

NOISE ASSESSMENT

on behalf of

FRANSTEP LTD

for the site at

**WATERFOLD LANE, HEAP BRIDGE,
HEYWOOD, BURY**

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Summary

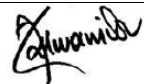
A noise impact assessment has been undertaken in relation to a proposed residential development at Waterfold Lane, Heap Bridge, Heywood, Bury. An unattended long-term environmental sound survey was conducted on site to establish the existing baseline sound conditions. A detailed 3D noise model was developed using CadnaA to predict external sound levels within proposed amenity areas and façade incident sound levels at the proposed dwellings.

The predicted environmental sound levels have been assessed in accordance with BS 8233:2014 and ProPG guidance. The assessment demonstrates that internal noise criteria can be achieved subject to appropriate mitigation measures, including enhanced glazing and mechanical ventilation to façades facing or near the M66, and standard glazing and background ventilators to less exposed façades. Consideration has also been given to night-time overheating guidance (ADO), and alternative means of ventilation and cooling may be required where windows cannot remain open without exceeding recommended limits.

Predicted external amenity noise levels indicate that the majority of rear gardens will achieve levels within the recommended guideline of 55 dB $L_{Aeq,16hr}$, with only minor and limited exceedances in small areas. In the context of the site's proximity to the M66 strategic transport corridor, the layout has been carefully designed to mitigate road traffic noise as far as reasonably practicable through building orientation and screening.

Plant noise limits have also been derived based on measured background sound levels.

Overall, the assessment concludes that, with the incorporation of the identified mitigation measures, the proposed development will achieve an appropriate standard of internal and external amenity in accordance with BS 8233:2014, ProPG, NPSE, NPPF and relevant planning guidance, and is therefore considered acceptable from a noise perspective.

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Date:	25 February 2026	Date:	25 February 2026

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Advisory Note

The suitability of any recommended noise mitigation measures within this report should be approved by the relevant architects, structural engineers, building contractors, fire consultants and material manufacturers constituting the wider design team, prior to procurement and field application. This should ensure that when the recommended noise control measures are implemented on site, they will satisfy the requirements of all disciplines and not cause any health and safety issues.

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1 Introduction

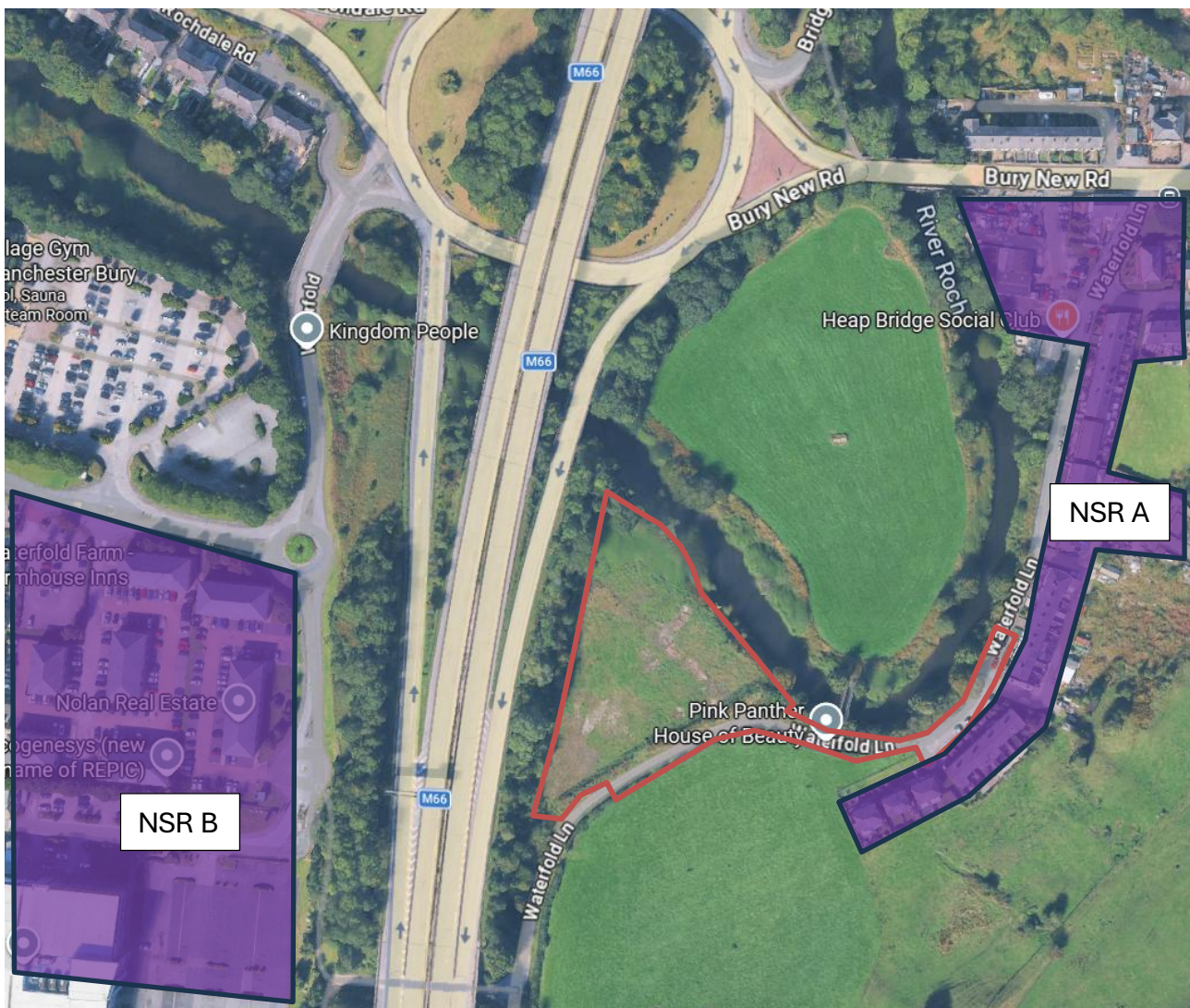
- 1.1 Miller Goodall Ltd has, on behalf of Franstep Ltd, undertaken a noise impact assessment in relation to a proposed residential development at Waterfold Lane, Heap Bridge, Heywood, Bury. The site lies within the administrative boundary of Rochdale Borough Council (RBC).
- 1.2 It is understood that a previous noise impact assessment has been submitted in support of an earlier residential scheme on this site. However, this assessment is for the updated proposal for the revised townhouse layout, taking into account any change in road traffic noise levels following resurfacing of the adjacent section of the M66, and exploring alternative noise mitigation measures to minimise the need for tall acoustic fencing within private gardens.
- 1.3 An unattended long-term environmental sound survey was undertaken on site to establish the existing baseline sound conditions on site.
- 1.4 A 3D model was built to predict the external sound levels at the amenity areas of the proposed development and the façade incident sound levels at the proposed new buildings.
- 1.5 This report assesses the potential impact of environmental noise on the proposed development and provides details of mitigation measures required to achieve appropriate internal and external criteria.
- 1.6 This report is based upon the requirements of national and local policy, with reference to British Standard (BS) 8233:2014 "*Guidance on sound insulation and noise reduction for buildings*"¹ and Professional Practice Guidance on Planning and Noise (ProPG)².
- 1.7 A glossary of acoustic terminology is provided at the end of this report.

¹ British Standards Institution (2014) British Standard 8233:2014 "Guidance on sound reduction for buildings", 2014, BSI.

² Association of Noise Consultants (ANC), Institute of Acoustics (IOA), Chartered Institute of Environmental Health (CIEH) (2017) "ProPG: Planning and Noise. Professional Practice Guidance on Planning and Noise. New Residential Development", 2017, IOA & CIEH.

