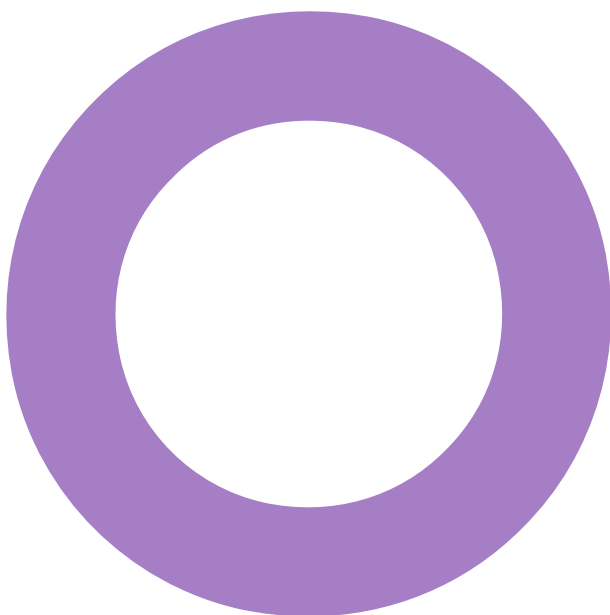


Drayton Barns. Fenny Drayton. Extra Room Self Storage.

ACOUSTICS
CONDITION 3

REVISION 2 – 16 FEBRUARY 2024



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
00	17/01/2024	Initial issue DFC	AM	SG	PM
1	24/01/2024	Updated following client comments	AM	AM	PM
2	16/02/2024	Updated following client comments	AM	AM	PM

This document has been prepared for Extra Room Self Storage only and solely for the purposes expressly defined herein. We owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. The consequences of climate change and the effects of future changes in climatic conditions cannot be accurately predicted. This report has been based solely on the specific design assumptions and criteria stated herein.

Project number: 10-15170

Document reference: REP-1015170-AM-20240110-Acoustic planning report-Rev02.docx

Contents.

Audit sheet.	2
Executive summary	4
1. Introduction.	5
2. Assessment criteria.	5
2.1 National Planning Policy framework.	5
2.2 BS 4142:2014 guidance.	6
3. Site and development details.	6
4. Environmental noise survey.	7
4.1 Observations.	8
4.2 Results.	8
5. Noise assessment from proposed works.	9
5.1 HGV Impact.	9
5.2 Electric Gate – BS4142 Assessment.	11
6. Discussion.	12
6.1 BS8233 Assessment.	12
6.2 BS4142 Assessment.	12
Appendix A: Survey and equipment details.	14
Appendix B: Time history of unattended measurements.	15

Executive summary

Hoare Lea Acoustics have been appointed to provide acoustic assistance at the development site known as 'Extra Room Self Storage', located at Drayton Barns, Drayton Lane, Fenny Drayton, CV13 6AY.

The existing buildings at the site benefit from unrestricted opening hours.

Planning permission was granted on the 9 June 2023 for an extension on the eastern elevation of the existing self storage facility. Implementation of this planning permission will limit hours of operation of the extension building as detailed below:

Condition 3

The operating hours of the storage facility shall be limited to 05:00 to 23:00 Monday to Sunday with the reception hours being Monday to Friday 08.30 to 18.00 & Saturday 09.00 to 15.00 only.

Reason: To ensure there are no adverse impacts on the amenity of the occupiers of neighbouring properties and to ensure the visual amenity of the countryside to accord with Policies DM4 and DM10 of the Site Allocations and Development Management Policies DPD.

The proposed amendment would allow 24/7 usage of the entire site.

An environmental noise survey has been carried out on site between 23 and 27 November 2023 to determine the prevalent ambient and background noise levels within the surrounding area.

The calculations presented within this report indicate that all activities associated at the site would achieve the requirements of BS 8233 at the nearest dwellings as well as a BS 4142 condition of 'low impact' at all times of the day and night without the requirement for any additional mitigation. This assessment is based upon 24/7 access to the site.

