DRAGONFLY

CONSULTING

Little J

Chapel House, North Street, York

Noise Impact Assessment

DC5182-NR1v2

Unit 6 & 8 Grimston Grange, Tadcaster, LS24 9BX | 01904 898368
www.dragonfly-consulting.com

Report Version Issue Log

Report Number	Issue Date	Note or Change	Author	Reviewed	Approval for Issue
DC5182-NR1v2	06.11.25	Minor Typographical Amends	MAS	-	SGC
DC5182-NR1	31.10.25	Report Issue	MAS	CC	ERT

This report has been prepared by Dragonfly Consulting with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client.

Dragonfly Consulting disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

Limitations to this Report

This report entails a physical investigation of the site with a sufficient number of sample measurements to provide quantitative information concerning the type and degree of noise affecting the site. The objectives of the investigation have been limited to establishing sources of noise material to carrying out an appropriate assessment.

The number and duration of noise measurements have been chosen to give reasonably representative information on the environment within the agreed time, and the locations of measurements have been restricted to the areas unoccupied by building(s) that are easily accessible without undue risk to our staff.

As with any sampling, the number of sampling points and the methods of sampling and testing cannot preclude the existence of “hotspots” where noise levels may be significantly higher than those actually measured due to previously unknown or unrecognised noise emitters. Furthermore, noise sources may be intermittent or fluctuate in intensity and consequently may not be present or may not be present in full intensity for some or all of the survey duration.

CONTENTS

List of Appendices

1.0 INTRODUCTION

Little J have appointed Dragonfly Consulting to carry out a Noise Impact Assessment to support a licensing application for a proposed hospitality and entertainment venue at Chapel House, North Street, York.

The noise assessment has been conducted with reference to the National Planning Policy Framework and the appropriate British Standards and recognised guidance and reference documents relevant to this site.

A glossary of technical terminology is included in Appendix A to support this document.

1.1 Site Conditions

1.1.1 Existing Site Conditions

The site is located on the corner of North Street and Micklegate, a busy main road and bus route in York City Centre. The immediate vicinity is mixed-use, with a combination of commercial activity, residential dwellings, and hotels. Importantly, the site sits within an area already consistent with its proposed use, with the 'Jalou' nightclub immediately next door and other entertainment venues, including Pop World, in the surrounding area.

1.1.2 Development Proposals

The licensing application seeks permission for the operation of a late-night bar and entertainment venue at Chapel House, North Street, York, with opening hours requested until 0430h on Thursday, Friday and Saturday. Licensable activities include regulated indoor entertainment (plays, films, live and recorded music, dance, and sport), other indoor entertainment, and the supply of alcohol. These are proposed until 0300h Sunday to Wednesday and until 0400h Thursday to Saturday.

1.2 Consultation with Local Authority

A meeting was held with York City Council (YCC) Environmental Health on 2nd September 2025 to discuss the proposed approach to the noise assessment. Following the discussion, it was agreed that the assessment would follow the style of a typical planning noise impact assessment, including verification of the building's acoustic performance.

Site measurements indicate that the rear doors should remain closed during operation due to the proximity of the Travelodge located immediately to the rear of the premises.

Night-time noise levels at adjacent NSRs already exceed NR20 under an open-window scenario before considering the additional noise source. As a result, a conventional NR assessment is not meaningful. Instead, the assessment has adopted an IEMA-style methodology, considering noise on an hour-by-hour basis and referencing the lowest measured ambient noise level in each hour to present a reasonable worst-case scenario for the operation of the venue.

This approach provides a realistic and precautionary assessment of potential impacts, while allowing identification of any mitigation measures required to manage noise from the proposed development.

1.2.1 Noise Sensitive Receptor (NSR) Locations

Noise contributions will be considered at the following sensitive receptor locations based on their proximity to the site:

- NSR 1 – Residential premises along All Saints Ln to the north of the site;
- NSR 2 – Residential premises along George Hudson Street to the west of the site;
- NSR 3 – Travel Lodge York Central directly west of the site; and
- NSR 4 – The Radisson Hotel York off North St to the northeast of the site.

The NSR locations are shown in Appendix C.

2.0 GUIDANCE

2.1 National Policy

2.1.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied. At the heart of the NPPF is a presumption in favour of sustainable development. It requires Local Plans to be consistent with the principles and policies set out in the NPPF with the objective of contributing to the achievement of sustainable development.

