



AVONSIDE, MELKSHAM

NOISE REPORT FOR PLANNING

Acoustics Report A2327 R01

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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	4
3.1	National Planning Policy Framework	4
3.2	Noise Policy Statement for England (NPSE)	5
3.2.1	Planning Practice Guidance – Noise (Web Publication)	5
3.3	ProPG: Planning and Noise.....	5
3.4	BS 8233: 2014 and WHO Community Noise Guidelines (1999)- Internal Noise Criteria	7
3.5	Ventilation and Overheating: AVOG	9
3.6	BS 4142: 2014 +A1: 2019 – Assessment Principles	9
3.7	Wiltshire Council – Planning Consultation Guidance Note: Noise and Vibration	10
4	Noise Survey	12
4.1	Location MP1 – Overlooking A3102.....	12
4.2	Location MP2 – Rear of Avonside Business Park	13
5	Noise Survey Results.....	13
5.1	Noise Levels Measured at MP1 – Overlooking A3102.....	14
5.2	Noise Levels Measured at MP2 – Rear of Avonside Business Park	15
5.3	Attended Measurements	16
5.4	Typical Current Environmental Noise Levels	17
5.5	Background Sound Levels	18
6	Mitigation Hierarchy	19
6.1	Building Envelope Sound Insulation Assessment.....	20
6.2	Sound Insulation Methodology	20
6.3	Glazing and Background Ventilation	20
6.4	AVOG Noise Limits.....	21
7	Plant Noise Emissions Limits.....	22
8	Noise from Commercial Units.....	23
9	Summary	23

Appendix A – Tabulated Noise Survey Data

Appendix B – Background Sound Level Histograms

Appendix C – Example Building Envelope Calculations

1 Introduction

Ion Acoustics is appointed by Create Real Estate to provide a noise assessment for the proposed Avonside development in Melksham. The proposed development will convert various buildings at the business park to a mix of residential, commercial, co-working and leisure uses.

There are several existing businesses including a cafe, a Cross-fit gym, a barbers, a dance studio, and recording studio. It is assumed that these uses or similar commercial accommodation will remain on site. The upper floors will be converted to provide residential accommodation.

To determine existing noise levels in the area, a noise survey was conducted over the period Tuesday 8th – 10th July 2025. The site was found to be mainly affected by noise from local roads including the A3102. Additional measurements of various business units on the site were carried out to determine the potential for future commercial uses to affect the proposed and existing residences.

This report includes the assessment of noise from the existing environment, and the sound insulation requirements to control external noise sources to residential properties. This report describes:

- The methodology and results of the noise survey;
- Noise levels from commercial uses affecting the proposed premises;
- Assessment of building envelope sound insulation requirements;
- Appropriate noise limits for any new mechanical services plant.

2 Scheme Details

2.1 Site Location

The site is off New Broughton Road A3102 and currently operates as a business park. The nearest third-party residences are on both sides of the A3102, immediately north of the site boundary.

Figure 1 shows an aerial photo of the development site (outlined in red), and the noise measurement positions, MP1 and MP2 selected for the noise survey. MP1 was selected to determine noise levels from the A3102 and the Lidl car park (highlighted in blue). MP2 was chosen to establish the underlying background sound level from the south of the site. There is also the Sainsbury's (highlighted in yellow). The nearest residences are highlighted in green.



Figure 1: Aerial view of site with measurement positions displayed © Google Maps

2.2 Proposed Scheme

The proposed scheme will develop seven blocks labelled A to F, and No. 3. Blocks C and D will provide residential accommodation on the upper floors. The first and second floors are shown in Figure 2 and 3 below, respectively. The various blocks are proposed as follows:

- Block A A commercial unit on the ground floor and studios on the 1st, 2nd and 3rd floors .
- Block B Co-working space on the ground floor and studios on the 1st, 2nd and 3rd floors.
- Block C A commercial unit on the ground floor, and apartments on the 1st, 2nd and 3rd floors.
- Block D Two commercial units on the ground floor and residential accommodation on the 1st and 2nd floors. The bedrooms on the section floor will be on the southern façade and will face away from the traffic on the A3102 (as shown in Figures 3 & 4).
- Block E Commercial units on the ground floor and a studio above.
- Block F Leisure space on the ground and first floor.
- Block 3 Six commercial studios.

The scheme includes for part-demolition to create a walkway between Blocks A, B & C and Blocks D, E & F. The proposed first and second floors are shown in Figures 2 and 3 with a section shown in Figure 4.



Figure 2 – Proposed First Floor



Figure 3 - Proposed Second Floor

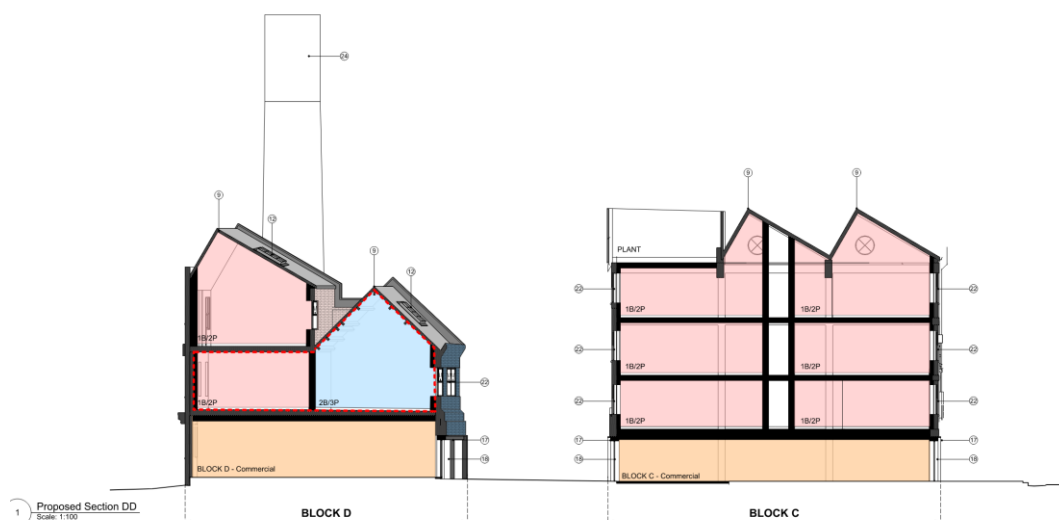


Figure 4 – Section of Blocks C and D

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 2024^[1] when certain 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;

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

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;

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:

- "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 of the application of the NPPF and the NPSE. The noise page *"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 Noise (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:

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 5) presents the Stage 1 assessment and indicates that higher noise levels result in increased noise risk without mitigation. Figure 3 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 5: 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 and WHO Community Noise Guidelines (1999)- Internal Noise Criteria

BS 8233: 2014 "Guidance on sound insulation and noise reduction for buildings" contains noise limits for developments of a residential nature that are usually set in terms of the ambient noise level, L_{Aeq} . WHO Community Noise Guidelines (1999) include a maximum internal noise level, L_{AFmax} , inside bedrooms at night. The L_{AFmax} is the highest noise level in a given period and is determined by individual events such as 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, shown in Table 1.

Table 1: Indoor Ambient Noise Levels from BS 8233: 2014

Activity	Location	Day (07:00 to 23:00)	Night (23:00 to 07:00)
Resting	Living rooms	35 dB L_{Aeq} , 16 hour	-
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

WHO Community Noise Guidelines from 1999 propose internal limits of L_{Aeq} 35dB for living rooms, and L_{Aeq} 30dB and L_{AFmax} 45dB inside a bedroom at night. ProPG (Paragraph 2.34) states that a level of L_{AFmax} 45dB should be exceeded no more than ten times during the night.

The internal noise criteria in BS 8233: 2014 are followed by several notes. The document ProPG has provided additional text to these notes. The BS 8233 and ProPG notes are provided below with blue text indicating the additional commentary in ProPG.

*"Note 1: Table 1 provides recommended **internal L_{Aeq} target** levels for overall noise in the design of a building. These are the sum total of structure-borne and airborne noise sources. Groundborne noise is assessed separately and is not included as part of these targets, as human response to groundborne noise varies with many factors such as level, character, timing, occupant expectation and sensitivity.*

*Note 2: The **internal L_{Aeq} target** levels shown in Table 1 are based on the existing guidelines issued by the WHO and assume normal diurnal fluctuations in external noise. In cases where local conditions do not follow a typical diurnal pattern, for example on a road serving a port in high levels of traffic at certain times of the night an appropriate alternative period, e.g. 1 hour, may be used but the level should be selected to ensure consistency with the **internal L_{Aeq} target** levels of recommended in Table 1.*

*Note 3: These **internal L_{Aeq} target** 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. **In most circumstances in noise-sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events.***

*Note 5: **Designing the site layout and the dwellings so that the internal target levels can be achieved with open windows in as many properties as possible demonstrates good acoustic design. Where it is not possible to meet internal target levels with windows open, internal noise levels can be assessed with windows closed, however any façade openings used to provide whole dwelling ventilation (e.g. trickle ventilators) should be assessed in the "open" position and, in this scenario, the internal L_{Aeq} target levels should not normally be exceeded, subject to the further advice in Note 7.***

Note 6: Attention is drawn to the requirements of the Building Regulations.

*Note 7: Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal **L_{Aeq} target** levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.*

The more often internal L_{Aeq} levels start to exceed the internal L_{Aeq} target levels by more than 5 dB, the more that most people are likely to regard them as "unreasonable". Where such exceedances are predicted, applicants should be required to show how the relevant number of rooms affected has been kept to a minimum. Once internal L_{Aeq} levels exceed the target levels by more than 10 dB, they are highly likely to be regarded as "unacceptable" by

most people, particularly if such levels occur more than occasionally. Every effort should be made to avoid relevant rooms experiencing "unacceptable" noise levels at all and where such levels are likely to occur frequently, the development should be prevented in its proposed form.

3.5 Ventilation and Overheating: AVOG

The Acoustics, Ventilation, and Overheating Guidance (AVOG) was published by the Association of Noise Consultants (ANC) in January 2020¹. 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 practices 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 also refer to internal noise levels when windows are open to control overheating but only applies to new buildings and is therefore not relevant to this scheme.

It is generally accepted that some degree of elevated noise is accepted when residents choose to open windows, especially for overheating control.

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

However, it acknowledges that there is a greater risk of disturbance in proximity to these values.

3.6 BS 4142: 2014 +A1: 2019 – Assessment Principles

The standard method for assessing noise of a commercial or industrial nature affecting housing, is British Standard BS 4142 "Method for rating and assessing industrial and commercial sound". A BS 4142 assessment is typically made by determining the difference between the industrial noise under consideration and the background sound level as represented by the L_{A90} parameter, determined in the absence of the industrial noise. The L_{A90} parameter is defined as the level exceeded for 90% of the measurement time, representing the underlying noise in the absence of short duration noise events such as dog barks or individual cars passing.

