

Eastleigh Railway Depot: Unit 210 and Plot 307

Noise Mitigation and Management Plan – Condition 24

DRAFT Report 2060532-RSK-RP-001-(00)

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Revision	Description	Date	Prepared	Approved
00	Draft	30 September 2021	Federico Gottardo	Jonathan Mart

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Noise Mitigation and Management Plan – Condition 24

Table of Contents

1	Introduction	4
1.1	Overview	4
1.2	Report Aims	4
2	Activity Details	5
2.1	Site Location	5
2.2	Proposed Operations	5
2.3	Working Hours	6
2.4	Plant Description	6
3	Sensitive Receptors	7
4	Noise Mitigation and Management Measures	8
4.1	Best Practicable Means (BPM)	8
4.2	Mitigation Measures	9
4.3	Neighbour Notification	10
4.4	Complaints Handling	10
5	Noise Monitoring Procedure	11
5.1	Monitoring Procedure	11
5.2	Qualifications	11
5.3	Instrumentation	11
5.4	Environmental Conditions	11
5.5	Reporting	12



Noise Mitigation and Management Plan – Condition 24

1 Introduction

1.1 Overview

RSK Acoustics Ltd (RSKA) has been instructed by Savills, on behalf of Diageo Pension Trust Limited, to prepare a Noise Mitigation and Management Plan to discharge planning condition 24 relating to the proposed operational use of Unit 210 and Plot 307 within the Eastleigh Rail Works site, Campbell Road, Eastleigh (SO50 5AD). The requirement is associated with the granted planning permission (Application No. F/20/87841).

Condition 24 states:

“Prior to each phase of the development within Area 2 being brought into use, a noise mitigation and management plan covering that phase shall be submitted to and approved in writing by the local planning authority. The plan shall include details of the ongoing noise management and monitoring of the site, including proposed mitigation measures to minimise the impacts on the amenity of neighbouring residents. The development shall then accord with the approved plan.”

A noise report with ref. 297519-06(04) was submitted in 2019 to support the application detailing the prevailing baseline conditions at the site, assessing the impacts from the proposals on existing sensitive receptors and detailing the positioning of an acoustic barrier along the southern boundary of the site.

1.2 Report Aims

This report aims to:

- Describe the activities operating Unit 210 and Plot 307;
- Demonstrate that the proposed operations and noise and vibration emissions associated with Unit 210 and Plot 307 will be adequately managed in line with consented noise levels, by incorporating:
 - noise and vibration management and control measures;
 - a noise monitoring strategy; and
 - a complaint handling system.
- Recommend suitable best practicable means (BPM) and mitigation measures (where required), to reduce the potential for disturbance at local residential receptors.



Noise Mitigation and Management Plan – Condition 24

2 Activity Details

2.1 Site Location

Unit 210 (warehouse) and Plot 307 (open plot) are situated within Area 2 of the Eastleigh Railway Depot industrial area.

Unit 210 occupies the last portion of the warehousing area accessed from Gate 3, which provides access to the site off Campbell Road. The closest distance from the unit to nearby residences is approximately 80 metres.

Plot 307 is characterised for its long and narrow shape and sits between Plot 305 and 320. Along its extension, the plot faces a row of residential dwellings on 77 – 135 Campbell Road situated approximately at 30 metres from the plot's boundary.