The NPPF states that the planning system has three overarching objectives in achieving sustainable development including a requirement to 'contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.'

Paragraph 187 of the NPPF states:

“Planning policies and decisions should contribute to and enhance the natural and local environment by:

…

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.”

Additionally, Paragraph 198 of the NPPF states:

“Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

a) 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…”

2.1.2 Noise Policy Statement for England

The document ‘Noise Policy Statement for England’ sets out the following vision for ongoing noise policy:

“Promote good health and a quality of life through the effective management of noise within the context of Government policy on sustainable development.”

This vision should be achieved through the following Noise Policy Aims:

“Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *avoid significant adverse impacts on health and quality of life;*

- *mitigate and minimise adverse impacts on health and quality of life; and*
- *where possible, contribute to the improvement of health and quality of life."*

To achieve this vision, the Noise Policy Statement sets 3 noise levels to be defined by the assessor:

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms: below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.

The Noise Policy Statement considers that noise levels above the SOAEL would be seen to have, by definition, significant adverse effects and would be considered unacceptable. Where the assessed noise levels fall between the LOAEL and the SOAEL noise levels, the Policy Statement requires that:

"…all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development… This does not mean that such adverse effects cannot occur."

Where noise levels are below the LOAEL, it is considered there will be no adverse effect. Once noise levels are below the NOEL, there will be no observable change.

2.2 Local Policy

2.2.1 The City of York Local Plan

The *City of York Local Plan*, adopted on 27th February 2025, sets out the policy with respect to development within the local area; the policy that is considered most relevant to this assessment is shown below:

*"**Policy ENV2: Managing Environmental Quality***

Development will be permitted where it does not unacceptably harm the amenities of existing and future occupants on the site and in neighbouring communities. Development proposals that are likely to give rise to the following environmental impacts must demonstrate how these matters have been considered in relation to both the construction and life of the development:

- *Increase in artificial light or glare;*
- *Adverse noise and vibration; and*
- *Adverse impact upon air quality from odour, fumes, smoke, dust and other sources.*

Where proposals are acceptable in principle, planning permission may be granted subject to conditions."

2.3 Best Practice and Other Relevant Guidance

2.3.1 British Standard (BS) 7445-1:2003 – Description and Measurement of Environmental Noise – Part 1: Guide to Quantities and Procedures

This document defines the basic quantities to be used for the description of noise in community environments and describes basic procedures for the determination of these quantities.

The methods and procedures described in this British Standard are intended to be applicable to sounds from all sources, individually and in combination, which contribute to the total noise at a site. This British Standard does not specify limits for environmental noise.

2.3.2 IEMA Guidelines for Environmental Noise Impact Assessment

The guidelines state that, for any assessment, the noise level threshold and significance statements should be determined by the assessor, based upon the specific evidence and likely subjective response to the noise.

The impact scale adopted in this assessment is shown in Table 2.1 below.

Table 2.1
Impact Scale for Comparison of Future Noise against Existing Noise

Degree of Effect	Effect Descriptor
None / Not Significant	Less than 2.9dB L_{Aeq} change in sound level and/or all receptors are of negligible sensitivity to noise or marginal to the zone of influence of the proposals.
Slight	A 3.0 to 4.9dB L_{Aeq} change in sound level at a receptor of some sensitivity.
Moderate	A 3.0 to 4.9dB L_{Aeq} change in sound level at a sensitive or highly sensitive noise receptor, or a greater than 5dB L_{Aeq} change in sound level at a receptor of some sensitivity.
Substantial	Greater than 5.0dB L_{Aeq} change in sound level at a noise sensitive receptor or a 5.0 to 9.9dB L_{Aeq} change in sound level at a receptor of great sensitivity to noise.
Very Substantial	Greater than 10.0dB L_{Aeq} change in sound level perceived at a receptor of great sensitivity to noise.

The criteria above reflect key benchmarks that relate to human perception of sound. A change of 3dB(A) is generally considered to be the smallest change in noise that is perceptible. A 10dB(A) change in noise represents a doubling or halving of the noise level.

It is considered that the criteria specified in the above table do provide a good indication as to the likely significance of changes in noise levels in this case. Therefore, the above noise threshold levels and significance statements have been used to supplement the criteria provided by the British Standard to assess the impact on a listener.

