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**PROPOSED LIGHT INDUSTRIAL UNIT(S) AT COCKPIT FARM, KNOWLE LANE,
HORTON HEATH**

NOISE IMPACT ASSESSMENT

Technical Report: R10250-1 Rev 1

Date: 27th September 2023

For: Alderbury Homes Ltd
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Project Title: Proposed Light Industrial Unit(s) at Cockpit Farm, Knowle Lane, Horton Heath
Noise Impact Assessment

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1.0 INTRODUCTION

- 1.1 24 Acoustics Ltd has been instructed by Alderbury Homes Ltd to undertake an assessment of the potential impact of noise from the operation of light industrial unit(s) at Cockpit Farm, Knowle Lane in Horton Heath.
- 1.2 This report presents the results of the assessment, following site visits, investigations and background noise surveys undertaken in September 2023.
- 1.3 All noise levels in this report are presented in dB relative to 20µPa.

2.0 SITE DESCRIPTION AND PROPOSALS

- 2.1 Cockpit Farm is located off Knowle Lane in Horton Heath, to the north of the junction with Durley Road.
- 2.2 A former agricultural building within the site is to be subdivided and the northern part of the building redeveloped to create five residential units (under permitted development rights).
- 2.3 The remaining building to the south will be redeveloped to light industrial units (Class E(g)(iii)). This use class is defined in the Town and Country Planning (Use Classes) (Amendment) (England) Regulations 2020 (SI 2020 no 757 Regulation 13) as follows:

Any industrial process, being a use, which can be carried out in any residential area without detriment to the amenity of that area by reason of noise, vibration, smell fumes, smoke, soot, ash dust or grit.

- 2.4 Regardless of this, however, Eastleigh Borough Council's Environmental Health Department has requested a noise impact assessment in support of the application.
- 2.5 Eastleigh Borough Council has confirmed that the northern part of the building proposed for light industrial use (shown in red in Figure 2) can undergo a change of use under permitted development rights to use Class E(g)(iii). The current application relates to the remainder of the southern building.
- 2.6 The proposed hours of operation at the site are 07:00 to 17:00 Monday to Friday and 07:00 to 13:00 hours on Saturdays.
- 2.7 Figure 3 shows the proposed site arrangement.

3.0 CRITERIA

National Planning Policy Framework and Noise Policy Statement for England

3.1 Paragraph 185 of the National Planning Policy Framework (NPPF) [Reference 1] states that planning policies and decisions should:

- mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
- identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

3.2 The NPPF also refers to the Noise Policy Statement for England (NPSE) [Reference 2] which is intended to apply to all forms of noise, including environmental noise, neighbour noise and neighbourhood noise. The NPSE sets out the Government's long-term vision to 'promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development' which is supported by the following aims.

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life.

3.3 The NPSE defines the concept of a 'significant observed adverse effect level' (SOAEL) as 'the level above which significant adverse effects on health and quality of life occur'. The following guidance is provided within the NPSE:

3.4 "It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available."

- 3.5 The Planning Practice Guidance (PPG) [Reference 3] is written to support the NPPF with more specific planning guidance. The PPG reflects the NPSE and states that noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. It also states that opportunities should be taken, where practicable, to achieve improvements to the acoustic environment. The NPPG states that noise can over-ride other planning concerns but should not be considered in isolation from the other economic, social and environmental dimensions of the proposed development.
- 3.6 The PPG expands upon the concept of SOAEL (together with Lowest Observable Adverse Effect Level, LOAEL and No Observed Effect Level, NOEL) as introduced in the NPSE and provides a table of noise exposure hierarchy for use in noise impact assessments in the planning system.
- 3.7 The NPPF, NPSE and PPG documents do not refer to specific noise criteria, therefore the specific criteria to be used will depend on the nature of the assessment being undertaken. When considering the impact of noise from the proposed car park and access road, 24 Acoustics considers that the requirements of the NPPF and NPSE will be complied with by assessing the impact of the proposed activity on the prevailing ambient noise levels. Reference will also be made to British Standard (BS) 8233: 2014 for internal noise levels within dwellings.