1. Introduction.

Hoare Lea Acoustics have been appointed to carry out an environmental noise survey and report to assist the amendment of Condition 3 currently associated with the development site located at Extra Room Self Storage, Drayton Barns, Fenny Drayton, CV13 6AY.

An environmental noise survey has been carried out at the site over 5 days commencing on 23 November 2023. The aim of the survey was to determine the prevalent noise levels around the site.

This report reviews typical operational noise levels for activities which currently occur at the site and assesses these with respect to the existing noise climate at the nearest residential properties. Recommendations for noise control measures are provided where appropriate.

2. Assessment criteria.

2.1 National Planning Policy framework.

The National Planning Policy Framework (NPPF): December 2023 sets out the Government's planning policies for England and how these are expected to be applied. The document seeks to encourage sustainable development subject to all relevant factors.

Section 15: 'Conserving and enhancing the natural environment', paragraph 170, states the following:

'Planning policies and decisions should contribute to and enhance the natural and 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'.*

Furthermore, paragraph 180 states that:

'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:

- 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'*

Paragraph 183, additionally, states *'The focus of planning policies and decisions should be on whether proposed development is acceptable use of land rather than control of processes or emissions (where these are subject to separate pollution control regimes)'.*

NPPF also makes reference to the DEFRA Noise Policy Statement for England (NPSfE) 2010. This latter document is intended to apply to all forms of noise other than that which occurs in the workplace. It includes environmental noise and neighbourhood noise in all forms.

NPSfE advises that the impact of noise should be assessed on the basis of adverse and significant adverse effect but does not provide any specific guidance on assessment methods or limit sound levels. Moreover, the document advises that it is not possible to have *'a single objective noise-based measure...that is applicable to all sources of noise in all situations.'* It further advises that the sound level at which an adverse effect occurs is *'likely to be different for different noise sources, for different receptors and at different times.'*

In the absence of specific guidance for assessment of environmental noise within NPPF and NPSfE, it will be necessary to base the assessment on current British Standards and relevant local or national guidance.

It is noted that NPSfE also advises that the general principle that increases in ambient noise should be 'minimised', needs to be considered in context for each site and, in this regard, states:

'Of course, taken in isolation and to a literal extreme, noise minimisation would mean no noise at all. In reality, although it has not always been stated, the aim has tended to be to minimise noise as far as is reasonably practical... the application of the NPSfE should enable noise to be considered alongside other relevant issues and not to be considered in isolation. In the past, the wider benefits of a particular...development or other activity may not have been given adequate weight when assessing the noise implications'.

2.2 BS 4142:2014 guidance.

The general principle of the BS 4142 assessment criteria is that noise nuisance can be avoided provided there is no significant change in the prevailing background noise conditions at any surrounding noise sensitive premises once the new equipment is operational.

Where the assessment indicates that the noise rating level of new plant would be 10 dB or greater above the background noise level, the standard judges that sound to be of significant adverse impact. A difference of 5dB is considered to result in adverse impact. Where the rating noise level of the plant is equal to or below background noise, there is likely to be low impact.

Further corrections should be applied if the plant noise contains tonal, intermittent and/or impulsive characteristics. The magnitude of these corrections is dependent upon the subjective perceptibility of the tones/impulses present.

3. Site and development details.

The existing buildings provide self storage facilities at a location to the west of Fenny Drayton. These buildings benefit from unrestricted 24/7 access.

The consented extension is to the eastern elevation of the existing self storage facility. Implementation of this planning permission for the eastern elevation extension will limit access to the extension building to 05:00 to 23:00 Monday to Sunday in line with the requirements of Condition 3 of the planning permission.

The site is serviced by an access road linking to a junction with Drayton Lane to the south. Access to the site is restricted by use of an electric gate which is pass-code controlled.

All loading and unloading of vehicles will take place in the existing service yard. Access to the eastern elevation extension would be via internal corridors within the existing self storage facility.

The site is surrounded on all sides by a large area of open farmland.

