



MAUNDITTS PARK FARM BARN

NOISE REPORT FOR PLANNING

Reference PL/2025/02369

Acoustics Report A2293 R01

30th April 2025

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Contents

1	Introduction	1
2	Scheme Details.....	1
2.1	Site Location	1
2.2	Proposed Scheme.....	2
3	Planning Conditions and other Guidance	3
3.1	National Planning Policy Framework	3
3.2	Noise Policy Statement for England (NPSE).....	3
3.2.1	Planning Practice Guidance – Noise (Web Publication)	4
3.3	ProPG: Planning and Noise.....	4
3.4	BS 8233: 2014 - Internal Noise Criteria	6
3.5	Ventilation and Overheating: AVOG	7
3.6	Criteria for Gardens and Outdoor Amenity Areas – BS 8233:2014	8
3.7	Wiltshire Council Guidance Public Consultation Response	8
4	Noise Survey	9
4.1	Weather Conditions	9
4.2	Position MP1	9
4.3	Measurements at MP2	10
5	Noise Survey Results.....	11
5.1	Noise Levels Measured at MP1	11
5.2	Results from MP2	12
6	Discussion	13
6.1	Internal Noise Levels – Rear Elevation	13
6.2	South-Eastern Elevation	13
6.3	Building Envelope Sound Insulation	14
7	Summary	15

Appendix A – Tabulated Noise Survey Data

Appendix B – Building Envelope Sound Insulation Calculations

1 Introduction

Ion Acoustics is appointed by BA Marsh Farming to advise on noise issues associated with the conversion of a barn at Maunditts Park Farm to residential use. This report is to support the Prior Approval (Class Q) application (Planning Ref PL/2025/02369). The site is close to the road (B4042) between Little Somerford and Malmesbury and is therefore exposed to road traffic noise.

To determine noise levels incident on the barn, a noise survey was carried out from Wednesday 16th to Friday 18th April 2025.

This report provides an Acoustic Design Statement for the proposed scheme to demonstrate that appropriate noise conditions can be achieved and describes:

- The methodology and results of the noise survey;
- Noise levels affecting the proposed premises;
- Mitigation advice following a good acoustic design hierarchy.

2 Scheme Details

2.1 Site Location

The proposed development is the conversion of an existing barn by the B4042. An aerial image of the site is provided below in Figure 1 with two monitoring positions (MP1 etc) adopted for the noise survey. There are existing houses to the south exposed to similar levels of road noise.



Figure 1 – Satellite Image showing barn and with Monitoring Positions

2.2 Proposed Scheme

The proposed scheme has been well designed to minimise the effects of noise because the more noise-sensitive rooms are located to the rear. The ground and first floor plans are provided in Figures 2 and 3 below.

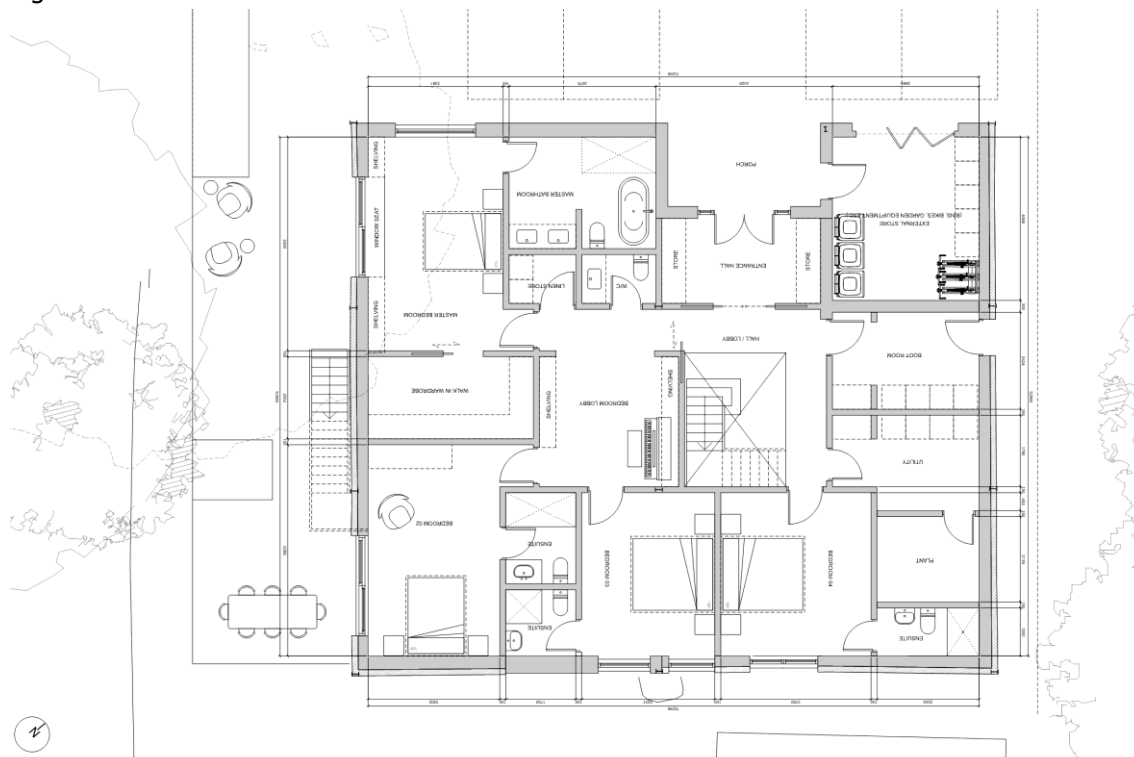


Figure 2 – Proposed Ground Floor Plan



Figure 2 – Proposed First Floor Plan

The bedrooms are located on the ground floor with the master bedroom in the western corner and a further bedroom on the southern corner. The main amenity space is also here at the rear with a first-floor balcony, again shielded from the road.

There are two further bedrooms on the south-eastern elevation which have first floor living room and a playroom above. The main noise survey position was selected to assess noise incident on this elevation. A few additional measurements were made to consider noise levels at the rear (south-western elevation).

3 Planning Conditions and other Guidance

3.1 National Planning Policy Framework

In 2012 the National Planning Policy Framework (NPPF) replaced a number of Planning Policy Statements with a single document which is intended to promote sustainable development. The last major revision was in December 2024¹ when various aspects of the guidance changed.