The industrial noise under consideration is assessed in terms of the ambient noise level, L_{Aeq} , but a character correction penalty can be applied where the noise exhibits certain characteristics such as distinguishable tones, impulsiveness or, if the noise is distinctively intermittent. The ambient noise level, L_{Aeq} is defined as the steady-state noise level with the same energy as the actual fluctuating sound over the same time period. It is effectively the average noise level during the period. The industrial noise level (L_{Aeq}) with the character correction (if necessary) is known as rating level, L_{Ar} , and the difference between the background noise and the rating level is determined to make the BS 4142 assessment. The standard then states:

¹ <https://www.association-of-noise-consultants.co.uk/acoustics-ventilation-and-overheating-guidance-released/>

- "Typically, the greater the difference, the greater the magnitude of the impact.
- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound 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 outlines a number of methods for defining appropriate 'character corrections' to determine the rating levels to account for tonal qualities, impulsive qualities, other sound characteristics and/or intermittency.

BS 4142 will be used to here to set limits for any external mechanical services plant associated with the development or for future tenants who may require mechanical services plant.

3.7 Wiltshire Council – Planning Consultation Guidance Note: Noise and Vibration

Wiltshire Council have published guidance noise and planning provided by their Environmental Control and Protection (ECP) department.

The guidance signifies that the assessment must be conducted by a suitably qualified person "who has appropriate training and experience in the field of environmental acoustics."

This assessment has been conducted by Jonathan Croft AMIOA who is an accredited member of the Association of Noise Consultants (ANC) and has the appropriate experience in the field of environmental acoustics.

For residential development, the guidance adopts the BS 8233: 2014 / WHO / ProPG standards. These will be adopted for this scheme and are stated below:

- Bedrooms (night-time - 23.00 - 07.00) 30 dB L_{Aeq} (individual noise events should not normally exceed 45 dB L_{AFmax} by more than 10 times)
- Living Rooms (daytime - 07.00 - 23.00) 35 dB L_{Aeq}
- Gardens and terraces (daytime 07:00 – 23:00) 50 dB L_{Aeq}

The Wiltshire Guidance also states:

Internal noise levels should be calculated using the methods provided in BS 8233:2014 and/or BS EN 12354:3. 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 achieving the internal noise levels with windows open is may be a desirable aim, it is noted that there are few urban areas by roads where compliance with the limits is possible and the Wiltshire Council advice is not in accordance with ProPG. This argument is clarified in the AVOG guidance which specifically states in paragraph 3.9:

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.

This paragraph is perhaps acknowledged in the Wiltshire Guidance which then states:

Where openable windows are provided ECP will not accept a strategy that relies on the occupier of the noise sensitive premises having to close the window during noisy activities other than for noise without character such as transportation noise. Closed windows to mitigate transport noise will only be considered if all other reasonable measures in the hierarchy have been utilised and only for an absolute minimum of rooms. Designs that result in whole dwellings needing windows close to mitigate transport noise will not be accepted.

The Wiltshire guidance introduces a hierarchy pyramid that sets out principals for acceptance of mitigation of noise impacts.

The Hierarchy levels start at Level 1. The next level should only be moved on to the next level when the current level has been fully considered, and all reasonable mitigation measures have been implemented or fully justified when mitigation is not practical.

The Wiltshire mitigation hierarchy is discussed below with our comments with the guidance in italics and our comments below underlined text.

Hierarchy Level 1 Control of noise at source

Reduction of the noise generated at source by redesign, relocation, control or containment

The source is road traffic which cannot be reduced at source in this instance.

Hierarchy Level 2 Site Layout and Design

Maximise the distance between noise source and receptor, using existing topography or existing structures or purpose-built barriers to screen the proposed development site from significant sources of noise.

The dominating noise source for this development is road traffic noise which is immediately adjacent, there is no reasonable practical way to reduce the noise transmission for all the flats although some are locations are shielded.

Hierarchy Level 3 – Dwelling Layout and Orientation

Using the layout of the scheme and orientation of buildings to avoid location of noise sensitive rooms on adversely impacted facades

Various layout options have been explored with the architect and the design has been reconfigured to reduce the number of noise-sensitive rooms on the exposed façades

Hierarchy Level 4 – Planning Restrictions

Using planning conditions/obligations to restrict activities allowed on the site at certain times and/or specifying permissible noise levels

As the source is road traffic, planning restrictions are not possible

Hierarchy Level 5 – Building Envelope

Used for mitigation.

The building envelope design has been developed to consider ventilation and glazing to provide a satisfactory internal environment compliant with BS 8233: 2014 / ProPG guidance.

4 Noise Survey

A baseline noise survey was carried out over the period Tuesday 8th – Thursday 10th July 2025. One monitor was set up to log noise from A3102 and a second monitor was placed at the rear of the existing building, as shown in Figure 1. The meters were unattended except for set up and collection.

Rion NL52 sound level meters with Type WS15 windshields were used and calibrated with a Brüel & Kjær Type 4231 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. Both meters, and the calibrator, were within their respective third-party calibration periods. The meters were set up to record noise (as .wav files) for subsequent identification of the noise sources.

Weather conditions on set up were sunny, the temperature was 20°C, with north-westerly winds of 3m/s, and there was 10% cloud cover. On collection, the weather conditions were sunny, the temperature was 26°C, with north-westerly winds of 1m/s in a north-westerly direction, and 20% cloud cover.

The measurement locations are described below:

4.1 Location MP1 – Overlooking A3102

To measure noise levels from the A3102, the microphone was placed on a pole of out a window on the second floor at the front of the building at a position 1m from the façade overlooking A3102, as shown in Figure 6. The measurements include a façade reflection and are therefore considered to be 3dB higher than free-field values considered in the ProPG Noise Risk Categories.



Figure 6: A photo of MP1 taken from A3102 looking west

4.2 Location MP2 – Rear of Avonside Business Park

To measure noise levels on the quieter southern side of the development, a microphone was strapped to railings on the flat roof at the first-floor level. The microphone had a view of the bridge to the east of the site and a partial view of the Sainsbury's Car Park. Reflecting surfaces were at least 3.5m from the microphone apart from the roof and therefore this is considered a free-field measurement position in respect of the noise risk categories in ProPG. A photo of MP2 is given in Figure 7.



Figure 7: A photo of MP2 taken from Avonside side lane looking north-east

5 Noise Survey Results

The measured results are discussed in the sections below. The full noise data measured on site is tabulated in Appendix A.

5.1 Noise Levels Measured at MP1 – Overlooking A3102

Noise levels measured at MP1 are shown graphically in Figure 8 in terms of the 15-minute L_{Aeq} , L_{AFmax} and L_{A90} noise levels.

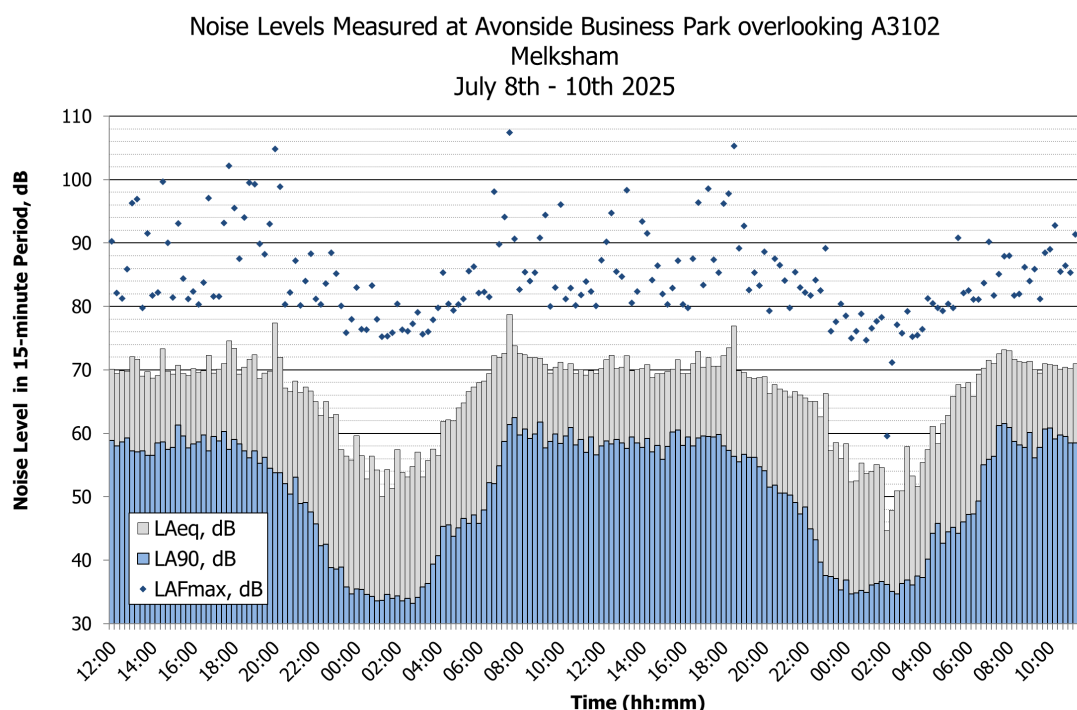


Figure 8: Noise Time History for MP1, overlooking A3102

The ambient noise levels are dominated by traffic noise from A3102. During the night, the traffic flow is reduced, and noise levels are significantly quieter, however, traffic noise is still dominant. During the daytime, noise levels are typically around L_{Aeq} 70dB, with some noticeable increases over shorter periods, usually associated with a higher L_{Amax} value. Noise levels fall below 60dB L_{Aeq} during the evening and night, but still generally stay above L_{Aeq} 50dB between these periods. The maxima were caused by road vehicles.

To obtain equivalent free-field levels, the measurement results have been reduced by 3dBA so that the daytime and night-time values can be compared with the ProPG noise risk categories. Henceforth, results will be given in their equivalent free-field noise levels.

ProPG requires the maximum noise level not exceeded more than 10 times during the night to be determined. The L_{AFmax} value is taken from analysis of short-term data recorded to determine the 10 highest events based on a time interval of 2 minutes in line with Approved Document O guidance (not just the 10 highest $L_{Amax,15min}$ values).

Table 2 shows the results in terms of the 16-hour daytime and 8-hour night-time values. The higher values are highlighted in green and will be used in assessments. The noise risk category is also identified.

