# Residential Development Noise Impact Assessment

## Barns Green, Horsham

### Miller Homes Limited

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Making Sustainability Happen

## Revision Record

| Revision | Date | Prepared By | Checked By | Authorised By |
|---|---|---|---|---|
| 01 | 10 September 2025 | J Munns MIOA | V. Tayor MIOA | V.Taylor MIOA |

# Basis of Report

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# 1.0 Introduction

Miller Homes Limited has appointed SLR Consulting Limited (SLR) to undertake a noise impact assessment for a proposed residential development in Barns Green, Horsham (the Site).

This document has been prepared to support a planning application for a residential development comprising 68 units located off Chapel Road in Barns Green, Sussex, RH13 0PL.

This assessment has been prepared in review of noise impacts from transportation sources and commercial premises on the intended occupiers of the proposed development. It has been developed in accordance with Professional Practice Guidance (ProPG) Planning and Noise – New Residential Development (2017).

This report has been prepared and checked by suitably qualified persons as defined in Section 8.0. Whilst reasonable effort has been made to ensure that this report is easy to understand, it is technical in nature. To assist the reader, a glossary of terminology has been included in Appendix A.

# 2.0 Site Description

The development Site is bounded by Smugglers Lane to the north, a Public Right of Way (PRoW) to the west, residential properties to the south, and Chapel Road to the east.

Figure A below has been prepared to highlight the geolocated development Site with a red boundary and with aerial view for context.

**Figure A: Site Plan and Aerial View**


## 2.1 Incident Noise Sources

The Site has local transportation noise incident on the site from the east, namely Chapel Road. More distant to the south east lies the train line connecting Billingshurst and Horsham. More locally are the Sumners Ponds Fishery and Campsite the south, with new residential developments being built to the south as well.

## 2.2 Proposed Development

The proposed development is proposed to comprise 68 dwellings, vehicular and pedestrian accesses, public open space, hard and soft landscaping and associated works.

This noise assessment has been based on the highlighted development proposals as obtained at the earliest opportunity of development planning.

The below layout in Figure B has been considered as part of this noise impact assessment.

**Figure B: Proposed Development**

# 3.0 Planning and Noise Guidance

## 3.1 ProPG Planning and Noise (2017)

ProPG: Planning & Noise – Professional Practice Guidance on Planning & Noise, New Residential Development was developed by a working group consisting of representatives from the Association of Noise Consultants (ANC), Institute of Acoustics (IOA), Chartered Institute of Environmental Health (CIEH) and practitioners from a planning and local authority background.

This guidance was made effective in May 2017 to provide a recommended approach to the management of noise within the planning system in England. It has drawn upon legislation, guidance and standards available at the time of publication to reflect the Noise Policy Statement for England (NPSE), the National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPGN) and other authoritative sources of guidance.

ProPG has been noted to advocate two sequential stages covering an ‘initial noise risk assessment’ at Stage 1 then a ‘full assessment’ at Stage 2 considering four key elements.

- Element 1 – Good acoustic design process.
- Element 2 – Internal noise level guidelines.
- Element 3 – External amenity area noise assessment.
- Element 4 – Assessment of other relevant issues.

ProPG has provided a summary of internal noise level guidelines as part of Stage 2 assessment shown in Table A. These guidelines values have been derived from British Standard BS 8233:2014 *Guidance on Sound Insulation and Noise Reduction for Buildings* (BS 8233) and *The World Health Organisation Guidelines for Community Noise* (1999).

**Table A: ProPG Internal Noise Level Guidelines**

| Activity | Location | 07:00 – 23:00 dB $L_{Aeq,16h}$ | 23:00 – 07:00 dB $L_{Aeq,8h}$ |
|---|---|---|---|
| Resting | Living room | 35 | - |
| Dining | Dining room/area | 40 | - |
| Sleeping (daytime resting) | Bedroom | 35 | 30<br>45 dB $L_{Amax(F)}$* |
| * Not normally exceeded more than 10 times per night. | | | |

### 3.1.1 Application for Commercial Sources

The scope of ProPG considers new residential development that will be predominantly exposed to airborne noise from transportation sources. In cases where the Site is exposed to noise of an industrial and/or commercial nature, this shall be considered at Stage 1 of the ProPG approach.

ProPG guidance has advocated the methodology of BS 4142[1] in establishing the impact of industrial and/or commercial sound. If rated as lower than adverse subject to context following BS 4142, its contribution may be included in the degree of risk established for the Site. If considered to be dominant, such as being rated at least adverse subject to context

[1] British Standard BS 4142:2014 +A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound.

following BS 4142, then the ProPG risk assessment should not be applied to the industrial or commercial noise component. In low-risk cases a subjective judgement of dominance has been advocated as sufficient, based on the audibility of the industrial and/or commercial sound.

The assessment method of ProPG applies to residential development to understand the risks and design requirements to mitigate from environmental noise sources. Where commercial impacts have been viewed satisfied by the design of the scheme and remain less than adverse including context according to BS 4142, then the ProPG Stage 1 risk assessment allows that any commercial impacts may be included within its assessment.

> *"In the special case where industrial and/or commercial noise is present on the Site but is "not dominant" (i.e. where the impact would be rated as lower than adverse (subject to context) if a BS 4142:2014 assessment was to be carried out), its contribution may be included in the noise level used to establish the degree of risk in Stage 1 and may also be included in the consideration of Stage 2 Element 2 Internal Noise Level Guidelines (and if included, this should be clearly stated)."*

### 3.1.2 Application for Overheating Ventilation

ProPG Stage 2 Element 1 considers internal noise levels guidelines where those criteria of Table A would occur under building ventilation conditions. There is a further need to address if the overheating ventilation strategy impacts on indoor acoustic conditions, or if a more-informed strategy is required in the mitigation of overheating.

The AVO Guide[2] was published for application by practitioners when following Stage 2 Element 1 of good acoustic design within ProPG. This extended guidance document has aimed to assist designers to adopt an integrated approach to the acoustic design within the context of the ventilation and thermal comfort requirements.

Overheating has since been regulated in the UK by Requirement O1 of the Building Regulations[3] supeceeding AVO, whereby upper noise guidance limits have been advocated at night in an overheating ventilation condition, generally 10 dB higher than those within Table A.

Appropriate considerations to achieve these levels has been further advised by industry guidance[4].

[2] ANC/IOA Acoustic Ventilation and Overheating Residential Design Guide, Version 1.1. Association of Noise Consultants & Institute of Acoustics, January 2020.

[3] The Building Regulations 2010 Requirement O1: Overheating mitigation, 2021 Edition. As applicable to a building notice or full planning application submitted after 15th June 2022.