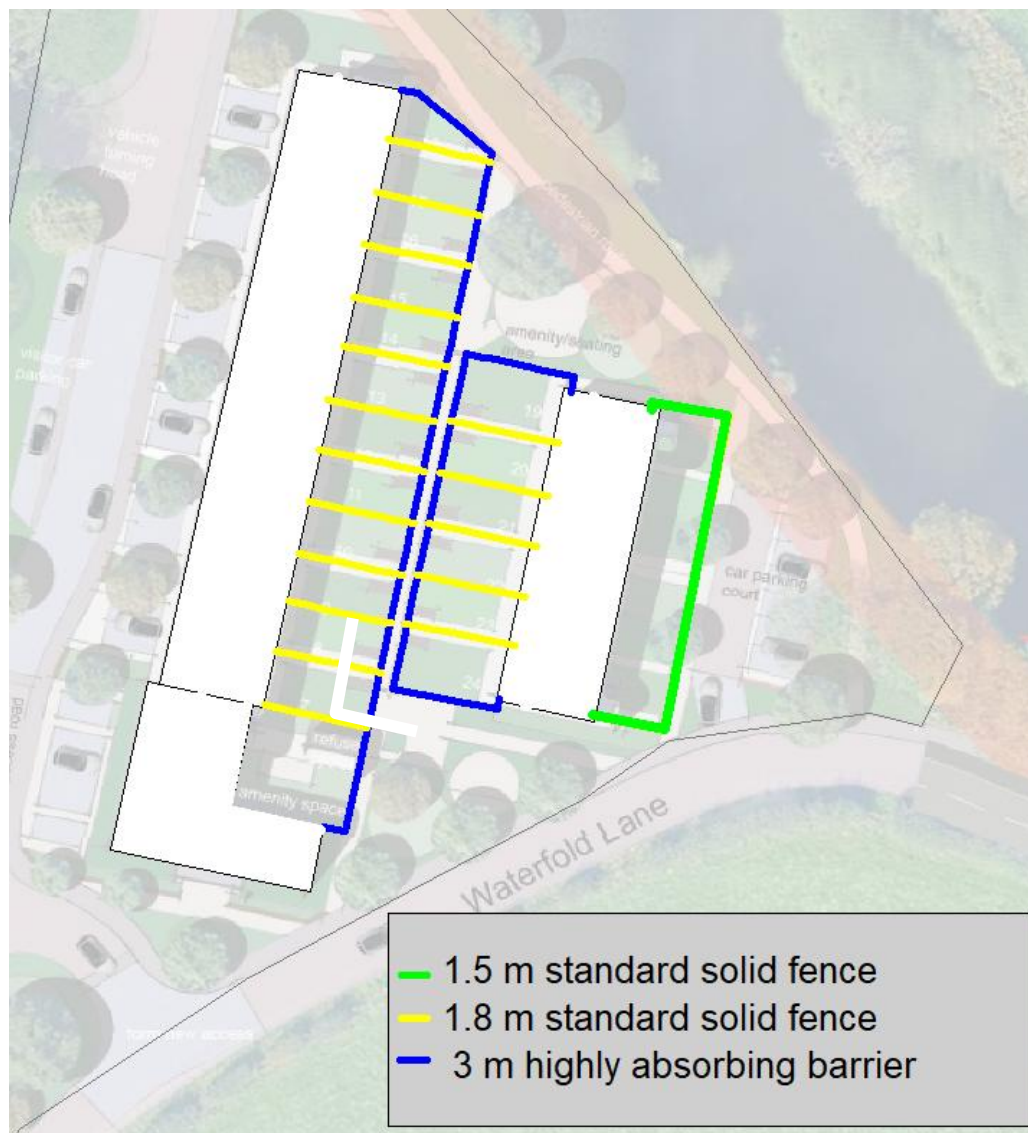
2 Site Description

- 2.1 The site is located off Waterfold Lane and occupies a semi-rural setting characterised by open grassland and River Rock to the east and northeast, with the M66 motorway immediately to the west. Site access is from Waterfold Lane along the southern boundary. The surrounding area comprises motorway infrastructure and slip roads to the west and north, undeveloped land to the south and northeast, and a small cluster of residential properties to the east along Waterfold Lane. A site location plan is provided in **Figure 1**.
- 2.2 The dominant existing noise source in the area is road traffic related to the M66 and the surrounding road network. A railway line serviced by northern and Transpennine Express trains is located at approximately 210 m to the south of the red line boundary. Given the distance from the proposed development, it is unlikely that noise and vibration related to these trains will have a significant effect on the proposed buildings. As such, railway noise has been excluded from this assessment.
- 2.3 The nearest NSRs that were identified at the vicinity of the site are as follows and shown in **Figure 1**:
- **NSR A:** the residential dwellings along Waterfold Lane to the east of the red line boundary, at approximately 30 m from the site boundary, and
 - **NSR B:** commercial properties at the business park located on the other side of the M66, at approximately 120 m to the west of the red line boundary
- 2.4 Further residential and commercial receptors are located beyond 120 m from the red line boundary, including properties associated with the wider Waterfold Lane area and development to the west of the M66. Given separation distances and intervening infrastructure, the NSRs identified above are considered to represent the closest and most relevant receptors for the purposes of this assessment.
- 2.5 The residential NSRs identified are of high sensitivity in relation to noise effects. The commercial NSRs are of medium sensitivity in relation to noise effects.

Figure 1 Approximate Site Location and Identified Noise Sensitive Receptors

3 Proposed Development

- 3.1 It is understood that the proposal is for three residential blocks, i.e., a total of 24 flats, and associated landscaping and car parking courts. Highly absorbing barriers were considered for the amenity areas, i.e., the rear gardens of the proposed blocks. The proposed highly absorbing barrier and standard fencing heights can be seen in **Figure 2**.

Figure 2 Proposed Barriers for Rear Gardens

3.2 The proposed site layout and sections are shown in **Appendix 1**.

4 Policy Context, Acoustic Standards and Guidance

4.1 Noise Policy Statement for England

4.1.1 The Noise Policy Statement for England (NPSE³), published in March 2010, sets out the long-term vision of Government noise policy. The Noise Policy aims, as presented in this document, are:

³ Noise Policy Statement for England, Defra, March 2010

"Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- avoid significant adverse effects on health and quality of life;*
- mitigate and minimise adverse effects on health and quality of life; and*
- where possible, contribute to the improvement of health and quality of life."*

4.1.2 The NPSE makes reference to the concepts of NOEL (No Observed Effect Level) and LOAEL (Lowest Observed Adverse Effect Level) as used in toxicology but applied to noise impacts. It also introduces the concept of SOAEL (Significant Observed Adverse Effect Level) which is described as the level above which significant adverse effects on health and the quality of life occur.

4.1.3 The first aim of the NPSE is to avoid significant adverse effects, taking into account the guiding principles of sustainable development (as referenced in Section 1.8 of the Statement). The second aim seeks to provide guidance on the situation that exists when the potential noise impact falls between the LOAEL and the SOAEL, in which case:

"...all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development".

4.1.4 Importantly, the NPSE goes on to state:

"This does not mean that such adverse effects cannot occur".

4.1.5 The Statement does not provide a noise-based measure to define SOAEL, acknowledging that the SOAEL is likely to vary depending on the noise source, the receptor and the time in question. NPSE advises that:

"Not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available"

4.1.6 It is therefore likely that other guidance will need to be referenced when applying objective standards for the assessment of noise, particularly in reference to the SOAEL, whilst also taking into account the specific circumstances of a proposed development.

4.2 National Planning Policy Framework

4.2.1 The National Planning Policy Framework (NPPF⁴) initially published in March 2012, was updated most recently in December 2024. One of the documents that the NPPF replaces is Planning Policy Guidance Note 24 (PPG 24) "Planning and Noise"⁵.

4.2.2 The revised NPPF advises that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives). One of these is an environmental objective which is described in par. 8 (c):

"to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."

4.2.3 At par. 187 we are advised that:

"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..."

4.2.4 Par. 193 goes on to state:

"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:

⁴ National Planning Policy Framework, Ministry of Housing, Communities and Local Government, September 2023

⁵ Planning Policy Guidance 24: Planning and Noise, DCLG, September 1994

a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

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

4.2.5 Par. 200 seeks to ensure that any development does not prejudice the legally permitted operations and activities of other, existing non-residential uses, stating:

“Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or ‘agent of change’) should be required to provide suitable mitigation before the development has been completed.”

4.3 Planning Practice Guidance – Noise

4.3.1 As of March 2014, a Planning Practice Guidance⁶ for noise was issued which provides additional guidance and elaboration on the NPPF, the guidance was updated in July 2019. It advises that when plan-making and decision-taking, the Local Planning Authority should consider the acoustic environment in relation to:

- Whether or not a significant adverse effect is occurring or likely to occur;
- Whether or not an adverse effect is occurring or likely to occur; and
- Whether or not a good standard of amenity can be achieved.

4.3.2 In line with the Explanatory Note of the NPSE, the PPG goes on to reference the LOAEL and SOAEL in relation to noise impact. It also provides examples of outcomes that could be expected for a given perception level of noise, plus actions that may be required to bring about a desired outcome. However, in line with the NPSE, no objective noise levels are provided for LOAEL or SOAEL although the PPG acknowledges that:

⁶ Planning Practice Guidance – Noise, <https://www.gov.uk/guidance/noise--2> 22nd July 2019.

“...the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation”.

4.3.3 Examples of these factors include:

- The source and absolute noise level of the source along with the time of day that it occurs;
- Where the noise is non-continuous, the number of noise events and pattern of occurrence;
- The frequency content and acoustic characteristics of the noise;
- The effect of noise on wildlife;
- The acoustic environment of external amenity areas provided as an intrinsic part of the overall design;
- The impact of noise from certain commercial developments such as night clubs and pubs where activities are often at their peak during the evening and night.

4.3.4 The PPG also provides general advice on the typical options available for mitigating noise. It goes on to suggest that Local Plans may include noise standards applicable to proposed developments within the Local Authority's administrative boundary, although it states that:

“Care should be taken, however, to avoid these being implemented as fixed thresholds as specific circumstances may justify some variation being allowed”.

4.3.5 The PPG was amended in December 2014 to clarify guidance on the potential effect of noise from existing businesses on proposed new residential accommodation. Even if existing noise levels are intermittent (for example, from a live music venue), noise will need to be carefully considered and appropriate mitigation measures employed to control noise at the proposed accommodation.

4.4 ProPG: Planning & Noise, Professional Practice Guidance on Planning & Noise: New Residential Development, May 2017 (ProPG)

4.4.1 The primary goal of ProPG² is to assist the delivery of sustainable development by promoting good health and wellbeing through the effective management of noise. It seeks to do that through encouraging a good acoustic design process in and around proposed new residential development having regard to national policy on planning and noise.

4.4.2 It provides a recommended approach for new residential development that would be exposed predominantly to noise from existing transport sources. The recommended approach is also

considered suitable where some industrial or commercial noise contributes to the acoustic environment provided that it is not dominant .

