ACOUSTIC SOLUTIONS
Environmental Assessments

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NOISE IMPACT ASSESSMENT FOR PROPOSED DEVELOPMENT:

Burntwood Court, Comon Road, Barnsley S72 9ET

Prepared for:

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Test Report Number: AS26-12. V1

1.0 INTRODUCTION

1.1

Acoustic Solutions has been commissioned to undertake a noise impact assessment for the proposed development: erection of a new building, new padel courts with covering structure and new football pitch at Burntwood Sports and Leisure Centre, Common Road, Brierley, Barnsley, S72 9ET.

Barnsley Metropolitan Borough Council has rejected a previous application (reference 2026/0108/INVALID), stating:

"Thank you for your planning application in respect of the above. Unfortunately, your application is invalid and cannot be processed because:- Please submit a Noise Impact Assessment (including details of operating hours and noise mitigation)."

1.2

The objectives for the noise impact assessment were as follows:

- Establish the daytime and evening ambient and background sound levels at the application site and its surrounding environs;
- Predict the noise impact at the nearest noise sensitive dwelling associated with customers arriving and departing in vehicles and on foot.

1.3

This report details the methodology and results of the assessment. It has been prepared to accompany an application for planning permission that is to be submitted to Barnsley Metropolitan Borough Council for the proposed development of the application site.

1.4

This report has been prepared for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties referring to the report should consult the client and Acoustic Solutions as to the extent to which the findings may be appropriate for their use.

1.5

A glossary of acoustic terms used in the main body of the text is contained in Appendix 1.

2.0 NOISE IMPACT ASSESSMENT CRITERIA

2.1

In terms of noise impact assessment criteria, Paragraph 170e of the National Planning Policy Framework (NPPF) 2018 states that planning policies and decisions should contribute to and enhance the natural local environment by '*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.'*

2.2

Planning Practice Guidance specifically dealing with noise was uploaded to the Government's Planning Portal in March 2014 as an accompaniment to the National Planning Policy Framework. This guidance is summarised herein.

2.3

The guidance states that noise needs to be considered when new developments may create additional noise. Whilst noise can override other planning concerns, neither the Noise Policy Statement for England and Wales nor the National Planning Policy Framework (which reflects the Noise Policy Statement for England and Wales) expects noise to be considered in isolation, separately from the economic, social and other environmental dimensions of proposed development.

2.4

In order to determine noise impact, local planning authorities' plan-making and decision taking should take account of the acoustic environment and in doing so consider:

- Whether or not a significant adverse effect is occurring or likely to occur;
- Whether or not an adverse effect is occurring or likely to occur, and;
- Whether or not a good standard of amenity can be achieved.

2.5

In line with the Explanatory Note of the Noise Policy Statement for England and Wales, this would include identifying whether the overall effect of the noise exposure is, or would be, above or below the significant observed adverse effect level and the lowest observed adverse effect level for the given situation.

2.6

In terms of Observed Effect Levels:

- No Observed Adverse Effect Level (NOAEL) – This is the level of noise exposure below which no effect at all on health or quality of life can be detected;

- Lowest Observed Adverse Effect Level (LOAEL) – This is the level of noise exposure above which adverse effects on health and quality of life can be detected, and;

- Significant Observed Adverse Effect Level (SOAEL) – This is the level of noise exposure above which significant adverse effects on health and quality of life occur.

2.7

At the lowest extreme, when noise is not noticeable, there is by definition no effect. As the noise exposure increases, it will cross the 'no observed' effect level as it becomes noticeable. However, the noise has no adverse effect so long as the exposure is such that it does not cause any change in behaviour or attitude. The noise can slightly affect the acoustic character of an area but not to the extent there is a perceived change in quality of life. If the noise exposure is at this level no specific measures are required to manage the acoustic environment.