[4] ANC/IOA Approved Document O Noise Guide, Version 1.1. Association of Noise Consultants & Institute of Acoustics, November 2024.

# 4.0 Environmental Survey Summary

The following section has referred to a study of environmental sound levels carried out between 4th September and 8th September 2025.

This included sound level measurements and observations to characterise the sound levels from incident sources of transportation, or potentially of industrial and/or commercial nature.

## 4.1 Equipment and Measurements

Sound pressure level measurements were carried out using the following equipment listed in Table B, of Class 1 acoustic accuracy for sound level meters and matched calibrators.

The sound level meters were calibrated before the measurements using the handheld acoustic calibrator and further checked upon completion of the survey. No significant drift was observed with calibration offsets of ≤ 0.2 dB.

The calibration chain of equipment has been maintained traceably to national standards, no greater than one year for sound calibrators and two years for sound level meters.

**Table B: Sound Monitoring Equipment**

| Location | Description | Manufacturer | Type | Serial Number | Laboratory Calibration Date | Certificate Number |
|---|---|---|---|---|---|---|
| NMP1 | Sound Level Meter | Acoem | Fusion | 16432 | 17/07/2025 | TR-REP-10976 |
| | ½" Pre-Polarised Microphone | GRAS | 40CD | 627399 | | |
| | Outdoor kit | Acoem | DMK01 | 2506077 | | TR-REP-10981 |
| | Calibrator | RION | NC-74 | 34167510 | 02/06/2025 | TCRT25/1431 |
| NPM2 | Sound Level Meter | Acoem | Fusion | 16433 | 17/07/2025 | TR-REP-10978 |
| | ½" Pre-Polarised Microphone | GRAS | 40CD | 640032 | | |
| | Outdoor kit | Acoem | DMK01 | 2506074 | | TR-REP-10979 |
| | Calibrator | RION | NC-74 | 34167510 | 02/06/2025 | TCRT25/1431 |

Sound pressure levels were measured on and about the Site with respect to incident noise sources and location of the proposed residential development. The location and purpose of each measurement has been described below and illustrated on the aerial Site plan of Figure C further below.

- NMP1: Adjacent to Chapel Road and opposite the commercial premises on Chapel Road to characterise a worst-case sound intrusion into the site.
- NMP2: On the southern boundary of the site, to characterise construction noise from the south of the site and background sound levels further into the site from the primary transportation noise source.

**Figure C: Baseline Monitoring Locations**


The following sound level indices have been reported at varying intervals in decibels (dB):

- $L_{Aeq,T}$ – The A-weighted equivalent continuous level over the measurement period.
- $L_{A90,T}$ – The A-weighted level exceeded for 90% of the measurement period.
- $L_{A10,T}$ – The A-weighted level exceeded for 10% of the measurement period.
- $L_{Amax(F)}$ – The maximum A-weighted level during the measurement period.

Graphical results describing unattended data have been provided for the above-listed sound level metrics at 15-minute histories within Appendix B. The sound level meters at NMP1 and NMP2 were otherwise configured to record one-eight second time history to allow the recalculation of other time-history metrics in following of overarching guidance.

## 4.2 Weather Conditions

Data from the weather station has been provided within Appendix B to demonstrate a range of favourable conditions. Average wind speeds fell below 0.4 m/s with gusts less than

4.0 m/s. Temperatures ranged from 7.1 – 24.2 °C and rainfall was absent. Weather conditions were acceptable for environmental sound level measurements.

## 4.3 Sound Climate

A full witnessed log of events has been obtained to describe main sound sources incident on the Site during times of Site attendance. Observations in and around the Site have included the following notes summarised below:

At NMP1, the sound environment was dominated by sound from the natural environment, including wind through the surrounding vegetation and birdsong. Intermittent road traffic on Chapel Road was dominant when present. Construction noise from the residential development to the south was faintly audible when intermittently present, including engine roars.

At NMP2, the sound environment was dominated by sound from the natural environment, including wind through the surrounding vegetation and birdsong. Intermittent road traffic on Chapel Road was barely audible when present. Construction noise from the residential development to the south was clearly audible when intermittently present, including engine roars and raised voices.

During the setup of the sound survey, soil investigation works were being undertaken on site which produced a small amount of additional noise during the first few hours of the survey.

During collection, it was noted that some scaffolding works were being undertaken adjacent to the post office on the opposite side of Chapel Road to NMP1, which contributed minorly to the sound environment.

However given that road traffic provided the dominant anthropogenic sound levels at all monitoring locations, the time history of measured data within Appendix B has reflected a typical diurnal pattern expected from this sound source.

## 4.4 Baseline Survey Results

### 4.4.1 Period Averages and Maxima

Period average summaries for the purposes of transportation noise considerations have been provided within Table C below.

**Table C: Summary of Period Average Sound Levels**

| Date Range | Location | Period | Time HH:MM | Average Equivalent Level, dB $L_{Aeq,T}$ | Maximum Night Level [a], dB $L_{Amax(F)}$ | Typical Background Level [b], dB $L_{A90,15min}$ |
|---|---|---|---|---|---|---|
| 04/09/25 – 08/09/25 | NMP1 [b] | Day | 07:00 – 23:00 | 52 | - | 39 |
| | | Night | 23:00 – 07:00 | 43 | 64 | 23 |
| | NMP2 [b] | Day | 07:00 – 23:00 | 46 | - | 35 |
| | | Night | 23:00 – 07:00 | 39 | 57 | 23 |

[a] Not normally exceeded 10 times per night, based on 2-minute time history of dB $L_{Amax(F)}$.
[b] Determined from histograms shown in Appendix B.

Night-time levels have been established from the period between 23:00 – 07:00, with all data of maxima typically reviewed in terms of 2-minute dB $L_{Amax(F)}$ values, with the 10th highest reported, to accord with an opinion paper of a suitable method[5].

A difference of greater than 15 dB between dB $L_{Amax(F)}$ and dB $L_{Aeq,8h}$ night values has been noted at NMP1 and NMP2. This has promoted the potential significance of maximum sound levels beyond the average equivalent levels within residential design.

[5] Paxton, B. Conlan, N et al. Assessing Lmax for residential developments: the AVO guide approach. Proceedings of the Institute of Acoustics. Volume 41, Part 1, 2019.

# 5.0 ProPG Assessment

The assessment method of ProPG has been applied to the development to understand the risks and design requirements to mitigate environmental transportation noise sources.

