Land at Mounton Road, Chepstow

Barwood Development Securities Limited

Noise Assessment

November 2025

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1 Introduction

General

1.1 Rappor Consultants Limited was instructed by Barwood Development Securities Limited (Barwood Land) to undertake a noise assessment to support an outline planning application with all matters reserved except access for the development of up to 146 dwellings together with a hotel, residential care home, mobility hub, highway access, provision of green infrastructure, open space, on site play provision, drainage attenuation and infrastructure works at land off Mounton Road in Chepstow ('the Site').

1.2 This report sets out the results of a baseline noise survey undertaken at the Site and considers the potential impacts of nearby existing noise sources on the proposed development. The results have been assessed in accordance with TAN11 and BS 8233 to determine the suitability of the Site for the proposed development.

1.3 The assessment takes account of relevant local and national policy and guidance. A glossary of acoustic terminology is provided in **Appendix A – Acoustic Terminology**.

Site Location

1.4 The Site is located west of the A466 Wye Valley Link Road and currently comprises open fields. To the north of the Site are existing residential dwellings with Mounton Road beyond. Beyond the A466 to the east are further residential dwellings. Southeast of the Site is the Highbeech Roundabout, with the A48 and residential dwellings to the south. St Lawrence Lane forms the western boundary of the Site with agricultural land beyond.

1.5 The Site lies within the administrative area of Monmouthshire County Council (MCC).

1.6 The illustrative masterplan for the Site is presented in **Figure 1.1**

Figure 1.1 Illustrative Masterplan

2 Consultation and Guidance

Consultation

2.1 Consultation was undertaken with the Environmental Health Department at MCC detailing the proposed scope of works and assessment methodology to be utilised within the noise assessment.

2.2 It was agreed that baseline noise monitoring would be undertaken over several days covering weekdays and a Saturday at locations adjacent to the A466 and A48. The results would be assessed in accordance with TAN11 and BS8233.

2.3 Details of applicable guidance to the assessment are set out below.

Adopted Local Development Plan 2011 - 2021

2.4 The Local Development Plan 2011 – 2021 was adopted in 2014 and sets out MCC's vision and objectives for the development of use of land in Monmouthshire. Policies relevant to noise within the Adopted Local Plan are detailed below.

> *"EP1 – Amenity and Environmental Protection*
>
> *Development, including proposals for new buildings, extensions to existing buildings and advertisements, should have regard to the privacy, amenity and health of occupiers in neighbouring properties.*
>
> *Development proposals that would cause or result in an unacceptable risk / harm to local amenity, health, the character / quality of the countryside or interests of nature conservation, landscape or built heritage importance due to the following will not be permitted, unless it can be demonstrated that measures can be taken to overcome any significant risk:*
>
> *[…]*
>
> *Noise pollution;*
>
> *[…]"*

Monmouthshire Replacement Local Development Plan Deposit Plan 2024

2.5 At the time of assessment, MCC was preparing a Replacement Local Development Plan covering the period from 2018 to 2033. The document allocates land for development, designates areas for protection and contains policies against which future planning applications will be assessed. The following policies were identified within the RLDP relevant to noise:

"Policy PM2 – Environmental Amenity

Development proposals that would cause or result in a significant risk/harm to local amenity, health, the character/quality of the countryside or interests of nature conservation, landscape or built heritage importance, due to the following, will not be permitted unless it can be demonstrated that measures can be taken to overcome any significant risk:

[…]

Noise pollution

[…]

Strategic Policy S8 – Site Allocation Placemaking Principles

All residential site allocations must comply with and incorporate the following placemaking principles into the schemes:

[…]

Residential amenity

[…]

Incorporate good acoustic design which must be compatible with thermal comfort by ensuring adequate ventilation and avoidance of overheating, in the interests of protecting residents from the harmful effects of noise.

[…]"

2.6 Policy HA3 allocates the proposed Site for a residential led mixed-use development but does include any additional criteria on noise.

Technical Advice Note 11

2.7 Technical Advice Note 11 (TAN 11) is a document produced by the Welsh Government to provide guidance on the control of noise in relation to planning and development. Specifically, it focuses on how noise should be considered in land use planning decisions in Wales, aiming to balance the needs of development with the protection of residents and communities from the detrimental effects of noise pollution.

2.8 TAN 11 outlines the importance of managing noise as a material planning consideration and offers practical guidance to local authorities, developers, and others involved in the planning process. It emphasizes the need to consider noise early in the planning process to avoid adverse impacts on health and quality of life.

2.9 TAN 11 refers to the Noise Exposure Categories (NEC), which help classify the severity of noise in specific areas, typically for residential developments near transportation routes

such as roads, railways, and airports. The NEC's are presented in **Table 2.1** for road traffic which is the dominant noise source in the area with **Table 2.2** providing the advice relevant to each category.