2.8

As the exposure increases further, it crosses the lowest observed adverse effect level boundary above which the noise starts to cause small changes in behaviour and attitude, for example, having to turn up the volume on the television or needing to speak more loudly to be heard. The noise therefore starts to have an adverse effect and consideration needs to be given to mitigating and minimising those effects (taking account of the economic and social benefits being derived from the activity causing the noise).

2.9

Increasing noise exposure will at some point cause the significant observed adverse effect level boundary to be crossed. Above this level the noise causes a material change in behaviour such as keeping windows closed for most of the time or avoiding certain activities during periods when the noise is present. If the exposure is above this level the planning process should be used to avoid this effect occurring, by use of appropriate mitigation such as
by altering the design and layout. Such decisions must be made taking account of the economic and social benefit of the activity causing the noise, but it is undesirable for such exposure to be caused.

2.10

At the highest extreme, noise exposure would cause extensive and sustained changes in behaviour without an ability to mitigate the effect of noise. The impacts on health and quality of life are such that regardless of the benefits of the activity causing the noise, this situation should be prevented from occurring.

2.11

Table 2.1 summarises noise exposure hierarchy, based on likely average response.

Table 2.1 Guidelines – Noise Exposure Hierarchy

Noise Source	Assessment Location	LOAEL	SOAEL	Time
	Outdoor living space	55 dB $L_{Aeq,\ 1\ hour}$ (A)	56-60 dB $L_{Aeq,\ 1\ hour}$ (A)	Day (07:00-23:00)
	Façade	50 dB $L_{Aeq,\ 1\ hour}$ (A)	72 dB $L_{Aeq,\ 16\ hour}$ (A)	Day (07:00-23:00)
General environmental noise: Road/Rail	Façade	45 dB $L_{Aeq,\ 8\ hour}$ (B)	67 dB $L_{Aeq,\ 8\ hour}$ (A)	Night (23:00-07:00)
	Habitable Room	30 dB $L_{Aeq,\ 8\ hour}$ (B)	40 dB $L_{Aeq,\ 8\ hour}$ (A)	Night (23:00-07:00)
	Habitable Room	35 dB $L_{Aeq,\ 16\ hour}$ (A)	45 dB $L_{Aeq,\ 16\ hour}$ (A)	Day (07:00-23:00)
(A: World Health Organisation, 'Guidance for Community Noise: 1999';				
B: World Health Organisation, 'Night Time Noise Guidance for Europe: 2009';				
C: BS4142+A1: 2019)				

2.12

The subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation. These factors include:

- The source and absolute level of the noise together with the time of day it occurs;

- For non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise;

- The spectral content of the noise (i.e. whether or not the noise contains particular high or low frequency content) and the general character of the noise (i.e. whether or not the noise contains particular tonal characteristics or other particular features);

- The local acoustic character of the area.

2.13

In addition, further useful contextual guidance is provided in:

- British Standard BS4142+A1: 2019:2014 'Methods for Rating and Assessing Industrial and Commercial Sound' (BS BS4142+A1: 2019);

- British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' (BS 8233);

- World Health Organisation (WHO) Guidelines for Community Noise (1999)

2.14

BS BS4142+A1: 2019 states:

The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs'. Typically, the greater this difference, the greater the magnitude of the impact. For example:

- *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 is likely to 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 the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context*

- *Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact. Where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration, including the absolute level of sound. For a given*
- *difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environment where the residual sound level is high than for an acoustic environment where the residual sound level is low. Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.*

2.15

British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' sets indoor ambient noise levels from residential dwellings (see table below).

Table 2.2 – Indoor Ambient Noise Levels in Dwellings (BS 8233): 2014

Activity	Location	Good Indoor Ambient Noise Levels	
Resting	Living Room	35 dB $L_{Aeq\ (0700–2300)}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq\ (0700–2300)}$	30 dB $L_{Aeq\ (2300–0700)}$

2.16

With regard to sound attenuation through the building envelope, the 'weak points' in the building façade are generally considered to be the windows. The worked example (G.1) at Annex G of BS 8233 suggests that a partially opened window would provide sound attenuation of approximately 15 dB R_w. The Standard also suggests that *"..standard insulating glass units have an insulation value of approximately 30 dB Rw"* when closed.