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

Day	Period	Duration	L _{Aeq} , dB	L _A F _{max} , dB, 10 exceedances of level	ProPG Noise Risk Category
Tuesday 8 th – Wednesday 9 th	Day (12:00 to 23:00, 07:00 to 12:00)	16 hrs	68.0	--	High
	Night (23:00 to 07:00)	8 hrs	60.3	78.9	High
Wednesday 9 th – Thursday 10 th	Day (12:00 to 23:00, 07:00 to 12:00)	16 hrs	67.5	--	High
	Night (23:00 to 07:00)	8 hrs	59.7	78.1	High

The noise monitor was positioned to determine noise levels incident on the façade of Block D, which will accommodate residential use on the first and second floors. The measured noise levels are such that they are in the high noise risk category according to ProPG. It should be noted however, that there are existing residences on both sides of the road that will receive similar noise levels and so clearly this does not mean the location is not suitable for residential development. Nevertheless, for sites in the high risk category, a full assessment and acoustic design process will need to be conducted.

5.2 Noise Levels Measured at MP2 – Rear of Avonside Business Park

The time history chart for MP2 is given in Figure 9.

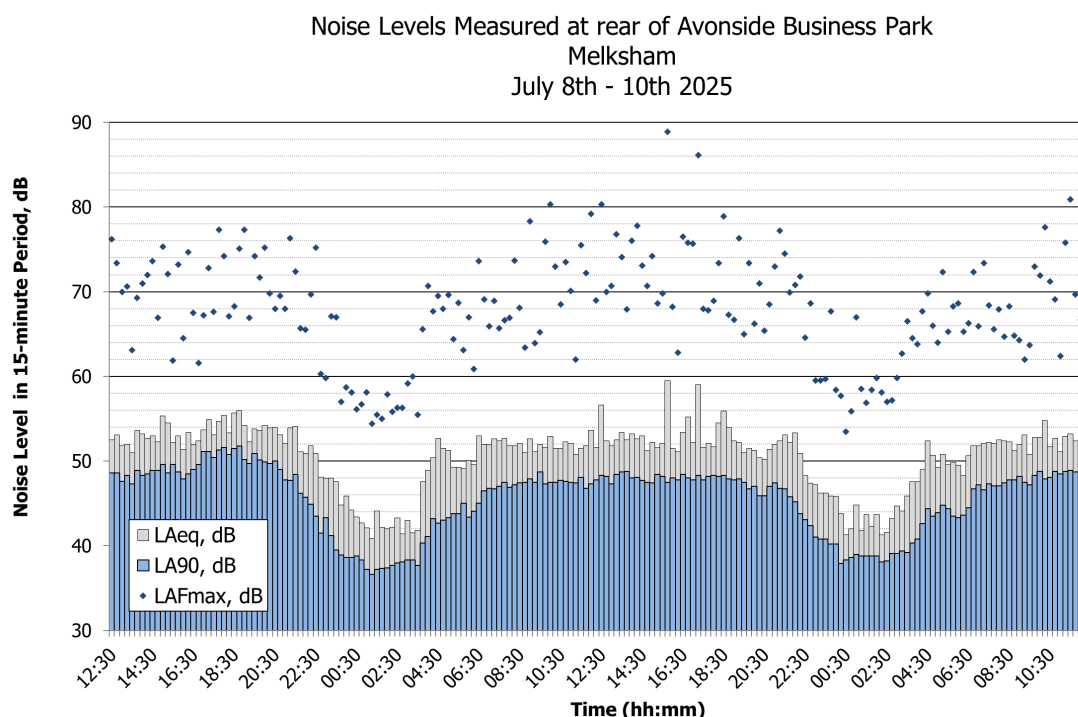


Figure 9: Noise Time History for MP2, rear of Avonside Business Park

The levels are significantly lower than at MP1. During the day, the noise levels are generally between L_{Aeq} 50-55dB. The night time noise levels drop to around L_{Aeq} 40dB, and are generally

below L_{Aeq} 50dB between 20:30hrs and 04:30hrs. The dawn chorus, and emergency sirens were evident.

During the night, distant plant noise is audible on the recordings and the noise level during the middle of the night is slightly higher than at MP1. There are several condensers on the fire escape of the café, but these condensers were not operational during the site visit.

The noise levels are again summarised in Table 4 with the worst-case measurement periods highlighted in green. The L_{AFmax} value and the spectra have been derived the same way as at MP1.

Table 4: External Noise Levels at Location MP2 (free-field)

Day	Period	Duration	L_{Aeq} , dB	L_{AFmax} , dB, 10 exceedances of level	ProPG Noise Risk Category
Tuesday 8 th – Wednesday 9 th	Day (12:30 to 23:00, 07:00 to 12:30)	16 hrs	52.9	--	Low
	Night (23:00 to 07:00)	8 hrs	48.0	67.7	Medium
Wednesday 9 th – Thursday 10 th	Day (12:30 to 23:00, 07:00 to 12:30)	16 hrs	52.9	--	Low
	Night (23:00 to 07:00)	8 hrs	47.5	67.0	Medium

MP2 was further from the A3102 (New Broughton Road) than MP1 but road traffic noise is still the dominant source. The noise levels were in the low/medium Noise Risk Category outlined in ProPG.

5.3 Attended Measurements

Attended measurements were made around the Avonside Business Park with a Norsonic Nor-140 sound level meter to determine noise levels associated with the current businesses. The meter was calibration checked at the beginning and end of the measurements with a Brüel & Kjær Type 4231 calibrator. A variety of noises of interest were measured. A summary is given in Table 5.

Table 5: List of Attended Measurements

Measurement	Duration	Description	Measured Noise Level L_{Aeq} dB
1 – Inside Café	5mins	Measuring inside a café, reasonably quiet, still some activity. Approx. 5-6 customers throughout the survey	65.1
	5mins		65.6
	5mins		65.0
2 – External Plant Milkton Brewery	15 sec	A measurement 2m from barriered plant associated with Milkton Brewery. The plant ceased operating 5 seconds into the third measurement.	65.0
	15 secs		64.9
	15 secs		63.9
3 – Front Car park	5mins	Front carpark general noise. Some road noise from A3102.	64.0
	5mins		59.0
	5mins		64.4

Measurement	Duration	Description	Measured Noise Level L_{Aeq} dB
4 – Inside Barbers	3mins	Music noise in barbers	70.3
	3mins		69.2
	3mins		69.4
	3mins		66.6
5 – Rear Car park	3mins	Rear carpark general noise.	57.9
	3mins		50.5
	3mins		53.6
6 – Inside Cross fit	3mins	General cross-fit music noise	74.1
	1min		71.8
	5 secs	Weight drops	81.7
	17 secs		83.6
	30 secs		84.1

5.4 Typical Current Environmental Noise Levels

To calculate internal noise levels affecting the residential locations, the measured noise levels have been corrected to derive the noise levels incident on each residential façade. Noise levels have been corrected for distance and, for the internal facades, the angle of view to the A3102 road in line with the procedures given in the Calculation of Road Traffic Noise (1988). The summarised noise levels incident on the facades at the assessment positions, AP1 to AP4 for the building calculations are shown below in Table 6 in respect of the $L_{Aeq,16hr}$, $L_{Aeq,8hr}$, and L_{AFmax} indices. These are also marked up in a colour coded plan in Figure 10 along with the selected assessment positions AP1 etc.

Table 6: Summary Noise Levels at Avonside Business Park

Location	Period	Values Used in Building Envelope Calculation (Free-Field)
AP1 on the Red Façades	Day Night	$L_{Aeq,16hr}$ 68.0dB $L_{Aeq,8hr}$ 60.3dB and L_{Amax} 78.9dB
AP2 on the Orange Facade	Day Night	$L_{Aeq,16hr}$ 46.1dB $L_{Aeq,8hr}$ 39.9dB and L_{Amax} 65.3dB
AP3 on the Blue Facade	Day Night	$L_{Aeq,16hr}$ 45.4dB $L_{Aeq,8hr}$ 40.0dB and L_{Amax} 67.5dB
AP4 on the Green Facade	Day Night	$L_{Aeq,16hr}$ 52.9dB $L_{Aeq,8hr}$ 48.0dB and L_{Amax} 67.7dB

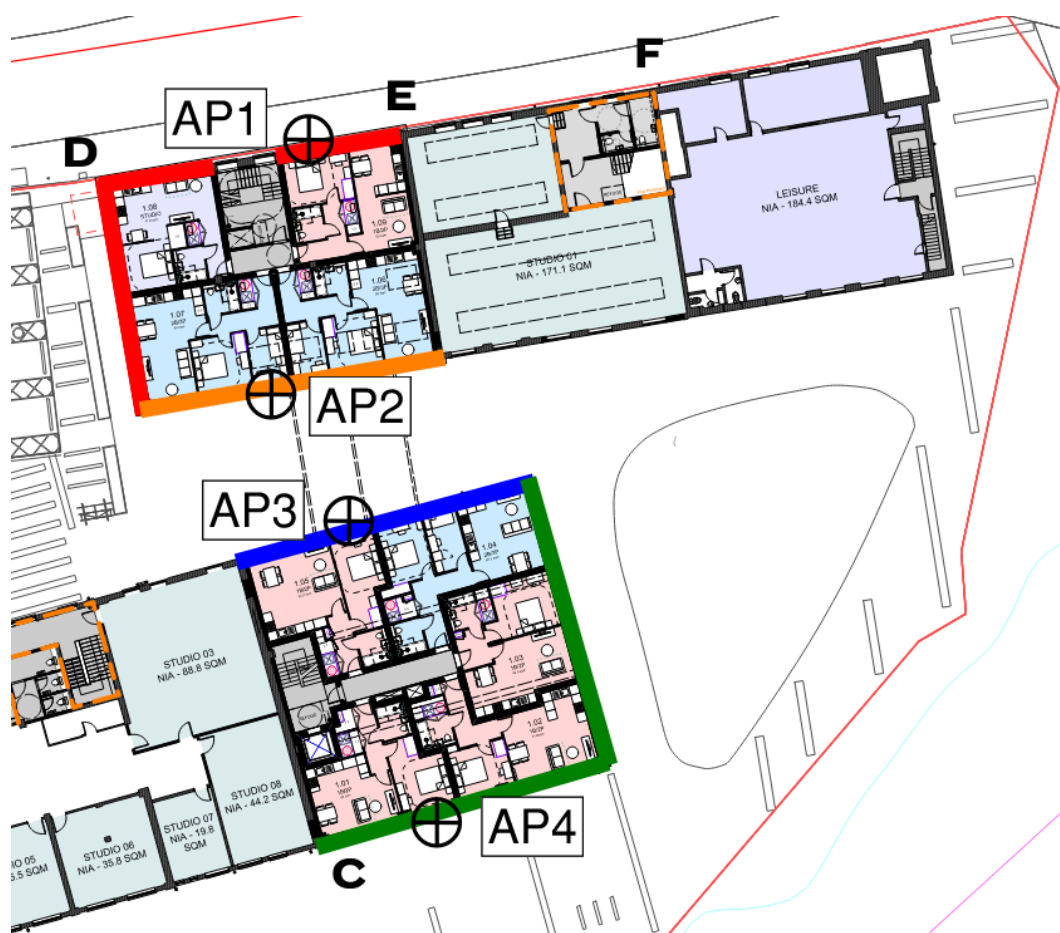


Figure 10 – Facades Used in Calculations

Four assessment positions, AP1 – AP4 have been considered shown on Figure 10. The assessment positions include the bedrooms on each of the coloured façades which will result the in the highest internal noise levels to provide a robust assessment.