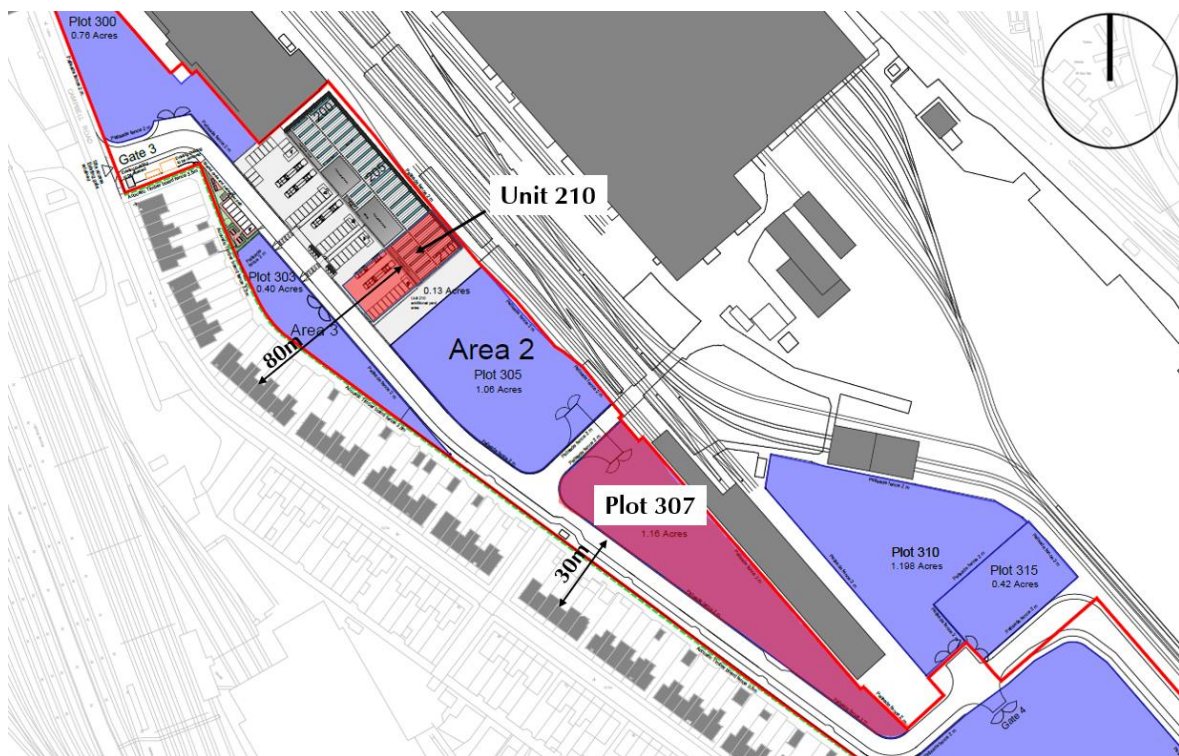


Figure 1 Site location plan (extracted from drawing 'Proposed Master Plan' no. 004, rev. P14)

2.2 Proposed Operations

PM & Packing, who currently operates from Unit 4 at the site, will continue their activities from new Unit 210 and Plot 307. The business specialises in the manufacture of packing cases and flight cases, packing of goods into cases, loading goods, vehicles and caravans into containers.



Noise Mitigation and Management Plan – Condition 24

Manufacturing activities as well as some loading/unloading of small goods from HGVs will take place within Unit 210 while the use of Plot 307 and external areas of Unit 210 will be restricted for outdoor activities relating to the loading and unloading of vehicles.

During a typical working day, the site expects to receive between 10 – 15 HGVs and up to 100 vehicle movements including staff, off site job vehicles and delivery vans. Furthermore, it is expected the load of 8 – 10 containers and the unload / load of 5 – 10 delivery vehicles per day, on average.

2.3 Working Hours

The business will operate Monday to Friday 07:00 – 17:00 (until 18:00 when overtime is being worked) with occasional activity on Saturday between 08:00 – 13:00.

Vehicle movements are expected only Monday to Friday 07:00 – 17:00 with deliveries to/from the site between 07:30 – 16:30. On exceptional occasions, deliveries would be programmed within Saturday's working hours.

2.4 Plant Description

A number of fixed and mobile plant items are expected to operate at the site to support the aforementioned activities. The following table summarises the type, location and expected use of those relevant plant items from a noise and vibration standpoint.

Plant Item	Location	Use
Compressor	Indoor	Frequent (daytime)
Saws	Indoor	Frequent (daytime)
Pneumatic tools (e.g. nail guns)	Indoor	Occasional (daytime)
Battery-powered tools (e.g. drills, impact wrench)	Indoor (or within containers)	Occasional (daytime)
Fork trucks (diesel, electric and gas driven)	Indoor / Outdoor	Occasional (daytime)
Hand-tools (e.g. hammer)	Indoor / Outdoor	Occasional (daytime)
Car/van engine start	Outdoor	Occasional (daytime)

Table 1 Summary of plant items associated with Unit 210 and Plot 307



Noise Mitigation and Management Plan – Condition 24

3 Sensitive Receptors

This section identifies the existing noise and vibration sensitive receptors within close proximity to the activity boundaries. These are situated along Campbell Road, with house numbers 21 to 43 facing Unit 210 and house numbers 75-135 facing Plot 307.

