



Blue Acoustics

Blue Acoustics NS648

Planning Ref : 25/00662/FUL

Change of use and alterations to outbuilding including raising of the roof height to form a café with outdoor seating area

127 Kedleston Road, Derby DE22 1FS

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23.08.2026

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1 Executive Summary

The development is for the change of use of existing outbuildings to form a cafe with both internal and external seating areas. The cafe will sell non alcoholic beverages such as tea and coffee, and cold snacks such as sandwiches and cake

The site features a small 2 storey building with a small open yard area. The yard will provide seating for 16 patrons. The cafe will be located on the ground floor, with internal seating for 12 patrons at 1st floor level.

The noise climate is driven by Sainsbury's plant noise which dominates over all other noise sources. The noise is driven by the AC vent which renders all other plant noise relatively inaudible. Traffic movements are audible over plant noise, but do not provide significant contribution to the overall noise climate. The plant noise runs constantly throughout the day, and throughout the proposed cafe opening hours.

The BS4142 assessment level of -4dB for cafe patron noise at the 1st floor flat windows Is an indication of a low noise impact depending upon the context. To put this into context, the assessment level reflects a worst case scenario. In reality, this level will be lower still for the vast majority of the time when customer numbers are low, or when weather conditions result in patrons choosing to seat inside the building. Patron noise will also be well masked by plant noise for much of the time.

Period	Specific Noise Level	Rating Penalty	Rating Level	LA90	Assessment Level
08:00 - 17:00	57 dB	+3 dB	60 dB	64 dB	-4 dB

Table 6 : BS4142 assessment table

2 Introduction

Blue Acoustics has been instructed to carry out a noise impact assessment and provide a noise insulation scheme to satisfy a planning condition for a new commercial development on Kedleston Road in Derby. The development is for the change of use of existing outbuildings to form a cafe with both internal and external seating areas. The cafe will sell non alcoholic beverages such as tea and coffee, and cold snacks such as sandwiches and cake. The building is small and will not require AC or extract plant. The external seating area will provide seating for 16 patrons, with 12 housed within the building at 1st floor level. The external seating area is overlooked by a 1st floor flat, and so there is the potential for an adverse noise impact from patron conversations originating from the external seating area. The proposed opening hours for the cafe are 08:00 - 17:00 Mon-Sat.



Figure 1: Existing building and yard

This report has been prepared to satisfy the following planning condition imposed on the development : **Condition 8** : A noise impact assessment shall be undertaken in accordance with BS 4142:2014+A1:2019 and prepared by a suitably qualified acoustician. The assessment must include background sound measurements, predicted rating levels at the nearest noise sensitive receptors, consideration of acoustic features, and any mitigation necessary to ensure that the development can operate without causing unacceptable impact. Any mitigation shall be installed to the specification set by the assessment prior to the commencement of the approved use of the site and be retained as such for the life of the development.

The site was attended on Thursday 20th August 2026 during which a background noise measurement was taken, and the data used to provide a BS4142 Commercial noise impact assessment.

3 Site Detail

The site is situated to the rear of 125 Kedleston Road. 125 Kedleston Road forms part of a small row of retail outlets with ground floor commerce and 1st floor dwellings. 125 is currently occupied by Sainsburys Local. Kedleston Road is a relatively busy 2 way artery that connects Derby with its western suburbs and Queensway which runs 400m to the NW. The site is accessed off of Redshaw Street, a quiet 2 way road with infrequent vehicle movements, restricted to 30mph.

