

Monday, 22 January 2018

Head Office
The Coach House
Mallory Park Circuit
Leicestershire
LE9 7QE

Phone
+44 1455 502400

Email
info@spltrack.co.uk

To whom it may concern

Chris Beale BSc.

I am the Managing Director of SPLtrack Limited, designers, manufacturers and suppliers of precision measurement equipment and I serve as environmental consultant specialising in acoustics, vibration and air particle measurement.

My company also offers independent consultancy services to clients large and small. We bring extensive experience to the work of environmental management and we lead the industry in real-time hardware and software solutions.

I received a BSc. in building and land surveying from Newcastle upon Tyne Polytechnic in 1976 and have experience as follows:

Technical director of SSE Audio Group to 2005.

Loudspeaker design consultant to Electrovoice Inc. until 1996.

Loudspeaker design consultant to Nexo Sarl. until 2003.

Loudspeaker design consultant to Void Acoustics Limited (present)

Sound design consultant to Glastonbury Festival until 2010

Environmental monitoring supplier and consultant to Brands Hatch, Silverstone, Oulton Park, Bedford Autodrome, Snetterton, Rockingham, Donington Park and Mallory Park motor racing circuits.

Environmental monitoring supplier, consultant and designer to Coalisland International motor racing circuit.

Environmental monitoring supplier and consultant to J Reddington Group (JRL)

Environmental monitoring supplier to Cantillon Limited.

Environmental monitoring supplier to Paddington, Kings Cross and London Bridge Railway Stations.

Environmental monitoring supplier and consultant to BBC Scotland.

Environmental monitoring supplier and consultant to BBC Biggest Weekend 2018

Environmental monitoring supplier and consultant to Royal Parks.

Environmental monitoring supplier and consultant to Liberty Stadium, Swansea.

Environmental monitoring supplier and consultant to a wide range of festivals, events, entertainment venues, licensed establishments including hotels, pub restaurants and wedding/party venues throughout the UK.

Data Centre Controlled
Environmental
Noise Monitoring
Air Quality
Meteorological
Calibration
SPLtrack
SPLcloud
Management
Consultancy

Kentfield Farm with Ashtree Farm

Tower Hill

West Malling

ME19 5NH

Environmental Impact Assessment (noise)

Use of African Lodge and Marquee

Prepared by Chris Beale

SPLtrack Limited

Wednesday, 29 November 2017

TABLE OF CONTENTS

3. Introduction.....	3
4. Executive Summary.....	3
5. Potential Effects.....	4
6. Scope of the assessment.....	4
7. Extent of the Study Area.....	4
8. Legislation, Guidance and Policy.....	5
8.1.Guidance.....	5
9. Scoping.....	6
10.Consultation.....	6
11.Desk Studies.....	6
12.Field Studies.....	6
12.1.Noise survey.....	6
12.2.Survey Methodology.....	7
13.Environment.....	7
13.1.Noise measurements.....	7
13.2.Weather Conditions.....	9
14.Potential Impacts.....	10
14.1.Event Music Noise.....	10
15.Mitigation and Management.....	11
15.1.The building structure.....	11
15.2.Operational controls.....	11
Glossary of terms.....	12

I. Introduction

- 1.1. This assessment considers the possible noise impact upon properties in the vicinity of Kentfileld and Ashtree Farms as a consequence of the use for events of The African Lodge and Marquee. The relevant properties are at Offham Village to the north and isolated properties to the west of the site. These locations are marked on the maps provided in this report.
- 1.2. The potentially significant effects of temporary noise impacts are considered. Particular attention has been paid to temporary changes in existing noise sources as well as the potential impacts of additional noise sources.
- 1.3. Each potential noise impact identified has been assessed against appropriate standards. Where necessary, mitigation measures have been outlined. Once adopted, these mitigation measures will be incorporated in detail into the overarching Noise Management Plan for the event space.
- 1.4. This chapter is necessarily technical in nature, therefore a glossary of acoustic terms is provided.