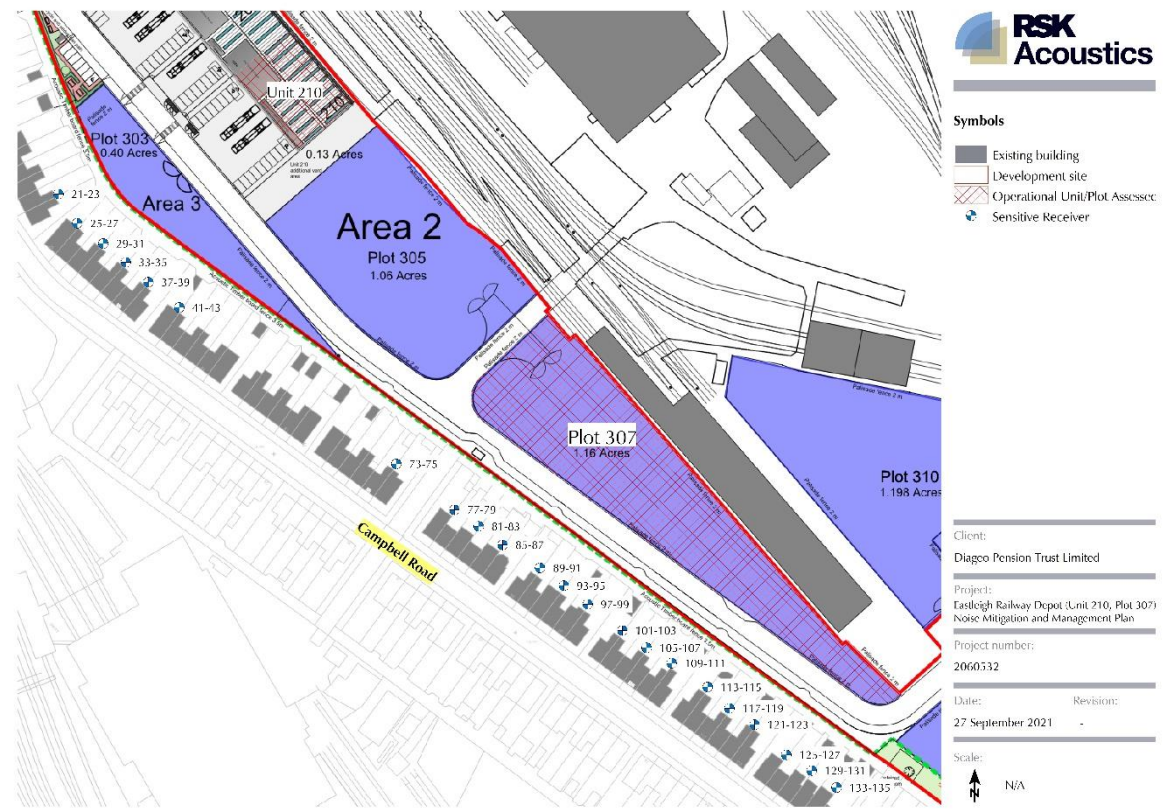


Figure 2 Sensitive receptors



Noise Mitigation and Management Plan – Condition 24

4 Noise Mitigation and Management Measures

4.1 Best Practicable Means (BPM)

The requirement to use Best Practicable Means (BPM) to mitigate the effects of noise is set out in section 72 of the Control of Pollution Act 1974 and section 79 of the Environmental Protection Act 1990. Best Practicable Means incorporates two essential elements:

- Practicable – this is defined as reasonably practicable having regard, among other things, to local conditions and circumstances; the current state of technical knowledge; and to financial implications; and
- Means – these are the means to be employed, including design, installation, maintenance, manner and periods of operation of plant and machinery; and the design, construction and maintenance of buildings and structures.

The tenant will, in so far as is reasonably practicable, control and limit noise levels so that residential properties and other sensitive receptors are protected from excessive noise from the site. Best Practicable Means (BPMs) shall be employed at all times during the operation of the site. This includes:

- At all times other than in exceptional circumstances, noisy plant will be situated away from sensitive receptors;
- Machines and vehicles in intermittent use (i.e. idling vehicles) will be encouraged to be shut down;
- At all times other than in exceptional circumstances, the noise from reversing alarms will be controlled or limited without compromising the safety of site personnel;
- It is recommended the use of electric forklifts within the outdoor areas of Unit 210 and Plot 207 with broadband signals or ‘smart alarms’ with directional sound projection to reduce the level of noise and tonal characteristics that can attract attention from local residents. Preferably they should be directional broadband noise emitters or automatically adjusted to ambient noise levels;
- The site layout will be designed to minimise reversing;
- All plant, equipment and noise control measures applied to plant and equipment shall be maintained in good working order and operated such that noise and vibration emissions are minimised as far as reasonably practicable; and
- All employees shall be provided with an appropriate induction and ongoing briefings regarding the management of environmental noise. This will involve emphasising the need for employees to show consideration to the sensitive receptors, including residential neighbours. They will be briefed on not generating unnecessary noise when on site or when leaving and arriving.