The NPPF sets out the Government's planning policies for England. The document is generally not prescriptive and does not provide noise criteria. Instead, it places the onus on local authorities to develop their own local plans and policies. Sections of the NPPF relating to noise are stated below:

187. 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. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans;

198. 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;

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason;

In this instance, Wiltshire Council has provided their own local guidance in the form of their Planning and Noise Technical Guidance document. This is discussed in Section 3.7.

3.2 Noise Policy Statement for England (NPSE)

The Noise Policy Statement for England (NPSE) sets out the Government's policy on environmental, neighbourhood and neighbour noise for England. The policy sets out three aims:

¹ <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

- “avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impact on health and quality of life; and
- Where possible, contribute to the improvement of health and quality of life.”

The NPSE introduces the following terms which are also used in NPPF:

“NOEL – No Observed Effect Level

NOEL 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

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

SOAEL – Significant Observed Adverse Effect Level

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

However, neither the NPSE, nor the NPPF Planning Practice Guidance, define numeric criteria for the NOEL, LOAEL, or SOAEL. Instead, it is recommended in the NPSE that the limits of each effect level should be defined for each situation and location. The WHO “Guideline for Community Noise” and BS 8233:2014 recommend internal noise design targets for habitable rooms for the avoidance of negative health effects and to promote quality of life.

3.2.1 Planning Practice Guidance – Noise (Web Publication)

The planning practice guidance website provides advice on the application of the NPPF and the NPSE. The noise page² “advises on how planning can manage potential noise impacts in new development”.

Where residential development is planned close to sources of noise, the guidance gives examples of mitigation which may be included at the design stage: “including noise barriers; and optimising the sound insulation provided by the building envelope”.

The guidance also gives some further advice on interpretation of SOAEL as the level at which noise is noticeable and disruptive and where “the noise causes a material change in behaviour and/or attitudes. E.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficult in getting back to sleep...”

3.3 ProPG: Planning and Noise

The Professional Practice Guidance on Planning and Noise³ (May 2017) provides guidance on transport noise affecting new residential developments. The guidance was prepared by a working group formed of members of the Institute of Acoustics (IoA), the Association of Noise Consultants (ANC) and the Chartered Institute of Environmental Health (CIEH). It has no formal planning status, but represents good industry practice. It is specifically for assessing noise from sites where transportation noise sources dominate. The guidance promotes a two-stage assessment approach:

² <https://www.gov.uk/guidance/noise--2>

³ <https://www.ioa.org.uk/publications/propg>

Stage 1 – Initial Site Noise Risk Assessment; and,
 Stage 2 – Full assessment and systematic appraisal of four key elements.

The stage 1 initial risk assessment indicates the likely risk of adverse effects from noise, assuming in the first instance that no mitigation was included within the proposals. The risk assessment is based on the measured or predicted noise levels during a "typical worst case" 24-hour period. Figure 1 of the document (adapted below as Figure 4) presents the Stage 1 assessment and indicates that higher noise levels result in increased noise risk without mitigation. Figure 4 does not directly relate noise levels to specific risk categories, although the ProPG states that a negligible noise risk proudly correlates to noise levels not exceeding 50dB $L_{Aeq,16hr}$ (daytime) and 40dB $L_{Aeq,8hr}$ (night).

Day $L_{Aeq, 16 Hr}$	50 dB	55 dB	60 dB	65 dB	70 dB
	Negligible	Low	Medium	High	
Night $L_{Aeq, 8 Hr}$	40 dB	45 dB	50 dB	55 dB	60 dB

Figure 4: ProPG Stage 1 Noise Risk Assessment (adapted from ProPG Figure 1)

Where the initial noise assessment indicates a higher risk of adverse noise effects, a stage 2 assessment is required. The stage 2 assessment is more involved than the stage 1 and requires systematic consideration of four elements:

Element 1 – Good Acoustic Design Process

The acoustic design of a building and any mitigation should be considered at an early stage of the design process. Following a good acoustic design process is considered a part of achieving a good design as required by the NPSE and NPPF. Guidance on the requirements for providing an Acoustic Design Statement (ADS) is given in Figure 2 of the ProPG.

Element 2 – Internal Noise Level Guidelines

Guidance on internal noise levels can be found in BS8233:2014 guidance on sound insulation and noise reduction for buildings. Figure 2 of the ProPG summarises the guidance from BS8233 but with several additions. The internal noise criteria are presented in Figure 2 of ProPG, and the relevant notes are presented in the text below Table 1 of this report.

Element 3 – External Amenity Area Noise Assessment

The guidance of the ProPG reflects and extends on the advice of BS8233 and PPG Noise. The guidance in the ProPG presents five points for consideration, the first being "If the external amenity spaces are an intrinsic part of the overall design, the acoustic environment of those spaces should be considered so that they can be enjoyed as intended".

Element 4 – Assessment of Other Relevant Issue

"Other relevant issues" within the context of the ProPG include relevant national and local policies, which may have a bearing on the development.

Regarding developments located in higher-risk areas, ProPG says:

"This risk may be reduced by following a good acoustic design process that is demonstrated in a detailed ADS."

It goes on to explain what is meant by Good Acoustic Design:

"Good acoustic design is not just compliance with recommended internal and external noise exposure standards. Good acoustic design should provide an integrated solution whereby the optimum acoustic outcome is achieved, without design compromises that will adversely affect living conditions and the inhabitants' quality of life or other sustainable design objectives and requirements."

"Using fixed unopenable glazing for sound insulation purposes is generally unsatisfactory and should be avoided; occupants generally prefer the ability to have control over the internal environment using openable windows, even if the acoustic conditions would be considered unsatisfactory when open. Solely relying on sound insulation of the building envelope to achieve acceptable acoustic conditions in new residential development, when other methods could reduce the need for this approach, is not regarded as good acoustic design. Any reliance upon building envelope insulation with closed windows should be justified in supporting documents."

3.4 BS 8233: 2014 - Internal Noise Criteria

Noise limits for dwellings are usually set in terms of two noise parameters: the ambient level L_{Aeq} and the maximum level, L_{AFmax} . The L_{AFmax} is the highest noise level in a given period and is determined by individual events such as a vehicle pass-bys. An L_{AFmax} limit is usually only applied at night, when sleep disturbance is most likely to be an issue. The L_{Aeq} is defined as the steady-state noise level which has the same energy as the actual time-varying noise over the same time period. It is effectively the average noise level.

Appropriate internal noise levels are recommended in BS 8233:2014, ProPG (shown in **Table 1** below) and in the World Health Organisation (WHO) Guidance "Guidelines for Community Noise", 1999.