2.3.3 BS ISO 9613 Attenuation of Sound during Propagation Outdoors

BS ISO 9613 presents a calculation methodology for the determination of the attenuation of sound outdoors. The methodology enables the prediction the levels of environmental noise at a distance from a variety of sources.

3.0 ASSESSMENT METHODOLOGY

3.1 Potential Sources of Environmental Noise

The following sources of noise are considered in the context of this site:

Table 3.1
Assessment Methodology

Assessment Type	Relevant Assessment Methodology
Impacts on Amenity of Adjacent Sensitive Receptors.	IEMA Guidelines for Environmental Noise Impact Assessment.

3.2 Selection of Noise Criteria

With reference to the guidance detailed in Section 2, the following criteria have been selected to determine the threshold of effect levels in the context of the National Planning Policy Framework and Noise Policy Statement for England.

Table 3.2
Assessment Criteria: Ambient Noise Contributions

Effect Level	Criteria	Justification
Lowest Observed Adverse Effect Level (LOAEL)	Less than 2.9dB L_{Aeq} change in sound level at adjacent sensitive receptor locations.	IEMA degree of effect – None/ Not Significant.
Significant Observed Adverse Effect Level (SOAEL)	More than 4.9dB L_{Aeq} change in sound level at adjacent sensitive receptor locations.	IEMA degree of effect – Moderate Mitigate to achieve LOAEL Criteria.

4.0 ENVIRONMENTAL NOISE SURVEY

4.1 Survey Methodology

Daytime and night-time measurements were undertaken between the 19th and 22nd September 2025. The noise measurements established typical external ambient and background noise levels at the site.

Two (2no.) measurement locations were surveyed in order to establish the typical ambient and background noise levels at the site. The measurement locations are hereby referred to in this report as follows:

- 'Location 1' – sound level meter positioned in car park to the west of the site representative of noise levels experienced at Travel Lodge and residential premises on George Hudson St; and
- 'Location 2' – sound level meter positioned on flat roof at Radisson York Hotel representative of noise levels experienced along North St.

The equipment used during the survey is detailed in Appendix B. The sound level meter was calibrated before and after the measurements and no significant calibration drifts were found to have occurred (>0.2dB). The noise monitoring equipment had been calibrated to a traceable standard within the twenty-four months preceding the survey. Calibration certificates are available on request.

The measurement location is shown in Appendix C.

4.2 Survey Results

All monitored noise data has been screened to remove samples influenced by adverse weather conditions, including periods of rainfall and high wind speeds (>5m/s), which has been obtained from a nearby weather monitoring station on the Met Office Weather Observations Website (WOW) database. Table 4.1 provides a summary of periods excluded from the results due to adverse weather conditions; all other periods not excluded were considered suitable for noise monitoring.

Table 4.1
Excluded Monitoring Periods

Date	Time Periods Removed
18/07/2025	1945h - 2015h
19/07/2025	0845h - 1730h
20/07/2025	1000h - 1200h
	1330h - 1800h
21/07/2025	0330h - 0400h
	1530h - 1600h

Summaries of the measured noise levels are given in Table 4.2 and 4.3 overleaf. Full noise measurement survey data available upon request.

Table 4.2
Location 1 – Summary of Measured Noise Levels – Free Field, dB(A)

Date	Period	Time (h)	$L_{Aeq, T}$	L_{A10}	L_{A90}	L_{AFMax}
10/10/25	Daytime	1000h - 2300h	53.9	52.7	49.6	92.8
10/10/2025 - 11/10/2025	Night-time	2300h - 0700h	46.8	45.4	40.6	80.2
11/10/2025	Daytime	0700h - 2300h	54.8	52.3	48.7	98.0
11/10/2025 - 12/10/2025	Night-time	2300h - 0700h	47.7	46.4	42.9	83.9
12/10/2025	Daytime	0700h - 1100h	52.7	51.2	48.5	92.6
12/10/2025 - 13/10/2025	Night-time	2300h - 0700h	48.1	45.9	43.0	85.8
13/10/2025	Daytime	0700h - 1000h	49.1	48.9	44.4	76.1

Table 4.3
Location 2 – Summary of Measured Noise Levels – Free Field, dB(A)