2.17

With respect to noise affecting external areas, i.e. gardens, BS 8233 states that *".. it is desirable that the steady noise level does not exceed 50 dB L_{Aeq}, and 55 dB L_{Aeq} should be regarded as the upper limit".*

2.18

The World Health Organisation's Guidelines for Community Noise (1999) sets indoor ambient noise levels from residential dwellings (see table below).

Table 2.3 – Indoor Ambient Noise Levels in Dwellings (WHO 1999)

Activity	Location	Good Indoor Ambient Noise Levels	
Resting	Living Room	35 dB $L_{Aeq\ (0700–2300)}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq\ (0700–2300)}$	30 dB $L_{Aeq\ (2300–0700)}$

3.0 BASELINE NOISE SURVEY

3.1

The application site is land to the north of the Burntwood Court complex. Burntwood Court consists of a hotel, spa and gym/fitness centre located in Barnsley (Plans 3.1 to 3.4).

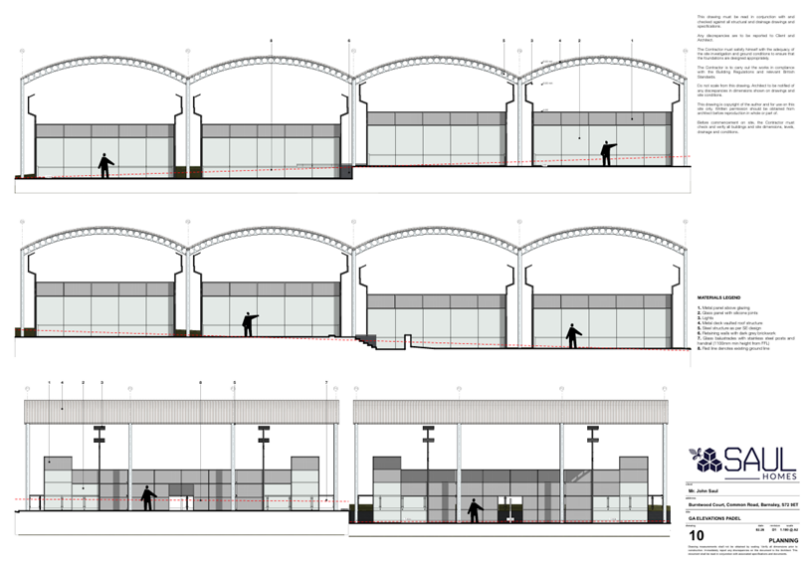
Plan 3.1. Proposed Development, site plan

Plan 3.2 Wider site plan

The proposal is for 8x indoor padel courts and a floodlit 3G football pitch.

Plan 3.3 Padel Court detail, 1

Plan 3.4 Padel Court detail, 2



Although opening hour details are not yet available, the opening hours for comparative padel centres in Leeds and Birmingham are 06:00 to 22:00 hours, seven days per week. The opening hours for comparative 3G floodlit football pitches in Bradford (Goals, Kings Road) are 09:00 to 23:00 hours. Noise impact predictions will be made on the assumption that these will be the padel centre/football pitch's opening hours.

In the absence of any LPA comments, the report will consider one or more of the following guidance and standards:

- National Planning Policy Framework (NPPF);
- Noise Policy Statement for England (NPSE);
- BS 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings;
- BS 4142+A1:2019 Commercial and Industrial Noise;
- ProPG: Planning and Noise;
- Approved Document O: Overheating;
- World Health Organization (WHO) Community Noise Guidelines, 1999;
- University of Salford Procedure for the Assessment of Low Frequency Noise Complaints, NANR, 2005;

- Approved Document E: Transmission of Noise Between Building elements.
- Noise from Pubs and Clubs, 2005;
- HS2 Phase 1 (Environmental Statement), 2017

3.2

In order to establish the day time, evening and nighttime background noise levels at the application site and its surrounding environs, a 06:00 to 23:00 hours baseline noise survey was undertaken on Wednesday 25 February 2026.