Noise Mitigation and Management Plan – Condition 24

4.2 Mitigation Measures

The following mitigation measures shall be adopted for the operation of Unit 210 and Plot 307. It should also be noted that the measures outlined below are pertinent to the mitigation of noise within the wider site and also incorporate a number of other relevant planning conditions.

Acoustic Barrier

An acoustics boundary barrier, positioned adjacent the south-west boundary of the site facing Campbell Road and blocking the line of sight from site activities, will be incorporated into the design (as per planning condition 23). The barrier will have an effective height of 3.5 metres running from the site access (between Plot 300 and 303) and reducing to 2 metres height adjacent to 139 Campbell Road along the length of Plot 320.

The specification of a timber fence will include;

- A superficial timber mass of at least 15 kg/m²;
- Avoid using timbers that show signs of warping, knot holes or any visible damage that could affect the sound transmission;
- An absorptive layer, covered with a protective membrane is recommended on the inner side of the barrier to reduce reflected sound to existing closest receptors;
- For a longer life, a lower maintenance solution with potentially more acceptable visual impact other materials could be considered providing they have the same surface density, effective height and an absorbent side facing the noise source;
- The barrier is recommended to have a board timber thickness of at least 25 mm, fixed to timber rails and connected to galvanised steel posts or similar. This ensures that no gaps occur which sound could pass through; therefore, maximising performance.

The fencing plan is graphically presented in Appendix 1.

Tenant specific

- Operating hours, including delivery times will adhere to the consented hours (as per planning conditions 6 and 7), with local residents being notified of any changes to the operating hours of the site;
- Should any noisy activity be undertaken in Unit 210 during approved hours between 20:00 – 07:00, shutter doors will remain closed at all times and noise break-out rating levels measured at 1 metre from the unit's façade will not exceed 64 dB(A) L_{A,r} (as per planning condition 25);
- No activities will take place on Plot 307 between 20:00 – 07:00 Monday to Saturday and at no time on Sundays or Public Holidays;



Noise Mitigation and Management Plan – Condition 24

- Activities associated with Unit 210 and Plot 307 shall operate with the permitted uses (as per planning conditions 4 and 5);
- Adherence to site specific rules such as speed limits within internal roads.

4.3 Neighbour Notification

Occupiers of nearby properties shall be informed in advance of any exceptional out of hour works where relevant, including the duration and likely impacts. Neighbours will be informed of:

- The start date;
- The duration and nature of the works;
- Possible impacts; and
- Details of contact names and numbers of appropriate site personnel.

4.4 Complaints Handling

Any external complaint being received in regard to noise or vibration disturbance will be logged and immediately investigated by the tenant. Where necessary, temporary actions will be taken in order to reduce noise levels until further assessment can be carried out. The investigation will look at BPM and the operational methodology used at the time of complaint.

Details from the complaint and all activities undertaken on site will be recorded and remedial actions taken where necessary. Any operational procedures affected by the re-assessment of impacts following the complaint investigation will be reviewed.



Noise Mitigation and Management Plan – Condition 24

5 Noise Monitoring Procedure

5.1 Monitoring Procedure

Attended noise monitoring would be undertaken in line with separate planning condition 25; this condition permits a maximum night-time break out noise level at the façade of Unit 210. It is deemed that the requirements of condition 24, for which this report seeks to discharge, are pertinent to that of condition 25 which outlines the requirements for noise monitoring. Condition 25 is reproduced below:

“During the night-time period (2000 to 0700), the maximum break out noise level (at 1 metre from the building façade, dB L_{Ar}) for the industrial units hereby approved, expressed as an uncorrected BS4142 Rating Level, shall not exceed 58 dB in respect of Unit 200, 61 dB in respect of Unit 205, and 64dB in respect of Unit 210. Where the breakout noise has acoustically distinguishing features, as described in BS4142, the rating level permitted for any individual unit shall be reduced in line with the sum of all penalties applicable under BS4142 in respect of the particular characteristics of the noise emitted by that unit.”