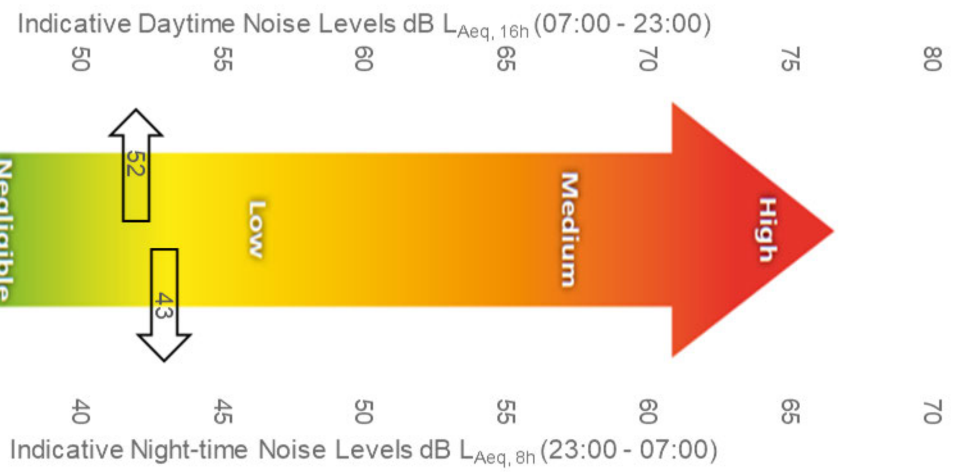
## 5.1 Stage 1 – Initial Risk Assessment

The following period sound pressure levels of Table D have been used for an initial site risk assessment according to Stage 1 of ProPG. Figure F provides an indication of risk in accordance with the ProPG noise risk hierarchy.

**Table D: Summary Assessment of Worst-Case Façade Noise Levels**

| Location | Period | Hours | Indicative Noise Level |
|---|---|---|---|
| NMP1 | Daytime | 07:00 – 23:00 | 52 dB $L_{Aeq,16h}$ |
| | Night-Time | 23:00 – 07:00 | 43 dB $L_{Aeq,8h}$<br>64 dB $L_{Amax(F)}$ |

**Figure D: ProPG Indicative Risk Assessment**




The dominant sound across the Site was road traffic noise.

The initial site noise risk assessment has been categorised as 'low risk', tending towards 'negligible risk' further from Chapel Road in respect to future occupants of the new noise sensitive development. For these risk levels, the pre-planning application advice stated in ProPG has been provided as follows.

For Negligible Noise Risk ProPG states:

> *"These noise levels indicate that the development site is likely to be acceptable from a noise perspective, and the application need not normally be delayed on noise grounds".*

For Low Noise Risk ProPG states:

> *"At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS (Acoustic Design Statement) which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development."*

Commercial activities have not been observed, where commensurate mitigating means have otherwise been derived mindful of transportation impacts.

## 5.2 Stage 2 – Full Assessment

### 5.2.1 Good Acoustic Design Process

ProPG has stated it is imperative for acoustic design to be considered at an early stage of the development control process to avoid unreasonable acoustic conditions and prevent those which are unacceptable.

The proposed development land is relatively small and constrained by other surrounding uses.

However, within the development land, a useful buffer has been provided between Chapel Road and the proposed receptors offering some distance attenuation of incident transportation noise sources.

It has been understood that the proposed dwellings are to be formed by traditional means with masonry insulated façades, along with an insulated and tiled roof. The sound insulation of these components has been deemed least consequential to resulting internal ambient noise levels, where the acoustic performance of glazing and ventilation elements will typically remain as dictating to the resulting internal ambient noise levels.

### 5.2.2 Internal Noise Level Guidelines

#### 5.2.2.1 Calculation Method

ProPG has provided a summary of internal noise level guidelines as part of Stage 2 assessment, that have been replicated in Table A of this assessment.

The method adopted to achieve suitable internal noise level guidelines has been based upon Annex G calculations of BS 8233[6] and Annex B of The AVO Guide[7], which have both been based on statistical methods originating from BS EN ISO 12354-3:2017[8].

Façade components have been estimated in terms of sound insulation from glazing and ventilation elements, where calculations have been carried out in single figure decibels. This has included a comparison between the normalised, A-weighted sound spectrum for day and night against the adaptation curves for $C$ and $C_{tr}$, following ISO 717-1:2020[9]. The relevant spectrum adaptation term $C_{tr}$ has been confirmed by comparison to the measured spectra.

#### 5.2.2.2 Whole Dwelling Ventilation Strategy

The range of whole dwelling ventilation strategies for development has been taken from Requirement F1 of the Building Regulations (ADF)[10]. An outline appraisal for suitability has been provided using Table B2 of the AVO Guide, in Table E below.

[6] BS 8233:2014 Guidance on sound insulation and noise reduction for buildings. BSI, 2019.

[7] ANC/IOA Acoustic Ventilation and Overheating Residential Design Guide, Version 1.1. Association of Noise Consultants & Institute of Acoustics, January 2020.

[8] BS EN ISO 12354-3:2017 Building acoustics - Estimation of acoustic performance of buildings from the performance of elements. Airborne sound insulation against outdoor sound. BSI, 2017.

[9] BS EN ISO 717-1:2020 Acoustics — Rating of sound insulation in buildings and of building elements. Part 1: Airborne sound insulation, BSI, 2020.

[10] The Building Regulations 2010 Approved Document F Volume 1: Dwellings Requirement F1: Means of Ventilation (2021 edition).

**Table E: Outline Appraisal of Different Ventilation Strategies (Worst-Case)**

| Ventilation strategy according to ADF | Typical windows and vent | Higher acoustic performance windows and vent |
|---|---|---|
| Intermittent extract fans | ✓ | ✓ |
| Passive stack ventilation | ✓ | ✓ |
| Continuous mechanical extract (CMEV) | ✓ | ✓ |
| Continuous mechanical supply and extract with heat recovery (MVHR) | ✓ | ✓ |

For any mechanical ventilation system, the ventilation routes should face away from the incident noise source. This provision would reduce noise travelling into the habitable room via the ductwork. Where this is not possible the intake and exhaust ducts should incorporate appropriate attenuation to control intrusive noise to meet the criteria in Table A.

#### 5.2.2.3 Glazing and Ventilator Performance

The specification for sound insulation across the scheme has been provided in Table F below.