4.4.3 ProPG promotes a 2-stage, approach. The two sequential stages of the overall approach are:

Stage 1 – an initial noise risk assessment of the proposed development site; and

Stage 2 – a systematic consideration of four key elements. The four key elements to be considered in parallel

- Element 1 – demonstrating a “Good Acoustic Design Process”;
- Element 2 – observing internal “Noise Level Guidelines”;
- Element 3 – undertaking an “External Amenity Area Noise Assessment”; and
- Element 4 – consideration of “Other Relevant Issues”.

4.4.4 The approach is underpinned by the preparation and delivery of an “Acoustic Design Statement” (ADS), unless a site is assessed as negligible risk, in which case an ADS is not necessary.

4.5 British Standard 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings

4.5.1 This standard ^[1] provides recommended guideline acoustic design criteria for new dwellings and is supported by guidance contained within the World Health Organisation (WHO) “Guidelines for Community Noise” (GCN) ^[7]. The guideline noise design criteria of BS 8233:2014 apply to external noise “*without a specific character*” (previously and sometimes termed or referred to as “*anonymous noise*”) such as that associated with road and rail traffic.

Internal Amenity

4.5.2 The Standard states that for external noise without a specific character, such as road traffic, it is desirable that the internal ambient noise level does not exceed the guideline values shown in **Table 1**.

4.5.3 The note to paragraph 7.7.1 states that where noise has a specific character (i.e. it contains features such as a distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low-frequency content) “*lower noise limits might be appropriate*”.

⁷ World Health Organisation Guidelines for Community Noise, 1999

Table 1: BS 8233: 2014 guideline indoor ambient noise levels for dwellings

Location	Activity	07:00 to 23:00	23:00 to 07:00
Living Room	Resting	35 dB $L_{Aeq,16hr}$	–
Dining room/area	Dining	40 dB $L_{Aeq,16hr}$	–
Bedroom	Sleeping (daytime resting)	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$

4.5.4 Note 7 to Table 4 of BS 8233:2014 states:

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

4.5.5 Guidance on reasonable acoustic design criteria for individual noise events are also provided, and the Standard advises that:

“regular individual noise events...can cause sleep disturbance. A guideline value may be set in terms of SEL^8 or $L_{Amax,F}$ depending on the character and number of events per night. Sporadic noise events could require separate values”.

4.5.6 For internal spaces, the Standard states that:

“..to avoid sleep disturbance, sound pressure levels at the outside facades of living spaces should not exceed 45 dB L_{Aeq} (taken as a façade level, and equating to a free-field external level of 42 dB L_{Aeq}) and 60 dB L_{Amax} so that people may sleep with bedroom windows open.”

External Amenity

4.5.7 BS 8233:2014 adopts guideline external noise values provided in WHO for external amenity areas such as gardens, patios and private outdoor amenity spaces. BS 8233:2014 adopts guideline external noise level limits provided in WHO for external amenity areas such as gardens and patios. The standard states that it is “*desirable*” that the external noise does not exceed 50 dB $L_{Aeq,16hr}$ with an upper guideline value of 55 dB $L_{Aeq,16hr}$ whilst recognising in paragraph 7.7.3.2 that development

⁸ Sound exposure level or L_{AE}

in higher noise areas, such as urban areas or those close to the transport network, may require a compromise between elevated noise levels (i.e., above 55 dB $L_{Aeq,16hr}$) and other factors that determine if development in such areas is warranted. In such circumstances, the development should be designed to achieve the lowest practicable noise levels in external amenity areas, but should not be prohibited.

4.5.8 The standard also states:

“Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses. However, the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens and terraces, which might be intended to be used for relaxation. In high-noise areas, consideration should be given to protecting these areas by screening or building design to achieve the lowest practicable levels. Achieving levels of 55 dB $L_{Aeq,T}$ or less might not be possible at the outer edge of these areas, but should be achievable in some areas of the space.”

4.6 **BS 4142:2014+A1:2019 ‘Methods for rating and assessing industrial and commercial sound’**

4.6.1 BS 4142:2014+A1:2019⁹ (BS 4142) provides guidance on the assessment of the likelihood of complaints relating to noise from industrial sources. It replaced the 1997 edition of the Standard in October 2014 and was amended in June 2019. The amended version corrected a number of printing errors and further clarified that the standard is used to assess external noise levels, and not internal noise levels (although this can form part of the discussion regarding context). The key aspects of the Standard are summarised below.

4.6.2 The standard presents a method of assessing potential noise impact by comparing the noise level due to industrial sources (the Rating Level) with that of the existing background noise level at the nearest noise sensitive receiver in the absence of the source (the Background Sound Level).

⁹ BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound

4.6.3 The Specific Noise Level – the noise level produced by the source in question at the assessment location – is determined and a correction applied for certain undesirable acoustic features such as tonality, impulsivity or intermittency. The corrected Specific Noise Level is referred to as the Rating Level.

4.6.4 In order to assess the noise impact, the Background Sound Level is arithmetically subtracted from the Rating Level. The standard states the following:

- *Typically, the greater this difference, the greater the magnitude of the impact,*
- *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context,*
- *A difference of around +5 dB 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 source will have an adverse impact or a significant adverse impact. Where the Rating Level does not exceed the Background Sound Level, this is an indication of the specific sound source having a low impact, depending on the context.*

4.6.5 In addition to the margin by which the Rating Level of the specific sound source exceeds the Background Sound Level, the 2014+A1:2019 edition places emphasis upon an appreciation of the context, as follows:

“An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context.”

4.6.6 The 2014 edition of BS 4142 also introduced a requirement to consider and report the uncertainty in the data and associated calculations and to take reasonably practicable steps to reduce the level of uncertainty.

4.7 Rochdale Borough Council Local Plan

4.7.1 We have reviewed Rochdale Borough Council’s draft local plan, and the following policies relevant to noise were identified:

- **Policy S5: Reducing the Impact of Pollution, Contamination and Land Instability.**

“We will reduce all forms of pollution, contamination and land instability, by requiring that: a. Development does not have impacts that lead to an unacceptable increase in air, water, soil, noise, light or other forms of pollution. [...]”

• **DM1 – General Development Requirements**

“All development proposals, including changes of use of land and buildings, extensions and alterations, will be expected to demonstrate that they: [...] Mitigate against any impacts due to noise, [...], where such mitigation is identified as being necessary; [...]”

5 Baseline Sound Levels

- 5.1 An unattended baseline survey was undertaken at the proposed development site between Tuesday 6th January 2026 and Thursday 8th January 2026. The survey was carried out at one monitoring locations, i.e., location MP01 as seen in **Figure 3** to establish the baseline sound levels at the site and the NSRs.
- 5.2 The established daytime and night-time ambient sound levels $L_{Aeq,16\text{hours}}$, $L_{Aeq,8\text{hours}}$, maximum night-time $L_{AFmax,1min}$ sound levels and the typical background sound levels at monitoring location MP01 are given in **Table 2** below. **Table 2** also shows the representative NSRs for this monitoring location. Further details on the equipment used, the weather conditions and the survey observations can be found in **Appendix 2**.

Table 2: Representative Sound Levels Adopted for the Assessment

Representative NSR	Measurement Location	Average* Daytime $L_{Aeq,16\text{ hours}}$	Typical** daytime $L_{A90,15\text{ min}}$ (dB)	Average* Night-time $L_{Aeq,8\text{ hours}}$	Typical** night-time $L_{A90,15\text{ min}}$ (dB)	Maximum*** Night-time $L_{AFmax,1min}$ dB
All NSRs	MP01	72	66	69	53	80

Notes:

All values have been rounded to the nearest whole number, where 0.5 is rounded up.

* logarithmic average.

** The histograms of the background sound levels for daytime and night-time were used to derive the most frequent, i.e., the typical background sound level.

*** Maximum sound pressure level of 10th loudest event during the night-time period (23:00–07:00). These values were used in the noise break-in calculations.

Figure 3 Approximate Site Location and Measurement Locations



6 3D Noise Model

6.1 Computer Modelling

6.1.1 The external sound levels at the proposed development at the nearest NSRs were predicted using CadnaA noise modelling software (Version 2026). This software implements the “*Calculation of Road Traffic Noise*”¹⁰ (CRTN). The model is constructed using the following input data/assumptions.

Table 3: Noise Model Input and Assumptions

Parameter	Input / Assumption
Software Version	Datakustik CadnaA, Version 2026 64-Bit (Build 213.5606)
Propagation model	ISO 9613 (2024)
Orders of reflection	3 orders of reflection. Buildings, roads and barriers are reflective.
Calculation Methodology	CRTN (1988)
Validation	Model was calibrated to the sound levels measured at location MP01
Source Height	Road sources were set to the local ground.
Mapping	The general layout of the area surrounding the site and including the proposed development site was imported from Google Maps. This was used to determine road positions, neighbouring building footprint areas and relative locations. Development sketch provided by the architect.
Topography	Topography for the site and the area surrounding the site was modelled with 5 m Digital Terrain Model (DTM) data purchased from emapsite.
Ground Absorption	Semi-hard ground ($G = 0.5$) assumed for all the parts of the study area where residential areas are located. This is because the study area is rural, including plenty of amenity spaces/ soft ground. Any grass/field areas were modelled as soft ground ($G=1$).
Building Heights	On-site building heights were provided by the architect. Heights of surrounding buildings were estimated from site observations.
Model Grid	The model grid has been set to a 1 m x 1 m spacing.
Model Output	The model produces “free-field” measurement.