The values at AP1 and AP4 can be taken directly from the measured values. However, AP2 and AP3 relate to facades created as part of the proposed development and reconfiguration. For these, noise levels have been estimated. The measured noise levels at MP1 and MP2 have been used to determine noise levels used in calculations. Corrections due to distance and angle from the roads have been applied. One order of reflection has been included. Levels measured, and L_{Aeq} noise levels used in the building envelope calculations are based on a line source distance loss, L_{AFmax} noise levels consider a point source distance loss. Spectral values in octave frequency bands have been derived from the measured values. The locations they apply are colour coded and shown in Figure 10.

5.5 Background Sound Levels

The background sound levels ($dB L_{A90}$) measured can be used to determine noise limits for any fixed plant that may be proposed. The typical background sound level has been determined by plotting the frequency distribution of the integer L_{A90} values as described in BS 8233: 2014. The frequency distribution histograms for the measurement period, from which the typical background noise levels are derived, is provided in Appendix B.

The background noise level, L_{A90} , is the value in this case exceeded no more than 30% of the overall time period which is considered here to be 'typical'. This method of determining the typical background noise level ensures a conservative assessment as, based on this data, the background noise level will be higher 70% of the time.

The background sound levels measured at each monitoring position is given in Table 7.

Table 7: Background Sound Measurements at MP1 and MP2

Monitoring Position	Time Period	Background Sound Level, L_{A90} dB
MP1	Day (07:00 – 23:00)	56
	Night (23:00 – 07:00)	35
MP2	Day (07:00 – 23:00)	47
	Night (23:00 – 07:00)	38

6 Mitigation Hierarchy

Wiltshire Council's Mitigation Hierarchy discussed above has been considered in developing the scheme. The applicable hierarchy levels are discussed below in order.

Level 1 - Control of noise at source

No action applicable

Level 2 – Site Layout and Design

The development is a change of use of existing buildings by roads. There are limited options for a site layout design but this has been considered by the architects in setting out the proposed residential units and in the proposed opening up works to create more sheltered facades. It should be noted that many of the flats provided are screened from roads by the inventions proposed. For example, Block C is situated further from the A3102 from the road and is screened by Blocks D, E, and F.

Hierarchy Level 3 – Dwelling Layout and Orientation

Block D is most affected by traffic noise. The dwelling layout has been considered so that the bedrooms on the second floor have been set back from the road, with openable windows on the quieter orange façade or as a sky light facing away from the road.

The first floor of Block D includes four flats. Two of the flats have bedrooms on the orange façade and facing away from the A3102. Two flats are situated on the red facades; it is not possible for the bedrooms in these flats to be situated away from the road noise. Therefore, for these enhanced building envelope sound insulation is necessary.

Block C: There is only on bedroom on each floor that is not screened and facing the A3102, however, the most affected bedrooms are at a sufficient distance away from the source for noise not to be an adverse impact.

Hierarchy Level 4 – Planning Restrictions

No action applicable

Hierarchy Level 5 – Building Envelope Sound Insulation

As discussed above enhanced building envelope sound insulation is proposed for the bedrooms on the red-colour façade. Only two bedrooms are situated this façade. Mechanical ventilation is proposed for these bedrooms.

All other bedrooms have windows on facades that are less affected from the road, and ventilation can be provided by acoustic trickle vents to meet Part F of the Building Regulations.

6.1 Building Envelope Sound Insulation Assessment

Building envelope calculations have been prepared based on the methodology in BS EN 12354 to determine the performance requirements of the building envelope and ventilation paths to meet the internal noise limits.

Consideration has been made for existing noise levels on the different facades of the building, and the assessment positions shown in Table 6 and Figure 10.

6.2 Sound Insulation Methodology

Sound insulation calculations for the residential rooms have been prepared in accordance with BS EN 12354-3 to determine the extent of the sound insulation required to control noise levels to meet the noise limits discussed earlier in the report. Examples of these calculations are provided in Appendix C. All dimensions and room labels have been taken off the architect's scaled drawings.

The window specification is given in terms of the sound reduction index, R_w , as determined in an acoustics laboratory.

6.3 Glazing and Background Ventilation

Glazing and requirements for background ventilation are set out below. The requirements for background ventilation can also be met with a MVHR (Mechanical Ventilation Heat Recovery) system instead of acoustic trickle vents if appropriate.

Red façades

The rooms overlooking A3102 have the highest requirements for bedrooms and living room/kitchens on all floors. Heavy thermal double-glazed windows in the order of R_w 47 (e.g. 12.8/6/12.8) will be required. An alternative approach is installing secondary glazing with a deep cavity behind a standard thermal double-glazed panel may achieve similar results, depending on the cavity available. The minimum spectral sound reduction index requirements are shown below in Table 8.

Table 8: Minimum Spectral Sound Reduction Index

Element	Octave Band Centre Frequency							Sound Insulation
	63	125	250	500	1k	2k	4k	
Window	22	29	37	42	45	40	39	R_w 47dB e.g. 12.8/6/12.8

Mechanical ventilation is only required for the first floor rooms on the red façade. Mechanical ventilation is required because noise levels are over the AVOG noise limits (See Section 3.5 above and separate assessment in Section 6.4 below). Given that the building is existing and being converted, mitigation measures described in ProPG are limited and therefore heavy windows and

mechanical ventilation is the only reliable (and available) option for rooms on the red facades. The windows should still be openable at the user's discretion. Noise from the mechanical ventilation should be designed to a level of NR25 as recommended in the Wiltshire Guidance.

There are no bedrooms on the second floor that are entirely on the red façade and therefore these units would not need mechanical ventilation.

Orange Façade

The rooms on the orange façade include bedrooms and living room/kitchens on both floors.

The façade is shielded from the A3102 but does have line of sight to the bridge. Noise levels are quite low, and therefore, the internal levels with windows open are predicted to be around L_{Aeq} 33dB and 27dB for the day and the night time, respectively, assuming a 13dB attenuation between outside and inside. These internal noise levels are compliant with the BS 8233 limits. However, the maximum night time noise limits from the WHO Community Noise Guidance are exceeded in the bedrooms on the orange facade. The windows can have standard double glazing in the order of R_w 33dB (e.g. 6/16/6), the bedrooms require an acoustic trickle vent specified at $D_{n,e,w}$ 39dB.

There is a living room that is situated on the red and orange façade with windows on the orange façade. The windows on the orange façade may be used for ventilation as d

Blue Façade

The rooms on the blue façade have similar noise levels to the above and therefore can have identical glazing and trickle vent requirements to those for the orange facade. Again, internal noise levels are compliant with the standard internal noise level BS8233 limit with windows open.

Green Façade

The green façade is subject to direct noise from the A3102 bridge. The noise levels incident on the façade are L_{Aeq} 53dB and 48dB for the day and night time, respectively, again assuming 13 dB attenuation through an open window. The internal noise levels can be achieved with a combination of R_w 33dB standard double glazing (e.g. 6/16/6) and a $D_{n,e,w}$ 39dB trickle vent to provide background ventilation in respect of Part F of the Building Regulations.

It should be noted that windows do not need to be sealed shut and windows can be opened to control overheating as discussed in more detail below.

6.4 AVOG Noise Limits

The scheme is a change of use, so the requirements of Building Regulation Part O do not apply. However, the requirements of AVOG commonly need to be considered as discussed in Section 3.5 above. Regarding overheating control, a simplified assessment under the AVOG has been carried out assuming 13dB attenuation for an open window. The results are shown in Table 9.

Table 9: External free-field noise levels with window attenuation and AVOG limits

Façade	Time Period	External Noise Level (Free field)	Window Attenuation -13dBA	AVOG Limit	Compliant?
Red	Day L _{Aeq,16hours} dB	68	55	50	No
	Night L _{Aeq,8hours} dB	60	47	42	No
	Night L _{AFMax,8hours} dB	79	66	65	No
Orange	Day L _{Aeq,16hours} dB	46	33	50	Yes
	Night L _{Aeq,8hours} dB	40	27	42	Yes
	Night L _{AFMax,8hours} dB	65	52	65	Yes
Blue	Night L _{Aeq,8hours} dB	45	32	50	Yes
	Night L _{AFMax,8hours} dB	40	27	42	Yes
	Night L _{AFMax,8hours} dB	68	55	65	Yes
Green	Day L _{Aeq,16hours} dB	53	40	50	Yes
	Night L _{Aeq,8hours} dB	48	35	42	Yes
	Night L _{AFMax,8hours} dB	68	55	65	Yes

The majority of the noise levels affecting the building are low enough open windows to be used to control overheating and still meet the AVOG limits, again assuming 13dB attenuation for an open window.

The noise affecting the red façade exceeds the AVOG limits, an alternative means for cooling should be considered for the habitable rooms on the red façades. Cooling can be provided as part of the mechanical ventilation previously recommended.

7 Plant Noise Emissions Limits

There may be plant associated with the proposed development. Noise limits for new plant emissions have been derived from the background sound level, L_{A90}, measured for daytime (0700hrs – 2300hrs) and night-time (2300hrs - 0700hrs) periods.

Wiltshire guidance proposes differing plant noise limits for residential accommodation associated with the proposed development, and new plant from the proposed development affecting existing third-party residential receptors. The plant noise limits are parity with the background sound level, or 5dB below the typical background sound level (L_{A90}.) for onsite (associated) receptors or offsite existing receptors, respectively.

The derived plant noise limits are shown below in Table 11.

Table 11: Derived noise limits for other nearby existing residential receptors

Receptor Location	Period	Duration	Typical L_{A90} , dB	Plant noise requirement, dB	Plant noise limit, L_{Ar} , dB
Onsite	Daytime	16 hr	47	+/-0	47
	Night-time	8 hr	38		38
Offsite	Daytime	16 hr	47	-5	42
	Night-time	8 hr	38		33

The limits are set out in respect of the BS 4142 noise rating level, L_{Ar} , shall include the specific sound level, and any character corrections (tonality, impulsivity, intermittency, and other) at a given noise-sensitive receptor.