**Table F: Specifications for Windows and Ventilators**

| Element | Specification | Typical Configuration |
|---|---|---|
| Windows | ≥ 27 dB $R_w + C_{tr}$ | Double glazing 4-16-4 standard glass types |
| Background ventilator | ≥ 30 dB $D_{ne,w} + C_{tr}$ | Standard* window trickle vent as rated |
| * This specification has relied upon no greater than 2 No. ventilators per habitable room. | | |

### 5.2.3 Overheating Risk

ProPG Stage 2 Element 1 considers internal noise levels guidelines where those criteria of Table A would occur under building ventilation conditions. There is a further need to address if the overheating ventilation strategy impacts on indoor acoustic conditions or if a more-informed strategy is required in the mitigation of overheating.

Overheating has been regulated by Requirement O1 of the Building Regulations whereby upper noise guidance limits at night, in an overheating ventilation condition, have been advocated 10 dB higher than those within Table A.

The advice in this section has so far considered the internal ambient noise level with closed windows under Building Regulations ventilation conditions. Acoustic assessments should also be formed for the overheating ventilation condition, which in the first instance has been considered with open windows.

The following summary of Table G has been provided as a consideration of the worst-affected façades with both closed and open windows. Use of a 10 dB external to internal loss follows the Simplified Method for a Moderate Risk Location as per Approved Document O Noise Guide (2024).

**Table G: Estimated IANLs from Different Ventilation Conditions**

| Level 1 Risk Assessment following the AVO Guide | | | Internal Ambient Noise Levels (IANLs) | | |
|---|---|---|---|---|---|
| **Location** | **Windows** | **Ventilation Condition** | **Day dB $L_{Aeq,16h}$** | **Night dB $L_{Aeq,8h}$** | **Max dB $L_{Amax(F)}$** |
| NMP1 | Closed (trickle vent(s) open) | Building | 20 | 11 | 32 |
| | Open (to 4% floor area at 10 dB) | Overheating | 42 | 33 | 54 |
| NMP2 | Closed (trickle vent(s) open) | Building | 14 | 7 | 24 |
| | Open (to 4% floor area at 10 dB) | Overheating | 36 | 29 | 47 |

In case of closed windows, building ventilation conditions have been shown to provide suitable internal ambient noise levels following ProPG and AVO, given that predicted values in Table G do not exceed those in Table A.

In the case of open windows to 4% floor area, the above listed sound levels have been compared against the requirements for meeting Building Regulations Approved Document O: Overheating via the simplified compliance method, provided at ≤ 40 dB $L_{Aeq,T}$ and 55 dB $L_{Amax(F)}$ at night (23:00 – 07:00) in all areas of the Site.

It has been considered that internal noise levels in all rooms would allow windows to be opened during an overheating condition, following the ADO Simplified Method.

#### 5.2.3.1 Potential Mitigation Strategy

It has been understood for mass market housing, that loft-mounted mechanical ventilation fans would likely be used to provide overheating airflow rates, should this be preferred.

The location for any mechanical apertures has been considered most suitable on the appropriate façade or roof, facing away from adjacent transportation sources.

The noise from the mechanical system, combined with noise entering the building through supply and/or extract ducting, must not compromise the IANL conditions of a bedroom beyond 40 dB $L_{Aeq,T}$ and 55 dB $L_{Amax(F)}$ at night (23:00 – 07:00), in following of statutory guidance and noise limits from Section 3.3. of ADO.

The use of extract ventilation fans in this manner would not present significant risk to residential amenity.

### 5.2.4 External Noise Level Guidelines

Amenity areas have been provided within the scheme as garden and open spaces around the rear of the development. These have been notably positioned to the southeast as affording reduced exposure to road traffic noise behind the proposed development building.

The baseline sound levels measured, as shown in Table D, indicate that ProPG guidance of 50 – 55 $L_{Aeq,16h}$ would be readily achieved for garden areas across the development site.

It is considered that provision of standard garden fencing would only improve the external noise levels in private amenity areas further.

### 5.2.5 ProPG Stage 2 Summary

It is considered that suitable internal sound levels can be provided for the development with the use of standard double glazing and trickle ventilation, with standard garden fencing ensuring external amenity areas achieve the advised sound levels in ProPG.

# 6.0 Mechanical Plant and Services Atmospheric Design Noise Limits

## 6.1 Overview-Plant and Services Provision

The proposed development dwellings may incorporate building services plant which can potentially vent to external locations or have externally located plant items.

These can produce audible noise and may require noise control measures.

Therefore, to protect existing sensitive receptors in the vicinity of the site the below noise design limits should be adhered to for residential plant and services servicing houses and dwelling, such as air source heat pumps (ASHP), Mechanical Ventilation and Heat Recovery (MVHR) or Mechanical Extract Ventilation (MEV).

Based upon review of the survey data captured at NMP1 is indicated as having typically lower median dB $L_{A90,T}$ background sound levels and is also nearest to existing sensitive dwellings, these noise levels are summarised in the table below.

**Table 6-1: Typical Background Sound Levels**

| Period | Representative dB $L_{A90}$ |
|---|---|
| Daytime 07:00-23:00 | 35 |
| Night-time 23:00-07:00 | 23 |

BS 4142 states:

> *"Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night."*

On this basis consideration is given to the internal ambient noise level limits from BS 8233:2014 of 35 dB $L_{Aeq,16h}$, and 30 dB $L_{Aeq,8h}$ day and night respectively. Generally, receptors will be internal to existing dwellings particularly at night.

Thus, assuming (worst case) a partially open window for background whole house ventilation at existing dwellings provides an insertion loss of 13 dB, provided new noise sources are at least 10 dB below these levels internally impacts can be expected to be low in magnitude as experienced at sensitive receptors.

On this basis the below limits are suggested externally to existing dwellings.

## 6.2 Plant and Services Design Limits

It is there proposed to control daytime building plant and services emissions as per the table below across the site to protect residential amenity at the nearest existing dwelling.

**Table 6-2 Derived New Plant and Services Noise Limits**

| Period | Proposed External dB $L_{A,Tr}$ BS 4142 Design Criterion | Resultant Internal Noise Level at Existing Dwelling dB $L_{Aeq}$ | Exceedance of BS 8233:2014 Internal Ambient Noise Level Criterion, dB $L_{Aeq,T}$ | Impact Assessment |
|---|---|---|---|---|
| Daytime 07:00-23:00 | 38 | 38-13=25 | -10 | Low |
| Night Time 23:00-07:00 | 33 | 33-13=20 | -10 | Low |

Therefore, based on the guidance provided, if plant and services were designed to the above design rating level limit it would constitute a “Low Impact” when assessed in accordance with BS 4142 and considering BS 8233:2014.

The external design rating level limits above are ‘free-field’ levels at any height above ground and 1.0 m from the nearest noise sensitive property façade.

It applies to the overall cumulative operation of building services plant associated with the scheme without any specific tone or character.

