23:00–07:00 period.

Description	Results, dB	Comments
Vehicle reversing noise at 7.5 metres	46	
Distance loss	-15	
Barrier correction	-5	-5dB minimum loss for partial barrier
On time correction (2:30 minutes in 15 minute period)	-8	2 minutes 30 seconds event
Specific Sound Level	18	
Acoustic Feature Corrections	6	3dB for impulsivity, 3dB for intermittency
Rating Level at receiver window	24	Sum of Specific Sound Level and Acoustic Feature Corrections.
Representative background sound level, $L_{A90, 5\text{mins}}$	34	Representative L_{A90} during 06:00 to 07:00 on Saturday at Position 1.
Excess of rating level over background sound level	-10	Significantly below background noise. Indication of low/no adverse impact based on BS4142 guidance
Assessment	The receptor is a residential window located directly to the north of the service yard during the early-morning period between 06:00 and 07:00. The calculated rating level of 24 dB is 10dB lower than the representative background sound level of 34 dB. In accordance with BS 4142 guidance, a difference of this magnitude is typically indicative of low/no adverse impact.	

Table 4.2 BS4142 Assessment

5.0 DISCUSSION

All delivery activity would occur within the service yard, with access via Civic Way. The nearest residential properties are located directly to the north of the delivery area and therefore represent the most sensitive receptors.

Background sound levels are lowest between 06:00 and 07:00 on Saturday, with a representative background noise level at this time of 34 dB, L_{A90} , adopted for the purposes of this assessment. Using the delivery noise levels in Table 4.1 and applying corrections including distance attenuation and acoustic feature corrections in accordance with BS 4142, the resulting rating level is 24 dB. In accordance with BS 4142 guidance, a difference of this magnitude is typically indicative of **low/no adverse impact**.

This rating level is 10dB lower than the representative background sound level of 34 dB. It should also be noted that the area has previously been used for deliveries with previous uses, as well as adjacent businesses on the same parking area.

The background noise level measured during this survey is consistent with historical noise data taken during previous planning applications during the hours assessed.

It is important to note that during the current measurement period, several commercial units within the site were unoccupied or operating at significantly reduced activity levels. This may have resulted in a quieter acoustic environment than that which has historically characterised the service yard. It is not known whether these adjacent uses historically operated earlier than 07:30 hours and this, therefore, has not been relied upon as a formal assumption in this assessment when comparing noise levels. However, it is a relevant alternative scenario that these existing units were understood to have been permitted to operate during night-time and early morning hours with no restrictions. If this were to happen it would likely result in higher noise disturbance levels as the suggested mitigations proposed would not be in force.

The events which would arise as a consequence of the proposed extended servicing hours (arrivals and departures of HGVs) are short (30 seconds to 2 minutes).

6.0 NOISE MANAGEMENT PLAN

To ensure that the assessment above is complete and valid, and no additional noise causes adverse impacts to the nearest residential receivers, the following noise controls should be adopted:

- No use of reversing alarms during the extended operating hours during the 6-7am period
- Limit of one delivery per day during the 6-7am period
- Limit use of metal trolleys outside the enclosed loading bay
- Vehicles engines should not be left running idle – May not be applicable to electric HGVs
- Deliveries and servicing will be undertaken by suppliers, transport operators, and any other vehicles following good practice guidance for quiet deliveries
- All external doors will remain closed except for access and egress, with an emphasis on loading/unloading

- Encourage unloading of trolleys etc. within the store demise
- Ensure staff are instructed to encourage the execution of the above
- Signage should be installed in the loading area and approach to the loading area to encourage the adoption of the above measures
- If signage alone is not effective, staff will intervene and politely request that the above recommendations are followed

7.0 CONCLUSION

A noise assessment and environmental noise survey have been undertaken in support of a proposal to allow an early morning delivery within the service yard at The Martlets, Burgess Hill.

The assessment has been carried out in accordance with the methodology set out in BS 4142:2014, comparing the rating level associated with the delivery activity against the representative background sound level measured on site for the relevant early morning period.