British Standard 4142:2014+A1:2019

- 3.8 BS 4142:2014+A1:2019 [Reference 4] provides a method for rating the effects of industrial and commercial sound on residential areas. The standard advocates a comparison between the typical measured L_{A90} background noise (sound) level and L_{Aeq} (sound) noise level from the source being considered. For rating purposes if the noise source is tonal, intermittent or otherwise distinctive in character, a rating correction is applied. The standard states that a difference between the rating level and the background level of around +10 dBA is an indication of a significant adverse impact, depending on the context and a difference of around +5 dBA is likely to be an indication of an adverse impact again depending on the context. Where the rating level does not exceed the background noise (sound) level, this is an indication of the specific sound source having a low impact (depending upon the context).

4.0 ASSESSMENT METHODOLOGY

4.1 The following assessment methodology has been used:

- i. A background noise survey has been undertaken to determine existing levels of background noise at locations representative of the nearest residential properties to the site;
- ii. An acoustic model of the proposed operations has been developed. This has predicted the operational noise level at the nearest residential properties;
- iii. An assessment of the likely noise impact associated with the proposals has been undertaken, in accordance with BS 4142:2014+A1:2019.

5.0 BACKGROUND NOISE MEASUREMENTS

Methodology

- 5.1 A background noise survey was undertaken at the nearest residential receptor to the site between 6th and 9th September 2023. Measurements were undertaken at a location representative of the proposed new housing within Cockpit Farm.
- 5.2 Measurement location is shown in Figure 1.
- 5.3 The instrumentation was setup to monitor background noise levels and store data in 5-minute intervals of the overall A-weighted L_{eq} , L_{max} and L_{90} using fast time weighting. The following instrumentation was used during the survey:
- 1 x Rion NL31 Type 1 accuracy sound level meter;
 - Rion NC74 acoustic calibrator.
- 5.4 Calibration of the equipment was checked before and on completion of the measurements and no drift was recorded. Noise measurements were made in accordance with BS 7445: 1991 'Description and measurement of environmental noise Part 2 – Acquisition of data pertinent to land use' [Reference 5].
- 5.5 Weather conditions during the measurements were favourable with no periods of precipitation and wind speeds below 5m/s.

Results

- 5.6 The measured background noise levels are summarised in Table 1 and shown graphically in Appendix B.

Day and Date	Noise Level, dB L _{A90} , 1 hour		
	Range	Average	Typical
Thursday 07-Sep	35- 42	38	36
Friday 08-Sep	36- 46	39	35
Representative			35

Table 1: Summary of Background Noise Survey Results

6.0 CALCULATIONS AND NOISE IMPACT ASSESSMENT

Proposed Operations

- 6.1 The application site will operate under planning Class E(g)(iii). As stressed above, by definition the Town and Country Planning (Use Classes) (Amendment) (England) Regulations 2020 (SI 2020 no 757 Regulation 13) describes this as follows:

Any industrial process, being a use, which can be carried out in any residential area without detriment to the amenity of that area by reason of noise, vibration, smell fumes, smoke, soot, ash dust or grit.

- 6.2 Therefore, inter-alia, any operation within the proposals should not cause disturbance to any residential neighbours. Typical uses could include light industrial workshops or assembly and, as such these are likely to be subject to relatively low internal noise levels. In 24 Acoustics' experience average noise levels internally in such spaces rarely exceed 70 dB L_{Aeq}.
- 6.3 A future operator could, it is considered, in a worst case operational hour have a single visit to the site by a LGV which would generate a noise level of approximately 58 dB L_{Aeq} at a distance of 10 m.
- 6.4 Calculations, assuming that the doors on the far gable end of the building are open (with an open area of 10 m²) and a single vehicular movement to the site in the space of an hourly assessment period, indicate a typical noise level at the near the proposed nearest house of approximately 28 dB L_{Aeq}, 1 hour.