2. Executive Summary

- 2.1. For the convenience of the reader I have provided the executive summary at the head of the report as follows:
- 2.2. The African Lodge roof of heavy thatch and side walls of ragstone provide excellent sound containment.
- 2.3. The temporary marquee offers no sound containment and in fact exacerbates sound propagation at low frequencies due to the diaphragm effect of the roof panels.
- 2.4. In order to avoid noise nuisance in the local community I recommend that:
 - 2.4.1. Performance loudspeaker systems that have any bass component are located in the African Lodge and not in the Marquee.
 - 2.4.2. Loudspeakers and the related performances are directed to the south across the lake and not into the Marquee.
 - 2.4.3. For additional assurance I recommend that, whenever amplified entertainment is provided, bass baffles are fitted to the north open aspect of the African Lodge and behind any loudspeaker installation.
 - 2.4.4. A noise limiter is used to ensure that noise levels in the African Lodge do not exceed 95dBLAeq(15).
 - 2.4.5. Performances in the Marquee must be restricted to acoustic instruments. Use of amplified equipment is acceptable but must be limited to background music only or spoken word.
- 2.5. I am satisfied that provided the above criteria are met there would be no risk of noise nuisance to nearby residents during any season of the year, with or without windows open.

3. Potential Effects

3.1. The following aspects have been considered:

3.2. Event activities: noise created by recorded and live music sources.

3.3. Any other noise generating activity: associated with the event space.

3.4. Only those noise sources directly associated with the event space will be assessed in this document. Other existing activities including those associated with shooting and the operation of the farms upon which the centre is situated are excluded.

4. Scope of the assessment

4.1. The scope of the assessment has been determined in the following way:

4.2. A desktop study of the proposed site and surrounding area in the context of all available information

4.3. Identification of the closest Noise Sensitive Receptors (NSR)

4.4. A basic baseline noise survey to establish typical existing ambient noise levels at a representative selection of the closest identified NSR's

4.5. Identification of noise sources associated with the operation of the African Lodge and Marquee and the proposed location of each source

4.6. Measurement of noise from a representative event held at the site with objective evaluation of noise impact.

4.7. Prediction of absolute noise levels impacting on the closest identified NSR's from the sources identified and consideration of the likely magnitude and significance of cumulative impact.

5. Extent of the Study Area

5.1. This assessment considers the area within the scope of the proposed event and the closest identified NSR without the site as shown on the following page:



6. Legislation, Guidance and Policy

6.1. Standards and guidelines relevant to the assessment of each identified noise source have been referred to throughout this assessment.

6.2. Guidance

6.2.1. The following guidance documents have been used in this report, where appropriate:

6.2.2. British Standard (BS) 8233: *Guidance on sound insulation and noise reduction for buildings*;

6.2.3. World Health Organisation (WHO) *Guidelines for community noise*;

6.2.4. British Standard (BS) 4142: *Methods for rating and assessing industrial and commercial sound*

6.2.5. ISO9613-2 *Acoustics: Attenuation of sound during propagation outdoors – General method of calculation*

6.2.6. The Noise Council Code of Practice on Environmental Noise Control at Concerts 1995.

7. Scoping

7.1.No formal scoping recommendations have been received.

7.2.Summary of standards

7.2.1.The following table summarises the standards against which each identified noise source has been assessed throughout the chapter.

Noise source	Relevant legislation / guidance	Absolute standards against which predicted noise levels have been assessed
Event music noise	BS8233 / WHO Guidelines for community noise and Noise Council CoP	Potential noise levels affecting habitable rooms (living rooms and bedrooms) have been assessed against the desirable levels stated in BS8233 (35dB inside living rooms and 30dB inside bedrooms (LAeq)). Windows are assumed to be open for normal ventilation.

7.3.For the purpose of calculation, it has been assumed that a closed window in a façade will achieve attenuation of sound equivalent to 28dB Rw,Ctr and an open window 10dB RwCtr.

8. Consultation

8.1.The author has not been made aware of any formal community consultation, although it is known that previous events at the site have resulted in dialogue with some residents.

9. Desk Studies

9.1.The following desk studies have been undertaken:

9.1.1.Identification of the closest NSR around the proposed event site

9.1.2.Identification of the likely noise impacts associated with event activities

9.1.3.Identification of vehicle access routes to the site for patrons and staff and assessment of the likely temporary noise impacts associated with traffic

9.1.4.Prediction of absolute cumulative levels of noise on event days assessed at representative NSR's.

10.Field Studies

10.1.Noise survey

10.1.1.A full noise survey was undertaken on Saturday 18th November using NTi XL2 Class 1 sound level meters. The purpose of the survey was to obtain indicative ambient noise levels and comparison noise levels whilst the event space was in operation. Representative one minute samples were taken.

10.2.Survey Methodology

10.2.1.Ambient and event noise measurements were undertaken in free-field tripods at a height of 1.5m above local ground level at each location. Some hand-held measurements were taken in the Offham Village area.