It must be considered that the above represents a cumulative rating level limit and therefore individual items of plant should be designed to provide sufficient margin below this for the cumulative level from all simultaneously operational plant to not exceed the above.

If the plant noise will contain specific tones or intermittent character, then further penalties should be applied as per the guidance in BS 4142 during assessment.

# 7.0 Conclusions

This document has been prepared for Miller Homes Limited by SLR Consulting Limited to support a proposed residential development on Barns Green, Horsham.

A study of environmental sound levels has been reported within Section 4.0 and confirms that the Site is dominated from road traffic noise, primarily Chapel Hill.

Stage 1 assessment in accordance with ProPG has provided that the Site is dominated by transportation noise. The initial site noise risk assessment has been categorised in the worst case as ‘low risk’ on the future occupants of the new noise sensitive development because of road traffic from the east.

Stage 2 assessment completed in accordance with ProPG has followed a good acoustic design process, considering internal ambient noise levels, external amenity areas and other matters. Commensurate design specifications have been established considering current industry guidance against the proposed scheme layout. It is considered that suitable internal and external amenity standards can be readily achieved by the development with a suitable scheme of mitigation, as outlined, which would comprise standard double glazing and window trickle ventilators.

On the basis that design guidance within this report has been adopted, it follows that any significant adverse noise impacts will be avoided in the finished development as to accord with overarching national and local planning requirements for new residential development.

A recommendation is made to the decision maker to grant with noise conditions where necessary to ensure that significant adverse effects will be avoided for the proposed dwellings, by use of a commensurate scheme of control as outlined within this report.

# 8.0 Closure

The assessment has required a suitable level of technical ability and has been undertaken by a Suitably Qualified Person (SQP). An individual with all the following credentials has been considered a SQP for this assessment:

- Has a minimum of three years' verifiable experience (within the last five years) of providing noise impact assessments in planning. Such experience has clearly demonstrated a practical understanding of factors affecting acoustics in relation to the proposed development use and in the built environment in general, including acting in an advisory capacity to provide recommendations and design advice in planning, and;
- Holds a recognised acoustic qualification and membership of an appropriate professional body. The primary professional body for acoustics in the UK is the Institute of Acoustics.

This assessment has been led and managed by a SQP as defined above.

Where some elements of the assessment (e.g. measurements) have been carried out by an acoustician who does not meet the requirements above, this has been undertaken with the direct guidance and supervision of a SQP who has reviewed, agreed and overseen the measurement methodology and any results obtained.

The SQP confirms that the relevant measurements and calculations:

- Represent good industry practice in accordance with available guidance.
- Are appropriate given the development being assessed and scope of works proposed.
- Avoid invalid, biased and exaggerated claims.

The checker and author of this document confirm that they both comply with the definition of a SQP defined in this Section.

Regards,

**SLR Consulting Limited**

[redacted]

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Senior Consultant – Acoustics & Vibration

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# Appendix A Glossary of Terminology

## Residential Development Noise Impact Assessment

**Barns Green, Horsham**

**Miller Homes Limited**

SLR Project No.: 433.000146.00001

10 September 2025

The human ear can detect a very wide range of pressure fluctuations, which are perceived as sound. In order to express these fluctuations in a manageable way, a logarithmic scale called the decibel, or dB scale is used. The decibel scale typically ranges from 0 dB (the threshold of hearing) to over 120 dB. An indication of the range of sound levels commonly found in the environment is given in the following table.

**Table A1: Sound Levels Commonly Found in the Environment**

| Sound Level | Location |
|---|---|
| 0 dBA | Threshold of hearing |
| 20 to 30 dBA | Quiet bedroom at night |
| 30 to 40 dBA | Living room during the day |
| 40 to 50 dBA | Typical office |
| 50 to 60 dBA | Inside a car |
| 60 to 70 dBA | Typical high street |
| 70 to 90 dBA | Inside factory |
| 100 to 110 dBA | Burglar alarm at 1m away |
| 110 to 130 dBA | Jet aircraft on take off |
| 140 dBA | Threshold of Pain |

## A.1 Acoustic Terminology

dB (decibel) — The scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (of 20 μPa).

dBA — A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

$L_{Aeq, T}$ — $L_{Aeq,T}$ is defined as the notional steady sound level which, over a stated period $T$, would contain the same amount of acoustical energy as the A-weighted fluctuating sound measured over that period.

$L_{A10, T}$ & $L_{A90,T}$ — If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The $L_n$ indices are used for this purpose, and the term refers to the level exceeded for n% of the time. Hence $L_{10}$ is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, $L_{90}$ is the 'average minimum level' and is often used to describe the background noise. It is common practice to use the $L_{10}$ index to describe traffic noise.

$L_{Amax(F)}$ — $L_{Amax(F)}$ is the maximum A-weighted sound pressure level recorded over the period stated. $L_{Amax}$ is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the overall $L_{eq,T}$ noise level but will still affect the noise environment. Unless described otherwise, it is measured using the 'fast' sound level meter response.