Date	Period	Time (h)	$L_{Aeq, T}$	L_{A10}	L_{A90}	L_{AFMax}
10/10/25	Daytime	1100h - 2300h	53.6	55.2	48.9	80.1
10/10/2025 - 11/10/2025	Night-time	2300h - 0700h	50.9	51.6	44.1	89.4
11/10/2025	Daytime	0700h - 2300h	55.7	55.5	49.3	86.6
11/10/2025 - 12/10/2025	Night-time	2300h - 0700h	51.4	52.1	45.7	79.8
12/10/2025	Daytime	0700h - 1100h	53.5	53.5	46.9	83.1
12/10/2025 - 13/10/2025	Night-time	2300h - 0700h	48.8	48.7	42.7	81.0
13/10/2025	Daytime	0700h - 1100h	54.3	55.8	46.3	83.8

4.3 Observations and Comments

The noise environment at the site is dominated by commercial activity, city centre pedestrians, road traffic, and plant equipment within the car park to the west. It is considered that the measured levels are representative of both the character and the magnitude of noise experienced at adjacent NSRs.

5.0 NOISE MODEL INPUT DATA

Modelling calculations have been undertaken based on the spatial settings and data sources identified in Table 5.1.

Table 5.1
Noise Model Input Data

Parameter	Data Source	Assumptions
Site Plans	*OS Mapping Data*	Existing building heights measured using Google Earth.
Ground Heights	Environment Agency Open Data LiDAR Digital Terrain Model (2.0m resolution)	None.
Ground Absorption	*n/a*	Hard ground conditions on and off site (G=0.0).
Reflections	*n/a*	3rd order reflections have been accounted for within the noise model.

5.1 Source Noise Assumptions

5.1.1 Typical Internal Noise Levels

Design noise levels for music and entertainment use within the premises have been assumed based on a reverberant noise level of 97 dB(A). This level was obtained by Dragonfly Consulting at MOJO Nottingham and is considered representative of the noise typically experienced in such premises.

These levels reflect typical music noise during weekend trading for a music-focused bar and are based on internal measurements at a Mojo Bar. They are considered to represent the worst-case music noise scenario for this site.

Table 5.2
Typical Internal Noise Levels, Reverberant, $L_{Aeq,T}$

Building Reference	Octave Band Sound Pressure Level (L_p), Hz (dB(Z))							Sum
	63	125	250	500	1000	2000	4000	dB(A)
Mojo Design Noise Levels	97.1	99.1	95.3	94.2	92	87.9	87.8	***97.1***

5.1.2 Façade Performance

The performance of the weakest elements of the structure have been tested on site using a level difference test. This assessed the performance of the lobby door system at the rear of the premises, as well as the front façade with its lobby door system open, as would be required during trading hours.

Based on preliminary modelling, the rear doors of the site will need to remain closed, which has been incorporated within this assessment as inherent mitigation within the scheme design.

The tested performance of the front façade allowing for the lobby door system to remain open is provided in Table 5.3 overleaf.

Table 5.3
Sound Insulation Performance of Front Façade (Lobby Door System Open), dB

Octave Band Sound Reduction Performance ($D_{n,e}$)						
63	125	250	500	1000	2000	4000
22.0	17.6	22.0	23.5	21.1	20.2	20.9

For the rear of the site, as discussed, testing identified that these elements will need to remain closed. The performance of the rear façade is based on visual inspection and a cautious assessment of the composite façade performance, considering typical building elements. At the rear, the site is separated from the main area where DJs and entertainment use would occur by a door and a single-skin partition.

To account for the drop in levels between the main space and the reverberant levels experienced at the most exposed parts of the rear façade, a correction of 20 dB has been applied. This is based on the standard performance of a single-skin partition, which is typically around 34 dB R_w on the lower end, while allowing for a margin of error and potential flanking transmission around other building elements that are not visible. This approach is considered a reasonable worst-case scenario.

The worst-performing area of the rear façade is the rear access elevation. This consists of limestone walls (based on 12th-century construction, these are likely around 600 mm thick on the lower end), along with a hardwood door and some glazed elements. The glazed elements initially consisted of a single pane; however, these have been uprated and sealed with an additional unit on the inside.