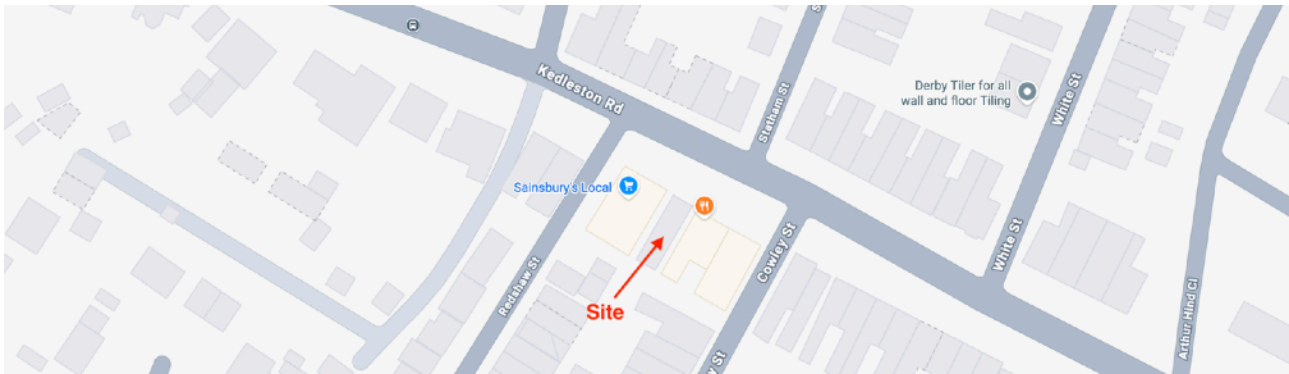


Figure 2 : Location map

The site features a small 2 storey building with a small open yard area. The yard will provide seating for 16 patrons. The cafe will be located on the ground floor, with internal seating for 12 patrons at 1st floor level. The nearest Noise Sensitive Receptor is a 1st floor flat that overlooks the yard, the nearest window measuring approximately 4m to the centre of the yard. Below the window are a number of externally situated plant units associated with the Sainsburys refrigeration and AC systems. The refrigeration systems run 24hrs and come on and off as required according to load. In addition, there is an AC system which turns on and off automatically, coming on and off at the start and end of the stores opening hours. The system features a noisy extract vent which is constantly on and drives noise levels around the yard and at the flat windows all day.



Figures 3 & 4 : 1st floor flat overlooking Sainsburys plant and yard, and noisy AC vent