The nearest identified residential premises to the location of the proposed development site comprise residences along Church Lane. These closest dwellings are located 125 metres from the nearest building façade, 145 metres from the service yard, 100 metres from the mid-point of the access road, and 65 metres from the electric gate.

The indicative site location and surroundings is presented in Figure 1.

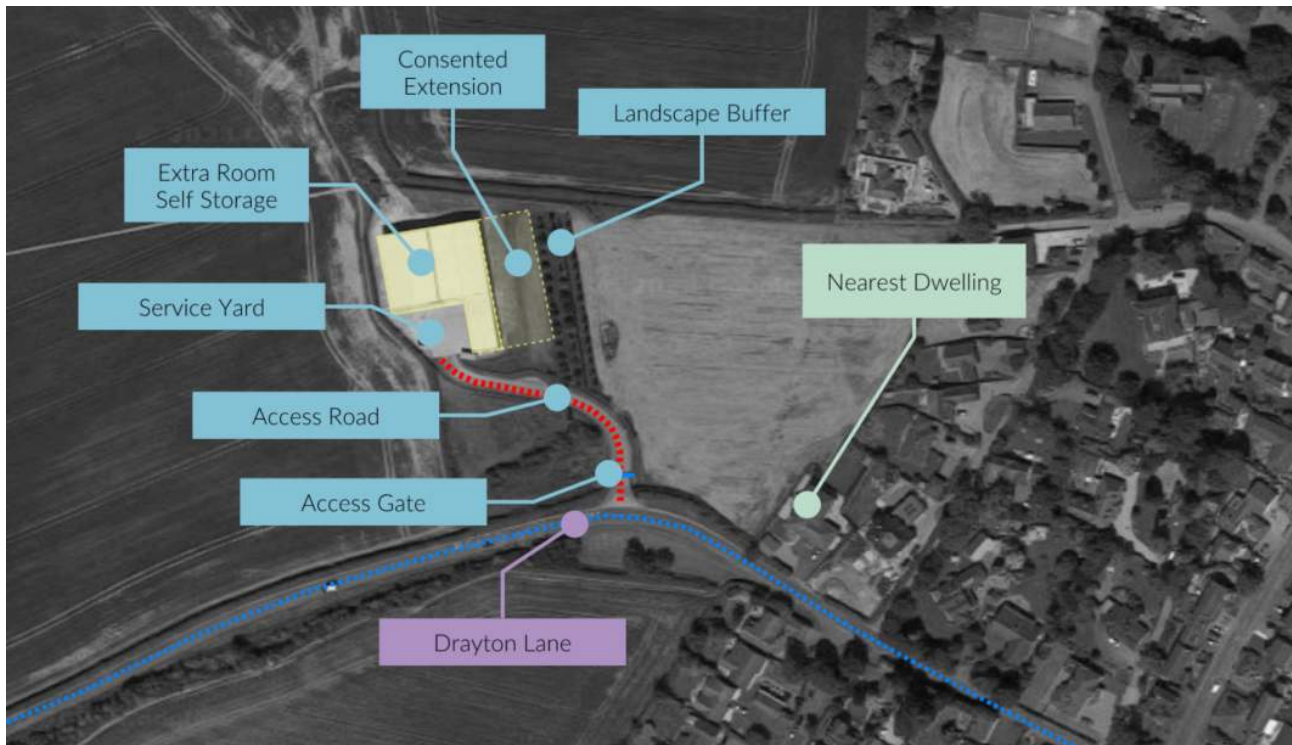


Figure 1 Annotated 3D aerial render indicating site location (courtesy of Google Earth)

4. Environmental noise survey.

The environmental noise survey was carried out on site over a period of 5 days between 23 and 27 November 2023. During this time, long-term unattended measurements were carried out at Position L1.

Attended monitoring of the specific noise of the electric gate was also conducted at Position L2

Full details of the method and equipment used, as well as weather information are provided in Appendix A.

The survey measurement positions are presented in Figure 2 below.