Table 1 – Indoor Ambient Noise Levels from BS 8233: 2014 and ProPG

Activity	Location	Day (07:00 to 23:00)	Night (23:00 to 07:00)
Resting	Living rooms	35 dB L_{Aeq} , 16 hour	N/A
Dining	Dining room/area	40 dB L_{Aeq} , 16 hour	
Sleeping - night Resting - day	Bedrooms	35 dB L_{Aeq} , 16 hour	30 dB L_{Aeq} , 8 hour 45 dB L_{AFmax} *
* Not exceeded more than 10 times during the night (from ProPG)			

WHO Guidelines propose internal limits of L_{Aeq} 35dB for living/dining rooms and L_{Aeq} 30dB / 45 dB L_{AFmax} inside a bedroom at night.

The internal noise criteria in BS 8233:2014 are followed by a number of notes. Those relevant to this scheme are reproduced below:

"Note 3: These levels are based on annual average data and do not have to be achieved in all circumstances. For example, it is normal to exclude occasional events, such as fireworks night on New Year's Eve."

"Note 4: Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or L_{AFmax} depending on the character and number of events per night. Sporadic noise events could require separate values."

"Note 5: If relying on closed windows to meet the guide values, there needs to be appropriate alternative ventilation that does not compromise the façade insulation or the resulting noise level."

"Note 6: Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions achieved."

The guidance detailed within the ProPG appends the guidance of BS 8233 with the inclusion of the 45dB L_{AFmax} criterion and states 'For a reasonable standard in noise-sensitive rooms at night (e.g. bedrooms) individual noise events should not normally exceed 45dB L_{AFmax} more than 10 times a night'.

3.5 Ventilation and Overheating: AVOG

The Acoustics, Ventilation, and Overheating Guidance (AVOG) was published by the Association of Noise Consultants (ANC) in January 2020⁴. AVOG is guidance for acoustic practitioners and others involved in planning, developing, designing, and commissioning new dwellings to achieve an appropriate balance of internal noise levels, ventilation, and overheating control regarding external transportation noise. It seeks to encourage an assessment of these issues at the planning stage. It is not mandatory guidance but represents current best practice for assessing the issue. In particular, AVOG advises considering when noise levels are such that it is reasonable to control overheating with openable windows and when it may be too noisy. Part O of the Building Regulations refer to internal noise levels under conditions with a risk of overheating (e.g. open windows may be required) but only apply to new buildings and is not relevant in this case.

It is generally accepted that some degree of elevated noise is accepted when residents choose to open windows, especially for overheating control. The Guidance includes agreed (higher) noise thresholds to identify adverse effects in relation to the higher ventilation rates associated with the need to control overheating.

Table 3.3 of the AVO Guide identifies the following internal noise values which would be associated with adverse effects with windows open to control overheating:

- 50 dB L_{Aeq} Daytime (07.00 to 23.00 hours)
- 42 dB L_{Aeq} Night-time (23.00 to 07.00 hours)
- 65 dB L_{AMax} (Normally exceeded) Individual noise events at night

The guide also advises that:

A level difference of around 13 dB from external free-field levels to reverberant internal levels can typically be assumed for a window that is sufficiently open to enable some ventilative cooling. However, the actual open area that may mitigate overheating depends on many factors, and may differ significantly from this proportion.

⁴ <https://www.association-of-noise-consultants.co.uk/acoustics-ventilation-and-overheating-guidance-released/>

The AVOG Guidance also confirms that confirmation with the BS 8233: 2014 noise targets (See Table 1 above) can be achieved with closed windows but with background or whole house ventilation provided to comply with Approved Document F (ADF) of the Building Regulations.

Specifically, Paragraph 3.9 states:

It is suggested here that the desirable internal noise standards within Table 4 of BS 8233:2014 should be achieved when providing adequate ventilation as defined by ADF whole dwelling ventilation. However, it is considered reasonable to allow higher levels of internal ambient noise from transport sources when higher rates of ventilation are required in relation to the overheating condition.

3.6 Criteria for Gardens and Outdoor Amenity Areas – BS 8233:2014

BS8233:2014 states a desirable limit of 50dB L_{Aeq} and an upper guideline limit of 55dB L_{Aeq} in outdoor amenity areas. This would normally apply to the 16-hour daytime values (07.00 to 23.00 hours). It is also stated that "(...) these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited."

3.7 Wiltshire Council Guidance Public Consultation Response

In a comment on the application, Damaris Broad, an Environmental Health officer with Wiltshire Council commented as follows in relation to noise:

The location is close to the B4042 and as such noise from traffic could be a factor for future occupiers. There is no information included with this application on noise from the road and so not enough information to process the application. I have attached the Wiltshire Council Planning and Noise Technical Guidance document which sets out requirements regarding noise assessment (S3.3), the noise level that should be achieved (S.6.4), attenuation of noise and that good design has been followed to minimise the impact of noise from traffic (S 5.5). The nature of the application may make the design aspect of the dwelling harder to alter and we would not accept a scheme that relies on all windows to habitable rooms having to remain closed to meet the criteria. We would need a noise assessment to be submitted to progress the application which demonstrates acceptable noise levels and the use of good design to minimise road traffic noise.

The Wiltshire Guidance has been reviewed. In this respect, the requirements in Section 3.3 for a 24-hour noise survey have been met with two nights assessed.

There is no Section 5.5 in the Wiltshire Guidance but Section 5.1 discusses Good Acoustic design and a Hierarchy of mitigation advice. Level 1 is to consider noise reduction at source which is obviously not possible in this case. Level 2 includes for noise barriers and other measures to reduce the propagation of noise. Level 3 includes for many of the measures adopted here with the layout of the dwelling.

The Wiltshire Guidance noise limits in Section 6.4 are broadly as Table 1 and BS 8233:2014 / ProPG but has an external noise limit for gardens and terraces of 50 dB L_{Aeq} which is the “desirable” noise limit in BS 8233.

Note also a statement in the guidance in this Section that states:

In accordance with the ProPG and the hierarchy in section 5 of this document the acoustic design scheme shall aim to achieve the internal noise levels with windows open.

While this may be a desirable aim, the advice in AVOG is that higher noise limits are acceptable under some circumstances, for example when windows are opened to control overheating.

4 Noise Survey

A baseline noise survey was carried out over the period Wednesday 16th April to Friday 18th April 2025. Two monitoring positions were adopted as shown in Figure 1 above. Location MP1 was chosen as the long-term monitoring period with noise levels logged over entire period. MP2 was chosen to assess noise levels in a sheltered position away from road with two 15-minute measurements made on the 16th and 18th April. The 18th April was Good Friday but a complete 24-hour period for normal weekday conditions is included from the 16th April.