10.2.2.Weather conditions during the survey were referenced and found to be within limits for traceable measurements. The conditions were ideal for noise propagation and typical in effect of those which might prevail on summer evenings.

10.2.3.The results of the noise survey are shown in the Existing Environment section below.

11.Environment

11.1.Noise measurements

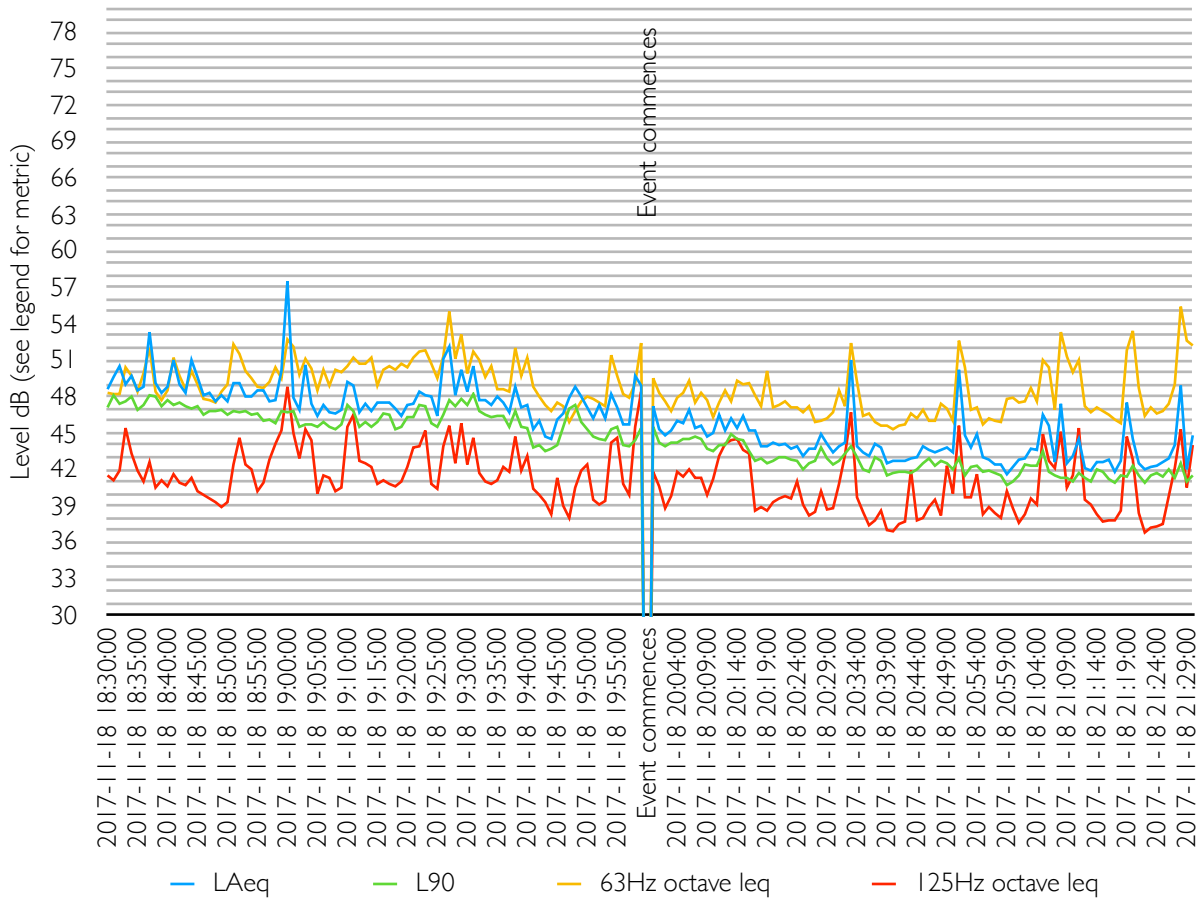
11.1.1.The baseline survey was carried out immediately prior to event activities. During this time there was no noise generated by the event.

11.1.2.A series of 1m measurements were taken between the hours of 18:30 and 21:30 . This spanned a period of 90 minutes prior to the event and 90 minutes whilst the event was in progress.