Noise Impact Assessment

6.5 An assessment of the likely noise impact has been carried out in accordance with the guidance of BS 4142:2014+A1:2019. As the sound will not have any distinguishing features or characteristics a rating correction has not been applied.

6.6 The results of the assessment are shown in Table 2 below.

Background Sound Level	35 dB L _{A90} 1 hour
Specific Source Noise Level	28 dB L _{Aeq} 1 hour
Rating Correction	0 dB
Rating Level	28 dBA
Difference Between Rating and Background Level	-7

Table 2: Noise Modelling Results – Receptor Location Plant Noise Levels

6.7 The assessment indicates that the noise level from the proposed operations will be substantially lower than the prevailing background noise level, resulting in a low- negligible noise impact.

Uncertainty

6.8 All reasonable measures have been undertaken to ensure minimal uncertainty in the measurement procedures and assessment. This includes:

- Background noise measurements undertaken during suitable weather conditions;
- Measurement equipment fully calibrated to national standards and traceable with on-site calibration checks undertaken before and after the measurement exercises;
- Calculations undertaken using proprietary software including the calculation methodology of ISO 9613;
- One metre resolution topographical data utilised in the acoustic model to ensure accurate topography of the site and surrounding area.

6.9 Based on the above, uncertainty associated with the assessment has been reduced to a minimum.

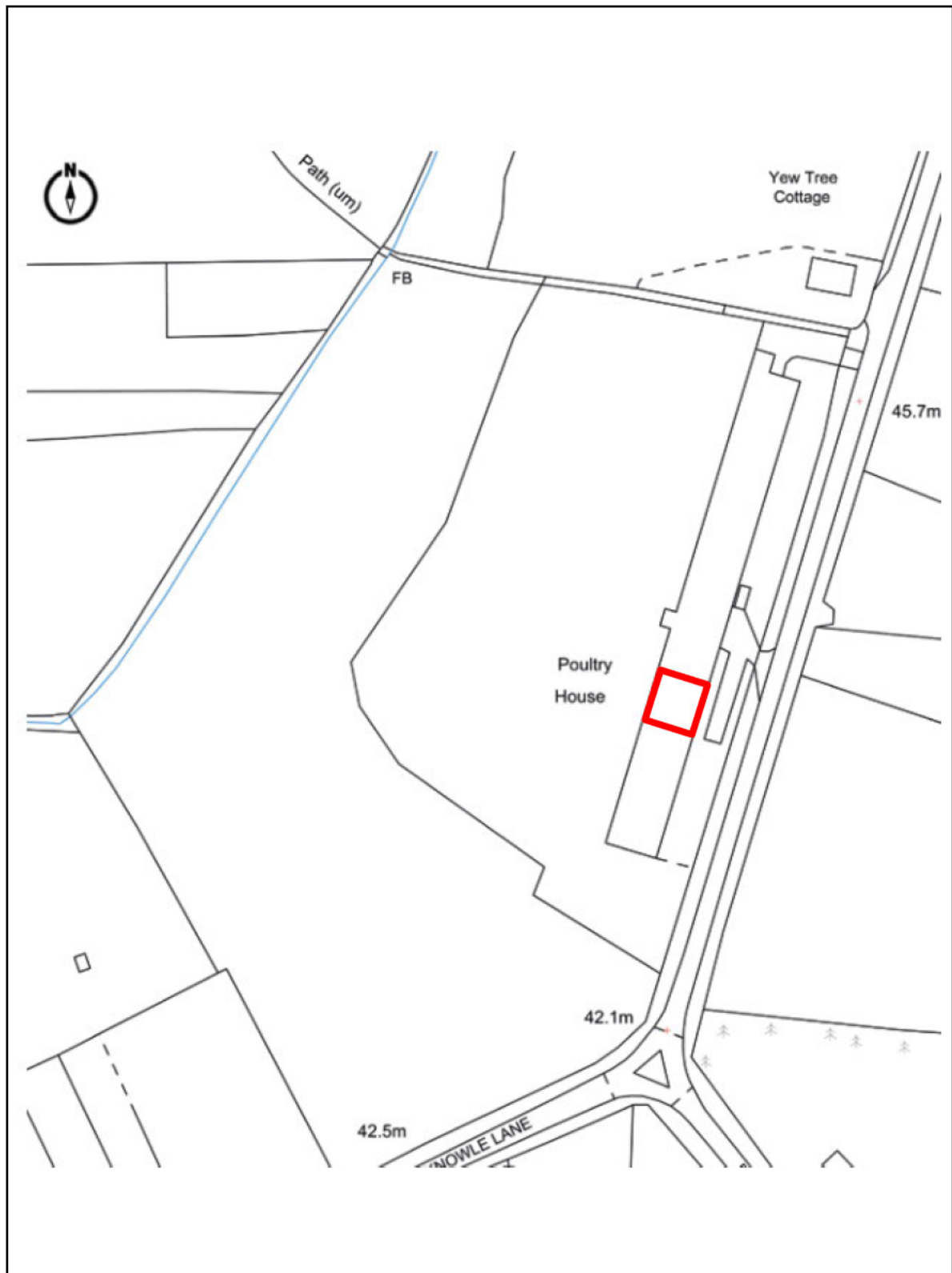
7.0 CONCLUSIONS

- 7.1 24 Acoustics Ltd has been instructed by Alderbury Homes Ltd to undertake an assessment of the potential impact of noise from the operation of light industrial unit(s) at Cockpit Farm, Knowle Lane in Horton Heath.
- 7.2 The assessment has been carried out following background noise measurements undertaken at representative locations of the closest residential properties to the site and, following calculations of the noise emission from the proposed operations.
- 7.3 The results of the assessment indicate that the noise impact from the operations will be low-negligible and, therefore, there is considered to be no reason, on noise grounds, why planning consent for the proposals should not be granted.