3.3

For the purpose of the assessment, one noise monitoring positions, MP1 was adopted in free field environments at over 1.5 metres above ground and over 3 metres from any vertical reflective surface (see Appendix 2):

- MP1. Outside the eastern perimeter of a travellers' site located to the north of Common Road, and approximately 225 metres west of the development site. The monitoring position was selected to assess typical daytime and evening 'baseline' noise levels at the nearest noise sensitive dwelling to the development site.

3.4

A series of hourly 15-minute noise measurements were undertaken using a Type 1 integrating sound level meter (Appendix 3). The measurement system calibration was verified immediately before the commencement of the measurement sessions and again at the end. Weather conditions throughout the survey were dry and clear with a maximum southerly wind speed of 3 metres per second: appropriate for monitoring. Measurements consisted of A–weighted parameters: L_{Aeq} and L_{A90}.

3.5 MP1

Daytime and evening sound levels can be described as quiet. The dominant noise sources were intermittent road traffic on Common Road.

Table 3.1 summarises measured daytime and evening and nighttime noise Residual and Background Noise Levels at MP1 (L_{Aeq} and L_{A90} and their averages) and the Maximum Sound Levels (L_{Amax} and its maximum measured value).

Table 3.1 – MP1: Baseline Noise Measurement Data, Daytime and Evening Sound Levels

Measurement Time	Residual Noise Level, dB, $L_{Aeq, 15\ min}$	Background Noise Level, dB $L_{A90, 15\ min}$	Measured Noise Level, dB $L_{AMax, 15\ min}$
07:00	50.6	41.5	58.9
08:00	53.2	44.9	58.5
09:00	53.6	44.0	56.4
10:00	53.0	44.7	59.0
11:00	53.6	44.7	55.4
12:00	51.6	42.8	57.2
13:00	53.8	42.4	55.7
14:00	53.8	42.5	56.6
15:00	53.5	42.9	57.0
16:00	53.9	44.0	56.9
17:00	53.8	44.9	55.5
18:00	53.5	44.8	59.9
Daytime Average/Max	**53.2**	**43.7**	**59.9**
19:00	47.8	40.6	56.9
20:00	46.3	39.7	58.6
21:00	46.0	39.8	56.3
22:00	46.7	39.6	55.9
Daytime/Evening Average/Max	**52.8**	**44.4**	**59.9**
Evening Average/Max	**46.7**	**39.9**	**58.6**

4.0 IDENTIFIED NOISE SOURCES

The following noise sources associated with the development were identified:

- Noise associated with football and padel-playing activities, including noise from players and football impacts against the pitch perimeter. Nearest point to noise-sensitive dwellings: 225 metres.
- Customers' Vehicles. Nearest point to noise-sensitive dwellings: 225 metres.

4.1 Padel Playing Activities

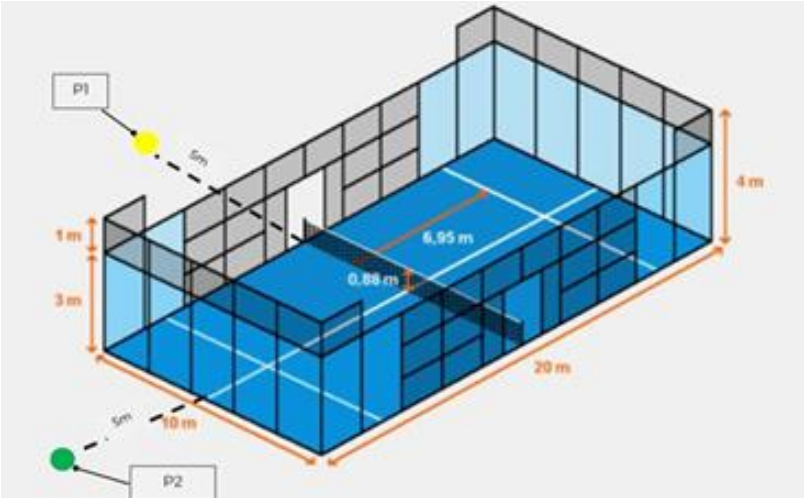
4.1.1 Padel Playing

In the absence of live measurements of padel playing activities, the report uses data from Clarke Saunders Acoustics (report ref AS12543.220530.NIA, dated 31 May 2022) for a proposed padel court development in Poole.