Figure 3 : Aerial view of site in relation to surrounding features

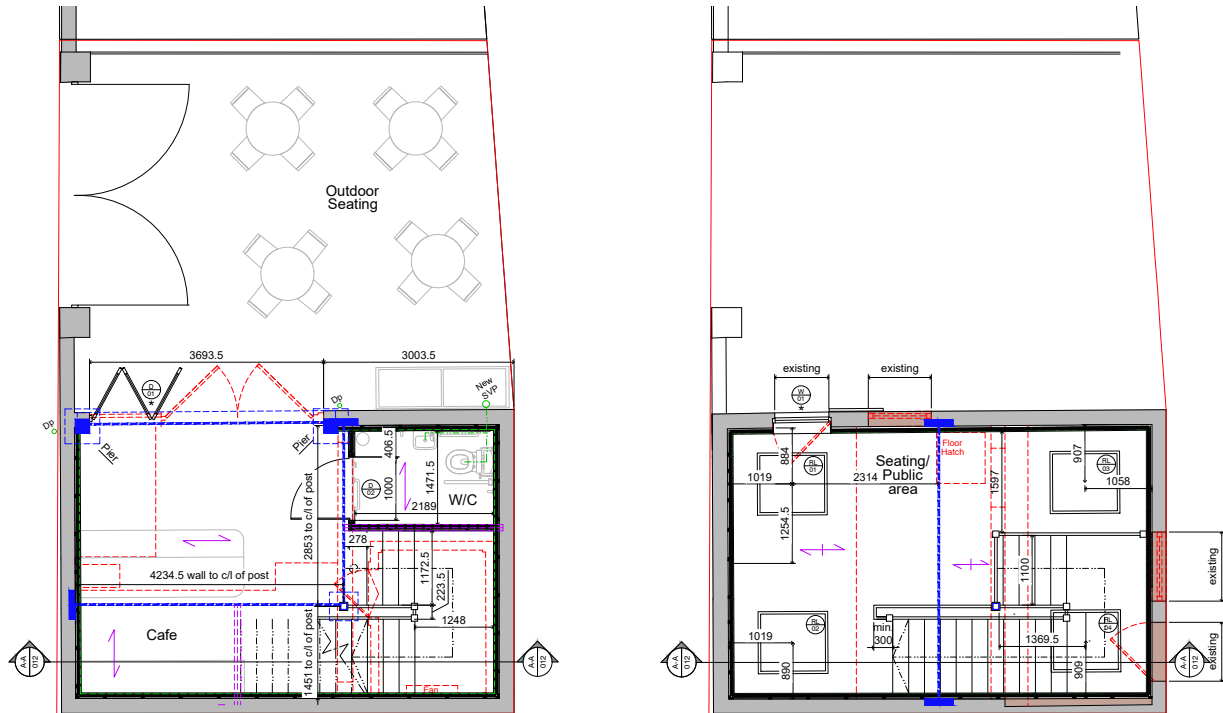


Figure 5 : Plans

4 Noise Climate

The noise climate is driven by Sainsbury's plant noise which dominates over all other noise sources. The noise is driven by the AC vent which renders all other plant noise relatively inaudible. Traffic movements are audible over plant noise, but do not provide significant contribution to the overall noise climate. The plant noise runs constantly throughout the day, and throughout the proposed cafe opening hours.

5 Measurement Details

5.1 Personnel & Equipment

All testing, calculation & evaluation was conducted by Timothy Sherlock-Brown M.I.O.A. of Blue Acoustics. Timothy is a Member of the Institute of Acoustics and possesses an MSc in Applied Acoustics. Care was taken to eliminate external influence on the measurements by the application of a windshield, and with particular attention paid to wind speed when selecting measurement periods. Unless otherwise stated, meters were tripod mounted at a height of 1.2-1.5m at an angle of approximately 60 degrees. Calibration was performed before and after each measurement or set of measurements with no notable drift. A drift of up to 0.5dB with a Class 1 meter is considered reasonable and is generally the cause of gradients in variables such as temperature, humidity and battery power.

Device	Serial Number	Calibration Date	Calibration Cert. No
Cirrus 171B Noise Meter	G068016	12.04.2026	263738,39,40,45
Cirrus 515 Calibrator	69304	18.02.2026	259671

Table 1 : Measurement equipment table

5.2 Weather Conditions

Dry / Temp 16c / Wind 0-4ms Southerly / Variable % Cloud cover

5.3 Measurement Positions

Position	Description	Image
MP1	Meter tripod mounted and positioned at the centre of the yard. This position was chosen to attain the background noise level within the yard area.	