Calculations show that the rating level at the nearest noise sensitive residential façade would be significantly lower than the representative background noise level during the 06:00 to 07:00 period assuming the use of electric HGVs. When considered with the requirements of BS 4142, this difference suggests a low, or no adverse impact during this hour.

Mitigation measures have been recommended in this document to ensure no additional noise caused by delivery activities impacts the nearest residential receiver. The implementation of these mitigation measures will secure better controls for the noise environment at nearby residential receptors compared to the existing planning permissions for the service yard, which are understood to include no specific controls on noise levels or delivery times.

These recommendations, including the use of electric HGVs and internal loading and unloading for the period between 06:00 to 07:00, represent the most practicable noise management measures available to control the noise from deliveries in the service yard, ensuring the lowest practicable noise impact on nearby residential receivers.

It is also noted that the events which would arise as a consequence of the proposed extended servicing hours (arrivals and departures of HGVs) are short (30 seconds to 2 minutes) and any loading noise may be familiar to nearby residents due to previous use of the site.

THE MARTLETS, MID SUSSEX - Position 1
Environmental Time History
14/11/2025 to 18/11/2025

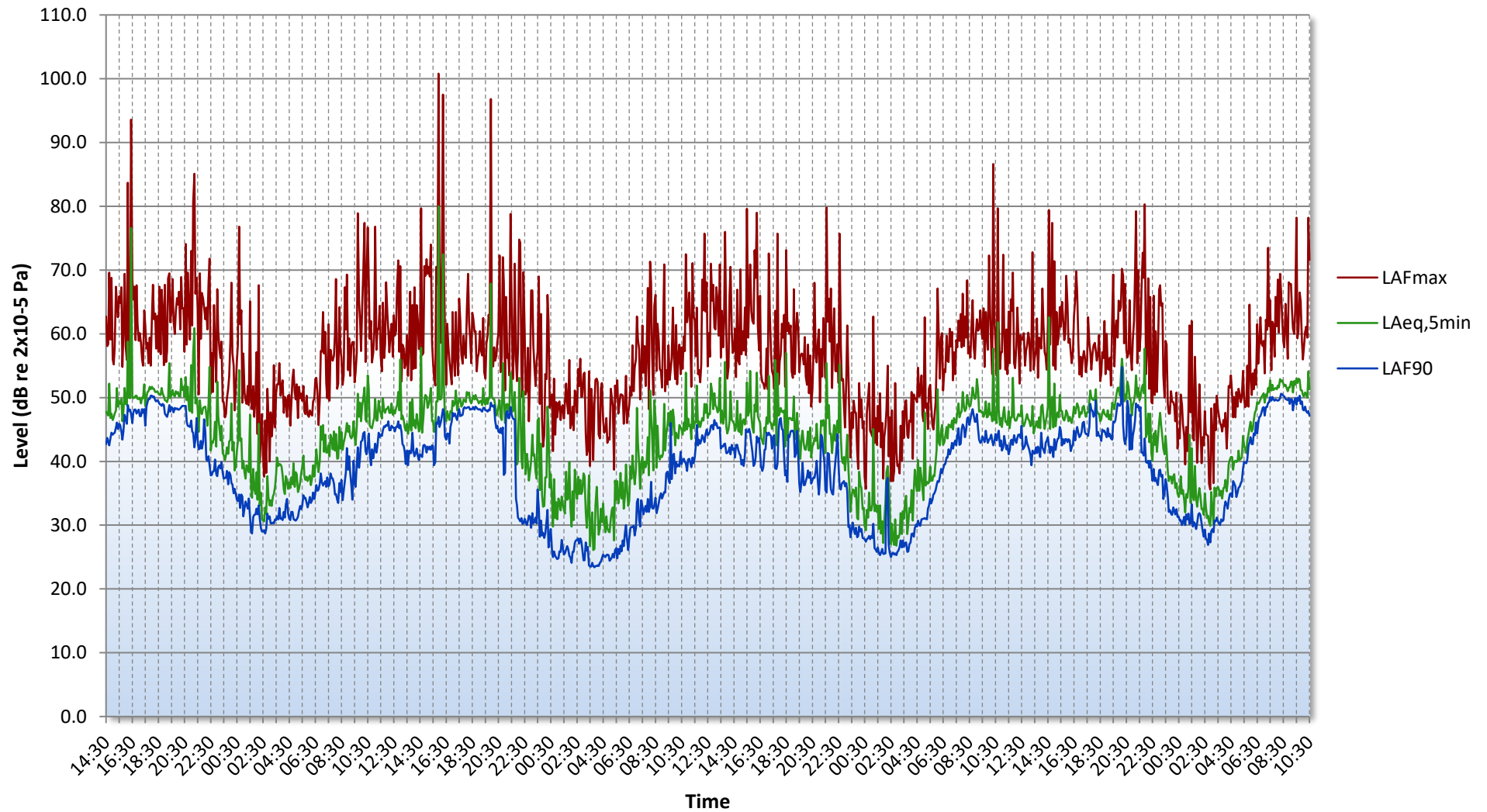


Figure 31390.TH1

GENERAL ACOUSTIC TERMINOLOGY

Decibel scale - dB

In practice, when sound intensity or sound pressure is measured, a logarithmic scale is used in which the unit is the 'decibel', dB. This is derived from the human auditory system, where the dynamic range of human hearing is so large, in the order of 10^{13} units, that only a logarithmic scale is the sensible solution for displaying such a range.

Decibel scale, 'A' weighted - dB(A)

The human ear is less sensitive at frequency extremes, below 125Hz and above 16Khz. A sound level meter models the ears variable sensitivity to sound at different frequencies. This is achieved by building a filter into the Sound Level Meter with a similar frequency response to that of the ear, an A-weighted filter where the unit is dB(A).

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_{10}

This is the level exceeded for no 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 no more than 90% of the time. This parameter is often used as a descriptor of "background noise" for environmental impact studies.

L_{max}

This is the maximum sound pressure level that has been measured over a period.

Octave Bands