Noise levels are cited at a court's side (P1) and end (P2), as shown in Plan 4.1. Clark Saunders Acoustics cites the following noise values:

- P1. 5 metres from centre line entrance: 42 dB, L_{Aeq};
- P2. 5 metres from screened baseline: 51 dB, L_{Aeq}.

Plan 4.1 Court diagram including locations, P1 and P2, at which noise levels are cited.



The report will assume that the court where measurements were taken has the same screening as those proposed at the proposed development site: 12mm glass enclosure. Each court has therefore been modelled as an area source, with no additional barriers included. A noise attenuation-for distance calculation will be applied (Equation 4.1).

Equation 4.1. Sound Attenuation by Distance

$$SPL2 = SWL\text{-}20\log r$$

Where:

SWL *Sound Pressure Level at quoted distance*
R *Distance between noise source and receptor, 225 metres*

Table 4.1 Predicted Noise Impact, MP1

Noise Source	Quoted Noise Level, dB	Intermittency Penalty, dB	Distance from source to receptor, m	Distance-Attenuated Noise Level, dB
Padel, P1	51	3	225	4
Padel, P2	51	3	225	4
Padel, P3	51	3	225	4
Padel, P4	51	3	225	4
Padel, P5	51	3	225	4
Padel, P6	51	3	225	4
Padel, P7	51	3	225	4
Padel, P8	51	3	225	4
			Culmulative SPL, dB	**13**

4.2 Vehicular Noise

Table 4.2 summarises sample sound pressure levels associated with 1x vehicle's arrival/departure, as measured by Acoustic Solutions. It is anticipated that customers will use between 5x and 20 x vehicles (approx.). This will result in a series of engine noise and car door closing noise events, as opposed to a single, cumulative noise event. For the purposes of the prediction calculation, a +3 dB Noise Intermittency Penalty, as published in BS4142+A1: 2019, will be applied. A noise attenuation-for distance calculation will be applied (Equation 4.1).

Table 4.2 Vehicle Noise Impact

Noise Source	Measured Noise Level, dB	Intermittency Penalty, dB	Distance Attenuation, dB	Predicted Noise Level at Receptor, dB
Car Arriving @1 metre	54.9	3	225	11
Car Door Closing @ 1 Metre	66.9	3	225	23
Car Departing @ 1 metre	54.9	3	225	11
			Culmulative SPL, dB	**23**

4.3 3G Pitch

Table 4.3 summarises sample sound pressure levels associated with football played on a 3G pitch. The noise sources associated with 3G pitch use are whistles, voices and ball impacts. The report uses data cited in *Artificial Grass Pitches (AGP) Acoustics, Planning Implications* (Sport England 2015[1]) and measurement data presented in *Dudley Infant Academy, Noise Impact Assessment* (MRL Acoustics, 2015[2]). For the purposes of the report, the L_{Amax} value – the worst case scenario - will be used to determine the likely noise impact. A noise attenuation-for distance calculation will be applied (Equation 4.1).

Table 4.3 Noise Associated with Football Played on a 3G Pitch

Measurement Distance, m	$L_{Aeq,\ 1\ hour}$, dB	$L_{Amax,\ 5\ minutes}$, dB	Distance, m	Predicted Noise Level at Receptor, dB
15	N/A	72	225	25
10	58	N/A	225	11

4.4 Cumulative Impact

Table 4.4 summarises the predicted noise level of cumulative noise sources at the nearest noise sensitive receptor. A noise attenuation-for distance calculation has been applied for all noise levels (Equation 4.1).