Table 2 : Measurement position table

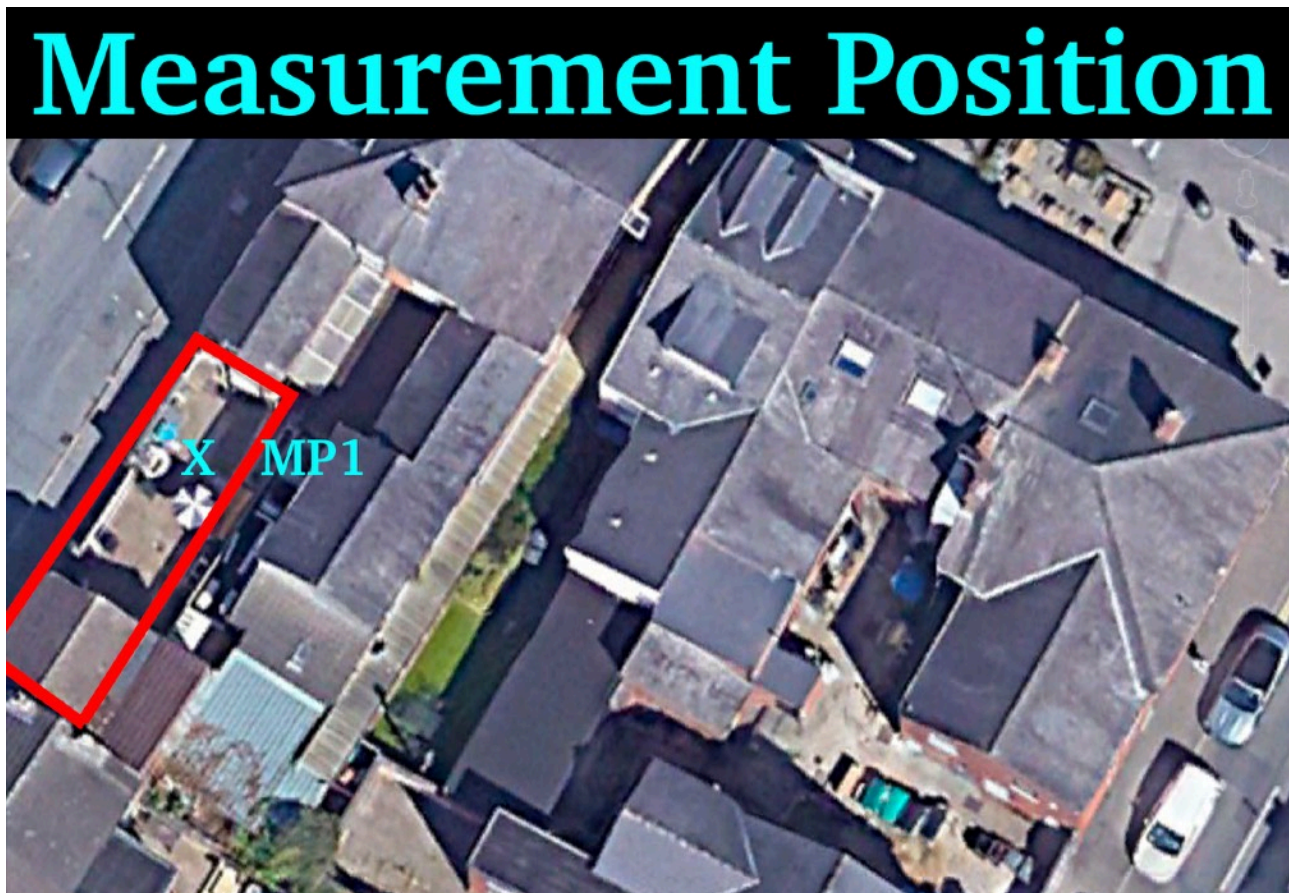


Figure 8 : Aerial view of measurement position

6 Presentation of Measurement Results

The following table details the background measurement data. The measurement was taken mid-afternoon, and can be used to represent any period because the noise is constant in tone and level.

Time	Period	LAeq	LAFMax	LA90
14:33	18mins	64.4	82.2	63.9

Table 3 : Measurement data

7 BS4142 Commercial Noise Impact Assessment

7.1 Specific Noise Level(s)

To establish the worst case specific noise level at the 1st floor flat windows, human voice spectra has been taken from BS ISO 3382-3:2012 and adjusted to match the given scenario. The adopted scenario is 16 patrons seating within the external seating area, with half (8) patrons talking simultaneously in normal voices. A -3dB On Time correction has been applied to account for the

fact that conversations are not constant, and feature regular pauses and breaks for thought and consumption of beverages and food.

	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz	A-weighted Total
Normal Voice Lw	61	65	69	63	56	50	55	68
8 x Normal Voices Lw	70	74	78	72	65	59	64	77
Distance correction $20\log(-4m)-11+6$	-17	-17	-17	-17	-17	-17	-17	
A-Weighting	-16	-9	-3	0	1	1	-1	
On Time Correction	-3	-3	-3	-3	-3	-3	-3	
L _{Aeq} ,1hr @ Receptor	34	45	55	52	46	40	43	57

Table 4 : Calculation of worst case patron noise at receptor

7.2 Rating Penalty

Section 9 of BS4142:2014 describes how the rating sound level should be derived from the specific sound level, by the application of a rating penalty. Due to the nature of the development the subjective method has been adopted to derive the rating sound level from the specific sound level. It also states “Where tonal and impulsive characteristics are present in the specific sound within the same reference period then these two corrections can both be taken into account. If one feature is dominant then it might be appropriate to apply a single correction. Where both features are likely to affect perception and response, the corrections should normally be added arithmetically.”