4.1 Weather Conditions

The survey was undertaken for a forecast with a period of suitable weather conditions. Weather conditions on set up were sunny, the temperature was 11°C, with light south-westerly winds and 50% cloud cover. On collection, the weather conditions were overcast with 100% cloud over with also no more than light winds. A tipping bucket rain gauge was also set up at the site. No rain was recorded over the survey period.

4.2 Position MP1

A Rion NL52 sound level meter with Type WS15 wind shield was used at MP1 and calibrated with a Rion NC-75 sound level calibrator at the start and end of the survey. No significant drift in calibration was noted on collection. The meter was set up to log various noise indices (L_{Aeq} , $L_{Amax,F}$, L_{A90} , L_{A01} , L_{A10}) in consecutive 15-minute periods. Additionally, 2-minute audio files were recorded every 10 minutes, or when the sound level meter registered noise levels in excess of L_{pA} 75dB.

A single storey stable block had been built adjacent to the south-east elevation of the barn. Rather than trying to measure noise levels in the small gap between the barn and stables, the sound level meter was set up to the south-east of the stable block approximately 2m from the façade. A photo of the noise monitoring position is shown below.



Figure 5 Noise Monitoring Location MP1

4.3 Measurements at MP2

To assess noise levels on the quiet side, a Norsonic 140 sound level meter was used and set up at 1m from the rear facade. Two 15-minute measurements were made at the time of the set up and at collection of MP1. The clocks of the two meters were synchronized so that the difference between the two monitoring positions could be assessed. The meter was also calibrated with the Rion NC-75 calibrator. A photo of the measurement position is shown in Figure 6.



Figure 6 Noise Monitoring Location MP2

5 Noise Survey Results

5.1 Noise Levels Measured at MP1

Noise levels measured at MP1 are shown graphically in Figure 7 in terms of the 15-minute L_{Aeq} , L_{AFmax} and L_{A90} noise levels. The data is tabulated in Appendix A.

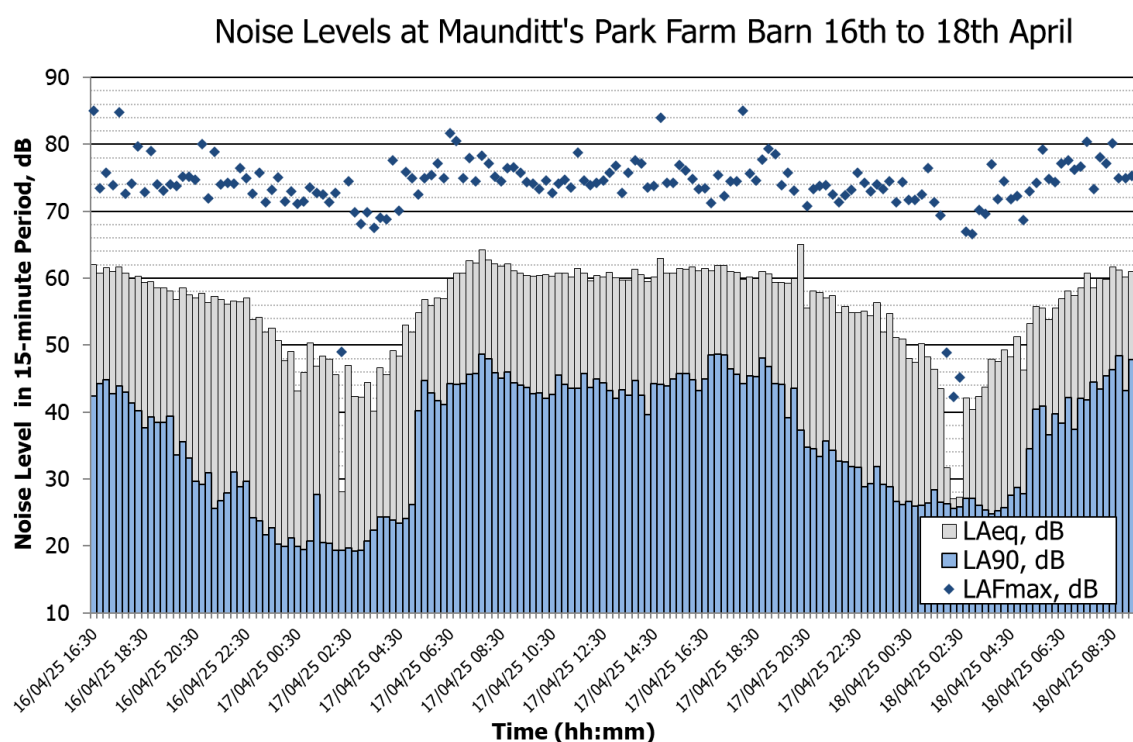


Figure 7: Time History Chart showing 15-minute Noise Levels

The results show reasonably steady noise levels during the day and then reducing noise levels in the evening and night as the traffic subsides. Maximum noise levels are consistently around 75 dB $L_{A_{Max}}$ but there are a few brief periods during the night when there must have been no traffic on the road in a 15-minute period as the maximum level drops significantly. In addition to the road traffic noise, bird song was audible together with some noise from the wind in the trees. Bird song, specifically the dawn chorus results in the increase in background noise levels (dB L_{A90}) from around 05.15 hours and probably also affects the L_{Aeq} results during this period.

The results have been averaged to determine the L_{Aeq} noise level over day and night-time assessment periods. The L_{Aeq} results have been logarithmical averaged. For the $L_{A_{Max}}$ values, a 15-minute period may contain several relatively high events and therefore a separate analysis of the 100 milli-second data has been carried out to determine the maximum level in a 1-minute period during the night in accordance with ProPG and Wiltshire Council guidance. These have then been ranked to determine the value not exceeded more than 10 times, namely the 11th highest 1-minute value.

The results in Figure 7 above include the reflecting effect of the side of the stable block which would increase noise levels by around 3dB. Therefore, 3dB has been subtracted so that the results apply to the free-field noise level for comparison with the ProPG noise risk categories and for using in building envelope sound insulation calculations.

Table 2 shows the free-field corrected results in terms of the 16-hour daytime and 8-hour night-time values. The $L_{A_{Max}}$ level not exceeded more than 10 times is also shown.