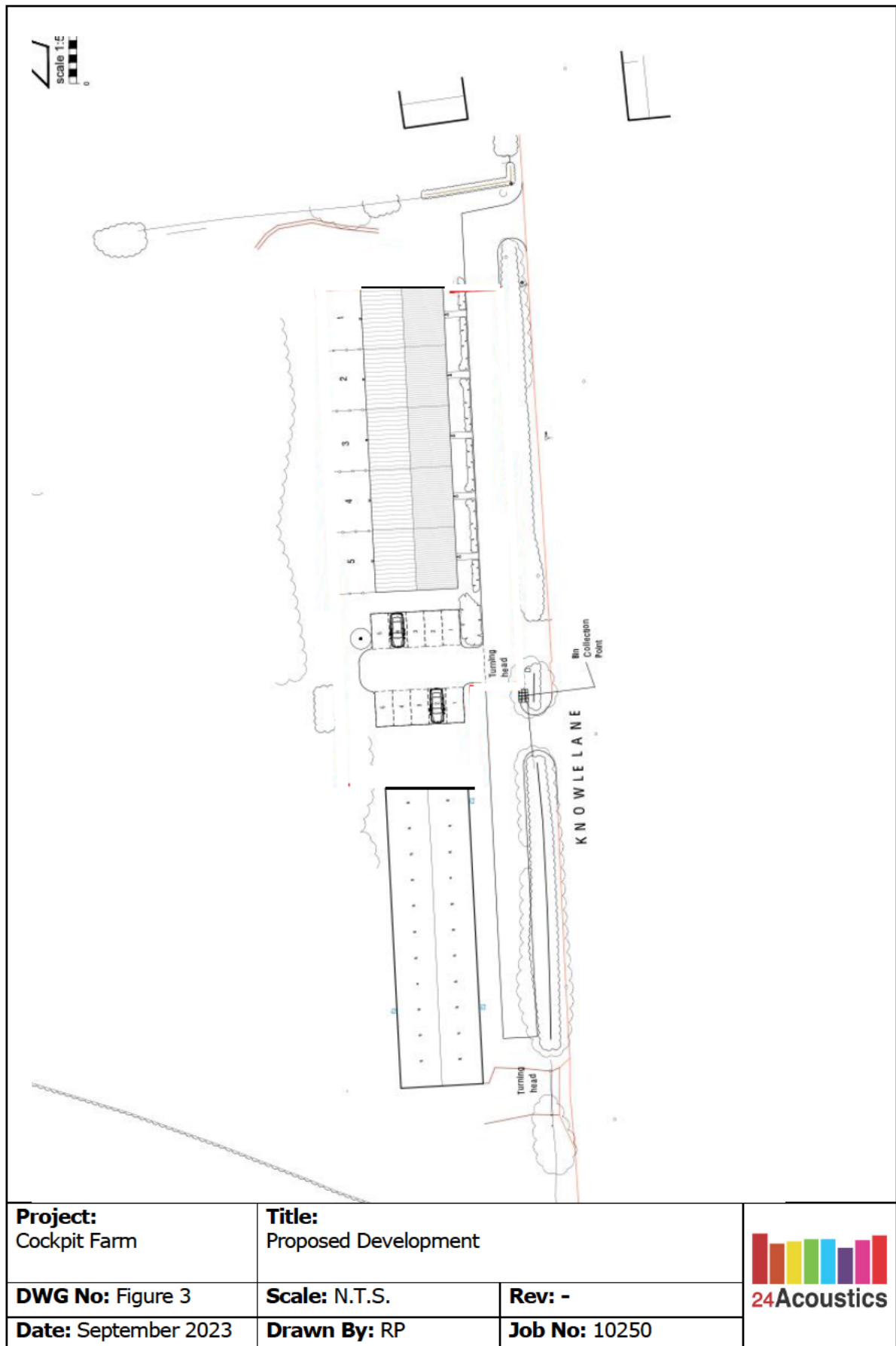
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Project: Cockpit Farm	Title: Permitted Development Area		 24Acoustics
DWG No: Figure 2	Scale: N.T.S.	Rev: A	
Date: September 2023	Drawn By: RP	Job No: 10250	



APPENDIX A: ACOUSTIC TERMINOLOGY

Noise is defined as unwanted sound. The range of audible sound is from 0 to 140 dB. The frequency response of the ear is usually taken to be around 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dBA weighting. This is an internationally accepted standard for noise measurements.

For variable sources, such as traffic, a difference of 3 dBA is just distinguishable. In addition, a doubling of traffic flow will increase the overall noise by 3 dBA. The 'loudness' of a noise is a purely subjective parameter, but it is generally accepted that an increase/ decrease of 10 dBA corresponds to a doubling/ halving in perceived loudness.

External noise levels are rarely steady, but rise and fall according to activities within an area. In attempt to produce a figure that relates this variable noise level to subjective response, a number of noise indices have been developed. These include:

i) The L_{Amax} noise level

This is the maximum noise level recorded over the measurement period.

ii) The L_{Aeq} noise level

This is "equivalent continuous A-weighted sound pressure level, in decibels" and is defined in British Standard BS 7445 as the "value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval, T , has the same mean square sound pressure as a sound under consideration whose level varies with time".

It is a unit commonly used to describe construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.

iii) The L_{A10} noise level

This is the noise level that is exceeded for 10% of the measurement period and gives an indication of the noisier levels. It is a unit that has been used over many years for the measurement and assessment of road traffic noise.

iv) The L_{A90} noise level

This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during the quieter periods. It is often referred to as the background noise level and is used in the assessment of disturbance from industrial noise.

APPENDIX B: BACKGROUND NOISE SURVEY RESULTS