8 Noise from Commercial Units

In most cases, measured noise levels from the commercial units were not particular high and would be compatible with residential use above. There was a recording studio on site but typically a studio must be well protected to keep external noise out. Nevertheless, it would be recommended to specify the sound insulation of the first floor to achieve a sound insulation value which is 5 dB higher than the requirement for conversions in Approved Document E. Therefore, the floor sound insulation should be designed to achieve $D_{nT,w} + C_{tr}$ 48 dB.

The development can be managed by the developer and they will be able to specify suitable lease conditions for any of the commercial tenants to ensure that noise does not disturb any future residents.

In this respect, it is recommended that commercial units with music should be designed to achieve a music noise level (dB L_{eq}) of no more than NR20. Special measures will be required for gyms including those with free weights.

9 Summary

Ion Acoustics has undertaken a noise assessment for a proposed development at Avonside Business Park in Melksham.

A noise survey and attended measurements were conducted to determine the existing noise levels on site was carried out. The assessment has considered the potential noise impact from road activity from A3102, and from commercial activity to the proposed residential.

The assessment has considered and set out the requirements of sound insulation for windows and ventilation in respect of acoustics, set plant noise limits, and considered sound insulation from the commercial to the residential.

MP1

Time	L _{Aeq} dB	L _{Amax,F} dB	L _{AF90} dB	Time	L _{Aeq} dB	L _{Amax,F} dB	L _{AF90} dB
08/07/2025 12:00	70.1	90.3	58.9	09/07/2025 00:00	59.6	83.0	35.5
08/07/2025 12:15	69.4	82.1	58.0	09/07/2025 00:15	56.5	76.4	35.4
08/07/2025 12:30	69.9	81.3	58.6	09/07/2025 00:30	52.8	76.3	34.6
08/07/2025 12:45	69.8	85.9	59.3	09/07/2025 00:45	56.4	83.3	34.3
08/07/2025 13:00	72.1	96.3	57.2	09/07/2025 01:00	54.2	78.0	33.6
08/07/2025 13:15	71.7	96.9	57.1	09/07/2025 01:15	50.1	75.2	33.7
08/07/2025 13:30	69.0	79.8	57.2	09/07/2025 01:30	54.3	75.3	34.6
08/07/2025 13:45	69.7	91.5	56.5	09/07/2025 01:45	51.3	75.9	34.0
08/07/2025 14:00	68.7	81.7	56.5	09/07/2025 02:00	57.4	80.4	34.4
08/07/2025 14:15	69.1	82.2	58.5	09/07/2025 02:15	53.8	76.3	33.6
08/07/2025 14:30	73.3	99.7	58.6	09/07/2025 02:30	53.1	76.1	34.0
08/07/2025 14:45	69.8	90.0	57.5	09/07/2025 02:45	54.8	77.3	33.2
08/07/2025 15:00	69.3	81.4	57.8	09/07/2025 03:00	57.0	79.1	34.1
08/07/2025 15:15	70.7	93.1	61.3	09/07/2025 03:15	53.1	75.6	35.8
08/07/2025 15:30	69.4	84.4	59.6	09/07/2025 03:30	55.7	76.0	36.3
08/07/2025 15:45	69.1	81.2	57.7	09/07/2025 03:45	57.5	77.9	39.4
08/07/2025 16:00	70.2	82.4	58.3	09/07/2025 04:00	56.5	79.8	40.7
08/07/2025 16:15	69.6	80.3	58.6	09/07/2025 04:15	61.9	85.3	45.3
08/07/2025 16:30	69.9	83.8	59.7	09/07/2025 04:30	62.1	80.4	45.6
08/07/2025 16:45	72.3	97.1	57.2	09/07/2025 04:45	62.0	79.4	43.8
08/07/2025 17:00	69.5	81.6	59.5	09/07/2025 05:00	64.0	80.3	45.1
08/07/2025 17:15	70.1	81.6	58.8	09/07/2025 05:15	64.8	81.2	46.6
08/07/2025 17:30	71.0	93.2	60.3	09/07/2025 05:30	66.6	85.6	45.8
08/07/2025 17:45	74.6	102.2	57.5	09/07/2025 05:45	67.3	86.3	47.1
08/07/2025 18:00	73.4	95.5	59.0	09/07/2025 06:00	68.0	82.1	45.8
08/07/2025 18:15	69.3	87.5	58.3	09/07/2025 06:15	68.2	82.3	47.9
08/07/2025 18:30	70.4	94.0	57.2	09/07/2025 06:30	69.4	81.5	52.2
08/07/2025 18:45	71.7	99.5	56.1	09/07/2025 06:45	72.2	98.1	52.1
08/07/2025 19:00	72.4	99.3	57.2	09/07/2025 07:00	71.9	89.8	54.9
08/07/2025 19:15	68.6	89.9	55.3	09/07/2025 07:15	72.6	94.1	58.7
08/07/2025 19:30	69.5	88.2	56.2	09/07/2025 07:30	78.7	107.4	61.4
08/07/2025 19:45	69.8	93.0	54.5	09/07/2025 07:45	73.8	90.7	62.5
08/07/2025 20:00	77.4	104.8	53.8	09/07/2025 08:00	72.6	82.7	59.7
08/07/2025 20:15	72.0	98.9	53.8	09/07/2025 08:15	72.4	85.4	60.7
08/07/2025 20:30	67.1	80.3	52.1	09/07/2025 08:30	71.9	84.0	59.2
08/07/2025 20:45	66.6	82.2	50.4	09/07/2025 08:45	71.9	85.3	59.9
08/07/2025 21:00	68.2	87.2	53.1	09/07/2025 09:00	71.8	90.8	61.8
08/07/2025 21:15	66.4	80.2	48.9	09/07/2025 09:15	70.9	94.4	57.7
08/07/2025 21:30	67.3	84.0	49.1	09/07/2025 09:30	69.5	80.0	58.7
08/07/2025 21:45	66.7	88.3	47.6	09/07/2025 09:45	70.4	83.0	59.9
08/07/2025 22:00	65.0	81.2	45.7	09/07/2025 10:00	71.2	96.1	58.4
08/07/2025 22:15	62.8	80.3	42.3	09/07/2025 10:15	70.0	81.2	59.6
08/07/2025 22:30	65.0	83.6	42.5	09/07/2025 10:30	71.0	82.9	60.9
08/07/2025 22:45	62.5	88.5	38.8	09/07/2025 10:45	69.4	80.2	58.2
08/07/2025 23:00	63.0	85.2	38.6	09/07/2025 11:00	70.0	81.8	59.0
08/07/2025 23:15	57.4	80.1	38.9	09/07/2025 11:15	69.2	83.9	57.0
08/07/2025 23:30	56.4	75.9	35.8	09/07/2025 11:30	69.9	82.4	59.4
08/07/2025 23:45	55.8	78.0	34.7	09/07/2025 11:45	69.4	80.1	56.6

Avonside, Melksham
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
09/07/2025 12:00	70.2	87.3	58.0	10/07/2025 00:00	58.4	78.5	36.9
09/07/2025 12:15	71.6	90.2	58.8	10/07/2025 00:15	52.3	75.0	34.7
09/07/2025 12:30	72.3	94.7	58.3	10/07/2025 00:30	52.5	76.1	34.8
09/07/2025 12:45	70.2	85.5	59.0	10/07/2025 00:45	55.3	78.8	35.2
09/07/2025 13:00	70.4	84.7	58.5	10/07/2025 01:00	53.7	74.7	34.9
09/07/2025 13:15	72.2	98.3	57.6	10/07/2025 01:15	54.0	76.6	36.1
09/07/2025 13:30	69.9	80.6	59.4	10/07/2025 01:30	55.1	77.7	36.3
09/07/2025 13:45	70.0	82.4	58.5	10/07/2025 01:45	54.6	78.3	36.6
09/07/2025 14:00	70.2	93.4	57.8	10/07/2025 02:00	44.7	59.6	36.2
09/07/2025 14:15	70.8	91.5	59.2	10/07/2025 02:15	47.9	71.2	35.1
09/07/2025 14:30	68.8	84.2	57.1	10/07/2025 02:30	50.9	77.1	34.7
09/07/2025 14:45	69.4	86.4	58.1	10/07/2025 02:45	50.9	75.8	36.3
09/07/2025 15:00	69.4	82.0	55.9	10/07/2025 03:00	57.9	79.2	36.9
09/07/2025 15:15	69.7	80.3	57.9	10/07/2025 03:15	53.3	75.2	36.1
09/07/2025 15:30	70.1	82.9	60.2	10/07/2025 03:30	51.6	75.5	37.5
09/07/2025 15:45	71.6	87.2	60.5	10/07/2025 03:45	55.4	76.4	37.3
09/07/2025 16:00	69.4	80.3	58.1	10/07/2025 04:00	57.4	81.3	40.2
09/07/2025 16:15	69.4	79.8	59.4	10/07/2025 04:15	61.1	80.5	44.2
09/07/2025 16:30	71.0	87.5	58.0	10/07/2025 04:30	58.4	79.8	45.8
09/07/2025 16:45	72.9	96.4	59.3	10/07/2025 04:45	61.5	79.3	42.7
09/07/2025 17:00	70.4	83.4	59.6	10/07/2025 05:00	62.8	80.4	44.5
09/07/2025 17:15	71.9	98.6	59.5	10/07/2025 05:15	65.8	79.8	45.2
09/07/2025 17:30	70.6	87.4	59.4	10/07/2025 05:30	67.7	90.8	44.2
09/07/2025 17:45	70.6	85.3	59.8	10/07/2025 05:45	67.2	82.1	46.0
09/07/2025 18:00	72.2	96.2	58.0	10/07/2025 06:00	68.0	82.5	47.2
09/07/2025 18:15	73.5	97.8	57.3	10/07/2025 06:15	65.8	81.1	47.3
09/07/2025 18:30	76.9	105.3	56.4	10/07/2025 06:30	69.3	81.1	49.3
09/07/2025 18:45	69.9	89.2	55.5	10/07/2025 06:45	70.3	83.7	55.0
09/07/2025 19:00	69.6	92.7	56.7	10/07/2025 07:00	71.5	90.2	55.9
09/07/2025 19:15	68.8	82.6	56.2	10/07/2025 07:15	71.0	81.7	56.4
09/07/2025 19:30	68.6	85.3	56.2	10/07/2025 07:30	72.5	85.1	61.2
09/07/2025 19:45	68.8	83.3	54.7	10/07/2025 07:45	73.2	87.9	61.5
09/07/2025 20:00	68.9	88.6	54.1	10/07/2025 08:00	73.0	88.0	60.9
09/07/2025 20:15	66.3	79.3	51.5	10/07/2025 08:15	71.7	81.7	58.7
09/07/2025 20:30	67.7	87.5	51.8	10/07/2025 08:30	71.3	82.0	58.2
09/07/2025 20:45	67.0	86.5	50.6	10/07/2025 08:45	71.2	86.2	57.8
09/07/2025 21:00	66.7	84.1	50.6	10/07/2025 09:00	71.4	84.0	60.1
09/07/2025 21:15	65.7	79.8	50.3	10/07/2025 09:15	70.0	85.9	56.1
09/07/2025 21:30	66.6	85.4	49.1	10/07/2025 09:30	69.5	81.2	57.8
09/07/2025 21:45	66.0	83.0	47.3	10/07/2025 09:45	71.0	88.5	60.7
09/07/2025 22:00	65.6	82.2	48.4	10/07/2025 10:00	70.8	89.0	60.8
09/07/2025 22:15	65.0	81.7	44.9	10/07/2025 10:15	70.7	92.8	59.1
09/07/2025 22:30	65.0	84.2	43.2	10/07/2025 10:30	70.1	85.5	59.7
09/07/2025 22:45	62.6	82.5	39.7	10/07/2025 10:45	70.4	86.4	59.5
09/07/2025 23:00	66.3	89.2	37.6	10/07/2025 11:00	70.2	85.3	58.5
09/07/2025 23:15	57.3	76.1	37.4	10/07/2025 11:15	71.0	91.4	58.5
09/07/2025 23:30	58.5	77.6	37.1	10/07/2025 11:30	69.9	84.1	58.2
09/07/2025 23:45	56.0	80.4	35.3	10/07/2025 11:45	70.0	82.6	60.3