Table 2: External Noise Levels at Location MP1 (free-field)

Day	Period	Duration	L_{Aeq} dB	L_{AFmax} dB, Not Exceed more than 10 times
Wednesday 16 th April	Evening (19:00 to 23:00)	4 hrs	54.2	--
	Night (23:00 to 07:00)	8 hrs	49.9	72.0
Thursday 17 th April	Day (07:00 to 23:00)	16 hrs	57.6	--
	Night (23:00 to 07:00)	8 hrs	48.9	71.4

When compared the ProPG Noise Risk Categories, it can be seen that the results are in the low-medium noise risk category. This indicates that the site is not especially noisy. Nevertheless, the four Elements of ProPG Acoustic Design strategy and the Good Design Mitigation hierarchy in the Wiltshire Guidance have been followed to ensure good living conditions.

5.2 Results from MP2

The 15-minute L_{Aeq} results from the monitoring at the rear have been compared with the (free-field corrected) measurements at MP1 to determine the typical difference between the two locations. The results are presented below.

Table 3: Comparison of 15-minute Noise Levels

Date/ Time	MP1 L_{Aeq} dB (Free-field)	MP2 L_{Aeq} dB	Difference dB
16/04/2025 16:30	59.0	52.5	9.5
16/04/2025 16:45	57.7	50.6	10.1
18/04/2025 09:00	57.2	51.7	8.5
18/04/2025 09:15	58.0	53.5	7.5

The typical difference between the MP1 and MP2 is around 9 dB. If 9dB is subtracted from the results in Table 2 then the typical night-value would be 40 to 41 dB L_{Aeq} with a daytime value of 49 dB L_{Aeq} . This represents a negligible noise risk according to ProPG and noise levels in the external terrace would meet the Wiltshire limit of 50 dB L_{Aeq} for outside amenity areas.

6 Discussion

6.1 Internal Noise Levels – Rear Elevation

As discussed above, noise levels at the rear elevation are quiet and represent a negligible noise risk according to ProPG. Therefore, no specific noise control measures are required for any windows at the rear nor in respect of ventilation openings.

The main living area and two bedrooms have windows that can be opened on this elevation and therefore suitable internal conditions can be achieved with openable windows.

The master bedroom and main living area also have windows on the north-west elevation but these windows would not need to be opened to provide ventilation as the windows on the quiet side can be opened. Note it is not suggested that these windows are sealed shut. They should be openable to the users' discretion.

6.2 South-Eastern Elevation

For the south-east elevation, with windows open for ventilation, a value of 13dB can be subtracted from the Table 2 values to estimate the internal noise levels in the living room and bedroom on this elevation. The resulting equivalent internal noise levels are:

- 45 dB $L_{Aeq,16h}$ daytime in living rooms
- 37 to 38 dB $L_{Aeq,8h}$ and 58 to 59 dB L_{Amax} during the night in bedrooms

While this meets the AVOG limits, noise levels are above the BS 8233: 2014 values. In accordance with the Wiltshire Council design aims, and Level 2 of the Good Design hierarchy, it is proposed to provide a noise barrier to the roadside to reduce noise levels incident on the south-east elevation. The barrier should be 2.5m high and should extend 30m along the road from the south-eastern corner. The extent of the barrier is shown below (Grey Line).

The barrier should be constructed from any solid material eg timber or metal panels and should have a minimum surface mass of 12 kg/m². There must be no gaps between the panels or between panels and fence posts.

The proposed fence will be less effective in respect of shielding the upper floor but it should reduce levels compared to the condition with no barrier. This living room on this elevation is not the main living space and the open nature of the 1st floor will also allow ventilation from the quieter façade if necessary. Background or "Whole-House" Ventilation can be provided via trickle vents which would meet the noise limits internally.

The proposed barrier will reduce noise levels incident on the ground floor by between 5 and 10 dB and therefore provide a significant reduction in noise levels in the bedroom at night if windows are opened. All the steps in Wiltshire Council's Good Design Hierarchy have been followed.