Figure 2 Annotated 3D aerial render indicating measurement position (courtesy of Google Earth)

4.1 Observations.

From observations on site during equipment set up and collection, there was no noise break-out from the building itself. Noise from the site solely consisted of intermittent noise from vehicles on the access road, and localised noise from the operation of the electric gate. Highest levels of noise were perceived to be as a result of general traffic activity on Drayton Lane to the south.

4.2 Results.

4.2.1 Ambient noise levels.

The measured ambient noise levels during the survey for each day and night of the survey period at position L1 are presented in Table 1, along with the arithmetic average for each period of the day. A time history graph of the survey results at position L1 is provided in Appendix B.

Table 1 Unattended measurement results at position L1

Date	Ambient sound pressure levels measured (dB)	
	Day (07:00 - 23:00) L _{Aeq} , 16hr	Night (23:00 - 07:00) L _{Aeq} , 8hr
23/08/2023	52	45
24/08/2023	49	42
25/08/2023	48	42
26/08/2023	47	46
27/08/2023	50	-
Representative level	49	42

4.2.2 Typical background sound levels.

In line with BS 4142:2014, for the purpose of analysis and establishing representative background sound levels during the periods of interest, the background sound levels have been quantified using statistical analysis from the continuous logging measurements.

From the analysis carried out, the representative background sound levels measured during the survey are presented to follow, based on the 10th percentile of measured noise levels:

- 38 dB L_{A90,15min} during the daytime (07:00 - 23:00), and
- 31 dB L_{A90,15min} during the night (23:00 - 07:00).

5. Noise assessment from proposed works.

5.1 HGV impact.

A Trip Generation Review has been conducted by David Tucker Associates (DTA) as detailed in the Transport Statement dated 03 March 2023 submitted as part of the planning application for the eastern elevation extension (23/00239/FUL).

The transport statement indicates the following:

- the existing site generates around 12 vehicles per day.
- the extension building for which planning permission has been granted will generate an additional 9 additional vehicles per day for a total of 21 vehicles per day (42 two-way movements).
- A break-down of vehicle movements confirms the following break-down of vehicle types:
 - 60% Cars
 - 8% small vans
 - 33% transit vans
 - 0% HGVs

On the basis of the above, it can be established that with the extension in place, there would be on average ~3.5 vehicles per hour during the daytime.

At present, access hours are set at 7am to 8pm, 7 days a week. Even with 24/7 access, the overwhelming majority of the 21 vehicles expected to site each day would still be during these daytime hours. It has been confirmed by the client, as a conservative estimate, that it would be unexpected to have more than 1 vehicle accessing the site per hour during any extended operating hours. We have used this conservative estimate for the purpose of modelling to assess worst case scenario acoustic impact.

An assessment of the noise from vehicle movements at the closest dwellings to the east has, therefore, been based upon the following assumptions:

- 1 vehicle movement per hour during the proposed extended operational hours (2no movements per any 15-minute assessment period as a conservative assessment).
- The typical vehicle traverse distance is 100 m which would take approximately 22 seconds at 10 mph.
- HGV reversing time of 7 seconds based upon a reversing distance of 16 m at a speed of 5 mph.
- Source noise data from Hoare Lea archived measurements.
- Point source attenuation based upon a typical distance of 100 metres.

With regard to the 100 metres distance attenuation detailed above, this is calculated based upon the average distance of the vehicle from source to the closest noise-sensitive receiver as the vehicle travels along the access road.

The transport assessment established that the majority of vehicles to the site consisted of transit vans. In the absence of specific transit van data, HGV noise levels have been used on the basis that this will be louder than a transit, small van or car, and as such, will present a worst-case scenario.

5.1.2 Vehicle movements.

Calculated ambient noise levels of vehicle movements at the nearest dwellings for the purposes of assessment in accordance with the principles of BS 8233 and BS 4142 are derived below.

Table 2 Calculation of noise level at dwellings due to vehicle movements.