MP2

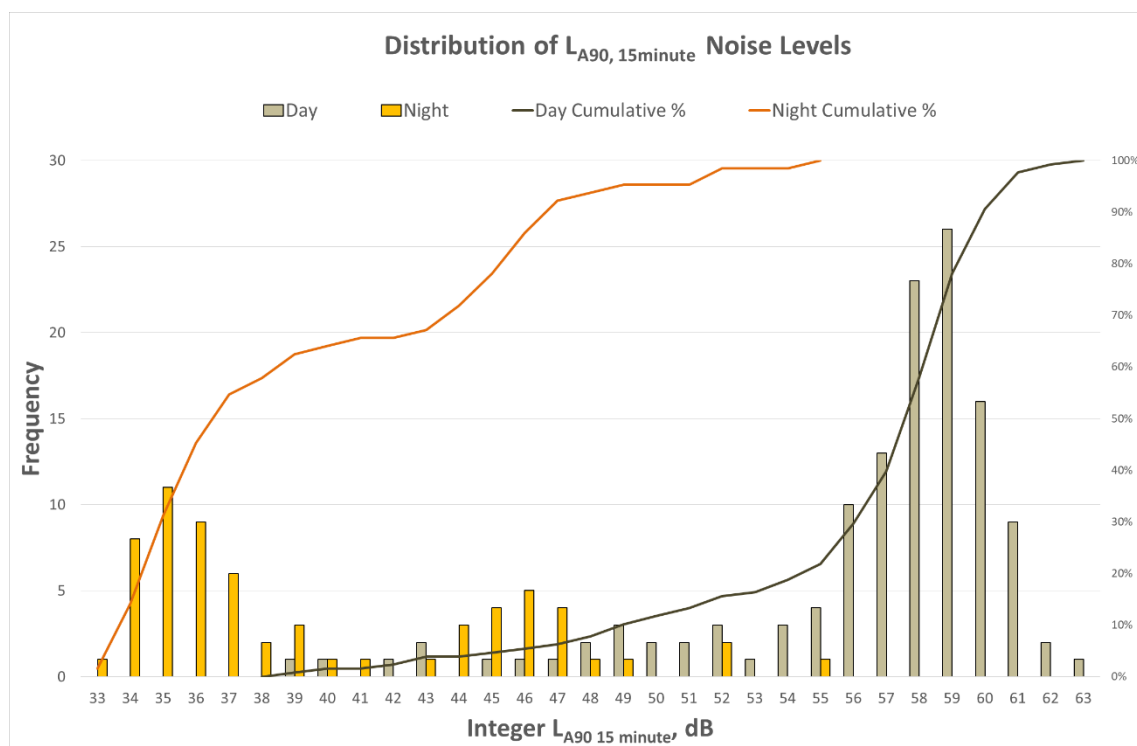
Time	L _{Aeq} dB	L _{Amax,F} dB	L _{AF90} dB	Time	L _{Aeq} dB	L _{Amax,F} dB	L _{AF90} dB
08/07/2025 12:30	52.5	76.2	48.6	09/07/2025 00:30	43.4	56.1	38.8
08/07/2025 12:45	53.1	73.4	48.6	09/07/2025 00:45	42.7	56.7	38.3
08/07/2025 13:00	51.8	70.0	47.6	09/07/2025 01:00	42.1	58.1	37.2
08/07/2025 13:15	52.0	70.6	48.3	09/07/2025 01:15	40.9	54.4	36.6
08/07/2025 13:30	51.0	63.1	47.3	09/07/2025 01:30	44.1	55.5	37.2
08/07/2025 13:45	53.6	69.3	48.9	09/07/2025 01:45	42.2	55.0	37.3
08/07/2025 14:00	53.2	71.0	48.3	09/07/2025 02:00	42.0	57.9	37.4
08/07/2025 14:15	52.7	72.0	48.5	09/07/2025 02:15	42.2	55.8	37.7
08/07/2025 14:30	53.0	73.6	48.9	09/07/2025 02:30	43.3	56.3	38.0
08/07/2025 14:45	52.3	66.9	48.9	09/07/2025 02:45	41.4	56.3	38.1
08/07/2025 15:00	55.3	75.3	49.6	09/07/2025 03:00	43.0	59.2	38.3
08/07/2025 15:15	54.5	72.1	48.6	09/07/2025 03:15	41.5	60.0	38.3
08/07/2025 15:30	52.2	61.9	49.6	09/07/2025 03:30	41.8	55.5	37.7
08/07/2025 15:45	53.0	73.2	48.7	09/07/2025 03:45	47.6	65.6	40.3
08/07/2025 16:00	51.4	64.5	47.9	09/07/2025 04:00	48.9	70.7	41.1
08/07/2025 16:15	53.4	74.7	48.5	09/07/2025 04:15	50.4	67.7	43.2
08/07/2025 16:30	51.9	67.5	49.0	09/07/2025 04:30	52.7	69.5	42.7
08/07/2025 16:45	52.4	61.6	49.6	09/07/2025 04:45	51.5	68.0	43.0
08/07/2025 17:00	53.7	67.2	51.1	09/07/2025 05:00	51.3	69.6	43.3
08/07/2025 17:15	54.9	72.8	51.1	09/07/2025 05:15	49.3	64.4	43.8
08/07/2025 17:30	53.1	67.6	50.4	09/07/2025 05:30	49.3	68.7	43.8
08/07/2025 17:45	54.7	77.3	51.3	09/07/2025 05:45	49.1	63.1	45.0
08/07/2025 18:00	55.4	74.2	51.6	09/07/2025 06:00	50.1	67.0	43.4
08/07/2025 18:15	53.3	67.1	50.8	09/07/2025 06:15	49.6	60.9	44.1
08/07/2025 18:30	55.7	68.3	51.5	09/07/2025 06:30	53.0	73.6	45.0
08/07/2025 18:45	56.0	75.1	51.8	09/07/2025 06:45	52.0	69.1	46.5
08/07/2025 19:00	54.2	77.3	50.2	09/07/2025 07:00	51.9	65.9	46.8
08/07/2025 19:15	52.3	66.9	49.7	09/07/2025 07:15	52.6	68.9	46.7
08/07/2025 19:30	53.8	74.2	50.9	09/07/2025 07:30	52.4	65.7	47.0
08/07/2025 19:45	53.6	71.7	50.1	09/07/2025 07:45	52.7	66.6	47.5
08/07/2025 20:00	54.2	75.2	49.9	09/07/2025 08:00	51.8	66.9	46.9
08/07/2025 20:15	53.9	69.8	49.7	09/07/2025 08:15	51.8	73.7	47.2
08/07/2025 20:30	54.0	68.0	50.0	09/07/2025 08:30	52.1	68.1	47.4
08/07/2025 20:45	53.1	69.5	49.0	09/07/2025 08:45	51.0	63.4	47.5
08/07/2025 21:00	52.1	68.0	47.8	09/07/2025 09:00	52.6	78.3	47.9
08/07/2025 21:15	53.9	76.3	47.7	09/07/2025 09:15	51.1	63.9	47.5
08/07/2025 21:30	54.1	72.4	48.4	09/07/2025 09:30	52.0	65.2	48.7
08/07/2025 21:45	51.1	65.7	46.2	09/07/2025 09:45	51.6	75.9	47.3
08/07/2025 22:00	50.9	65.5	45.7	09/07/2025 10:00	52.9	80.3	47.5
08/07/2025 22:15	51.8	69.7	44.9	09/07/2025 10:15	51.5	73.0	47.5
08/07/2025 22:30	50.9	75.2	43.5	09/07/2025 10:30	51.5	68.5	47.7
08/07/2025 22:45	48.1	60.3	41.5	09/07/2025 10:45	52.3	73.5	47.6
08/07/2025 23:00	48.0	59.8	43.3	09/07/2025 11:00	52.1	70.1	47.5
08/07/2025 23:15	48.0	67.1	41.2	09/07/2025 11:15	50.8	62.0	47.4
08/07/2025 23:30	47.6	67.0	39.5	09/07/2025 11:30	51.5	75.5	48.1
08/07/2025 23:45	44.8	57.0	38.9	09/07/2025 11:45	51.8	72.2	46.8
09/07/2025 00:00	45.9	58.7	38.6	09/07/2025 12:00	53.6	79.2	47.3
09/07/2025 00:15	44.2	58.1	38.6	09/07/2025 12:15	51.6	69.0	47.8

Avonside, Melksham
Noise Report for Planning
Appendix A – Tabulated Noise Survey Data