Table 2.1: Recommended Noise Exposure Categories For New Dwellings Near Existing Noise Sources

Noise Levels(1) corresponding to the Noise Exposure Categories for New Dwellings $L_{Aeq,T}$ dB				
Noise Source	**Noise Exposure Category**			
	A	**B**	**C**	**D**
Road Traffic				
0700 - 2300	<55	55-63	63-72	>72
2300 – 0700(2)	<45	45-57	57-66	>66

Notes

(1) Noise levels: the noise level(s) (LAeq,T) used when deciding the NEC of a site should be representatives of typical conditions.

(2) Night-time noise levels (2300-0700): sites where individual noise events regularly exceed 82dBLAmax (S time weighting) several times in any hour should be treated as being in NEC C, regardless of the LAeq,8H (except where the LAeq,8H already puts the site in NEC D).

Table 2.2: Noise Exposure Categories

Noise Exposure Categories	
A	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as desirable.
B	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection.
C	Planning permission should not normally be granted. Where it is considered that permission should be given, for example, because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.
D	Planning permission should normally be refused.

British Standard 8233:2014 Guidance on sound insulation and noise reduction for buildings

2.10 BS8233 provides guidance for the control of noise in and around buildings. The scope of the document is applicable for new and refurbished buildings undergoing a change of use.

2.11 The recommendations from BS 8233 for steady external noise sources are presented in **Table 2.3**.

Table 2.3: Indoor Noise Levels for Dwellings

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

2.12 The guidance also provides criteria for external areas and states:

> *"For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB LAeq,T, with an upper guideline value of 55 dB LAeq,T which would be acceptable in noisier environments. 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."*

3 Noise Survey

Survey Details

3.1 A baseline noise survey has been undertaken between the 17th and 21st October 2024 to capture the prevailing noise climate on the Site due to road traffic.

3.2 Noise meters were installed at the measurement locations as shown in **Figure 3.1** overleaf.

3.3 The meters were installed at a height of approximately 1.5m, in free-field conditions, i.e. at least 3.5m from a reflective surface.

3.4 Details of the measurement equipment can be found in **Appendix B – Measurement Equipment**.

3.5 On-site calibration was undertaken before and after measurements at each location with no significant drift observed.

Weather Conditions

3.6 Weather conditions during the survey were conducive to environmental noise monitoring, it being dry with winds less than 5m/s.

Noise Climate

3.7 During the installation and collection of the noise meters, the noise climate was dominated by road traffic, mainly on the A466 and A48. Other sources of note were natural sounds such as birdsong.

Figure 3.1 Noise Measurement Locations

Monitoring Results

3.8 A summary of the measured noise levels is presented in **Table 3.1**.

Table 3.1: Summary of Measured Noise Levels, dB

Location	Start Date	Start Time	$L_{Aeq, T}$	$L_{A10, T}$	$L_{A90, T}$	L_{Amax}
NML1	17/10/2024	14:30 – 23:00	65.6	68.7	54.2	84.2
		23:00 – 07:00	60.2	58.5	40.0	92.6
	18/10/2024	07:00 – 23:00	66.9	69.7	56.9	94.9
		23:00 – 07:00	58.6	57.6	44.2	88.4
	19/10/2024	07:00 – 23:00	66.0	69.2	54.9	90.2
		23:00 – 07:00	57.0	56.0	41.3	88.3
	20/10/2024	07:00 – 23:00	66.2	69.0	56.6	92.4
		23:00 – 07:00	59.0	56.2	44.5	86.1
	21/10/2024	07:00 – 13:15	66.9	69.8	57.9	95.2
NML2	17/10/2024	14:00 – 23:00	66.1	69.4	53.9	95.3
		23:00 – 07:00	60.8	61.7	38.0	85.6
	18/10/2024	07:00 – 23:00	66.4	69.5	55.0	102.5
		23:00 – 07:00	60.0	59.8	44.2	84.6
	19/10/2024	07:00 – 23:00	66.2	69.4	53.8	98.4
		23:00 – 07:00	59.1	58.6	39.7	88.9
	20/10/2024	07:00 – 23:00	66.4	69.3	54.4	96.1
		23:00 – 07:00	59.5	56.4	41.2	89.4
	21/10/2024	07:00 – 13:00	66.5	69.9	56.3	84.5

4 Noise Assessment

Noise Model

4.1 The intention of noise modelling/mapping for this assessment is to accurately determine the noise levels across the development and further to this at each façade and each floor of the building(s) associated with the proposed development. This avoids relying on using the highest measured noise levels from the baseline noise survey as a worst case, avoiding a blanket, over-specified strategy being applied across the entire façade.

4.2 The noise predictions within this report have been undertaken using the proprietary software IMMI, a 3-D noise mapping package which implements a wide range of national and international standards, guidelines and calculation algorithms, including those set out in ISO 9613-2:1996.