Noise monitoring would be undertaken upon practical completion and occupation of Unit 210 and six months thereafter for a period of one year. Beyond this period, monitoring would be undertaken as and when required by the local authority or following complaints.

5.2 Qualifications

Noise measurements would be undertaken by a suitably qualified and competent person, affiliated to the Institute of Acoustics (IOA).

5.3 Instrumentation

The sound level meter proposed would be Class 1, with suitable traceable calibration history, and conform to the requirements of BS EN 61672-1: 2013 ‘*Electroacoustics – Sound level meters. Specifications*’. Field measurements would comprise as a minimum of A-weighted broadband indices, to include L_{Aeq} and L_{Amax}. Frequency analysis in octave or one-third octave bands will be considered when the nature of the sound under investigation is likely to contain tonal components.

The calibration of the sound level meter would be checked before and after the measurements, using the acoustic calibrator at 94 dB (1 kHz); with any calibration drift noted. The acoustic calibrator would conform to the requirements of BS EN IEC 60942:2018 ‘*Electroacoustics. Sound calibrators*’.

5.4 Environmental Conditions

Noise monitoring would be carried out during appropriate weather conditions, namely:



Noise Mitigation and Management Plan – Condition 24

- Wind speed not exceeding 5 m/s (measured at a height of 3 to 11 m above the ground);
- No strong temperature inversions near the ground; and
- No heavy precipitation.

5.5 Reporting

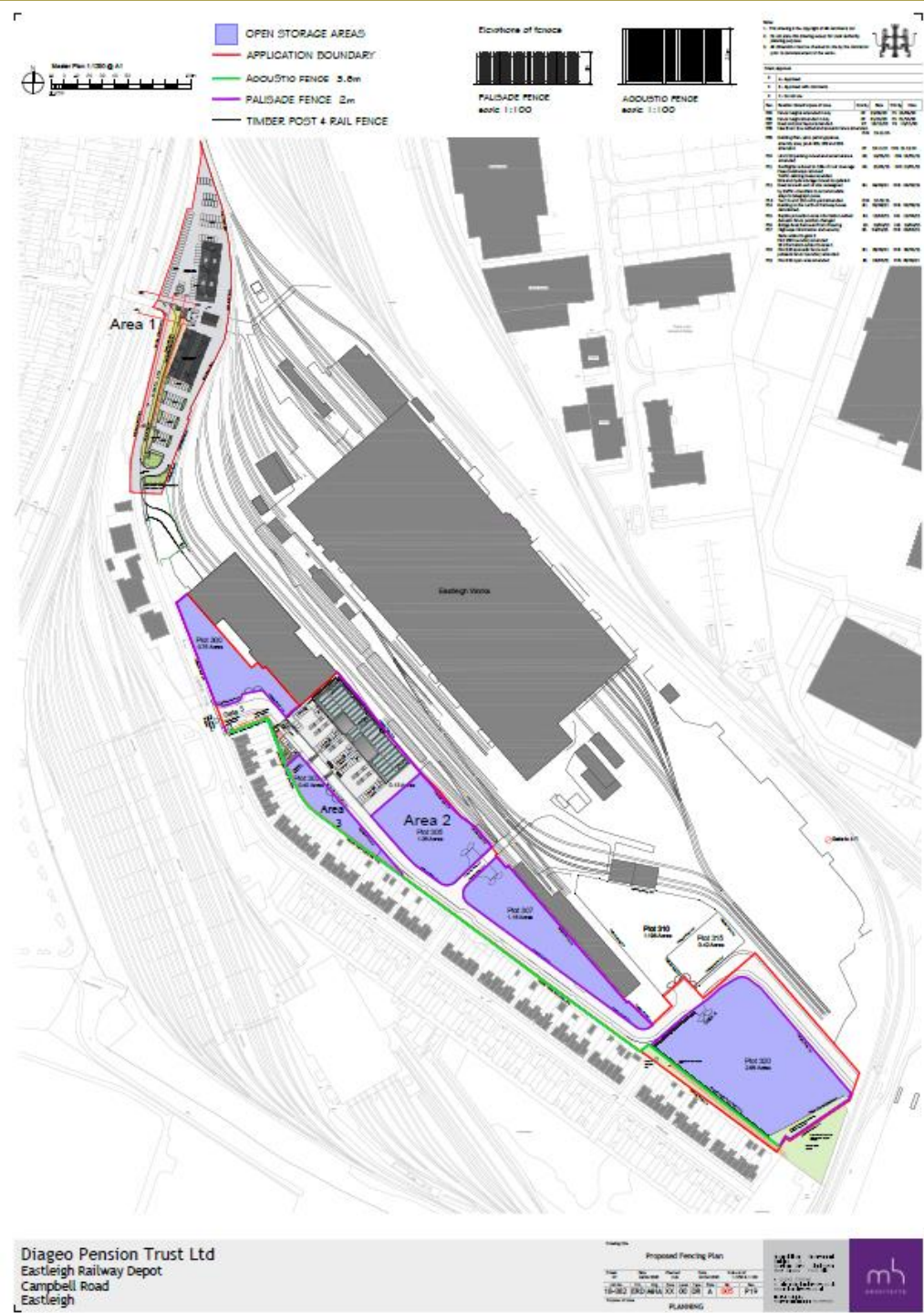
The noise survey results would be analysed and assessed against the aforementioned noise criteria. The results would be compiled and included within a technical note, suitable for submission to the Local Planning Authority, where requested, within one week (7 days) of the monitoring.