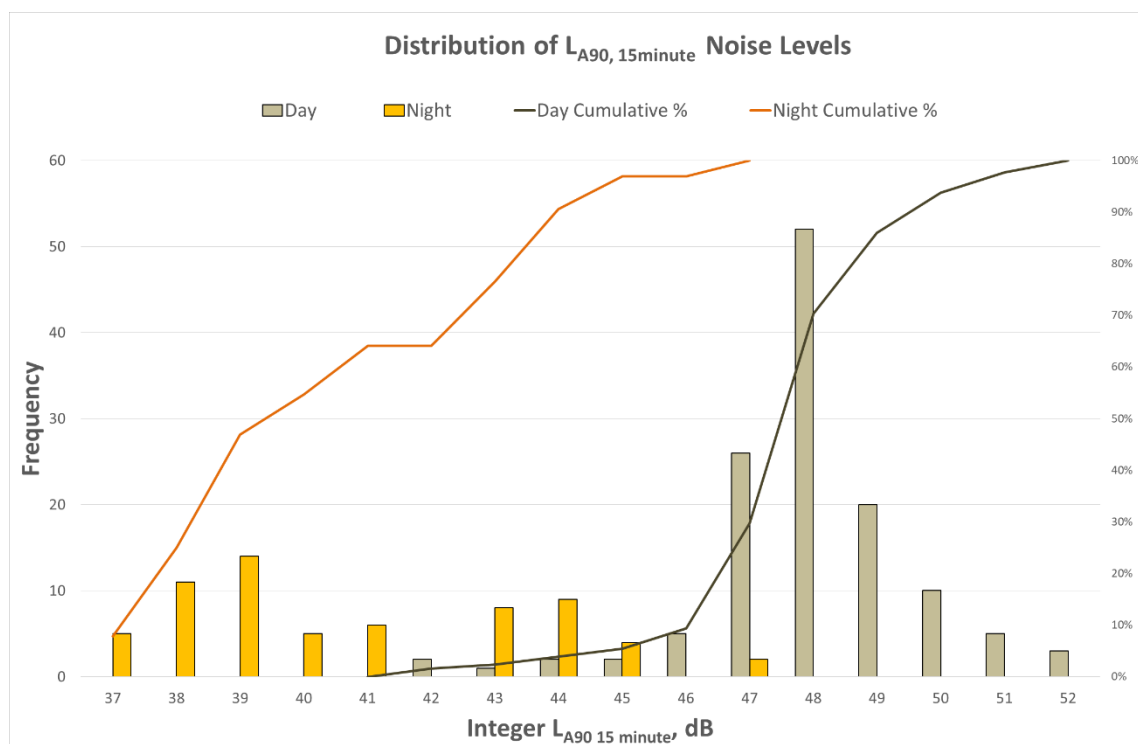


Time	L _{Aeq} dB	L _{Amax,F} dB	L _{AF90} dB	Time	L _{Aeq} dB	L _{Amax,F} dB	L _{AF90} dB
09/07/2025 12:30	56.6	80.3	48.3	10/07/2025 00:30	41.3	53.5	38.3
09/07/2025 12:45	52.4	70.0	48.2	10/07/2025 00:45	42.0	55.9	38.6
09/07/2025 13:00	51.8	70.7	47.3	10/07/2025 01:00	44.8	67.0	39.0
09/07/2025 13:15	52.5	76.8	48.4	10/07/2025 01:15	41.8	58.5	38.8
09/07/2025 13:30	53.4	74.1	48.7	10/07/2025 01:30	43.7	56.9	38.8
09/07/2025 13:45	52.5	67.9	48.8	10/07/2025 01:45	42.3	58.4	38.8
09/07/2025 14:00	53.2	76.0	48.0	10/07/2025 02:00	43.7	59.8	38.8
09/07/2025 14:15	52.6	77.8	48.1	10/07/2025 02:15	41.3	58.1	38.1
09/07/2025 14:30	53.0	73.1	47.7	10/07/2025 02:30	41.6	57.0	38.2
09/07/2025 14:45	51.2	70.7	47.5	10/07/2025 02:45	43.2	57.2	39.1
09/07/2025 15:00	52.2	74.2	47.4	10/07/2025 03:00	44.7	59.8	39.1
09/07/2025 15:15	51.6	68.6	48.4	10/07/2025 03:15	44.1	62.7	39.4
09/07/2025 15:30	52.1	69.8	48.2	10/07/2025 03:30	45.9	66.5	39.2
09/07/2025 15:45	59.5	88.9	47.5	10/07/2025 03:45	47.6	64.5	40.3
09/07/2025 16:00	51.5	68.2	48.0	10/07/2025 04:00	47.6	63.8	40.8
09/07/2025 16:15	51.1	62.8	47.8	10/07/2025 04:15	49.0	67.7	42.6
09/07/2025 16:30	53.4	76.5	48.4	10/07/2025 04:30	52.4	69.8	44.4
09/07/2025 16:45	55.2	75.8	48.0	10/07/2025 04:45	50.7	66.0	43.5
09/07/2025 17:00	52.2	75.7	47.8	10/07/2025 05:00	49.3	64.0	43.9
09/07/2025 17:15	59.0	86.1	48.3	10/07/2025 05:15	50.8	72.3	44.8
09/07/2025 17:30	51.6	68.0	47.8	10/07/2025 05:30	49.6	65.3	44.4
09/07/2025 17:45	52.1	67.8	48.2	10/07/2025 05:45	49.8	68.3	43.5
09/07/2025 18:00	51.7	68.9	48.3	10/07/2025 06:00	49.5	68.6	43.3
09/07/2025 18:15	54.5	73.4	48.2	10/07/2025 06:15	48.3	65.3	43.6
09/07/2025 18:30	55.9	78.9	48.3	10/07/2025 06:30	50.6	66.3	44.5
09/07/2025 18:45	54.0	67.3	47.9	10/07/2025 06:45	51.8	72.3	46.7
09/07/2025 19:00	52.4	66.7	47.8	10/07/2025 07:00	51.8	65.9	47.2
09/07/2025 19:15	52.2	76.3	47.9	10/07/2025 07:15	52.1	73.4	46.6
09/07/2025 19:30	51.0	65.0	47.5	10/07/2025 07:30	52.2	68.4	47.3
09/07/2025 19:45	51.5	73.4	46.7	10/07/2025 07:45	52.1	65.6	47.1
09/07/2025 20:00	51.3	66.2	47.0	10/07/2025 08:00	52.5	67.9	47.1
09/07/2025 20:15	50.4	71.0	45.9	10/07/2025 08:15	52.4	64.7	47.4
09/07/2025 20:30	50.2	65.4	45.9	10/07/2025 08:30	52.3	68.3	47.8
09/07/2025 20:45	51.4	68.5	47.0	10/07/2025 08:45	51.2	64.8	47.8
09/07/2025 21:00	52.0	73.0	47.4	10/07/2025 09:00	52.0	64.3	48.2
09/07/2025 21:15	52.4	77.2	46.8	10/07/2025 09:15	53.1	62.0	47.5
09/07/2025 21:30	53.1	74.5	46.7	10/07/2025 09:30	50.8	63.7	47.2
09/07/2025 21:45	52.2	69.9	45.8	10/07/2025 09:45	52.8	73.0	48.3
09/07/2025 22:00	53.3	70.8	45.2	10/07/2025 10:00	52.8	71.9	48.8
09/07/2025 22:15	50.9	71.8	43.8	10/07/2025 10:15	54.8	77.6	47.9
09/07/2025 22:30	48.3	64.6	43.1	10/07/2025 10:30	51.7	71.2	48.1
09/07/2025 22:45	47.4	68.6	42.4	10/07/2025 10:45	52.7	69.1	48.8
09/07/2025 23:00	47.2	59.5	41.0	10/07/2025 11:00	51.1	62.4	48.5
09/07/2025 23:15	46.2	59.5	40.8	10/07/2025 11:15	52.9	75.8	48.8
09/07/2025 23:30	46.2	59.7	40.8	10/07/2025 11:30	53.2	80.9	48.9
09/07/2025 23:45	45.9	67.7	40.2	10/07/2025 11:45	52.4	69.7	48.7
10/07/2025 00:00	45.8	58.4	40.2	10/07/2025 12:00	52.0	66.7	48.4
10/07/2025 00:15	43.8	57.7	37.9	10/07/2025 12:15	51.4	64.8	48.0

MP1 – Background Sound Level Histogram



MP2 – Background Sound Level Histogram



Red Façade – Day

A2327			Date	07/11/2025						
Day			Room	AP1						
Incident noise levels										
	Term	Label	Octave band centre frequency (Hz)							dB(A)
			63	125	250	500	1 k	2 k	4 k	
Leq,ff	Measured Leq	AP1	2.0	-3.2	-4.1	-4.0	-2.7	-9.0	-15.2	68.0
	Measured spectrum	L: AP1: Adj Spectrum	70.0	64.8	63.9	64.0	65.3	59.0	52.8	68.0
		K	3	3	3	3	3	3	3	
Lmax,ff	Measured Lmax	AP1	--	--	--	--	--	--	--	0.0
		M: AP1: Adj Spectrum	#####	#####	#####	#####	#####	#####	#####	#VALUE!
		K	6	6	6	6	6	6	6	
Room Details										
	Term	Derivation	Value	Term	Derivation	Value				
	V	Volume (m³)	14.3	Sew	Sf - Swi - Sr	6.1				
	RT	RT (secs)	1.2	Srr	Area of ceiling (m²)	5.1				
	Sf	Facade area (inc. window) (m²)	7.8	S	Sf + Srr	7.8				
	Sr	Roof Area	0.0	Ao	Ref Area for Dnew	10.0				
	Swi	Window area (m²)	1.8	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	Dn,e	Mechanical Vent	100	100	100	100	100	100	100	101
	A0/S x 10 ^{-Dn/10}	B	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		Leq Internal SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Lmax Internal SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
window	Rwi	Saint Gobain 12.8/6/12.8	22	29	37	42	45	40	39	43
	Swi/S x 10 ^{-Rwi/10}	C	0.001	0.000	0.000	0.000	0.000	0.000	0.000	
		Leq Internal SPL	53.6	41.4	32.5	27.6	25.9	24.6	19.4	33.6
		Lmax Internal SPL	#####	#####	#####	#####	#####	#####	#####	#VALUE!
Primary wall	Rew	Example Wall from BS8233 (Brick and Block)	36	40	44	45	51	56	58	51
	Sew/S x 10 ^{-Rew/10}	D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		Leq Internal SPL	45.0	35.8	30.9	30.0	25.3	14.0	5.8	30.8
		Lmax Internal SPL	#####	#####	#####	#####	#####	#####	#####	#VALUE!
Spandrel Panel	Rrr	Example Roof from BS8233	22	28	34	40	45	49	52	44
	Sr/S x 10 ^{-Rrr/10}	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		Leq Internal SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Lmax 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	-27.9	-34.5	-41.2	-44.1	-48.8	-46.1	-45.3	
	A (furnished)	Room Absorption	2	2	2	2	2	2	2	
	10 log (S/A)	G	6.1	6.1	6.1	6.1	6.1	6.1	6.1	
Leq	Calc Tolerance	T	3	3	3	3	3	3	3	
	Internal Leq,2	L+F+G+K+T	54.2	42.5	34.8	32.0	28.6	25.0	19.6	35.4