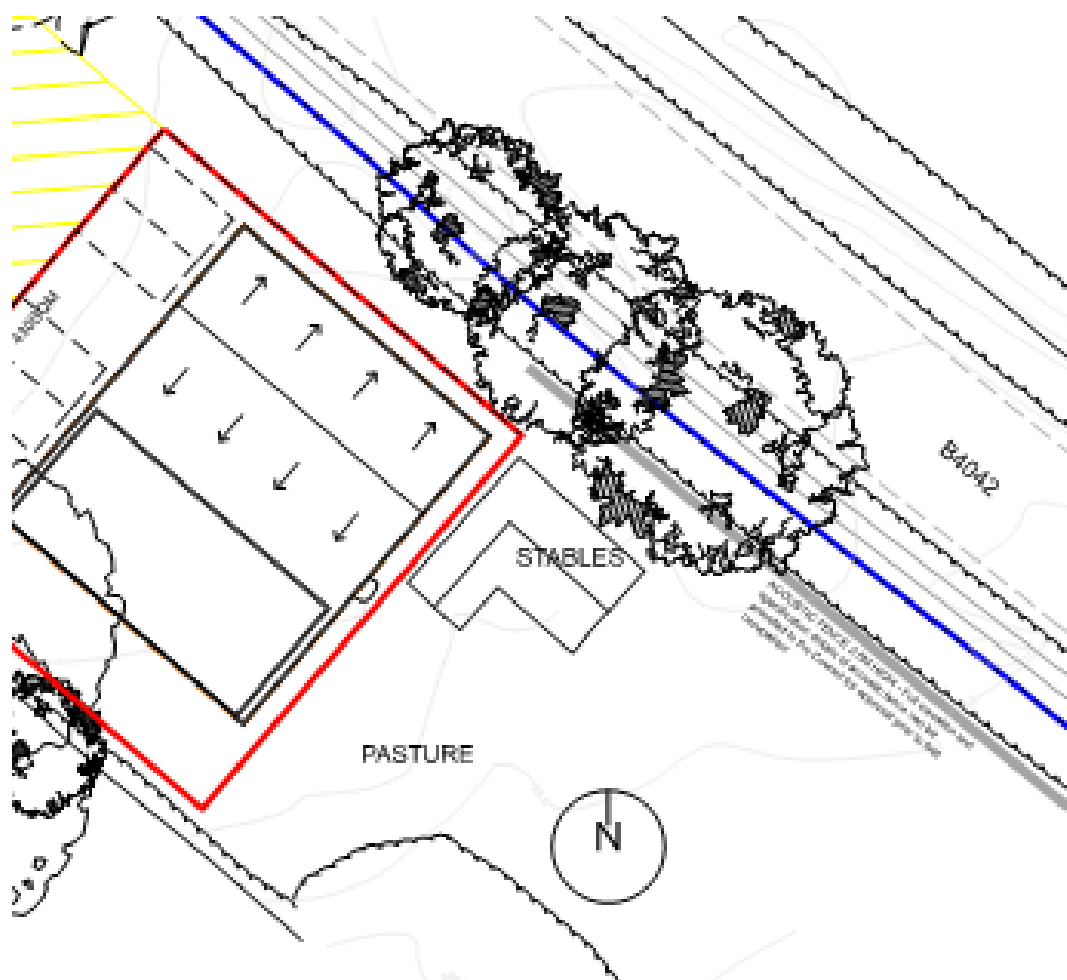


Figure 8: Extent of Proposed 2.5m high noise barrier

6.3 Building Envelope Sound Insulation

By adopting the good acoustic design principles above and providing a noise barrier, there are no special measures that need to be adopted in respect of the Building Envelope to protect the living rooms and bedrooms. Standard thermal double glazing (typically R_w 33 dB) and trickle vents achieving at least 31 dB $D_{ne,w}$ are sufficient. Calculations for the 1st Floor Living Room (SE Elevation) and the Master Bedroom (NW Elevation) are provided in Appendix B.

Note however that there is a small office on the north-eastern façade overlooking the road. This could have enhanced double glazing with a rating of 40 dB R_w eg 6.4lam/20/10 thermal double glazing with a trickle vent rated at 38 dB $D_{ne,w}$.

7 Summary

Ion Acoustics has undertaken a noise assessment and provided an acoustic design statement for the proposed conversion of a barn at Maunditts Park Farm. Noise levels are moderately high from the A4042 but there is other existing housing close to this road. The site is in the low to medium noise risk category, in regard to ProPG guidance so is not especially noisy.

For the proposed barn conversion, a good acoustic design process has been followed by incorporating a noise barrier to reduce noise levels on the south-eastern elevation and by ensuring the main bedrooms and living areas have openable windows away from the road to ensure that suitable ventilation can be provided with openable windows.

This report demonstrates that appropriate noise conditions can be achieved and prior approval can be granted with regard to noise issues.