# Appendix B Survey Summary Results

## Residential Development Noise Impact Assessment

**Barns Green, Horsham**

**Miller Homes Limited**

SLR Project No.: 433.000146.00001

10 September 2025

**Figure C1: Time History Graph, Sound Pressure Level – NMP1**

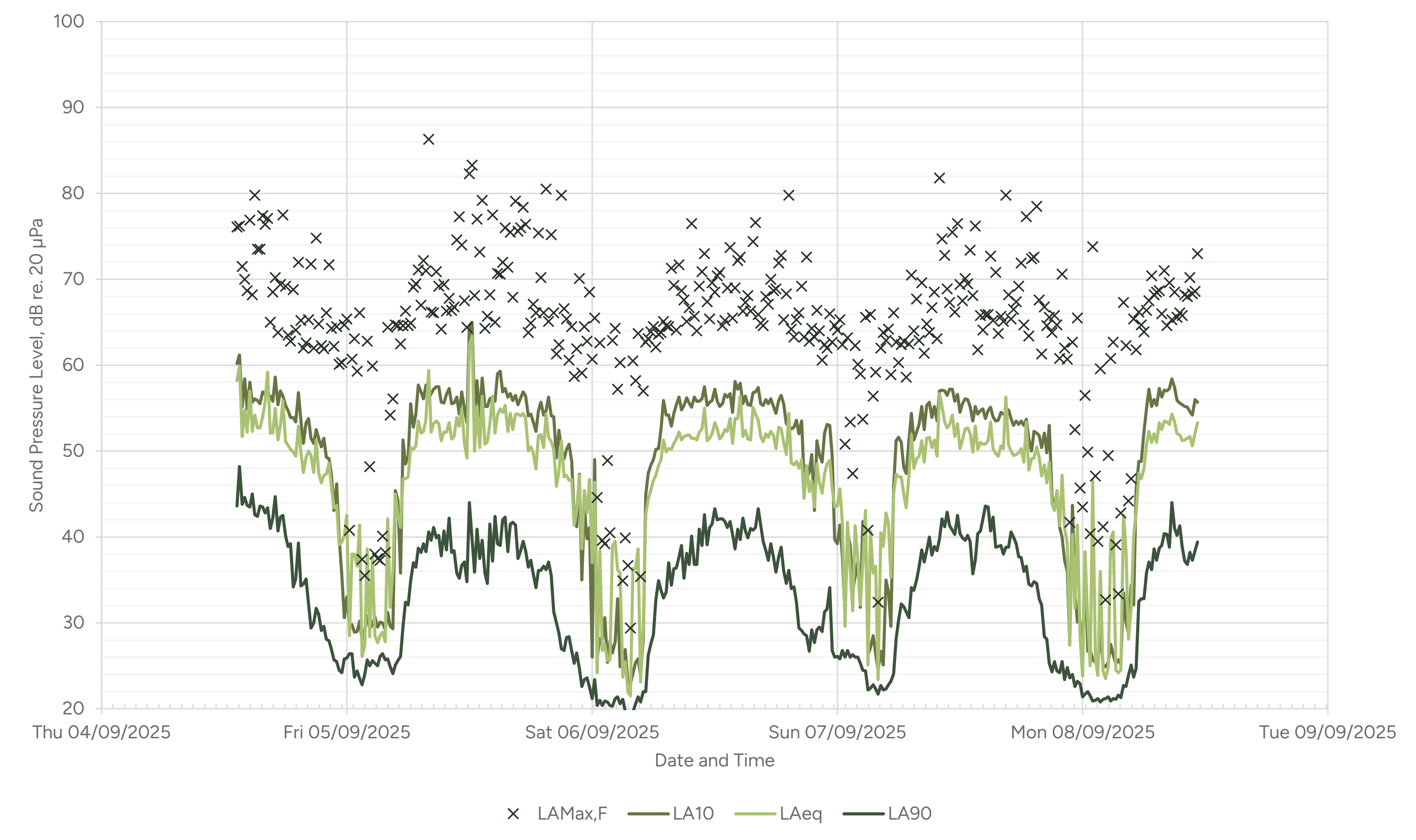


**Figure C2: Background Sound Level Histogram – NMP1**

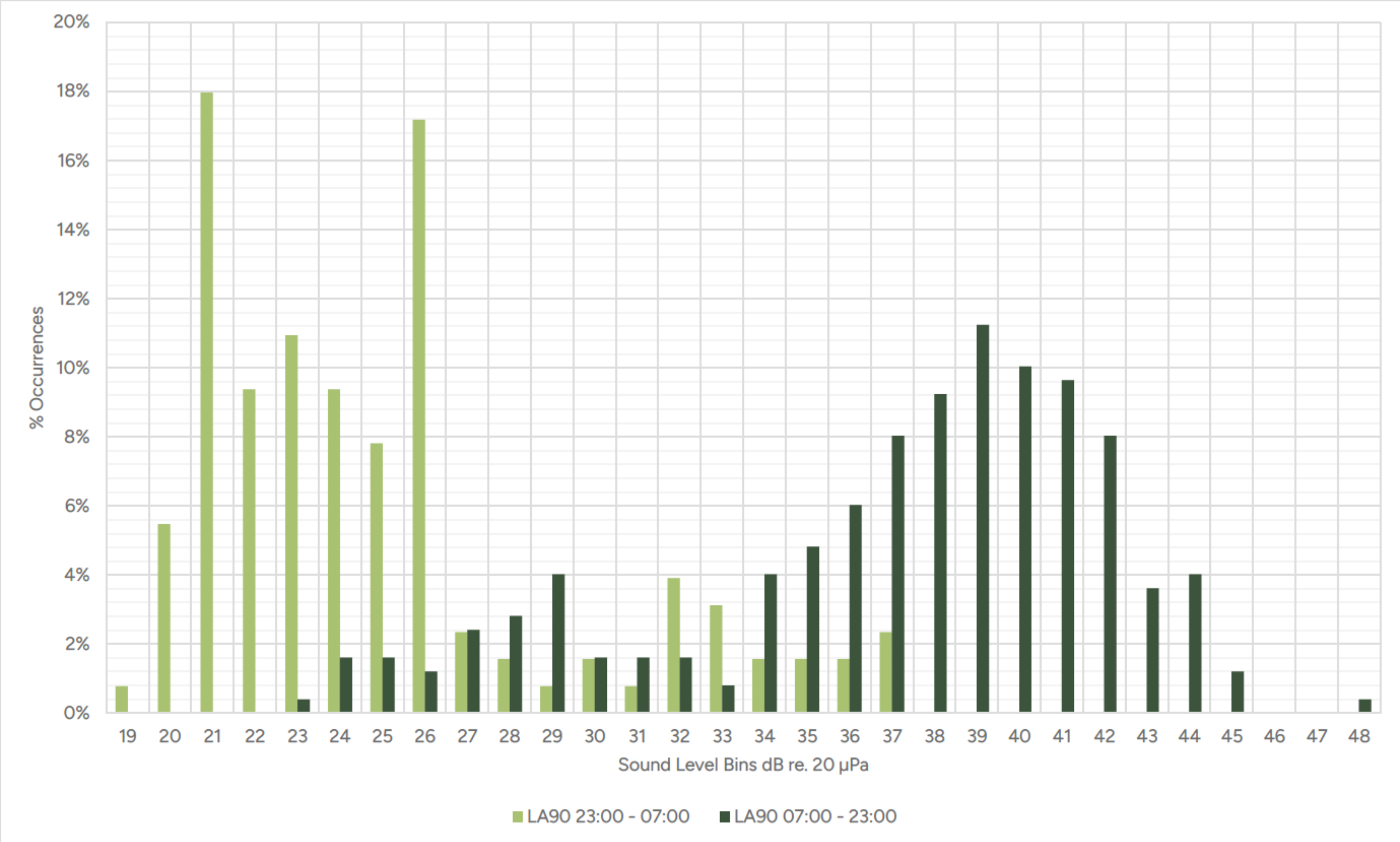


**Figure C3: Time History Graph, Sound Pressure Level – NMP2**

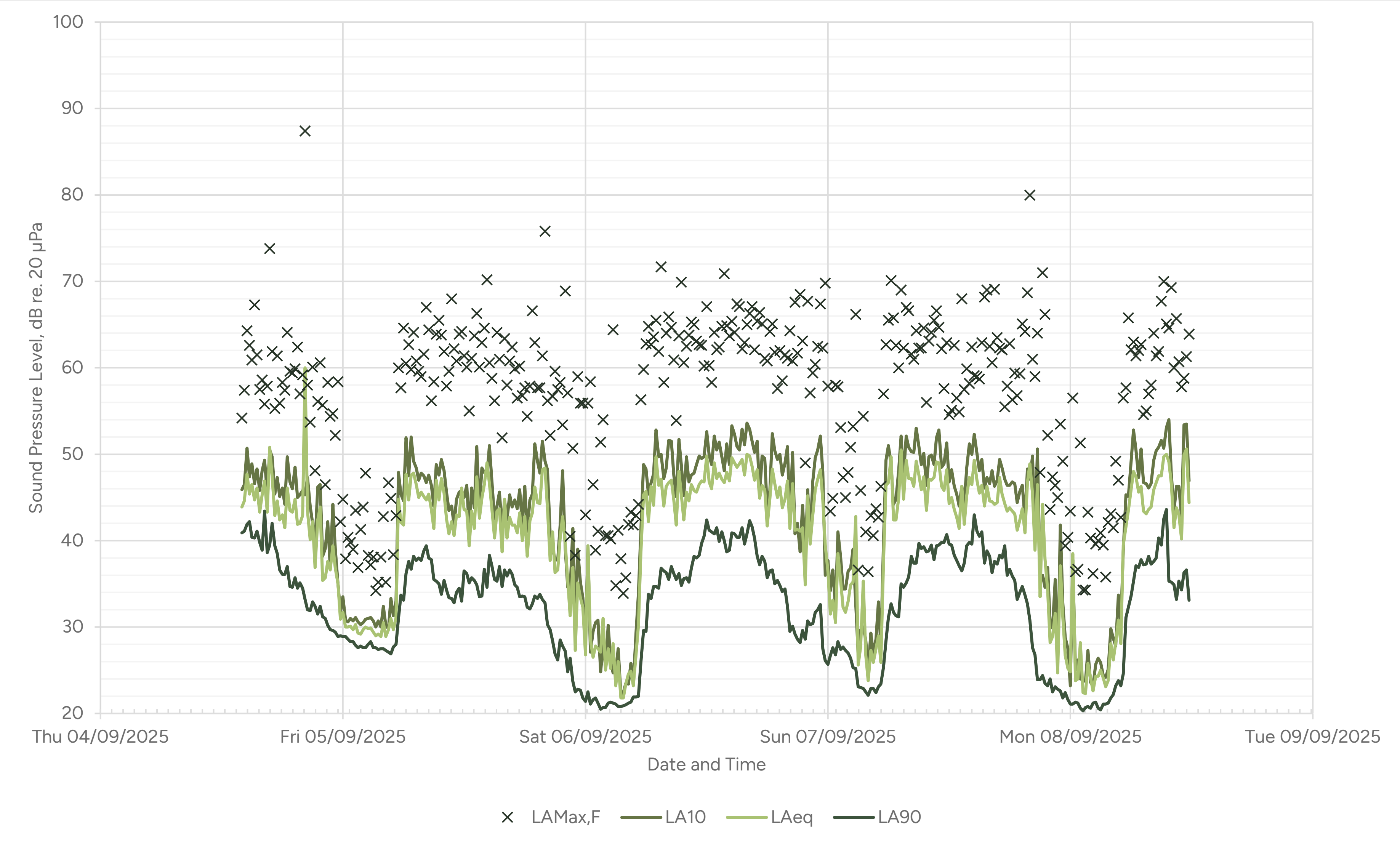


**Figure C4: Background Sound Level Histogram – NMP2**

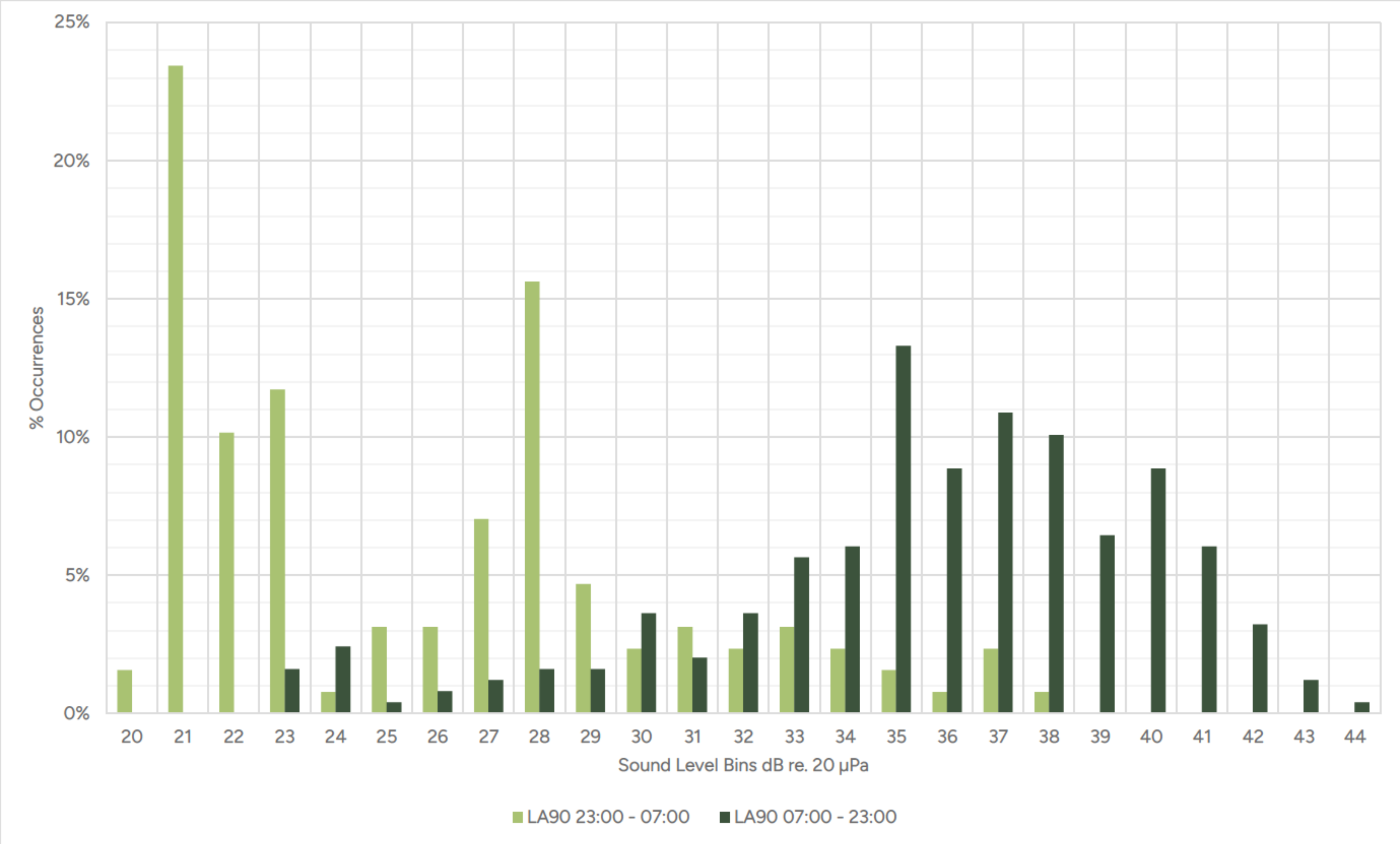
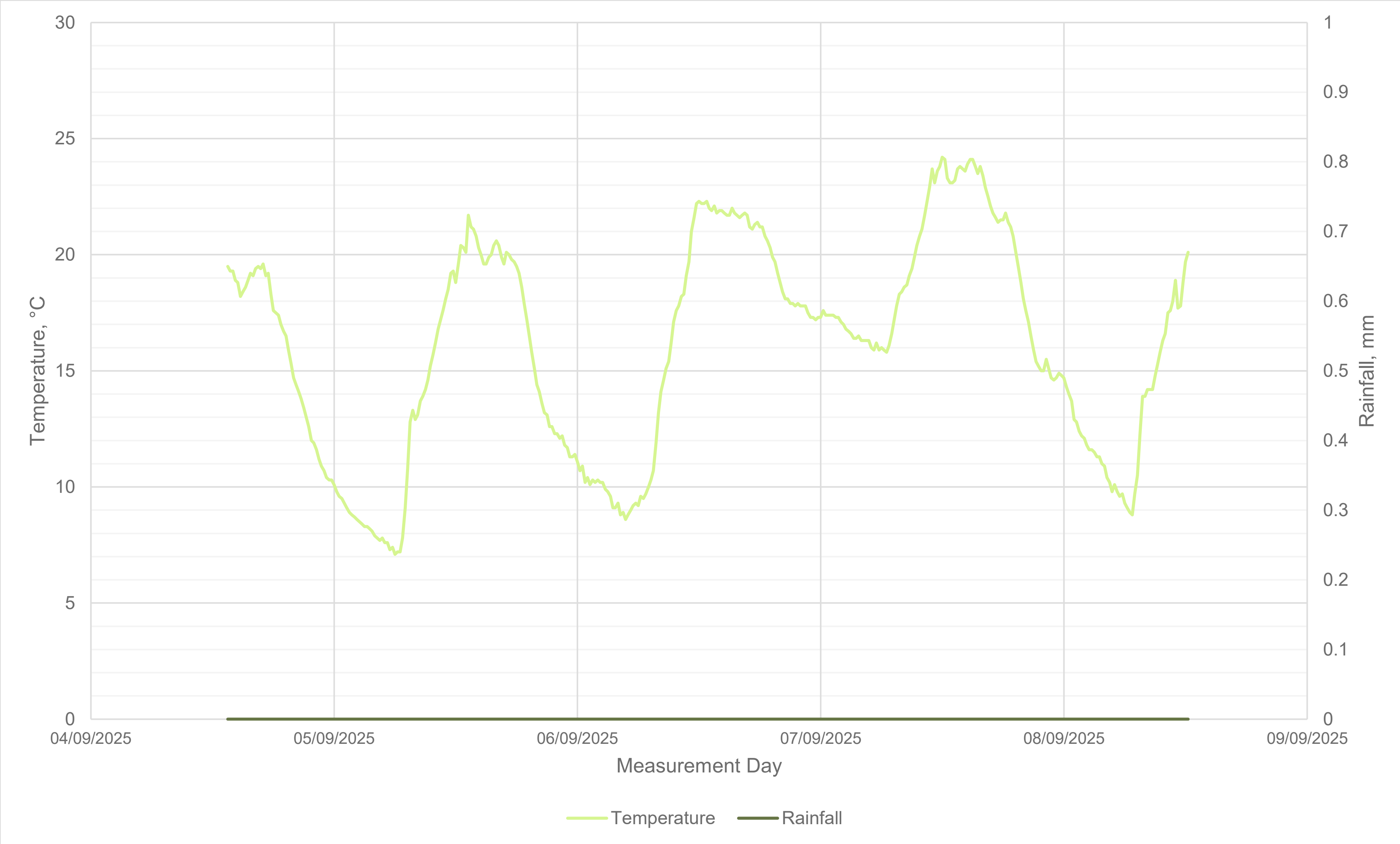


**Figure C5: Time History Graph, Weather Conditions**



# Appendix C Overheating Control Additional Guidance

## Residential Development Noise Impact Assessment

**Barns Green, Horsham**

**Miller Homes Limited**

SLR Project No.: 433.000146.00001

10 September 2025