Based on these construction details, a composite sound reduction performance has been calculated. The performance of these elements has been assumed as follows:

Table 5.4
Assumed Building Sound Insulation Performance Information, dB

Construction Element	Sound Reduction Index (R), Hz (dB)						
	63	125	250	500	1000	2000	4000
Stone Walls	41	48	52	56	62	67	71
Doors	13	17	21	26	29	31	34
Windows	15	22	16	20	29	31	27
Tile Roof	20	24	34	40	45	49	49

The composite sound reduction performance for the rear elevations is as follows:

Table 5.5
Composite Façade Performance Information, dB

Façade Element	Sound Reduction Index (R), Hz (dB)						
	63	125	250	500	1000	2000	4000
Composite Façade Performance	14.8	20.4	17.4	21.5	29.5	31.5	28.5

5.2 Uncertainty

5.2.1 Survey

Given the duration of the survey, it is considered that the limits of Class 1 sound level meters are the only limiting factor when considering survey uncertainty.

Standard equipment uncertainties have been considered by applying allowable tolerances minus the maximum allowable test laboratory uncertainties given in IEC 61672-1, as defined by Narang and Bell (*Narang, P. and Bell, T., 2008. New IEC standards and periodic testing of sound level meters. Proceedings of the Internoise, Shanghai, China, pp.26-29*).

The following table provides an overview of standard equipment uncertainties relevant to the SLM class utilised within the survey.

Table 5.6
Standard uncertainties using allowable tolerances minus test laboratory tolerances given in IEC 61672-1 (source: Narang and Bell, Table 14)

SLM Class	Frequency Weighting	Directional Response	Level Linearity	Toneburst Response	Calibrator (IEC 61672)	Supply Voltage	Combined Standard Uncertainty +/- dB
Class 1	0.5	0.5	0.4	0.25	0.125	0.05	0.9

5.2.2 Modelling

CadnaA noise modelling software has been utilised to ascertain how noise propagates throughout the proposed development. The software directly incorporates the BS ISO 9613 calculation procedure which has an uncertainty rating of +/- 3dB.

5.2.3 Combined Uncertainty

Based on the information provided above, the combined Root Sum Squared (RSS) uncertainty for the assessment has been calculated as +/- 3.1dB.

6.0 ASSESSMENT

Although an NR assessment was requested by the LPA, this could not be completed reliably for technical reasons. An NR assessment relies on their being a compliant baseline condition. This requires the existing baseline noise environment to have sufficiently low enough noise levels for the criteria to be met without the development operating.

Unfortunately, baseline noise levels in the area are already elevated, meaning that noise within adjacent sensitive habitable spaces would already exceed NR criteria with open windows. Therefore, the assessment relies on consideration of cumulative noise output in conjunction with the existing baseline environment to determine whether any change of significance is likely, in line with the IEMA guidelines.

The assessment focuses on noise contributions during night-time hours, as these represent the most sensitive period. An hour-by-hour evaluation has been undertaken for each relevant output, with the lowest measured ambient noise level in each hour used as the baseline to present a reasonable worst-case scenario.

The results of the assessment are presented in Table 6.1 below.

Table 6.1
IEMA Assessment – Change in Noise Levels (Hourly)

Measurement Location / NSR	Period (h)	Existing Ambient Noise Level, $L_{Aeq,1hour}$	Predicted Ambient Noise Level, $L_{Aeq,1hour}$	Future Ambient Noise Level, $L_{Aeq,1hour}$	Difference, dB
Location 1/ NSRs 1-3	2300-0000	44.2	42.5	46.4	2.2
	0000-0100	44.4	42.5	46.6	2.2
	0100-0200	44.0	42.5	46.3	2.3
	0200-0300	43.2	42.5	45.9	2.7
	0300-0400	42.4	42.5	45.5	3.1
	0400-0500	44.1	42.5	46.4	2.3
Location 2/ NSR 4	2300-0000	48.5	43.0	49.6	1.1
	0000-0100	51.7	43.0	52.2	0.5
	0100-0200	48.3	43.0	49.4	1.1
	0200-0300	44.9	43.0	47.1	2.2
	0300-0400	42.3	43.0	45.7	3.4
	0400-0500	46.1	43.0	47.8	1.7

As shown in the table above, the predicted change in noise levels at adjacent NSRs as a result of the venue operating at typical levels is generally considered *"not significant"* in accordance with IEMA guidelines. The only exception is the 0300 – 0400 period, where increases of up to 3.4 dB are predicted. However, this exceedance of 0.5 dB is unlikely to be perceptible given the existing high levels of entertainment venues in the area and other typical city centre noise sources.