With this in mind, the following rating penalty has been established based on the noise being tonal, with no impulsivity and audible intermittency. The values have not been added arithmetically because the noise will be well masked by the constant plant noise.

Tonality	Impulsivity	Intermittency	Total
+2 dB	-	+3 dB	+3 dB

Table 5 : BS4142 rating penalty table

7.4 BS4142 Assessment

Period	Specific Noise Level	Rating Penalty	Rating Level	LA90	Assessment Level
08:00 - 17:00	57 dB	+3 dB	60 dB	64 dB	-4 dB

Table 6 : BS4142 assessment table

8 Conclusions

The noise climate is driven by Sainsbury's plant noise which dominates over all other noise sources. The noise is driven by the AC vent which renders all other plant noise relatively inaudible. Traffic movements are audible over plant noise, but do not provide significant contribution to the overall noise climate. The plant noise runs constantly throughout the day, and throughout the proposed cafe opening hours.

The BS4142 assessment level of -4dB for cafe patron noise at the 1st floor flat windows is an indication of a low noise impact depending upon the context. To put this into context, the assessment level reflects a worst case scenario. In reality, this level will be lower still for the vast majority of the time when customer numbers are low, or when weather conditions result in patrons choosing to seat inside the building. Patron noise will also be well masked by plant noise for much of the time.

9 Uncertainty

This report relies on ambient noise level measurements. Ambient noise at a given location can vary substantially from day to day with variations in road traffic and other sources, and propagation of noise can be strongly affected by weather and atmospheric conditions. We believe our assessment to be representative of typical conditions, but only very long-term noise monitoring could establish the range of variation in these conditions.

To ensure the accuracy of the assessment consideration has been taken for the level of uncertainty in the measured data and associated calculations in the proposed methodology used to undertake the assessment. Where the level of uncertainty could affect the conclusion, reasonably practicable steps have been taken to minimise the level of uncertainty. Where the level of uncertainty is excessive, additional measurements and site visits have been conducted to increase the confidence in the results. In all instances the following steps have been taken to address the uncertainty;

1 Measured Values; A detailed understanding of the source of noise under investigation has been conducted including consideration for the complexity, variability over time and location, the character and effect of the residual sound level in comparison with the source, the measurement location, quantity of measurements and distance/intervening ground conditions, measurement time interval and the range of times measurement were taken, the suitability of weather conditions, the level of rounding and the classification of the instrumentation used to conduct the assessment.

2 Calculation Methods; Consideration has been taken for the accuracy of the measured sound levels, the character of the sound emissions in question, the calculation method and the simplification of the real situation to "fit" the modelled situation. Recognised standards and validated methods and processes have been used to establish accurate values during the calculation process.

For the avoidance of doubt, the level of uncertainty will not be quantified. If appropriate consideration is taken for points 1 and 2 during the collection of data and analysis thereof, then the influence of uncertainty in the final result is at its lowest practical value.

10 Disclaimer

Blue Acoustics takes no responsibility for any physical implementation & strongly suggests the client seek structural advice before carrying out the proposed work. Recommendations in this report are for acoustics purposes only, and it is the responsibility of the Project Manager or Architect to ensure that all other requirements are met including (but not limited to) structure, fire and Building Controls.

The calculations within this report are based upon sourced and or calculated data. It should be understood that complex flanking transmission paths through the structure can lead to excess vibration transmission and that mitigation measures within the rooms may have to be 'tweaked' after construction. Also, build quality can greatly affect partition performance and Blue Acoustics takes no responsibility for the integrity of any physical work carried out.

The opinions and interpretations presented in this report represent our best technical interpretation of the data made available to us. However, due to uncertainty inherent in the estimation of all parameters, we cannot, and do not guarantee the accuracy or correctness of any interpretation and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, cost, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. The findings and opinions expressed are relevant to the dates of the site works and should not be relied upon to represent conditions at substantially later dates. If additional information becomes available which may affect our comments, conclusions or recommendations, the author reserves the right to review the information, reassess any new potential concerns and modify our opinions accordingly.