Table 4.4. Cumulative noise levels

Noise Source	$L_{Aeq,\ 1\ hour}$, dB	$L_{Amax,\ 5\ minutes}$, dB
Padel	13	N/A
Vehicles	23	N/A
3G Pitch	N/A	25
Cumulative SPL, dB	23	25

5.0 DISCUSSION

5.1 HS2 Phase 1 Methodology

Using HS2 Phase 1 (Environmental Statement), 2017 prediction methodology, as summarised in Table 5.1, the short and long term noise impacts associated with the proposed development can be predicted. The predictions are based on the change of noise levels from Existing to Predicted.

Table 5.1 HS2 Phase 1 Prediction Methodology

Long Term Impact	Short Term Impact	Sound Level Change, dB, $L_{Aeq,T}$
Negligable	Negligable	=/>0 to <1
	Minor	=/>1 to <3
Minor	Moderate	=/>3 to <5
Moderate	Major	=/>5 to <10
Major		=/>10

The cumulative noise impact outside the east-facing façade of the travellers' site associated with padel playing, vehicle noise and 3G pitch football can be predicted, using the change of level methodology, described above. Tables 5.2 and 5.3 summarise the change in the sound level resulting from the cumulative noise level of sources summarised in Tables 4.1 to 4.4, above.

Table 5.2. Cumulative Noise Impact, L_{Aeq}

Time	Existing Noise Level, dB	Cumulative Noise Source, dB	Existing plus Cumulative Noise Level SPL, dB	Change, dB	Long Term Impact	Short Term Impact
Daytime	53	23	53	0	Negligable	Negligable
Evening	47	23	47	0	Negligable	Negligable

Table 5.3. Cumulative Noise Impact, L_{Amax}

Time	Existing Noise Level, dB	Cumulative Noise Source, dB	Existing plus Cumulative Noise Level SPL, dB	Change, dB	Long Term Impact	Short Term Impact
Daytime	60	25	60	0	Negligable	Negligable
Evening	59	25	59	0	Negligable	Negligable

6.0 RECOMMENDATIONS

It has been demonstrated that the planning application will not result in an adverse noise impact at the nearest noise-sensitive dwellings, therefore noise noise-attenuation recommendations are not necessary,

Appendix 1
Glossary of Acoustic Terms

Sound Pressure Level (L_p)

The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 µPa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude. Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

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

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p0 = reference sound pressure (20 µPa).

A-weighting Network

A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$

The A-weighted 'equivalent continuous noise level' which is an average of the total sound energy measured over a specified period of time. In other words, L_{Aeq} is the level if a continuous noise which has the same total (A-weighted) energy as the real fluctuating noise, measured over the same time period. L_{Aeq} is increasing being used as the preferred parameter for all forms of environmental noise.

$L_{A90, T}$

The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T. L_{A90} is typically taken as representative of background noise.

$L_{A\ max}$

The maximum A-weighted noise level recorded during the measurement period.

Hz

The unit of frequency. The number of cycles (in the context of acoustics, the number of complete sound waves generated) per second.

Appendix 2

Location Plan and Noise Monitoring Positions

Appendix 3

Equipment Used

Noise measurements were undertaken using a precision grade sound level meter:

Norsonic Nor145 Model integrating sound level meter.
Serial Number 14529307
Certificate Number U35939/U35940
Last Laboratory Calibrated 17/10/24

B & K 4230 Model calibrator
Serial Number 724157
Last Laboratory Calibrated 13/2/25

The Sound Level Meter was calibrated before and after both measurement periods, with no significant change in calibration. All calibrations took place at the measurement position.

The SLM met the requirements of BS EN 60651: 1994 and BS EN 60804: 2001 IEC 60804: 2000. It was capable of simultaneously measuring Leq and Ln values. Batteries for the SLM and calibrator were checked prior to all measurements.