**Maunditts Park Farm Barn
Noise Report for Planning
Appendix A – Tabulated Noise Survey Data**



Time	L _{Aeq} dB	L _{Amax,F} dB	L _{AF90} dB	Time	L _{Aeq} dB	L _{Amax,F} dB	L _{AF90} dB	Time	L _{Aeq} dB	L _{Amax,F} dB	L _{AF90} dB
16/04/2025 16:15	61.1	73.4	46.1	17/04/2025 06:00	57.0	77.2	41.7	17/04/2025 19:45	57.0	77.2	41.7
16/04/2025 16:30	62.0	85.0	42.4	17/04/2025 06:15	56.9	74.9	41.1	17/04/2025 20:00	56.9	74.9	41.1
16/04/2025 16:45	60.7	73.4	44.3	17/04/2025 06:30	60.0	81.7	44.2	17/04/2025 20:15	60.0	81.7	44.2
16/04/2025 17:00	61.6	75.8	44.8	17/04/2025 06:45	60.7	80.5	44.1	17/04/2025 20:30	60.7	80.5	44.1
16/04/2025 17:15	61.0	73.9	42.7	17/04/2025 07:00	60.7	75.0	44.2	17/04/2025 20:45	60.7	75.0	44.2
16/04/2025 17:30	61.7	84.8	43.9	17/04/2025 07:15	62.6	77.9	45.6	17/04/2025 21:00	62.6	77.9	45.6
16/04/2025 17:45	60.7	72.6	43.0	17/04/2025 07:30	62.3	74.5	45.7	17/04/2025 21:15	62.3	74.5	45.7
16/04/2025 18:00	60.0	74.1	41.4	17/04/2025 07:45	64.2	78.3	48.7	17/04/2025 21:30	64.2	78.3	48.7
16/04/2025 18:15	60.3	79.7	40.2	17/04/2025 08:00	62.7	77.1	47.9	17/04/2025 21:45	62.7	77.1	47.9
16/04/2025 18:30	59.4	72.9	37.7	17/04/2025 08:15	62.1	75.2	45.9	17/04/2025 22:00	62.1	75.2	45.9
16/04/2025 18:45	59.5	79.0	39.3	17/04/2025 08:30	61.8	74.5	45.1	17/04/2025 22:15	61.8	74.5	45.1
16/04/2025 19:00	58.5	74.0	38.5	17/04/2025 08:45	62.1	76.4	46.0	17/04/2025 22:30	62.1	76.4	46.0
16/04/2025 19:15	58.5	73.1	38.5	17/04/2025 09:00	61.1	76.6	44.4	17/04/2025 22:45	61.1	76.6	44.4
16/04/2025 19:30	58.1	74.0	39.4	17/04/2025 09:15	60.8	75.7	44.0	17/04/2025 23:00	60.8	75.7	44.0
16/04/2025 19:45	56.8	73.8	33.6	17/04/2025 09:30	60.4	74.4	43.7	17/04/2025 23:15	60.4	74.4	43.7
16/04/2025 20:00	58.5	75.2	35.6	17/04/2025 09:45	60.3	74.1	42.7	17/04/2025 23:30	60.3	74.1	42.7
16/04/2025 20:15	57.5	75.2	33.1	17/04/2025 10:00	60.4	73.3	42.9	17/04/2025 23:45	60.4	73.3	42.9
16/04/2025 20:30	57.1	74.7	29.6	17/04/2025 10:15	60.5	74.6	42.0	18/04/2025 00:00	60.5	74.6	42.0
16/04/2025 20:45	57.7	80.0	29.2	17/04/2025 10:30	60.3	72.7	42.6	18/04/2025 00:15	60.3	72.7	42.6
16/04/2025 21:00	56.3	71.9	30.9	17/04/2025 10:45	60.8	74.1	45.5	18/04/2025 00:30	60.8	74.1	45.5
16/04/2025 21:15	57.3	78.9	25.6	17/04/2025 11:00	60.8	74.7	44.1	18/04/2025 00:45	60.8	74.7	44.1
16/04/2025 21:30	56.8	74.0	26.8	17/04/2025 11:15	60.2	73.6	43.6	18/04/2025 01:00	60.2	73.6	43.6
16/04/2025 21:45	56.1	74.2	27.9	17/04/2025 11:30	61.4	78.8	43.6	18/04/2025 01:15	61.4	78.8	43.6
16/04/2025 22:00	56.6	74.1	31.1	17/04/2025 11:45	60.8	74.6	45.7	18/04/2025 01:30	60.8	74.6	45.7
16/04/2025 22:15	56.5	76.5	28.9	17/04/2025 12:00	59.6	73.9	43.7	18/04/2025 01:45	59.6	73.9	43.7
16/04/2025 22:30	57.0	75.0	29.7	17/04/2025 12:15	60.4	74.2	45.0	18/04/2025 02:00	60.4	74.2	45.0
16/04/2025 22:45	53.8	72.6	24.2	17/04/2025 12:30	60.2	74.6	44.4	18/04/2025 02:15	60.2	74.6	44.4
16/04/2025 23:00	54.1	75.7	23.7	17/04/2025 12:45	60.9	75.8	43.2	18/04/2025 02:30	60.9	75.8	43.2
16/04/2025 23:15	52.0	71.4	21.7	17/04/2025 13:00	60.1	76.8	42.0	18/04/2025 02:45	60.1	76.8	42.0
16/04/2025 23:30	52.5	73.2	22.7	17/04/2025 13:15	59.7	72.8	43.3	18/04/2025 03:00	59.7	72.8	43.3
16/04/2025 23:45	50.7	75.1	20.3	17/04/2025 13:30	59.7	75.7	42.5	18/04/2025 03:15	59.7	75.7	42.5
17/04/2025 00:00	47.7	71.5	19.9	17/04/2025 13:45	61.3	77.6	44.7	18/04/2025 03:30	61.3	77.6	44.7
17/04/2025 00:15	49.1	73.0	21.2	17/04/2025 14:00	60.5	77.1	42.5	18/04/2025 03:45	60.5	77.1	42.5
17/04/2025 00:30	43.2	71.1	19.9	17/04/2025 14:15	59.5	73.5	39.6	18/04/2025 04:00	59.5	73.5	39.6
17/04/2025 00:45	45.9	71.5	19.5	17/04/2025 14:30	60.2	73.8	44.2	18/04/2025 04:15	60.2	73.8	44.2
17/04/2025 01:00	50.3	73.5	20.7	17/04/2025 14:45	63.0	84.0	44.1	18/04/2025 04:30	63.0	84.0	44.1
17/04/2025 01:15	46.9	72.7	27.7	17/04/2025 15:00	60.8	74.2	43.9	18/04/2025 04:45	60.8	74.2	43.9
17/04/2025 01:30	48.4	72.5	20.5	17/04/2025 15:15	60.7	74.2	44.9	18/04/2025 05:00	60.7	74.2	44.9
17/04/2025 01:45	47.9	71.3	20.4	17/04/2025 15:30	61.5	76.9	45.7	18/04/2025 05:15	61.5	76.9	45.7
17/04/2025 02:00	45.6	72.7	19.4	17/04/2025 15:45	61.3	76.1	45.8	18/04/2025 05:30	61.3	76.1	45.8
17/04/2025 02:15	28.1	49.0	19.3	17/04/2025 16:00	61.7	74.8	44.8	18/04/2025 05:45	61.7	74.8	44.8
17/04/2025 02:30	47.0	74.5	19.7	17/04/2025 16:15	61.1	73.3	43.2	18/04/2025 06:00	61.1	73.3	43.2
17/04/2025 02:45	42.3	69.8	19.2	17/04/2025 16:30	61.5	73.4	45.0	18/04/2025 06:15	61.5	73.4	45.0
17/04/2025 03:00	42.2	68.1	19.4	17/04/2025 16:45	61.1	71.2	48.5	18/04/2025 06:30	61.1	71.2	48.5
17/04/2025 03:15	44.4	69.9	20.7	17/04/2025 17:00	61.9	75.4	48.7	18/04/2025 06:45	61.9	75.4	48.7
17/04/2025 03:30	40.1	67.5	22.4	17/04/2025 17:15	61.9	72.3	48.5	18/04/2025 07:00	61.9	72.3	48.5
17/04/2025 03:45	46.6	69.0	24.3	17/04/2025 17:30	61.0	74.5	46.5	18/04/2025 07:15	61.0	74.5	46.5
17/04/2025 04:00	45.6	68.8	24.3	17/04/2025 17:45	60.9	74.5	45.6	18/04/2025 07:30	60.9	74.5	45.6
17/04/2025 04:15	49.2	77.6	23.9	17/04/2025 18:00	59.8	85.0	44.2	18/04/2025 07:45	59.8	85.0	44.2
17/04/2025 04:30	48.4	70.1	23.4	17/04/2025 18:15	60.2	75.6	45.4	18/04/2025 08:00	60.2	75.6	45.4
17/04/2025 04:45	53.0	75.9	24.1	17/04/2025 18:30	60.0	74.6	45.3	18/04/2025 08:15	60.0	74.6	45.3
17/04/2025 05:00	51.9	75.0	26.2	17/04/2025 18:45	61.0	77.7	48.1	18/04/2025 08:30	61.0	77.7	48.1
17/04/2025 05:15	54.9	72.5	40.2	17/04/2025 19:00	60.6	79.3	46.8	18/04/2025 08:45	60.6	79.3	46.8
17/04/2025 05:30	56.8	74.9	44.7	17/04/2025 19:15	59.4	78.5	44.2	18/04/2025 09:00	59.4	78.5	44.2
17/04/2025 05:45	55.9	75.4	42.9	17/04/2025 19:30	59.4	73.9	44.1	18/04/2025 09:15	59.4	73.9	44.1

1st Floor SE Elevation Living Room (Large Window)