¹⁰ Department of Transport. (1988). “*Calculation of Road Traffic Noise*”. HMSO, London.

- 6.1.2 The noise model was used to predict façade incident levels at the proposed buildings and external sound levels at the proposed amenity spaces.

7 Results

7.1 Predicted External Sound Levels due to Environmental Noise

- 7.1.1 The 3D noise model was used to predict the external sound levels from road traffic noise at the proposed development. The results of the grid noise maps at the proposed amenity spaces at 1.5 m above local ground and the façade noise maps of the proposed buildings are shown in **Appendix 3** (see Figure 1 to Figure 4).

8 Stage 1: Initial Noise Risk Assessment

- 8.1 With reference to **Figure 1** to **Figure 3** shown in **Appendix 3**, the external sound levels are predicted to be up to 72 dB $L_{Aeq,16\text{ hours}}$ for daytime and up to 69 dB $L_{Aeq,8\text{ hours}}$ night-time periods. With reference to ProPG and the measured ambient sound levels, the initial site risk assessment places the proposed development site in the “medium to high” risk category during both the day and night, as illustrated in **Table 4**.
- 8.2 For development sites falling into the medium/high risk category, ProPG recommends carrying out a Stage 2 risk assessment which includes a full acoustic design statement (ADS), which is provided in the following section.

Table 4: ProPG – Stage 1: Initial Noise Risk Level Assessment

Noise Risk Assessment	Potential Effect	Pre-Planning Application Advice
	Without Noise Mitigation	
Indicative Daytime Noise Levels $L_{Aeq,16hr}$ Indicative Night-time Noise Levels $L_{Aeq,8hr}$ High Medium Low Negligible 70 dB 65 dB 60 dB 55 dB 50 dB 72 dB 69 dB 67 dB 65 dB 63 dB 60 dB 55 dB 50 dB 45 dB 40 dB Increasing risk of adverse effect	High noise levels indicate that there is an increased risk that development may be refused on noise grounds. This risk may be reduced by following a good acoustic design process that is demonstrated in a detailed Acoustic Design Statement (ADS). Applicants are strongly advised to seek expert advice. As noise levels increase, the site is likely to be less suitable from a noise perspective and any subsequent application may be refused unless a good acoustic design process is followed and is demonstrated in an Acoustic Design Statement (ADS). which confirms how the adverse impacts of noise will be mitigated and minimised, and which clearly demonstrate that a significant adverse noise impact will be avoided in the finished development. 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 Acoustic Design Statement (ADS) which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development. 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.	
65	Yes	An indication that there may be more than 10 noise events at night-time with $L_{AF,max} > 60$ dB means the site should not be regarded as negligible risk.

9 Stage 2: Acoustic Design Statement

9.1 With reference to the ProPG, if a Stage 2 assessment is required, planning applications for new residential development, should include evidence that the following have been considered:

1. check the feasibility of relocating, or reducing noise levels from relevant sources;
2. consider options for planning the site or building layout;
3. consider the orientation of proposed building(s);
4. select construction types and methods for meeting building performance requirements;
5. examine the effects of noise control measures on ventilation, fire regulation, health and safety, cost, CDM (construction, design and management) etc;
6. assess the viability of alternative solutions; and
7. assess external amenity area noise.

9.2 The above points are considered in the following sections below.

9.3 Mitigating Existing Noise Levels and Design Considerations (Items 1 to 3 above)

- 9.3.1 With regards to the feasibility of relocating or reducing noise levels from existing noise sources affecting the proposed development, this will not be possible as the dominant noise source affecting the site is road traffic on the M66, the M66 slip roads and surrounding road network.
- 9.3.2 The design team worked closely to result in the current site layout to ensure that as much as possible noise screening is provided to the amenity areas and any facing that are facing away from the M66.

9.4 Internal Noise Levels (Item 4 above) – Windows Closed

- 9.4.1 With reference to **Table 1**, the guidance in BS 8233:2014 proposes that the external building fabric for residential dwellings be designed such that a minimum steady-state internal daytime noise level of 35 dB $L_{Aeq,16hr}$ and a night-time level of 30 dB $L_{Aeq,8hr}$ can be achieved within habitable rooms.
- 9.4.2 Furthermore, with reference to the ProPG, it is recommended that individual internal noise events do not normally exceed 45 dB L_{AFmax} more than ten times a night.
- 9.4.3 In order to achieve these ProPG criteria for each façade, the ventilation strategy, glazing and cladding should be designed to achieve the appropriate minimum performance standards for internal noise levels.
- 9.4.4 The façades of the proposed development will be exposed to noise levels up to 72 dB $L_{Aeq,16\text{ hours}}$ during daytime, up to 69 dB $L_{Aeq,8\text{ hours}}$ during night-time and to maximum noise levels up to 79 dB L_{Amax} during night-time.

External Wall Construction

9.4.5 Noise intrusion into buildings is normally determined by the acoustic performance of the windows and ventilators, since these represent the “weakest” elements acoustically. For preliminary calculation purposes, it is assumed that a “solid” external wall construction will maintain the following minimum apparent sound reduction indices.

Table 5: Estimated Apparent SRI for Solid External Walls Elements

	Apparent Sound Reduction Index, dB					
	125 Hz	250 Hz	500 Hz	1kHz	2kHz	4kHz
Minimum sound reduction indices – External Wall	30	35	40	45	50	50

9.4.6 The above performance values should be achievable with a standard cavity brick/block wall construction or similar. It therefore provides a robust assessment basis for identifying the likely acoustic performance requirements of windows and feasibility of maintaining an appropriate level of sound insulation with windows closed.

Room Acoustic Conditions

9.4.7 As noted earlier, noise intrusion into flats/houses will also be partially determined by the internal room finishes, which will determine the reverberation times within the building. For this assessment, a reverberation time of 0.5 seconds has been assumed for all rooms, in line with the standardised reverberation time implemented in Approved Document E of the Building Regulations 2010 (as amended).

Ventilation and Glazing Requirements

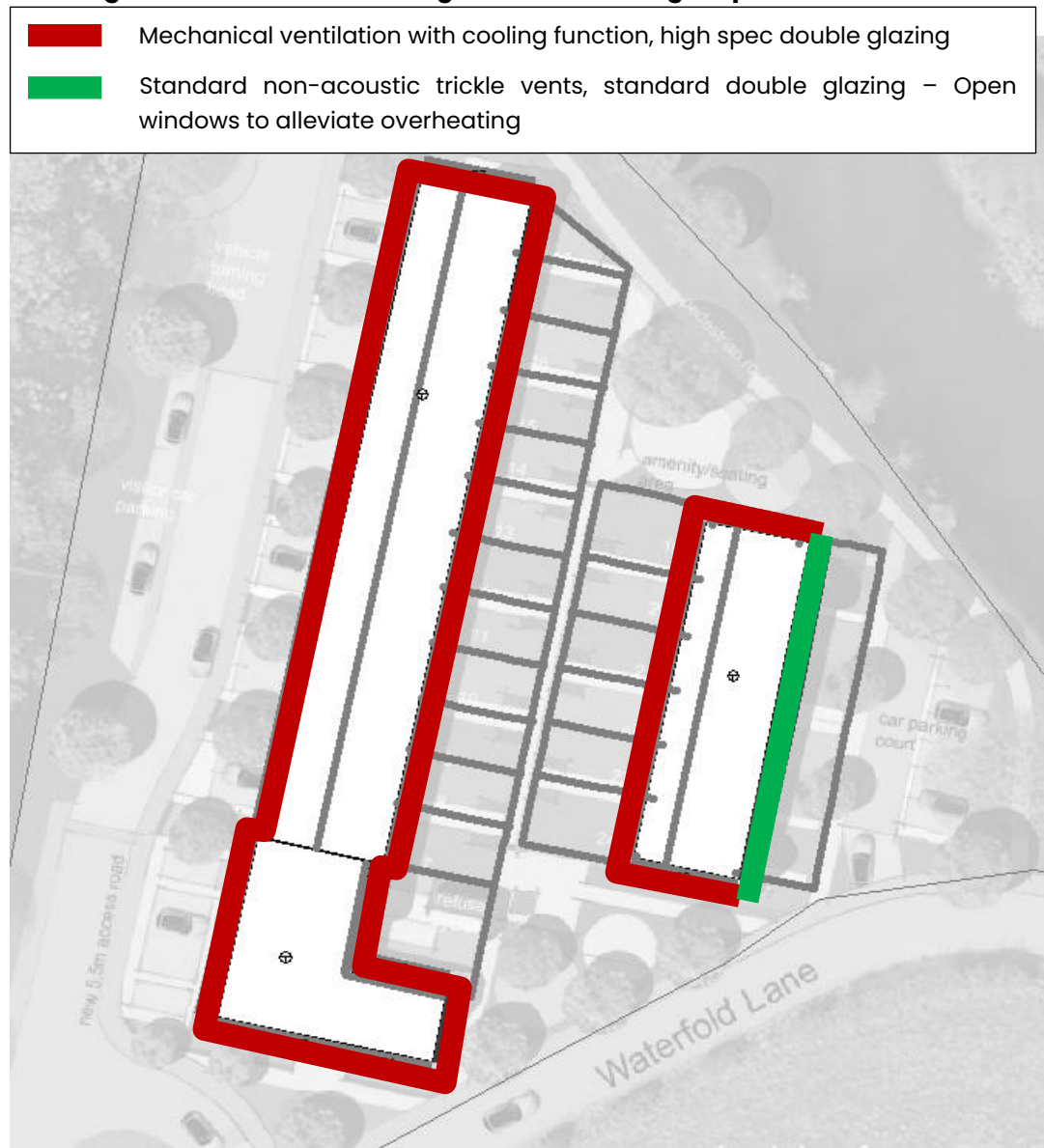
9.4.8 For all habitable rooms, directly facing or near the M66, mechanical ventilation and high spec double glazing with minimum sound reduction indices as shown below would be required to achieve the required level of attenuation:

Apparent Sound Reduction Index, dB							
	63 Hz	125 Hz	250 Hz	500 Hz	1kHz	2kHz	4kHz
Minimum sound reduction indices – High spec glazing	26	25	35	43	39	41	40

9.4.9 For the rest of the facades, a standard non-acoustic trickle ventilator with minimum performance of 32 dB D_{new} and standard double glazing with minimum sound reduction indices as shown below would be required to achieve the required level of attenuation:

Apparent Sound Reduction Index, dB							
	63 Hz	125 Hz	250 Hz	500 Hz	1kHz	2kHz	4kHz
Minimum sound reduction indices – Standard double glazing	15	27	21	29	40	39	43

9.4.10 The above façades are indicated for clarity in **Figure 4**, below.

Figure 4 Ventilation, Glazing and Overheating Requirements

9.4.11 The external walls and any internal wall linings will need to be designed to ensure that the glazing sound insulation is not undermined. This typically requires a sound insulation performance at least 10 dB better than the glazing sound insulation performance. The exact build-ups and products to be used to meet the acoustic criteria will be developed during the detailed design.

Purge Ventilation

9.4.12 Approved Document F (ADF) requires that adequate provision is made for purge ventilation. Purge ventilation is the process of removing high concentrations of pollutants and water vapour released from occasional activities (such as painting and decorating) or accidental releases (such as smoke from burnt food or spillage of water). Since the need for purge ventilation is by its definition “occasional”, this is normally achieved by giving residents the ability to open their windows. Whilst noise intrusion will increase as a result of windows being open, the occasional and temporary occurrence of such a situation can be readily accepted, particularly since occupants are “in control” of both the timing and duration of purge ventilation being required.

9.4.13 It is therefore proposed that purge ventilation for all flats will be achieved by means of openable windows. This approach is consistent with the guidance given in section 8.4.5.4 of BS 8233:2014 which states:

“8.4.5.4 Ventilation

*The Building Regulations’ supporting documents on ventilation [48, 49, 50] recommend that habitable rooms in dwellings have background ventilation. Where openable windows cannot be relied upon for this ventilation, trickle ventilators can be used and sound attenuating types are available. **However, windows may remain openable for rapid or purge ventilation, or at the occupant’s choice.**”*

9.4.14 The acceptability of using openable windows for providing purge ventilation is also in accordance with paragraph 2.35 of ProPG guidance which states:

“It should also be noted that the internal noise level guidelines are generally not applicable under “purge ventilation” conditions as defined by Building Regulations Approved Document F, as this should only occur occasionally (e.g. to remove odour from painting and decorating or from burnt food).”

9.5 Overheating

9.5.1 According to the Building Regulations Approved Document O (ADO), “windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits:

a. 40dB $L_{Aeq,T}$ averaged over 8 hours (between 11pm and 7am)

b. 55dB L_{AFmax} more than 10 times a night (between 11pm and 7am)”

9.5.2 It should be noted that although ADO is determined through Building Regulations and not planning, an initial assessment of internal noise levels with windows open in the bedroom was carried out to provide some high-level guidelines for the requirements during the design stage.

9.5.3 The assessment has been carried out for bedroom rooms, which are exposed to sound levels between 51 and 72 dB $L_{Aeq, 8h}$ during night-time and between 57 and 79 dB $L_{Amax, 1min}$ during night-time. A sound reduction of 9 dB has been assumed due to the open window.

9.5.4 The results of the assessment are given in **Table 6**.

Table 6: Internal Sound Levels Assessment – Bedroom – Windows Open

Location	Internal ADO Criterion	External Free-Field Levels dB(A)	Open Window Attenuation	Calculated Internal Levels dB(A)	Meets criterion?
Bedroom façade	40 dB $L_{Aeq, 8h}$	51 – 72 dB $L_{Aeq, 8h}$	9 dB	42 – 63	No
	55 dB $L_{Amax, 1min}$	57 – 79 dB $L_{Amax, 1min}$	9 dB	48 – 70	No**

** The criterion is only met for external night-time maximum sound levels less than 64 dB $L_{Aeq, 8h}$

9.5.5 The initial assessment has shown that the internal ADO criterion for the maximum night-time sound levels with windows open is exceeded at any bedrooms exposed to external free-field night-time maximum sound levels higher than 64 dB $L_{Aeq, 8h}$. Therefore, it is likely that during detailed design stage alternative means of removal of excess heat, i.e., a mechanical ventilation system or a mechanical cooling system, would need to be considered for such façades with bedrooms in order to meet the ADO criteria. These facades are shown in **Figure 4** in red.

9.6 External Noise Levels in Amenity Areas (Item 7 above)

9.6.1 Based on the predicted external sound levels shown in **Figure 1** in **Appendix 3**, the sound levels at most rear gardens of the proposed development are below 55 dB $L_{Aeq,16hours}$, highlighted by the green and light green colour.

9.6.2 In some of these gardens, exceedances of to 2 dB of the criterion of 55 dB $L_{Aeq,16hours}$ are predicted, which are marginal (see orange areas in **Figure 1** in **Appendix 3**). For each of these gardens, the external predicted sound levels at the majority of each garden area are still below the criterion. This means that the residents will still have access to a quiet area within their garden.

9.6.3 The ProPG refers to the design ranges in BS 8233:2014 with respect to the assessment of external amenity. The ProPG also refers to guidance in the PPG-N. Based on these two documents, the following guidance is provided with respect to the assessment of noise in external amenity areas:

"The acoustic environment of external amenity areas that are an intrinsic part of the overall design should always be assessed and noise levels should ideally not be above the range 50 – 55 dB $L_{Aeq,16hr}$."

9.6.4 According to BS 8233:2014, an upper guideline value of 55 dB $L_{Aeq,16hour}$ could be acceptable in noisier environments. BS 8233:2014 also states that:

"However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited."

9.7 The proposed development is located adjacent to the M66, and as such, the site is influenced by road traffic noise associated with this strategic transport corridor. As recognised within BS 8233:2014, in higher noise environments—such as those adjoining strategic transport networks—a balanced and pragmatic approach is required.

- 9.8 In this context, the design team has worked collaboratively throughout the evolution of the site layout to mitigate, as far as reasonably practicable, the impact of road traffic noise from the M66. The layout has been carefully arranged to optimise building orientation, 3 m high acoustic barriers were considered around the rear gardens to maximise screening effects and ensure that the majority of external amenity areas achieve levels within, or marginally above, the recommended range. Where minor exceedances are predicted, these are limited in extent and residents will continue to benefit from access to quieter areas within their own gardens.
- 9.9 Recognising the site’s proximity to the M66 and the fact that the development has been designed to achieve the lowest practicable sound levels within the external amenity spaces which is consistent with relevant guidance, it is considered that the predicted external amenity sound levels are acceptable.

Compliance with National and Local Policy

- 9.9.1 Based on the above, internal and external sound levels will meet the guideline values contained within the ProPG. The proposed development accords with local policies, with national guidance NPSE and NPPF and, with reference to the PPG-N, it is considered that internal levels will result in effects below the LOAEL and are therefore acceptable.

10 Plant Noise Limits

- 10.1 At this stage there is no detailed information in relation to any potential plant for the proposed development. Given the site’s location next to a busy road network which presents high background sound levels, the plant noise limits were set to be 10 dB below the measured background sound levels. The plant noise emission limits that are shown in **Table 7** refer to the cumulative noise emission levels of any proposed new plant and apply at 1 m from the façade of the relevant NSR (free-field levels).