# Acceptable Strategies for Reducing Overheating Risk

## Limiting solar gains

Solar gains in summer should be limited by any of the following means.

Fixed shading devices, comprising any of the following

i. i. Shutters.

ii. External blinds.

iii. Overhangs.

iv. Awnings.

Glazing design, involving any of the following solutions.

i. Size.

ii. Orientation.

iii. g-value.

iv. Depth of the window reveal.

Building design

– for example, the placement of balconies.

Shading provided by adjacent permanent buildings, structures or landscaping.

Although internal blinds and curtains provide some reduction in solar gains, they should not be taken into account when considering whether requirement O1 of ADO has been met.

Foliage, such as tree cover, can provide some reduction in solar gains.

However, it should not be taken into account when considering whether requirement O1 of ADO has been met.

**NOTE:** Examples of solar shading and their effectiveness are provided in the Building Research Establishment's BR 364 Solar Shading of Buildings

## Removing Excess Heat

Excess heat should be removed from the residential building by any of the following means in order of hierarchy (likely controlled by noise risk)

a. Opening windows (the effectiveness of this method is improved by cross-ventilation).

b. Ventilation louvres in external walls.

c. A mechanical ventilation system.

d. A mechanical cooling system

The building should be constructed to meet requirement O1 of ADO using passive means as far as reasonably practicable.

It should be demonstrated to the building control body that all practicable passive means of limiting unwanted solar gains and removing excess heat have been used first before adopting mechanical cooling.

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