Except for the provision of professional services on a fee basis, Blue Acoustics does not have a commercial arrangement with any person or company involved in the interests that are the subject of this report. Blue Acoustics cannot accept any liability for the correctness, applicability or validity for the information they have provided, or indeed for any consequential costs or losses in this regard. Our efforts have been made on a "best endeavours" basis and no responsibility or liability is warranted or accepted by Blue Acoustics.

This report is prepared solely for the client listed within this report. Blue Acoustics One Ltd accepts no responsibility for its use by any third party. Note that the contents contained herein are produced for the purposes of review by relevant Planning Authority departments and do not constitute a detailed design or specification document to be used for the purposes of construction. It is recommended that the development of the scheme retains Blue Acoustics in the acoustic design to ensure that the conclusions of this report are consistent with the final development.

Appendix 1 – Glossary of Terms

‘A’ weighting (dB(A)): A frequency dependent correction which weights sound to correlate with the sensitivity of the human ear to sounds of different frequencies.

dB(A): 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 level 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).

Ambient Noise: A measure of the typical noise (excluding any unusual events) present at a site. This is usually described in terms of $L_{Aeq,T}$.

Anonymous noise: Noise that cannot be attributed to a single (specific source). For example noise from cars on a road would be considered anonymous whereas a noisy ventilation unit would not.

Attenuation: A reduction in the intensity of a sound signal.

Audible: Sound that can be heard or is perceptible by the human ear.

Background Noise: A measure of the underlying noise (excluding any unusual events) which is present at a site before a new noise source is introduced. This is usually described in terms of the L_{A90} level: the sound pressure level exceeded for 90% of the time.

C_{tr} Spectrum adaptation term: A correction added to a sound insulation quantity (such as R_W) to take account of a specific (traffic noise) spectra. See BS EN ISO 717-1:1997. For example the difference between internal and external traffic noise levels in dB(A) is calculated using $R_W + C_{tr}$ (equivalent to $R_{traffic}$)

Clearly audible: There is no acoustic definition for clearly audible and as such a noise source may be deemed to be clearly audible if it is both easily identifiable and deemed likely to adversely affect the amenity of residents of any (proposed) development.

$D_{ne,W}$ Weighted element normalized level difference: A single-number quantity which characterizes the airborne sound insulation of a small building element. See BS EN ISO 717-1: 1997

$D_{nT,W}$ Standardised level difference: A single-number quantity which characterizes the airborne sound insulation between rooms. See BS EN ISO 717-1: 1997

Decibel (dB): A unit used for many acoustic quantities to indicate the level of sound with respect to a reference level.

EPU: Environmental Protection Unit, a service within the Environmental Health section of the Regulatory Services Department of Birmingham City Council.

Façade measurement: Noise measurements made outside an external wall of a structure (usually 1 metre from the wall).

Free Field: 1. A free sound field is a field in a homogeneous, isotropic medium free from boundaries. In practice it is a field in which the effects of the boundaries are negligible over the region of interest. The actual pressure impinging on an object (e.g., a microphone) placed in an otherwise free sound field will differ from the pressure which would exist at the point with the object removed, unless the acoustic impedance of the object matches the acoustic impedance of the medium.

2. An environment in which there are no reflective surfaces within the frequency region of interest.

3. A region in which no significant reflections of sound occur.

4. [BS4142] suggests that free-field environmental noise measurements need to be made at least 3.5m from any reflecting structure.

Habitable room: A room used for sleeping or recreation / relaxation.

Hertz (Hz): unit of frequency, equal to one cycle per second. Frequency is related to the pitch of a sound.

Inaudible: Sound that cannot be heard or is imperceptible to the human ear.

Industrial-type noise sources: Noise sources that are industrial in character. For example noise from plant and machinery, materials handling operations, or manoeuvring of heavy vehicles.

Institute of Acoustics: A professional body representing persons at all levels working in the field of acoustics. <http://www.ioa.org.uk/>

L_{A90,T}: Sound pressure level exceeded for 90% of the measurement period “T” or ‘background level’.