Table 7: Plant Noise Emission Limits

Noise Sensitive Receptor	Background Noise Levels L _{A90,15min} (dB)		Plant noise emission limits at 1 m from the facade of the NSR free-field level) (dBA)	
	Daytime	Night-time	Daytime	Night-time
All NSRs	66	53	56	43

11 Conclusions

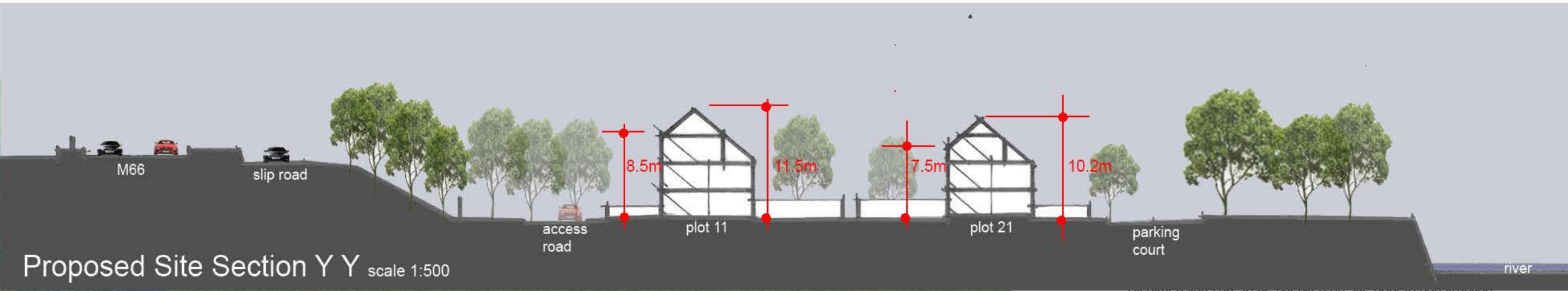
- 11.1 Miller Goodall Ltd undertook a noise impact assessment, on behalf of Franstep Ltd, in relation to a proposed development at Waterfold Lane, Heap Bridge, Heywood, Bury.
- 11.2 An unattended long-term environmental sound survey was undertaken on site to establish the existing baseline sound conditions on site.
- 11.3 A 3D model was built to predict the external sound levels at the amenity areas of the proposed development and the façade incident sound levels at the proposed new buildings.
- 11.4 CadnaA noise modelling was utilised to predict the impact of environmental sound to the proposed development.
- 11.5 The predicted environmental sound levels at the proposed development were assessed in accordance with BS 8233/ProPG.
- 11.6 The assessment of internal noise levels when windows are closed, assuming a standard external façade built-up capable to achieve at least 50 dB R_w+C_{tr} for cladding/external walls, has shown that:
- For all habitable rooms, directly facing or near the M66, mechanical ventilation and high spec double glazing will be required to achieve the required level of attenuation.
 - For the rest of the facades, a standard non-acoustic trickle ventilator with minimum performance of 32 dB D_{new} (equivalent area of 5000 mm²) and standard double glazing would be required to achieve the necessary level of attenuation.
- 11.7 The assessment has shown that the internal ADO criterion for the maximum night-time sound levels with windows open is exceeded at any bedrooms exposed to external free-field night-time maximum sound levels higher than 64 dB $L_{Aeq, 8h}$. Therefore, it is likely that during detailed design stage alternative means of removal of excess heat, i.e., a mechanical ventilation system or a mechanical cooling system, would need to be considered for such façades with bedrooms to meet the ADO criteria.

- 11.8 Predicted external sound levels show that the majority of the rear gardens are likely to be exposed to sound levels below the criterion of 55 dB $L_{Aeq,16hr}$, with only limited and marginal exceedances of up to 2 dB in small areas where most of the garden space remains below the guideline value, ensuring access to quieter outdoor areas. BS 8233:2014, advises that while 50–55 dB $L_{Aeq,16hr}$ is desirable for external amenity areas, such levels may not always be achievable in noisier locations, particularly adjacent to strategic transport corridors, and that development should instead seek to achieve the lowest practicable noise levels. Given the site's proximity to the M66, the layout has been carefully designed to mitigate road traffic noise as far as reasonably practicable through building orientation and screening via barriers, and on this basis the predicted external amenity noise levels are considered acceptable.
- 11.9 Plant noise limits were provided for any potential plant that might be considered for the new development based on the measured background sound levels.
- 11.10 Based on the above, internal and external sound levels will meet the guideline values contained within the ProPG. The proposed development accords with local policies, national guidance NPSE and NPPF and, with reference to the PPGN, it is considered that internal levels will result in effects below the LOAEL and are therefore acceptable.

APPENDICES

Appendix 1: Proposed site layout and elevations

Waterfold Lane Heap Bridge Rochdale



NOTES

This drawing is the property of Equilibrium Architects and copyright is reserved by them. This drawing is not to be copied or disclosed by or to any unauthorised persons without the prior written consent of Equilibrium Architects.

Do not scale from this drawing.

All dimensions are to be checked on site prior to construction, manufacture of any components and ordering of materials and equipment.

Any discrepancies are to be reported to the architect for clarification.

All materials and workmanship to be in accordance with the current British Standards and codes of practice.

This drawing is to be read in conjunction with all relevant Architectural, Structural Engineers, Mechanical Engineers, Electrical Engineers and Specialists drawings and specifications.

As with all construction projects the CDM 2015 regulations apply and the work on this project may require both the issue of a notification to the HSE (because of the duration of the works on site) and the client may also need to appoint a Principal Designer because there may be more than one contractor working on site. The Principal Designer will be able to coordinate the pre-construction information and also ensure that all duty holders under CDM comply with their relevant duties.

The building owner is to serve a Party Wall Act Notice as applicable to adjoining property owners as outlined in The Party Wall Act 1996. The Building Contractor is to verify the thickness of the party walls prior to commencement of the proposed works.

NJLConsulting
Planning+Development

- legend
- 3m high highly sound absorbing fence
 - 1.8m high highly sound absorbing fence
 - 1.5m high wall/fence
 - bin standing area

REV	DESCRIPTION	CHECK	DATE
A	Plots 19-24 front boundary treatment added	Feb 2026	RF

CLIENT

Franstep

PROJECT

Proposed residential development at
Waterfold Lane, Heap Bridge, Rochdale

DRAWING

Scheme Design two

SCALE	DATE	DRAWN	CHECKED
1:500 at A2	February 2026		
DRAWING NO.	CAD REFERENCE NO.	REVISION	
R 0832	sk 130	A	

Proposed Site Layout scale 1:500



Appendix 2: Environmental Survey Details and Time History Graphs

1 Noise Monitoring Equipment

1.1 Details of the equipment used are set out in **Table A.1**.

Table A.2: Noise Monitoring Equipment

Location	Equipment Type	Model	Manufacturer	Serial No.	Calibration Date	Certificate No.
MP01	Class 1[1],[2] Integrating Real Time 1/3 Octave Sound Analyser	XL2-TA	NOR 140	Norsonic	1407510	21/01/2026
	Microphone	MC230A	NOR 1225	Norsonic	384687	21/01/2026
	Pre-amplifier	MA220	NOR 1209	Norsonic	22462	21/01/2026
	Outdoor Microphone Housing	CAL 200	NOR 1217	Norsonic	N/A	N/A
	Class 1 Field Calibrator	WP30	NOR 1251	Norsonic	34123	21/01/2026

1.2 The calibration of the sound level meter was checked before and after the measurements, with negligible deviation (≤ 0.1 dB) recorded.

1.3 Each measurement period consisted of sequential 100 ms samples. The data has been extracted using the relevant software and analysed using an in-house Excel processing sheet to analytically determine representative L_{Aeq} , L_{A90} and $L_{AF,max}$ sound levels. The 100 ms sound levels have not been presented in this report but are kept on file for future reference.