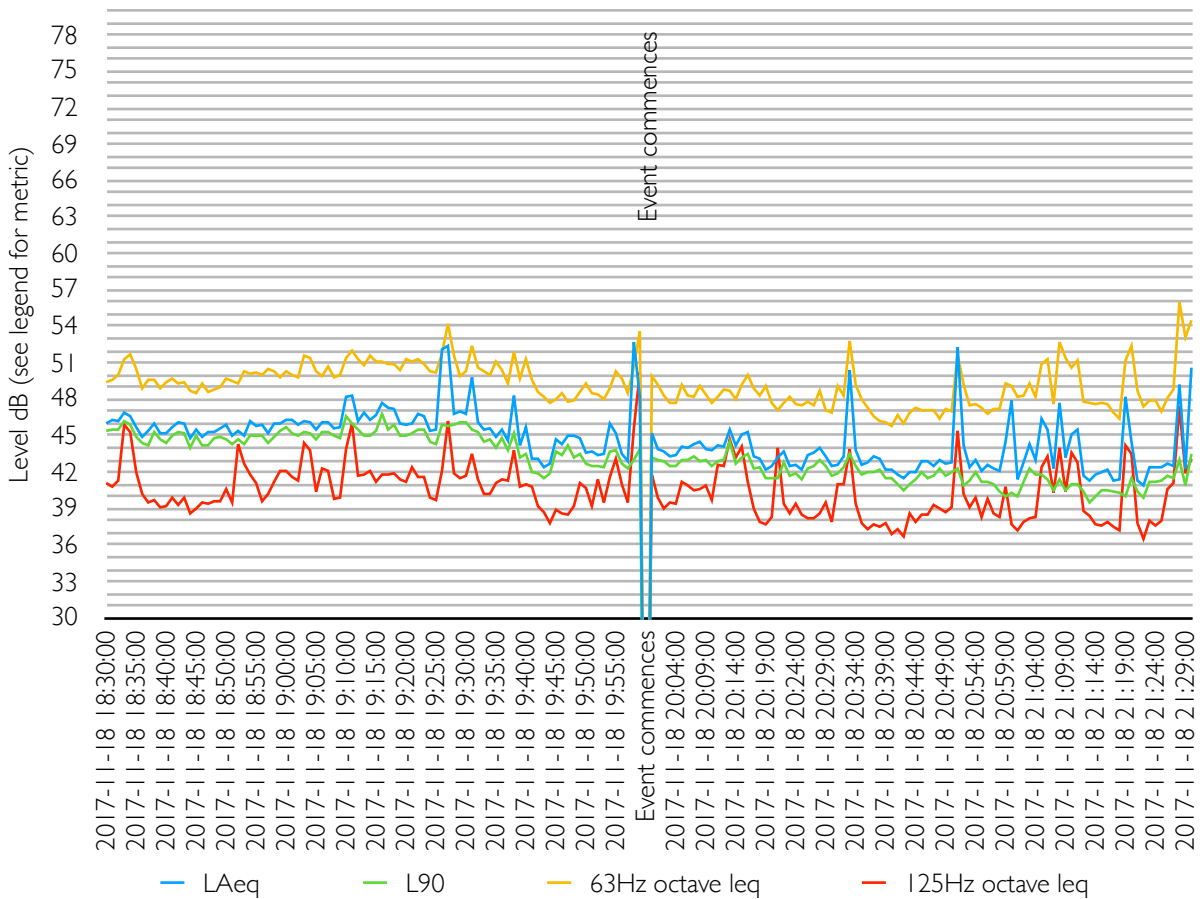
11.1.3.Measurement data is shown on the following page. Significant peak events during measurements were due to sporadic aircraft overflights and occasional events occurring close to the meters.

11.1.4.It is reasonable to conclude from the measurement data that the ambient noise level was approximately 46dBA and the L90 41dBA.

Cottage (Kentfield Farm West)



Tower Hill (Kentfield Farm Gateway)



11.2. Weather Conditions

11.2.1. The weather conditions on 18th November 2017 at Offham were as follows.
All metrics are within limits for traceable measurements.