L_{Aeq,T}: Equivalent continuous sound pressure level measured over the time period “T”

L_{Amax}: The maximum RMS A weighted sound pressure level

Mixed Use: Premises or development which will include both residential and non-residential uses

Noise: Unwanted sound.

Noise with a specific character: Noise has a specific character if it contains features such as a distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low frequency content .

Noise Nuisance: A legal term used to describe noise at a level that is disturbing as perceived by a reasonable person. The meaning of nuisance is defined by precedent in common law.

Outdoor Amenity Area: An outdoor area adjacent to a residential building which is designed and intended primarily for the leisure and recreation of the occupants of the dwelling. This will include gardens, landscaped areas, balconies.

R, Sound reduction index: A quantity which characterizes the airborne sound insulation of a material or building element in a stated frequency band. See BS EN ISO 140-3:1995

R_w , Weighted sound reduction index: A single-number quantity which characterizes the airborne sound insulation of a material or building element measured in the laboratory. See BS EN ISO 717-1: 1997

Rating Level: The noise level of an industrial noise source which includes an adjustment for the character of the noise. Used in BS4142.

Residual Noise : The ambient noise remaining at a given position in a given situation when the specific noise level is suppressed to a degree such that it does not contribute to the ambient noise.

Sound insulation: A quantity which is used to characterize the reduction in sound pressure level across an element or partition. (See R, R_w , $D_{nT,W}$, $D_{ne,W}$, C_{tr})

Specific noise source : The noise source under investigation for assessing the likelihood of complaints.

Steady State Noise: Noise that gives fluctuations over a range of not more than 5 dB on a sound level meter set to frequency weighting A and time weighting S. [BS 4142:2014]

Structure borne noise: Noise that propagates through a structure, for example through a building.

Appendix 2 Guidance & References

Planning policies are set at both a national and local level. With respect to national policy, assessment of the suitability of a site for residential development was previously guided by Planning Policy Guidance Note 24 “Planning and noise” (PPG 24), issued by the Department of the Environment in 1994. This document gave guidance to local authorities on the use of their planning powers to minimise the adverse impact of noise, using clearly defined prescriptive noise exposure categories. On 28 March 2012, the Government published the National Planning Policy Framework (NPPF) and cancelled numerous planning guidance/policy documents including PPG 24.

With regard to noise, the NPPF (“the Framework”) does not provide specific policies or defined noise limits, but rather is intended to enable the planning system to support the Government’s aims and objectives with respect to sustainable development, and provides a general framework within which planning applications for development “must be determined in accordance with the [local] development plan”.

None of the current local or national planning policies preclude the proposed redevelopment of the site. The National Planning Policy Framework does state that “the planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability”. Additional national planning guidance is provided in the Government’s Noise Policy Statement for England² (NPSE – “the Noise Policy”), to which the Framework makes specific reference as the main source of national guidance specifically on planning and noise. The Noise Policy has a 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”. The vision is supported by three key aims intended to promote sustainable development with respect to noise so that “Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development: void significant adverse impacts on health and quality of life;”.

Health is defined by the World Health Organisation as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, and recognises the enjoyment of the highest attainable standard of health as one of the fundamental rights of every human being” and the Noise Policy makes “a distinction between ‘quality of life’ which is a subjective measure that refers to people’s emotional, social and physical well being and ‘health’ which refers to physical and mental well being”. However, the Noise Policy recognises that it is not currently possible to define a single objective noise level having specific effects on people, hence the emphasis on “promoting” improvements to health and quality of life through effective management of noise, considered in the context of the wider environment and factors other than noise.

Assessment of noise arising from commercial uses is assessed in accordance with the guidance contained in BS 4142: 2014 Methods for rating and assessing industrial and commercial sound. Note that this standard refers to “sound” rather than “noise”.