Parameter	Daytime, dB	Night time, dB
Archive HGV noise level ($L_{Aeq,T}$ at 2 m)	75	75
On time correction - 22 seconds	-22	-16
Specific sound level ($L_{Aeq,T}$)	53	59
Two movements per assessment period	+3	+3
Distance Attenuation - 100 m	-34	-34
Barrier screening	-0	-0
Sound level at Dwelling ($L_{Aeq,T}$)	22	28

As detailed above, the calculated noise levels presented above are based upon HGV activity. Actual noise levels from the use of cars and vans visiting the site are expected to be lower.

Calculated levels of noise at the nearest dwellings are noted to be significantly lower than that of general traffic activity on Drayton Lane to the south.

5.1.3 Reversing alarms.

Based on a review of manufacturer's data, a typical tonal alarm is considered to have a sound power level of 96-98 dB(A).

Calculated noise levels of typical reversing alarms at the nearest dwellings for the purposes of assessment in accordance with the principles of BS 8233 and BS 4142 are derived below.

Table 3 Calculation of noise level at dwellings due to reversing alarms.

Parameter	Daytime, dB	Night time, dB
Alarm sound power level	98	98
Alarm sound pressure level ($L_{Aeq,T}$ at 1 m)	87	87
On time correction - 7 seconds	-27	-21
Specific sound level ($L_{Aeq,T}$)	60	66
One movement per assessment period	+0	+0
Distance Attenuation – 150 m	-44	-44
Barrier Screening	-10	-10
Sound level at Dwelling ($L_{Aeq,T}$)	6	12

The layout of the site ensures that vehicles reversing within the service yard are screened from view from the nearest dwellings to the east by the building itself which will provide a significant degree of barrier screening. However, it is likely that the majority of vehicles accessing the site will not be fitted with an alarm and as such, there will be no noise from reversing alarms on these occasions.

5.1.4 BS 4142 assessment.

From the previous sections, the BS 4142 assessment for vehicle movements and reversing alarms at the nearest dwellings to the east can be calculated as follows:

Table 4 BS 4142 assessment of HGV noise.

Parameter	Daytime, dB		Night time, dB	
	HGV	Alarm	HGV	Alarm
Sound pressure level ($L_{Aeq,T}$)	23	6	28	12
Correction (intermittent +3, ton)	+3	+5	+3	+5
Rating level at dwelling ($L_{Ar,T}$)	26	11	31	17
Total rating level ($L_{Ar,T}$)	26		31	
Typical lowest background ($L_{A90,T}$)	38		31	
Difference	-12		0	
BS 4142 assessment	'low impact'		'low impact'	

The calculated rating sound levels from vehicle movements at the nearest residential dwellings to the east achieve a condition of 'low impact' during both the daytime and night time.

The highest noise levels are as a result of HGV movements. For the majority of the time, usage of the site with cars and vans will result in significantly lower levels of noise which will result in an even lower level of noise impact.

General usage of the site by vehicles is noted to be predicted to be very low when compared to that of general traffic movements along Drayton Lane.

5.2 Electric Gate.

5.2.1 Noise levels.

Noise levels of the electric gate measured at one metre from the electric motor at Position L2 indicated a typical noise level of 63 dB $L_{Aeq,30sec}$. The gate was noted to take approximately 30 seconds to open and 30 seconds to close which would indicate an on-time for any one visitor to site of 60-seconds. If a visitor is to enter and exit the site within any one assessment period, this would equate to two movements.

Table 5 Calculation of noise level at dwellings due to electric gate.

Parameter	Daytime, dB	Night time, dB
Gate noise level (L_{Aeq} at 1 m)	63	63
On time correction – 60 seconds	-18	-12
Specific sound level ($L_{Aeq,T}$)	46	51
Two movements per assessment period	+3	+3
Distance attenuation – 60 m	-36	-36
Barrier screening	-0	-0
Level at Dwelling ($L_{Aeq,T}$)	13	19

5.2.2 BS 4142 assessment.

The BS 4142 assessment for noise from the electric gate at the nearest dwellings to the east can be calculated as follows:

Table 6 BS 4142 assessment of electric gate noise.