Time GMT	Temp.	Dew Point	Humidity	Pressure hPa	Wind Dir	Wind Speed	Rain	Conditions
6:20 PM	8.0 °C	7.0 °C	93%	1020	NN W	9.3 km/h / 2.6 m/s	-	Light Drizzle
7:20 PM	7.0 °C	7.0 °C	100%	1020	NW	9.3 km/h / 2.6 m/s	-	Light Drizzle
7:50 PM	7.0 °C	7.0 °C	100%	1020	West	9.3 km/h / 2.6 m/s	-	Scattered Clouds
8:20 PM	7.0 °C	7.0 °C	100%	1020	West	5.6 km/h / 1.5 m/s	-	Mostly Cloudy
8:50 PM	7.0 °C	6.0 °C	93%	1020	West	11.1 km/h / 3.1 m/s	-	Mostly Cloudy
9:20 PM	7.0 °C	6.0 °C	93%	1020	West	9.3 km/h / 2.6 m/s	-	Clear
9:50 PM	7.0 °C	6.0 °C	93%	1021	West	13.0 km/h / 3.6 m/s	-	Clear
10:20 PM	7.0 °C	6.0 °C	93%	1021	West	13.0 km/h / 3.6 m/s	-	Clear
10:50 PM	7.0 °C	6.0 °C	93%	1021	WN W	11.1 km/h / 3.1 m/s	-	Clear
11:20 PM	7.0 °C	5.0 °C	87%	1021	WN W	11.1 km/h / 3.1 m/s	-	Clear
11:50 PM	6.0 °C	5.0 °C	93%	1021	WN W	9.3 km/h / 2.6 m/s	-	Clear

12. Potential Impacts

12.1. Event Music Noise

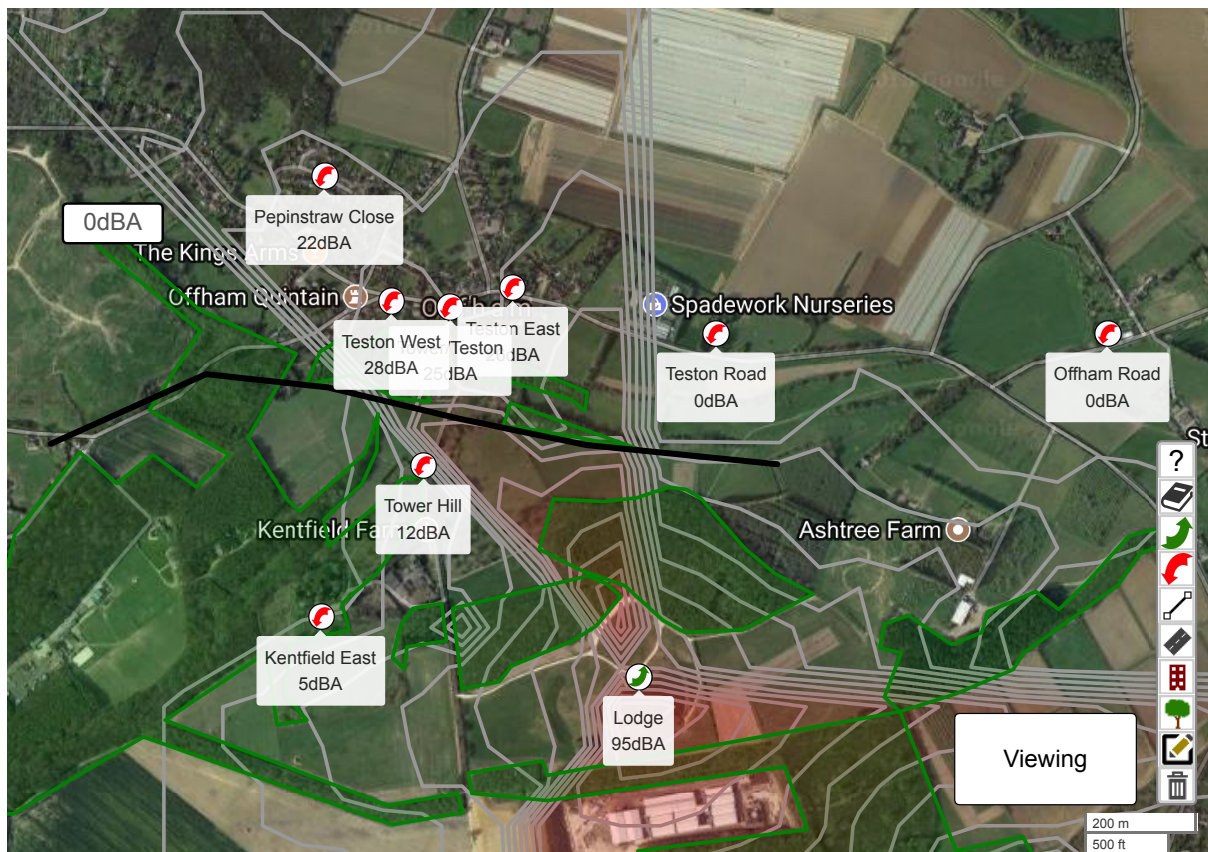
12.1.1. Recorded and live music may be performed in the African Lodge (with thatched roof and two ragstone walls) and a connected marquee.