 End of Section



Noise Mitigation and Management Plan – Condition 24

Appendix 1: Acoustic Barrier



Extracted from drawing number 18- 082 005 Revision P19



Appendix 2: Glossary of Acoustic Terms

Frequency Weighting Networks:

Frequency weighting networks, which are generally built into sound level meters, attenuate the signal at some frequencies and amplify it at others. The A-weighting network approximately corresponds to human frequency response to sound. Sound levels measured with the A-weighting network are expressed in dB(A). Other weighting networks also exist, such as C-weighting which is nearly linear (i.e. unweighted) and other more specialised weighting networks. Variables such as L_p and L_{eq} that can be measured using such weightings are expressed as L_{pA} / L_{pC} , L_{Aeq} / L_{Ceq} etc.

L_p – Sound Pressure Level

The basic unit of sound measurement is the sound pressure level, which is measured on a logarithmic scale and expressed in decibels (dB). The logarithmic scale makes it easier to manage the large range of audible sound pressures, and also more closely represents the way the human ear responds to differences in sound pressure:

$$L_p = 20 \log_{10} (p/p_0)$$

where p = RMS (root mean square) sound pressure; and
 p_0 = reference sound pressure 2×10^{-5} Pa.

L_{Aeq} – A-weighted Equivalent Continuous Sound Pressure Level

Sound levels tend to fluctuate, and as such an ‘instantaneous’ measurement like sound pressure level cannot fully describe many real-world situations. A summation can be made of the measured sound energy over a certain period, and a notional steady level can be calculated which would contain the same total energy as the fluctuating sound. This notional level is termed the equivalent continuous sound level L_{eq} . L_{eq} can be determined over any time period, which is indicated as $L_{eq,T}$ where T is the time period (e.g. $L_{eq,24h}$).

In mathematical terms, for n discrete sound level measurements, L_{eq} is given by:

$$L_{eq,T} = 10 \log_{10} (t_1 \times 10^{L_1/10} + t_2 \times 10^{L_2/10} + \dots t_n \times 10^{L_n/10})/T$$

where t_1 = time at level L_1 dB;
 t_2 = time at level L_2 dB;
and T = total time.

L_{max} – Maximum Sound Pressure Level

This is the maximum RMS sound pressure level occurring within a specified period. The time weighting is usually specified, such as in L_{Fmax} .



Noise Mitigation and Management Plan – Condition 24

L_N – Percentile or Statistical Levels

Sometimes it is useful to calculate the level which is exceeded for a certain percent of a total period. Background noise is often defined as the A-weighted sound pressure level exceeded for 90% of the specified period T , expressed $L_{A90,T}$.

L_{A,T_r} – Rating Level

Specific sound level plus any adjustment for the characteristic features of the sound.

$L_s = L_{Aeq,T_r}$ – Specific Sound Level

Equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, T_r

Time Weighting

Sound level meters use various averaging times for the measurement of RMS sound pressure level. The most-commonly used are fast (F - 0.125s averaging time), slow (S - 1s averaging time) and impulse (I - 0.035s averaging time). Variables that are measures with time weightings are expressed as L_{AFmax} etc.

■ End of Section