In order to completely determine the composition of a sound it is necessary to determine the sound level at each frequency individually. Usually, values are stated in octave bands. The audible frequency region is divided into 11 such octave bands whose centre frequencies are defined in accordance with international standards. These centre frequencies are: 16, 31.5, 63, 125, 250, 500, 1000, 2000, 4000, 8000 and 16000 Hertz.

Environmental noise terms are defined in BS7445, *Description and Measurement of Environmental Noise*.

APPLIED ACOUSTIC TERMINOLOGY

Addition of noise from several sources

Noise from different sound sources combines to produce a sound level higher than that from any individual source. Two equally intense sound sources operating together produce a sound level which is 3dB higher than a single source and 4 sources produce a 6dB higher sound level.

Attenuation by distance

Sound which propagates from a point source in free air attenuates by 6dB for each doubling of distance from the noise source. Sound energy from line sources (e.g. stream of cars) drops off by 3dB for each doubling of distance.

Subjective impression of noise

Hearing perception is highly individualised. Sensitivity to noise also depends on frequency content, time of occurrence, duration of sound and psychological factors such as emotion and expectations. The following table is a guide to explain increases or decreases in sound levels for many scenarios.

Change in sound level (dB)	Change in perceived loudness
1	Imperceptible
3	Just barely perceptible
6	Clearly noticeable
10	About twice as loud

Transmission path(s)

The transmission path is the path the sound takes from the source to the receiver. Where multiple paths exist in parallel, the reduction in each path should be calculated and summed at the receiving point. Outdoor barriers can block transmission paths, for example traffic noise. The effectiveness of barriers is dependent on factors such as its distance from the noise source and the receiver, its height and construction.

Ground-borne vibration

In addition to airborne noise levels caused by transportation, construction, and industrial sources there is also the generation of ground-borne vibration to consider. This can lead to structure-borne noise, perceptible vibration, or in rare cases, building damage.

Sound insulation - Absorption within porous materials

Upon encountering a porous material, sound energy is absorbed. Porous materials which are intended to absorb sound are known as absorbents, and usually absorb 50 to 90% of the energy and are frequency dependent. Some are designed to absorb low frequencies, some for high frequencies and more exotic designs being able to absorb very wide ranges of frequencies. The energy is converted into both mechanical movement and heat within the material; both the stiffness and mass of panels affect the sound insulation performance.