12.1.2. The measured noise level in the African Lodge during the survey was 95dBLAeq(5). At this time a disco was in operation playing recorded music.

12.1.3. It was noted that the loudspeakers were located inside the Lodge and were oriented towards the south, away from the principle receptors.

12.1.4. There were no loudspeakers located in the marquee area.

12.1.5. A propagation forecast based upon A loudspeaker system installed to recommendations and with the inclusion of baffles in the north aspect of the lodge is shown below.



I3.Mitigation and Management

I3.1.The building structure

13.1.1.The lodge roof and side walls provided good noise absorption, however the marquee does not. Care should be taken when installing loudspeaker systems in marquees due to their acoustic transparency and the tendency of the roof panels to radiate as passive diaphragms. My recommendation is that performance in the marquee should be limited to light background, acoustic or spoken word.

13.1.2.If loudspeakers are positioned only in the lodge and pointed towards the south there would be no noise impact upon the community.

I3.2.Operational controls

13.2.1.Noise levels within the lodge should be controlled using a suitable noise limiting device and checks should be made using a portable noise meter to ensure that levels within the space do not exceed 95dBLAeq(15).

Chris Beale BSc.

SPLtrack Limited

Wednesday, 29 November 2017



Glossary of terms

Stakeholders	Venue owner; training centre operator; Local Authority, Blue Light Authorities and other persons or organisations with direct interest in the operation of the business.
Noise Sensitive Receptors (NSR)	Inhabited locations within the environment local to the event that have been identified as being likely to receive noise levels due to amplified music generated at the event.
Impact Noise Level (MNL)	The sound level at any NSR that is attributable to noise generated by the source under investigation. The value is expressed in $dBL_{Aeq}(15)$ for wide band noise or by $dBL_{ZEq}(15)$ in the case of low frequency noise.
Ambient Noise	The total encompassing sound in a given situation at a given time, usually composed of sound from many sources far and near
A-weighted sound pressure, PA	Value of overall sound pressure, measured in pascals (Pa), after the electrical signal derived from a microphone has been passed through an A-
A-weighted sound pressure level, L_{pA}	Quantity of A-weighted sound pressure, given by the following formula in
Background Noise Level, $L_{A90,T}$	The A weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of a given time interval, T, measured using time weighting, F, and quoted to the nearest whole number of decibels
Daytime Decibel (dB)	The period 09:00-24:00 hours
Decibel (dB)	A unit of level derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure levels the reference quantity is 20 uPa. The threshold of normal hearing is in the region of 0 dB and 140 dB is the threshold of pain. A change of 1 dB is only perceptible under controlled conditions
dB(A), L_{Ax}	Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A)
Façade level	Sound pressure level measured 1 m in front of the façade of a property.
$L_{A10,T}$	The A weighted noise level exceeded for 10% of the measurement period, T.
$L_{A90,T}$	The A weighted noise level exceeded for 90% of the measurement period, T. This is defined in BS 4142 as the background noise level.

L _{AE}	The sound exposure level – the level of a sound with a period of 1 second that has the same sound energy as the event considered.
L _{Aeq,T}	The equivalent continuous A-weighted sound pressure level is the value of the A-weighted sound pressure level in decibels (dB) of a continuous, steady sound, that within a specified time interval, T, has the same mean squared sound pressure as the sound under consideration that varies with time.
L _{Amax}	The highest A weighted noise level recorded during a noise event. The time weighting (slow or fast) should be stated.
Night time	The period 24:00-09:00 hours.
Octave band	Band of frequencies in which the upper limit of the band is twice the frequency of the lower limit.
Third octave band	Band of frequencies in which the upper limit of the band is 2 times the frequency of the lower limit.
Residual noise	The ambient noise remaining at a given position in a given situation when the specific noise source is suppressed to a degree such that it does not contribute to the ambient noise.
Sound Power Level, L _w	An absolute parameter widely used for rating and comparing sound sources. Sound power is a physical property of the source alone, independent of any external or environmental factors.
Sound Pressure, p	Root-mean-square value of the variation in air pressure measured in pascals (Pa), above and below atmospheric pressure, caused by the sound.
Sound Pressure Level, L _p	Quantity of sound pressure, in decibels (dB).
Specific Noise Level, L _{Aeq,Tr}	The equivalent continuous A-weighted sound pressure level at the assessment position produced by the specific noise source over a given reference time interval.
Specific Noise Source	The noise source under investigation.