For context, these levels reflect typical music noise during weekend trading for a music-focused bar and are based on internal measurements at a Mojo Bar. They are considered to represent the worst-case music noise scenario for this site and provide a reasonable basis for comparison with the predicted impacts at the adjacent NSRs.

6.1 Assertion of Competence

This assessment has been completed by Mark Smith, Acoustic Consultant at Dragonfly Consulting, with responsibility for the preparation of acoustic reports. Mark holds a Master of Science in Acoustics, a Bachelor of Science in Music Technology, and the IOA Diploma in Acoustics and Noise Control. He is a Corporate Member of the Institute of Acoustics (MIOA).

7.0 CONCLUSION

Little J have appointed Dragonfly Consulting to carry out a Noise Impact Assessment for the proposed licensing of the site at Chapel House, North Street, York. The assessment has been conducted with reference to the National Planning Policy Framework, relevant British Standards, and recognised guidance.

The assessment considers the venue operating at typical levels with the rear doors remaining closed and the front lobby doors open. Under these conditions, predicted changes in noise levels at adjacent NSRs are generally considered “not significant” in accordance with IEMA guidelines.

The only exception is the 0300 – 0400 period, where increases of up to 3.4 dB are predicted; however, this exceedance of the criteria by 0.5 dB is unlikely to be perceptible given the existing high levels of entertainment venues in the area and other typical city centre noise sources. In addition, this level of exceedance still does not meet the threshold of ‘Moderate’ significance as set out in the IEMA guidance.

For context, these levels reflect typical music noise during weekend trading for a music-focused bar and are based on internal measurements at a Mojo Bar. They are considered to represent the worst-case music noise scenario for this site and provide a reasonable basis for comparison with the predicted impacts at the adjacent NSRs.

It is therefore concluded that, with the rear doors closed, predicted noise impacts fall below the LOAEL:

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

Appendix A – Glossary of Terminology

In order to assist the understanding of acoustic terminology and the relative change in noise, the following background information is provided.

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. In order to express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale is used. The decibel scale typically ranges from 0dB (the threshold of hearing) to over 120dB. An indication of the range of sound levels commonly found in the environment is given in the following table.

Table A-1
Sound Levels Commonly Found in the Environment

Sound Level	Location
0dB(A)	Threshold of hearing
20 to 30dB(A)	Quiet bedroom at night
30 to 40dB(A)	Living room during the day
40 to 50dB(A)	Typical office
50 to 60dB(A)	Inside a car
60 to 70dB(A)	Typical high street
70 to 90dB(A)	Inside factory
100 to 110dB(A)	Burglar alarm at 1m away
110 to 130dB(A)	Jet aircraft on take off
140dB(A)	Threshold of Pain

Acoustic Terminology

dB (decibel) The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure ($2x10^{-5}$ Pa).

dB(A) A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

L_{Aeq} This is defined as the notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.

L_{10} & L_{90} If a non-steady noise is to be described, it is necessary to know both its level and the degree of fluctuation. The L_n indices are used for this purpose, and the term refers to the level exceeded for n% of the time. L_{10} is the level exceeded for 10% of the time and is often used as a descriptor for road traffic noise. Similarly, L_{90} is the level exceeded for 90% of the time and is often used to describe the background level.

L_{AMax} This is the maximum A-weighted sound pressure level recorded over the period stated. L_{AMax} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment.

Appendix B – Noise Monitoring Equipment

Table B-1
Noise Monitoring Equipment

Equipment	Serial Number
01dB Cube Sound Level Meter	10889
G.R.A.S 40CD Microphone	231555
01dB PRE22N Preamplifier	1610358
01dB Fusion Sound Level Meter	12823
G.R.A.S MCE212 Microphone	134719
01dB PRE22N Preamplifier	2004181
Cirrus CR:515 Acoustic Calibrator	103147

Appendix C – Noise Monitoring and Receptor Location Plan

Figure C-1
Noise Monitoring and Sensitive Receptor Location Plan