2 Environmental Sound Climate

2.1 The observations at location MP01 mentioned that road traffic noise from the M66 is the dominant noise source.

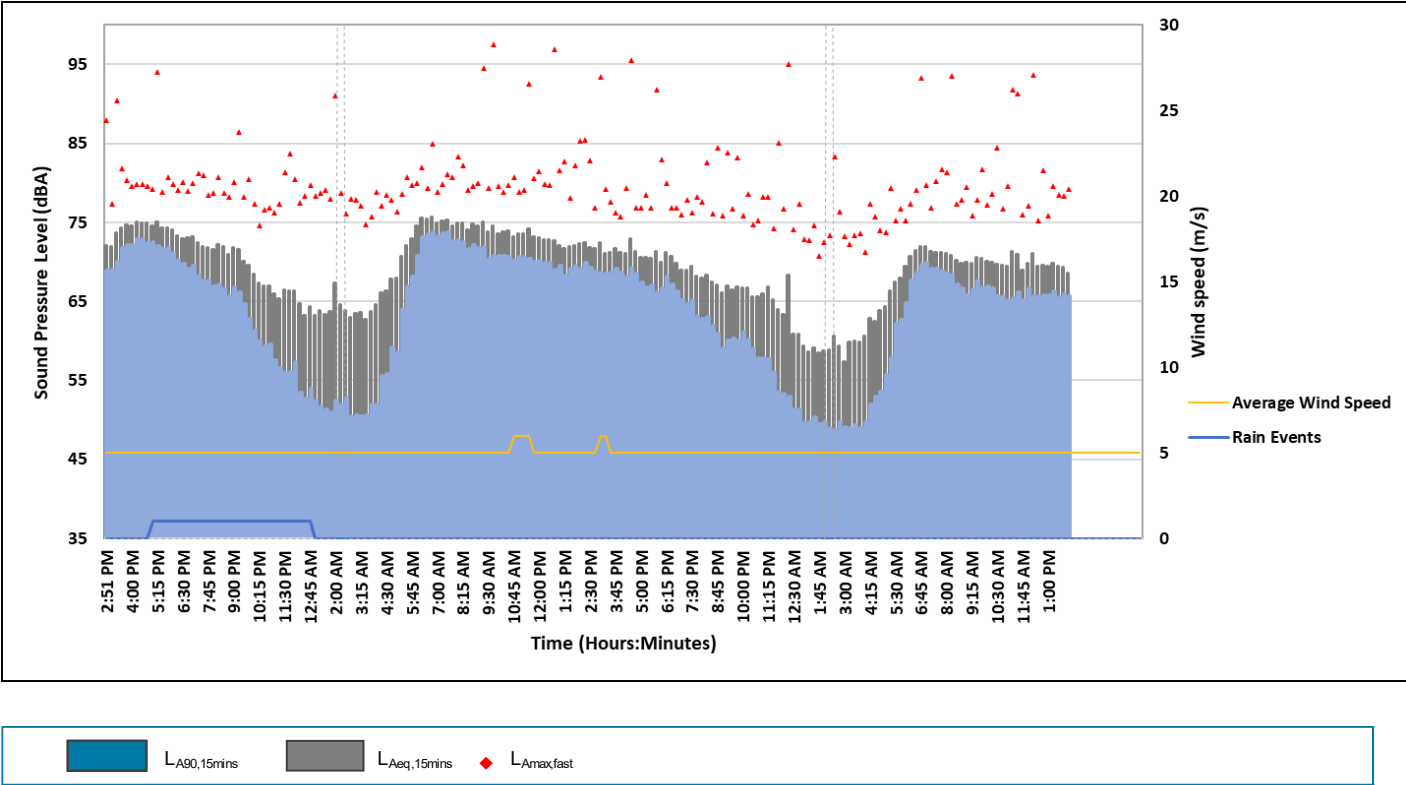
3 Weather Conditions

3.1 During installation and collection, weather conditions were observed and recorded as seen in the table below.

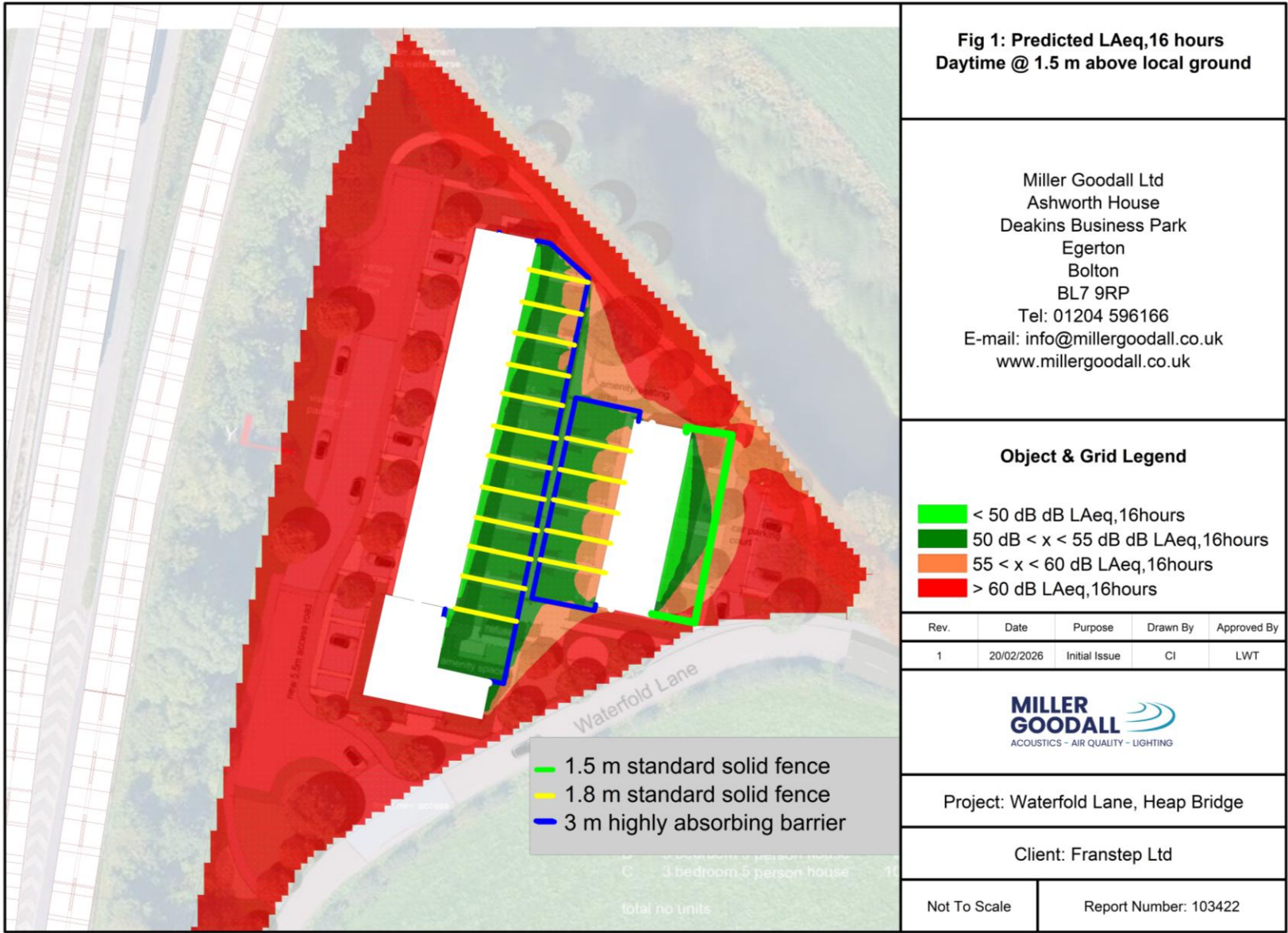
Weather Conditions			
Cloud Cover Symbol Scale in oktas (eighths)  0 Sky completely clear  1  2  3  4 Sky half cloudy  5  6  7  8 Sky completely cloudy  (9) Sky obstructed from view	Description	Start of Survey	On Completion
	Temp:	2	4
	Precipitation:	None	None
	Cloud cover (oktas – see left):	8	6
	Any fog/snow/ice?	Snow on site	No
	Any damp roads/wet ground?	Slightly damp roads (snow)	Some damp ground
	Wind speed:	6mph	7mph
	Wind direction:	N	W
	Possibility of temp. inversion (e.g. calm nights with no cloud):	No	No