Parameter	Daytime, dB	Night time, dB
Sound pressure level ($L_{Aeq,T}$)	13	19
Correction (intermittent +3)	+3	+3
Rating Level at dwelling ($L_{Ar,T}$)	16	22
Typical lowest background ($L_{A90,T}$)	38	31
Difference	-22	-9
BS 4142 assessment	'low impact'	'low impact'

The calculated rating sound levels from the electric gate at the nearest residential dwellings to the east achieve a condition of 'low impact' during both the daytime and night time.

6. Discussion.

6.1 BS 8233 Assessment.

British Standard 8233:2014 provides guidance on acceptable sound levels in and around dwellings and it would be expected that the new development should not give rise to noise levels that exceed the target criteria in the standard.

BS 8233 advises internal noise criteria of 35 dB $L_{Aeq,16h}$ daytime and $L_{Aeq,8h}$ 30 dB night time within dwellings. It is assumed that windows may be open for ventilation and BS 8233 advises that an open window provides a sound reduction of approximately 15 dB, although this can vary. From this information, it may be extrapolated that external levels should not exceed $L_{Aeq,16h}$ 50 dB daytime and 45 dB $L_{Aeq,8h}$ night time at the dwellings.

The calculated levels for vehicle activity, including reversing alarms, incident at dwellings to the east are below 28 dB $L_{Aeq,T}$ during the day and night. These levels would readily achieve the BS 8233 internal criteria when windows are open.

The calculated levels for use of the electric gate incident at dwellings to the east are below 19 dB $L_{Aeq,T}$ during the day and night. These levels would again readily achieve the BS 8233 internal criteria when windows are open.

In the case of gardens at dwellings, calculated immission levels during daytime are significantly below the BS 8233 preferred limit level of 50 dB $L_{Aeq,T}$.

6.2 BS 4142 Assessment.

The calculations shown in Section 5 indicate that vehicle related activity at the site including reversing alarms would achieve a BS 4142 condition of 'low impact' at the nearest dwellings at all times of the day and night without the requirement for any additional mitigation.

It is noted that this assessment is based upon HGV noise levels. No HGVs accessed the site during the Trip Generation Review analysis period but we have used HGV noise levels for the purposes of this assessment. The use of transit vans and cars would typically be significantly quieter.

The calculations shown in Section 5 indicate that use of the electric gate would also achieve a BS 4142 condition of 'low impact' at the nearest dwellings at all times of the day and night without the requirement for any additional mitigation.

In the case of noise from vehicle movements, vehicle alarms and use of the electric gate, it is noted that these activities are intermittent and occasional and that there will be no noise from these sources for the majority of the day.

It should be noted that the presented assessments are all based upon 24/7 activity.

Appendix A: Survey and equipment details.

Unattended noise measurements were carried out site between 13:00 on 23 November 2023 and 15:00 on 27 November 2023.

Prior to commencement of the unattended survey, a subjective assessment of the noise climate was undertaken and compared to that of the immediate vicinity of the nearby residential premises. The chosen logger position at position L1 was deemed to be representative of the noise levels at the nearest noise sensitive premises.

The microphone was fitted with a windshield. The meter was calibrated before and after the survey and no significant drift was noted.

Equipment details.

Table A1 summarises the details of the equipment used during the environmental noise survey. All equipment used was within dates of calibration and calibration certificates are available on request.