Orange Façade – Night

A2327			Date		07/11/2025					
Night			Room		AP2					
Incident noise levels										
	Term	Label	Octave band centre frequency (Hz)							dB(A)
			63	125	250	500	1 k	2 k	4 k	
Leq,ff	Measured Leq	AP2	0.5	-3.5	-4.1	-5.1	-2.4	-8.7	-15.3	39.9
	Measured spectrum	L: AP2: Adj Spectrum	40.4	36.4	35.8	34.8	37.5	31.2	24.6	39.9
		K	3	3	3	3	3	3	3	
Lmax,ff	Measured Lmax	AP2	-2.4	-3.7	-0.8	0.1	-7.3	-10.8	-11.7	65.3
		M: AP2: Adj Spectrum	62.9	61.6	64.5	65.4	58.0	54.5	53.6	65.3
		K	6	6	6	6	6	6	6	
Room Details										
	Term	Derivation	Value	Term	Derivation	Value				
	V	Volume (m³)	13.9	Sew	Sf - Swi - Sr	4.9				
	RT	RT (secs)	1.2	Srr	Area of ceiling (m²)	5.0				
	Sf	Facade area (inc. window) (m²)	6.4	S	Sf + Srr	6.4				
	Sr	Roof Area	0.0	Ao	Ref Area for Dnew	10.0				
	Swi	Window area (m²)	1.6	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	Dn,e	23 Dne,w: Trickle: Lowest Performer	21	29	33	38	37	36	38	38
	A0/S x 10 ^{-Dn/10}	B	0.012	0.002	0.001	0.000	0.000	0.000	0.000	
		Leq Internal SPL	29.7	17.7	13.1	7.1	10.8	5.5	-3.1	17
		Lmax Internal SPL	49.2	39.9	38.8	34.7	28.3	25.8	22.9	42
window	Rwi	Saint Gobain Rw33	13	21	22	30	34	32	31	32
	Swi/S x 10 ^{-Rwi/10}	C	0.012	0.002	0.002	0.000	0.000	0.000	0.000	
		Leq Internal SPL	32.7	20.7	19.1	10.1	8.8	4.5	-1.1	15.5
		Lmax Internal SPL	55.0	45.7	47.6	40.5	29.1	27.6	27.7	42.4
Primary wall	Rew	Example Wall from BS8233 (Brick and Block)	36	40	44	45	51	56	58	51
	SeW/S x 10 ^{-Rw/10}	D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		Leq Internal SPL	14.6	6.6	2.0	0.0	-3.3	-14.6	-23.2	1.4
		Lmax Internal SPL	36.9	31.6	30.5	30.4	17.0	8.5	5.6	29.0
Spandrel Panel	Rrr	Example Roof from BS8233	22	28	34	40	45	49	52	44
	Si/S x 10 ^{-Rrr/10}	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		Leq Internal SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Lmax Internal SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Internal Noise Levels										
Leq	10 Log (B+C+D+E)	F	-16.1	-24.0	-26.3	-32.9	-33.8	-32.6	-33.5	
	A (furnished)	Room Absorption	2	2	2	2	2	2	2	
	10 log (S/A)	G	5.4	5.4	5.4	5.4	5.4	5.4	5.4	
Leq	Calc Tolerance	T	3	3	3	3	3	3	3	
	Internal Leq,2	L+F+G+K+T	35.8	23.8	20.9	13.3	15.1	10.0	2.5	19.5
Lmax	Calc Tolerance	T								
	Internal Lmax,2	M+F+G+K+T	58.1	48.8	49.5	43.8	35.4	33.1	31.3	45.4
										</

Blue Façade – Day

A2327			Date		07/11/2025					
Day			Room		AP3					
Incident noise levels										
	Term	Label	Octave band centre frequency (Hz)							dB(A)
			63	125	250	500	1 k	2 k	4 k	
Leq,ff	Measured Leq	AP3	2.1	-2.9	-4.0	-4.0	-2.7	-9.0	-15.1	45.4
	Measured spectrum	L: AP3: Adj Spectrum	47.5	42.5	41.4	41.4	42.7	36.4	30.3	45.4
		K	3	3	3	3	3	3	3	
Lmax,ff	Measured Lmax	AP3	--	--	--	--	--	--	--	0.0
		M: AP3: Adj Spectrum	#####	#####	#####	#####	#####	#####	#####	#VALUE!
		K	6	6	6	6	6	6	6	
Room Details										
	Term	Derivation	Value	Term	Derivation	Value				
	V	Volume (m³)	17.7	Sew	Sf - Swi - Sr	3.0				
	RT	RT (secs)	1.2	Srr	Area of ceiling (m²)	6.3				
	Sf	Facade area (inc. window) (m²)	5.3	S	Sf + Srr	5.3				
	Sr	Roof Area	0.0	Ao	Ref Area for Dnew	10.0				
	Swi	Window area (m²)	2.3	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	Dn,e	38 Dne,w: Trickle: Acoustic: Typical	3	7	21	32	35	36	34	30
	A0/S x 10 ^{-Dn/10}	B	0.955	0.380	0.015	0.001	0.001	0.000	0.001	
		Leq Internal SPL	53.8	44.8	29.7	18.7	17.0	9.7	5.6	35
		Lmax Internal SPL	#####	#####	#####	#####	#####	#####	#####	#VALUE!
window	Rwi	Saint Gobain Rw33	31	21	22	30	34	32	31	32
	Swi/S x 10 ^{-Rwi/10}	C	0.000	0.003	0.003	0.000	0.000	0.000	0.000	
		Leq Internal SPL	22.4	27.4	25.3	17.3	14.6	10.3	5.2	21.2
		Lmax Internal SPL	#####	#####	#####	#####	#####	#####	#####	#VALUE!
Primary wall	Rew	Example Wall from BS8233 (Brick and Block)	36	40	44	45	51	56	58	51
	SeW/S x 10 ^{-Rew/10}	D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		Leq Internal SPL	18.5	9.5	4.4	3.4	-1.3	-12.6	-20.7	4.2
		Lmax Internal SPL	#####	#####	#####	#####	#####	#####	#####	#VALUE!
Spandrel Panel	Rrr	Example Roof from BS8233	22	28	34	40	45	49	52	44
	Sr/S x 10 ^{-Rrr/10}	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		Leq Internal SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Lmax Internal SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Calculated Internal Noise Levels										
Leq	10 Log (B+C+D+E)	F	-0.2	-4.2	-17.5	-27.8	-31.1	-31.2	-29.6	
	A (furnished)	Room Absorption	2	2	2	2	2	2	2	
	10 log (S/A)	G	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
	Calc Tolerance	T	3	3	3	3	3	3	3	
	Internal Leq,2	L+F+G+K+T	56.8	47.8	33.4	23.1	21.1	14.6	10.2	35.1

Green Façade – Night

A2327			Date		07/11/2025					
Night			Room		AP4					
Incident noise levels										
	Term	Label	Octave band centre frequency (Hz)							dB(A)
			63	125	250	500	1 k	2 k	4 k	
Leq,ff	Measured Leq	AP4	-0.9	-2.7	-5.0	-5.7	-3.6	-8.2	-11.2	48.0
	Measured spectrum	L: AP4: Adj Spectrum	47.1	45.3	43.0	42.3	44.4	39.8	36.8	47.6
		K	3	3	3	3	3	3	3	
Lmax,ff	Measured Lmax	AP4	-15.7	-19.9	-14.1	-8.3	-4.5	-5.4	-8.3	67.7
		M: AP4: Adj Spectrum	52.0	47.8	53.6	59.4	63.2	62.3	59.4	67.7
		K	6	6	6	6	6	6	6	
Room Details										
	Term	Derivation	Value	Term	Derivation	Value				
	V	Volume (m³)	13.4	Sew	Sf - Swi - Sr	4.2				
	RT	RT (secs)	1.2	Srr	Area of ceiling (m²)	4.8				
	Sf	Facade area (inc. window) (m²)	6.6	S	Sf + Srr	6.6				
	Sr	Roof Area	0.0	Ao	Ref Area for Dnew	10.0				
	Swi	Window area (m²)	2.4	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	Dn,e	Renson AK35	10	19	29.2	37.7	42.1	39.6	40.3	38
	A0/S x 10 ^{-Dn/10}	B	0.152	0.019	0.002	0.000	0.000	0.000	0.000	
		Leq Internal SPL	47.6	36.8	24.3	15.1	12.8	10.7	7.0	28
		Lmax Internal SPL	49.5	36.3	31.9	29.2	28.6	30.2	26.6	42
window	Rwi	Saint Gobain Rw33	13	21	22	30	34	32	31	32
	Swi/S x 10 ^{-Rwi/10}	C	0.018	0.003	0.002	0.000	0.000	0.000	0.000	
		Leq Internal SPL	41.4	31.6	28.3	19.6	17.7	15.1	13.1	25.2
		Lmax Internal SPL	46.3	34.1	38.9	36.7	36.5	37.6	35.7	43.0
Primary wall	Rew	Example Wall from BS8233 (Brick and Block)	36	40	44	45	51	56	58	51
	SeW/S x 10 ^{-Rew/10}	D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		Leq Internal SPL	20.8	15.0	8.7	7.0	3.1	-6.5	-11.5	8.4
		Lmax Internal SPL	25.7	17.5	19.3	24.1	21.9	16.0	11.1	25.5
Spandrel Panel	Rrr	Example Roof from BS8233	22	28	34	40	45	49	52	44
	Sr/S x 10 ^{-Rr/10}	E	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		Leq Internal SPL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		Lmax 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	-7.7	-16.6	-23.8	-31.9	-36.1	-34.0	-33.6	
	A (furnished)	Room Absorption	2	2	2	2	2	2	2	
	10 log (S/A)	G	5.6	5.6	5.6	5.6	5.6	5.6	5.6	
Leq	Calc Tolerance	T	3	3	3	3	3	3	3	
	Internal Leq,2	L+F+G+K+T	51.1	40.4	30.8	22.0	19.9	17.5	14.8	30.1
Lmax	Calc Tolerance	T								
	Internal Lmax,2	M+F+G+K+T	56.0	42.9	41.4	39.1	38.7	40.0	37.4	45.4