Building Envelope Sound Insulation Calculation According to EN 12354-3

	Maunditts Park Farm Barn		Date	29/04/2025						
			Room	1st Floor Small Living Room						
Incident noise levels										
	Term	Label	Octave band centre frequency (Hz)							dB(A)
			63	125	250	500	1 k	2 k	4 k	
L _{eq,ff}	Measured L _{eq}	Average Day Façade	61.8	57.3	53.4	53.9	58.7	51.4	45.5	-3.0
		Average Day	58.8	54.3	50.4	50.9	55.7	48.4	42.5	57.5
		K	3	3	3	3	3	3	3	
L _{max,ff}	L _{max}									0.0
		M: : Adj Spectrum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7
		K	3	3	3	3	3	3	3	
Room Details										
	Term	Derivation	Value	Term		Derivation		Value		
	V	Volume (m³)	74.4	Sew		Sf - Swi		10.2		
	RT	RT (secs)	1.0	Srr		Area of ceiling (m²)		24.8		
	Sf	Facade area (inc. window) (m²)	17.6	S		Sf + Sr		17.6		
	Sr	Roof Area		Ao		Ref Area for Dnew		10.0		
	Swi	Window area (m²)	7.3	Attenuation to roof						
Sound Insulation Calculation elements										
	Term	Label/element	Octave band centre frequency (Hz)							Rw
			63	125	250	500	1 k	2 k	4 k	
vent openings	D _{n,e}	Non Aco: More Complex	35	30	31	31	32	28	31	31
	A ₀ /S x 10 ^{-Dn/10}	B	0.000	0.001	0.000	0.000	0.000	0.001	0.000	
		L _{eq} Internal SPL	25.0	25.5	20.6	21.1	24.9	21.6	12.7	31
		L _{max} Internal SPL								
window	R _{wi}	4/12/6 double glazing	20	23	22	27	38	40	41	33
	S _{wi} /S x 10 ^{-Rwi/10}	C	0.004	0.002	0.003	0.001	0.000	0.000	0.000	
		L _{eq} Internal SPL	41.7	34.1	29.5	23.2	15.7	5.4	-1.5	25.6
		L _{max} Internal SPL	-17.1	-20.2	-20.9	-27.7	-40.0	-43.0	-44.0	-26.2
Primary wall	R _{ew}	Example Wall from BS8233 (Brick and Block)	36	40	44	45	51	56	58	51
	S _{ew} /S x 10 ^{-Rew/10}	D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		L _{eq} Internal SPL	27.1	18.6	8.9	6.7	4.2	-9.1	-17.0	9.6
		L _{max} Internal SPL	-31.7	-35.7	-41.5	-44.2	-51.5	-57.5	-59.5	-43.3
Roof	R _{rr}	None/Infinite	100	100	100	100	100	100	100	101
	S _r /S x 10 ^{-Rrr/10}	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		L _{eq} Internal SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		L _{max} Internal SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Internal Noise Levels										
	10 Log (B+C+D+E)	F	-23.5	-25.7	-25.1	-28.9	-33.7	-30.2	-33.1	
	A (furnished)	Room Absorption	15	15	23	34	46	58	58	
	10 log (S/A)	G	0.7	0.6	-1.1	-2.9	-4.2	-5.2	-5.2	
L _{eq}	Calc Tolerance	T	3	3	3	3	3	3	3	
	Music Internal L _{eq,2}	L+F+G+K+T	42.0	35.3	30.2	25.1	23.9	18.9	10.2	28.9
L _{max}	Calc Tolerance	T	3	3	3	3	3	3	3	
	Difference	M+F+G+K+T	-16.8	-19.0	-20.2	-25.8	-31.8	-29.5	-32.3	-22.6

Master Bedroom NW Elevation

Building Envelope Sound Insulation Calculation According to EN 12354-3

	Maunditts Park Farm Barn				Date	29/04/2025				
					Room	Master Bedroom (NW Elevation)				
Incident noise levels										
	Term	Label	Octave band centre frequency (Hz)							dB(A)
			63	125	250	500	1 k	2 k	4 k	
L _{eq,ff}	Measured L _{eq}	Average Day Façade	61.8	57.3	53.4	53.9	58.7	51.4	45.5	-3.0
		Average Day Freefield	58.8	54.3	50.4	50.9	55.7	48.4	42.5	57.5
		K	3	3	3	3	3	3	3	
L _{max,ff}	L _{max}	Night Max Spectrum Façade	70.8	69.7	64.5	66.1	74.9	66.9	56.9	-3.0
		Max Freefield	67.8	66.7	61.5	63.1	71.9	63.9	53.9	73.1
		K	6	6	6	6	6	6	6	
Room Details										
	Term	Derivation	Value	Term		Derivation		Value		
	V	Volume (m³)	44.6	Sew		Sf - Swi		5.1		
	RT	RT (secs)	1.0	Srr		Area of ceiling (m²)		18.6		
	Sf	Facade area (inc. window) (m²)	8.1	S		Sf + Sr		8.1		
	Sr	Roof Area		Ao		Ref Area for Dnew		10.0		
	Swi	Window area (m²)	3.0	Attenuation to roof						
Sound Insulation Calculation elements										
	Term	Label/element	Octave band centre frequency (Hz)							Rw
			63	125	250	500	1 k	2 k	4 k	
vent openings	D _{n,e}	Non Aco: More Complex	35	30	31	31	32	28	31	31
	A ₀ /S x 10 ^{-Dn/10}	B	0.000	0.001	0.001	0.001	0.001	0.002	0.001	
		L _{eq} Internal SPL	25.0	25.5	20.6	21.1	24.9	21.6	12.7	31
		L _{max} Internal SPL								
window	R _{wi}	4/12/6 double glazing	20	23	22	27	38	40	41	33
	S _{wi} /S x 10 ^{-Rwi/10}	C	0.004	0.002	0.002	0.001	0.000	0.000	0.000	
		L _{eq} Internal SPL	37.8	30.3	25.6	19.3	11.9	1.5	-5.4	21.7
		L _{max} Internal SPL	49.8	45.7	39.7	34.5	31.1	20.0	9.0	37.2
Primary wall	R _{ew}	Example Wall from BS8233 (Brick and Block)	36	40	44	45	51	56	58	51
	S _{ew} /S x 10 ^{-Rew/10}	D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		L _{eq} Internal SPL	24.1	15.6	5.9	3.6	1.2	-12.2	-20.1	6.6
		L _{max} Internal SPL	36.1	31.0	20.0	18.8	20.4	6.3	-5.7	23.1
Roof	R _{rr}	None/Infinite	100	100	100	100	100	100	100	101
	S _r /S x 10 ^{-Rrr/10}	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		L _{eq} Internal SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		L _{max} Internal SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Internal Noise Levels										
	10 Log (B+C+D+E)	F	-23.7	-25.0	-24.8	-27.6	-30.7	-27.0	-30.0	
	A (furnished)	Room Absorption	15	15	23	34	46	58	58	
	10 log (S/A)	G	-2.7	-2.7	-4.5	-6.3	-7.5	-8.6	-8.6	
L _{eq}	Calc Tolerance	T	3	3	3	3	3	3	3	
	Music Internal L _{eq,2}	L+F+G+K+T	38.4	32.6	27.2	23.0	23.4	18.8	10.0	27.5
L _{max}	Calc Tolerance	T	3	3	3	3	3	3	3	
	Difference	M+F+G+K+T	50.4	48.0	41.3	38.2	42.6	37.3	24.4	45.1