BS 4142 provides a method for determining the sound arising from an industrial or commercial site, defined as the site's 'specific' sound level (dB LAeq) to which is added a correction for tonal, impulsive or intermittent elements, to provide the site's 'rating' sound level (dB LAr,Tr). The rating sound level is then compared with the background (dB LA90 or 90th percentile) sound level as measured or calculated outside a building, usually a residential property. The standard applies a 'penalty' to tonal, impulsive and intermittent sounds, as separate entities. The simplest method is a subjective assessment with a sliding scale of up to +6 dB for tonal sound, up to +9 dB for impulsive sound and +3 dB for intermittency. The objective methods provided only allow for the assessment of tonal sound.

The standard indicates significance of sound effects according to varying degrees of "adverse impact": a difference between the background sound and industrial ("rating" sound) of +10 dB "is likely to be an indication of a significant adverse impact, depending on the context" whilst "a difference of around +5dB is likely to be an indication of an adverse impact, depending on the context" and that "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". The Standard includes a specific requirement that assessments should take account of "context" in determining the significance of any predicted impact, which is critical in providing a reasoned and pragmatic assessment, avoiding rigid adherence to limit values at the exclusion of any other considerations. The standard also includes an element of correction for "uncertainty", the assessment of which is largely subjective.

Additional guidance on potentially acceptable noise levels for residential properties is provided in BS 8233: 2014 Guidance on sound insulation and noise reduction for buildings. Unlike BS 4142 which merely assesses sound "outside a building", BS 8233 gives recommendations for external and internal noise levels for residential uses in order to protect residential amenity, derived from health-based research, as follows:

Living rooms during the day	35 dB LAeq,16hour
Dining rooms during the day	40 dB LAeq,16hour
Bedrooms during the day	35 dB LAeq,16hour
Bedrooms during the night	30 dB LAeq,8hour

The standard does not provide guidance on maximum (LAmax) noise levels but the 1999 World Health Organisation (WHO) Guidelines for Community Noise suggest that maximum noise levels in bedrooms at night should not regularly exceed 45 dB LAmax.

With respect to noise affecting external areas i.e. gardens, BS 8233:2014 states that "For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB LAeq,T, with an upper guideline value of 55 dB LAeq,T which would be acceptable in noisier environments".

Appendix 3 Noise Measurement Data
Background Noise Measurement

23/08/2026



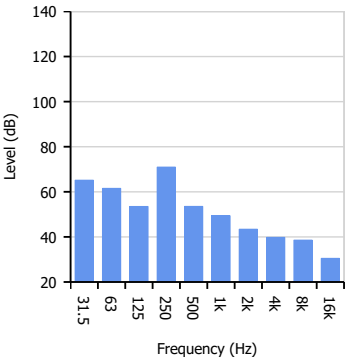
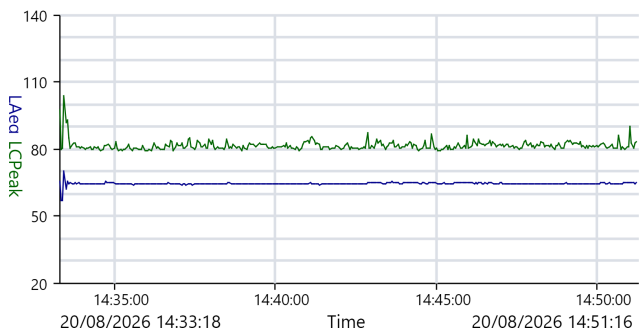
Measurement Summary Report

Name	708	Person		Place		Project	
Time	20/08/2026 14:33:18						
Duration	00:17:57						127 Kedleston Rd,
Instrument	G068016, CR:171B						

Calibration

Before	20/08/2026 14:32	Offset	0.12 dB	After	20/08/2026 14:51	Offset	-0.06 dB
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Basic Values		Projected Exposure	
LAeq	64.4 dB	30 Minutes	52.4 dB
LCPeak	103.5 dB	1 Hour	55.4 dB
C-A	7.6 dB	2 Hours	58.4 dB
LEPd	50.1 dB	4 Hours	61.4 dB
LAFMax	82.2 dB	6 Hours	63.2 dB
		8 Hours	64.4 dB
		10 Hours	65.4 dB
		12 Hours	66.2 dB



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Cirrus Research NoiseTools

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