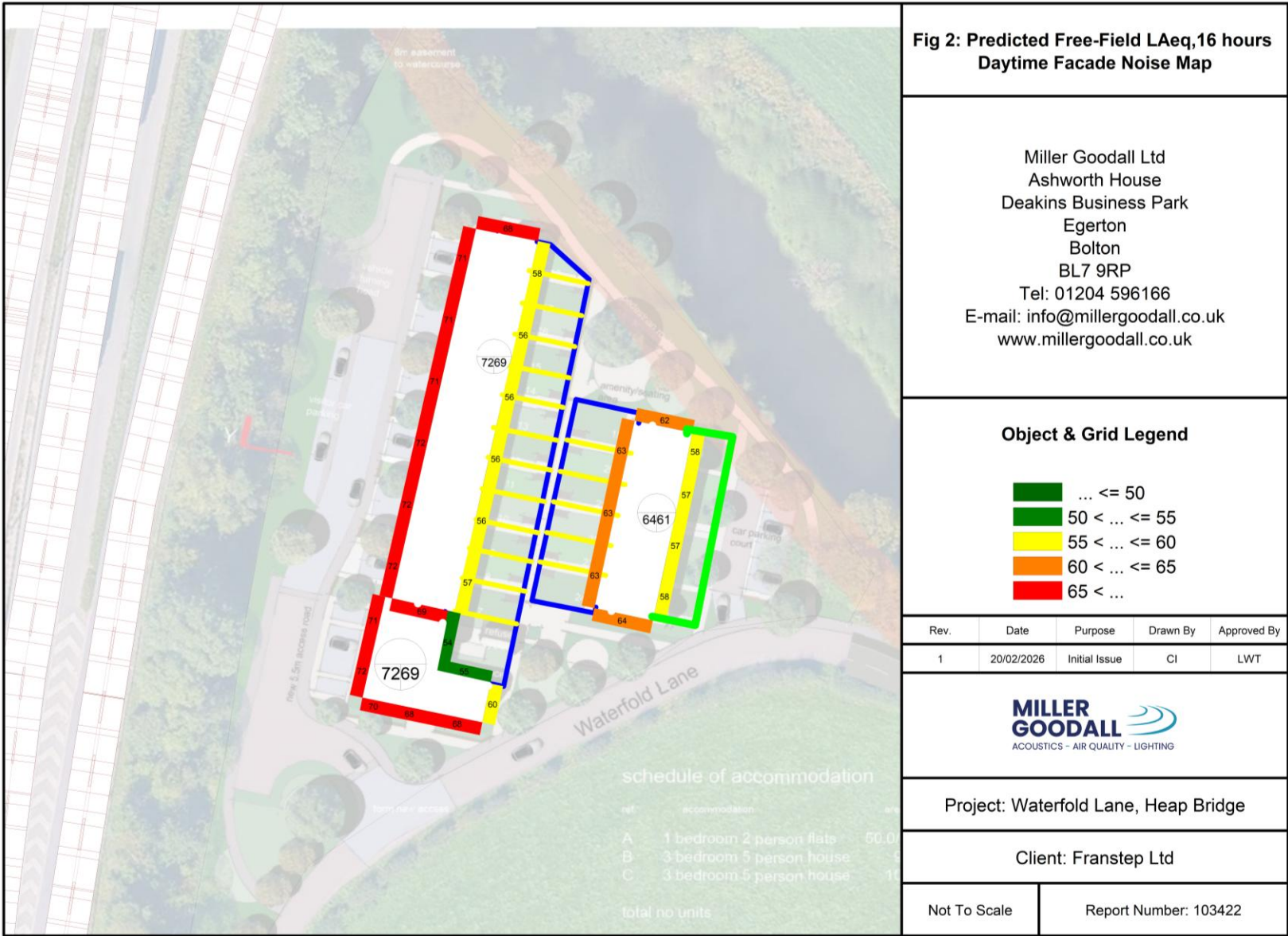
4 Time History Graph

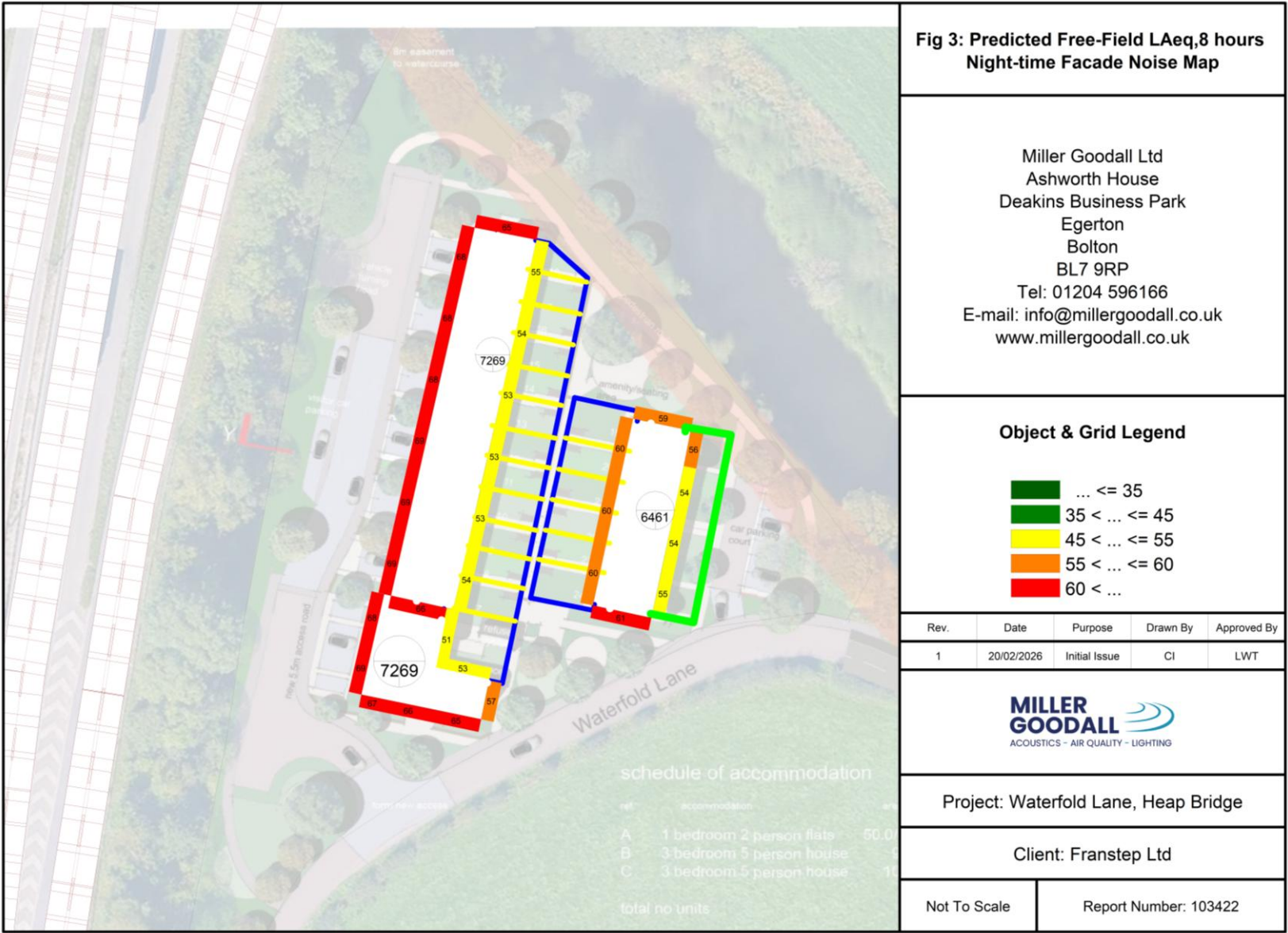
4.1 The time history graph at location MP01 is given in the figure below.

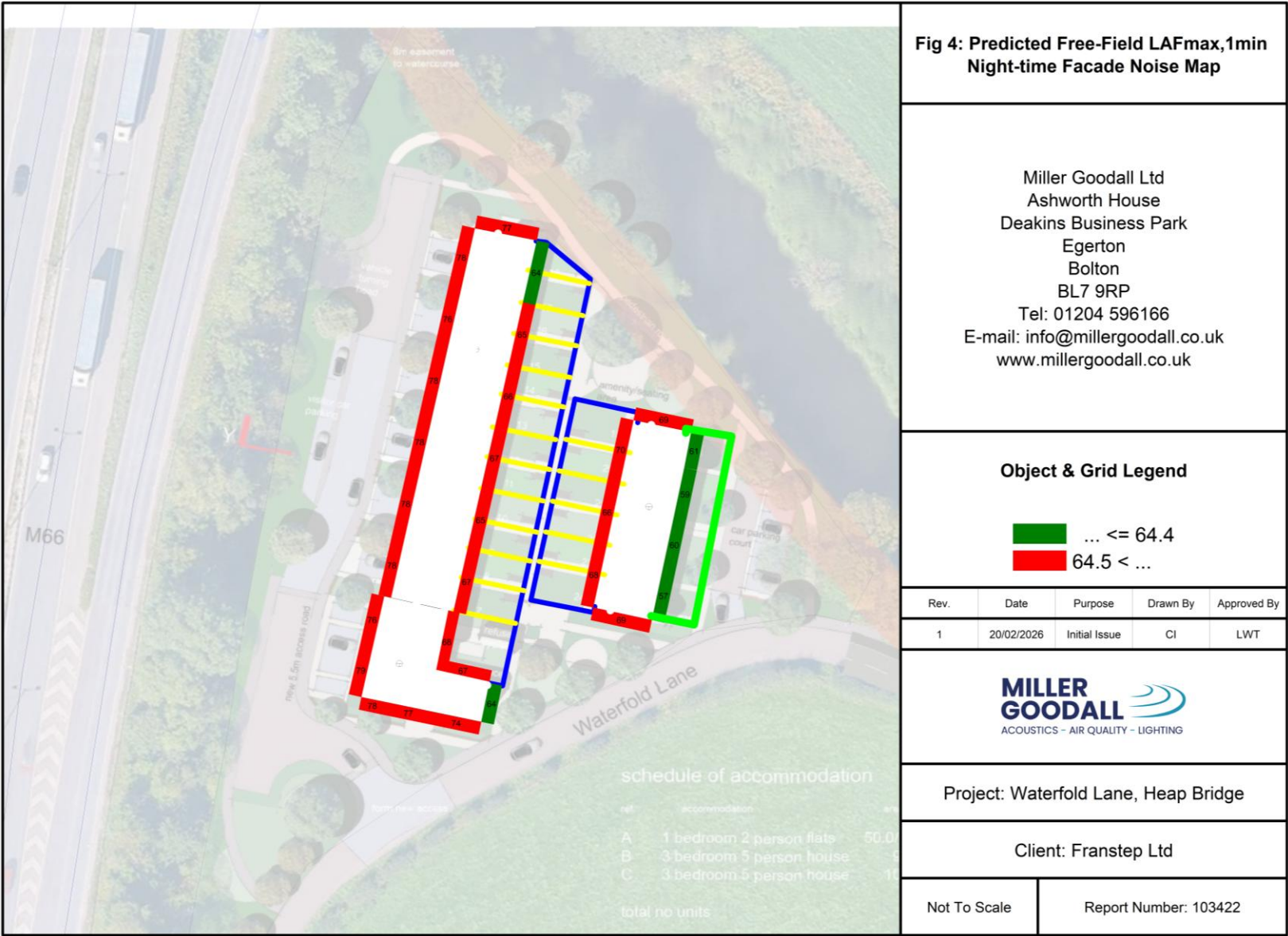


Appendix 3: Façade Noise Maps









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Glossary of Terms

Decibel (dB) The unit used to quantify sound pressure levels; it is derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 μPa , the threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is usually only perceptible under controlled conditions.

dB L_A Decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB L_A broadly agree with an individual's assessment of loudness. A change of 3 dB L_A is the minimum perceptible under normal conditions, and a change of 10 dB L_A corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB L_A ; normal conversation about 60 dB L_A at 1 meter; heavy road traffic about 80 dB L_A at 10 meters; the level near a pneumatic drill about 100 dB L_A .

$L_{A90,T}$ The A weighted noise level exceeded for 90% of the specified measurement period (T). In BS 4142: 2014+A1:2019 it is used to define background noise level.

$L_{Aeq,T}$ The equivalent continuous sound level. The sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period (T). $L_{Aeq,T}$ is used to describe many types of noise and can be measured directly with an integrating sound level meter.

L_{Amax} The highest A weighted noise level recorded during the time period. It is usually used to describe the highest noise level that occurred during the event.

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