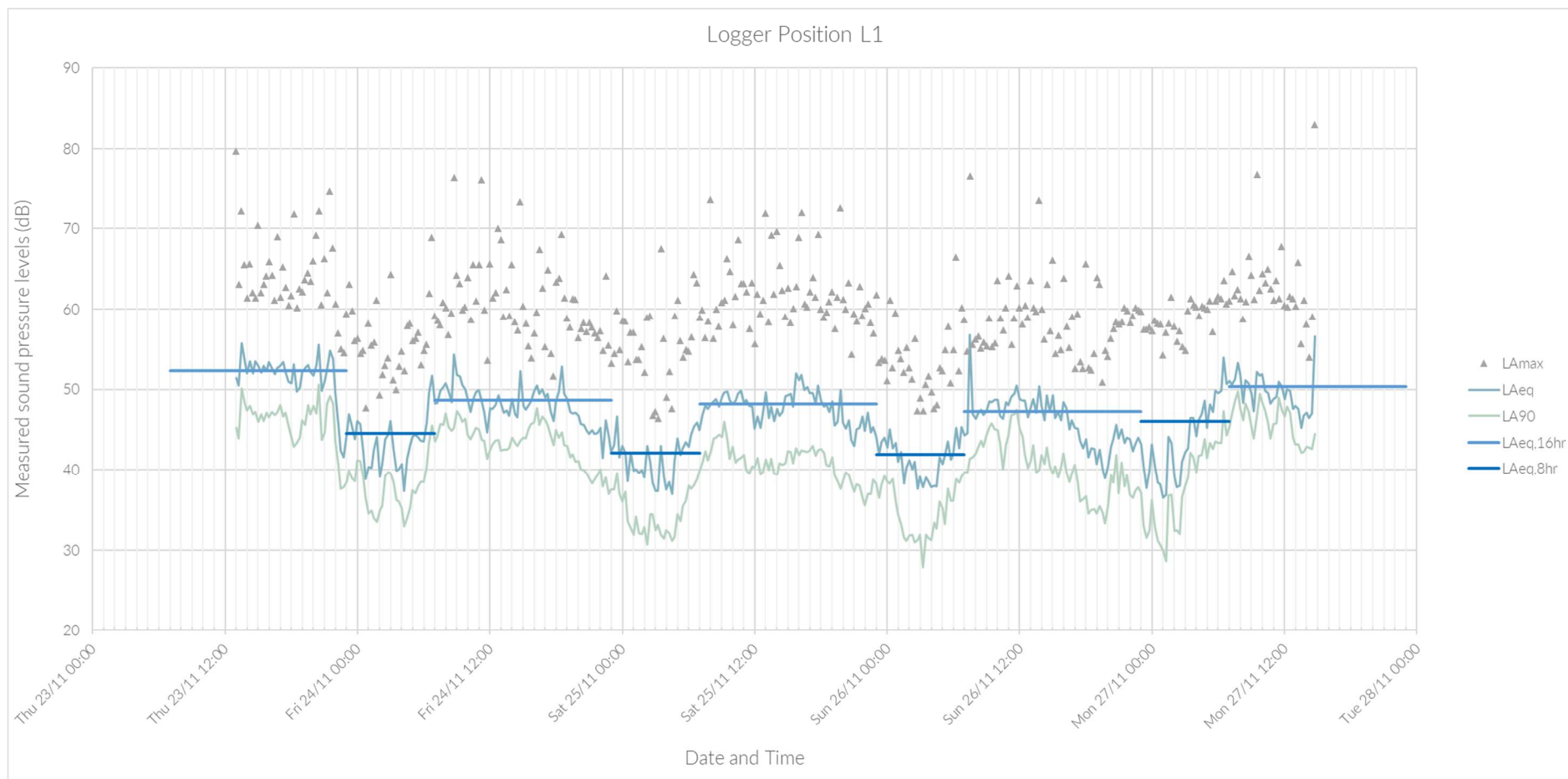
Table A1 Equipment used during environmental noise survey

Description	Serial Number	Calibration Date
Rion - Sound Level Meter: NL-52	632046	18/08/2023
Rion - Microphone: UC-59	18987	
Rion - Pre-amplifier: NH-25	32074	

Weather information.

Weather reports for the area indicate that temperatures ranged between -1 °C to 13 °C. Weather conditions were noted to be predominantly dry, with wind speeds generally below 5m/s and not expected to have adversely affected measurements during the survey period.

Appendix B: Time history of unattended measurements.





ADRIAN MCCORDICK

PRINCIPAL ACOUSTICS ENGINEER

+44 121 450 4800

adrianmccordick@hoarelealea.com

HOARELEA.COM

6th Floor West
54 Hagley Road
Edgbaston
Birmingham
B16 8PE