4.3 The results of the noise survey have been used to calibrate a without development model. Once calibrated, the model is updated with an indicative layout based on the concept masterplan for the development and noise levels predicted across the Site.

4.4 Given the outline nature of the application, the subsequent assessment uses predicted noise levels at the nearest developable areas to the noise sources as a worst-case.

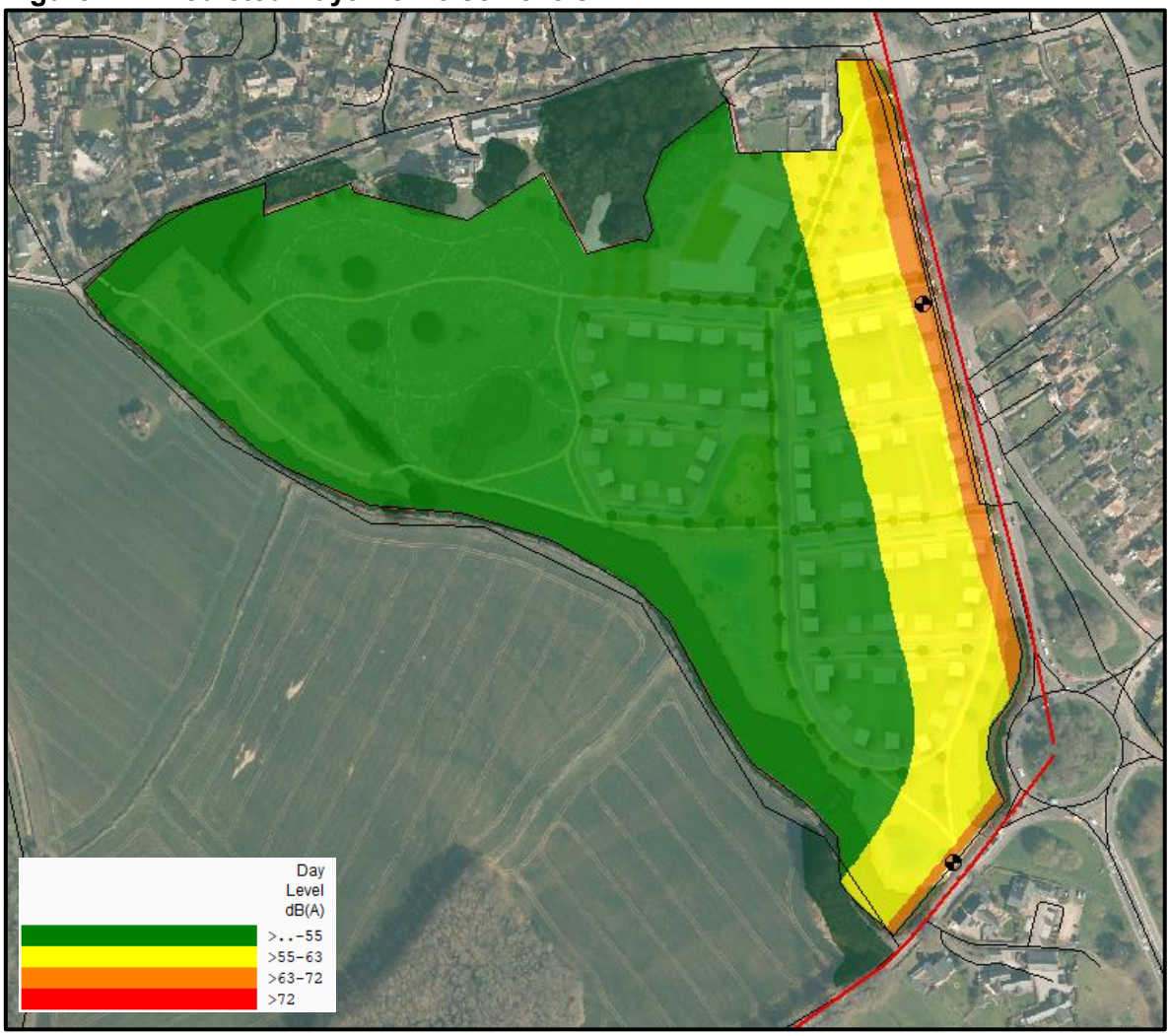
4.5 The noise map model has assumed:

- downwind propagation, i.e. a wind direction that assists the propagation of sound from source to receptor;
- a maximum reflection factor of three where buildings and barriers are assumed to have a ‘smooth’ reflective façade, as a worst case;
- that noise sources do not have strong radiation patterns and therefore radiate equally in all directions; and
- a grid height at 1.5m when plotting noise across external amenity areas such as gardens.

4.6 As the current masterplan is illustrative, the location and orientation of proposed dwellings has not yet been finalised.

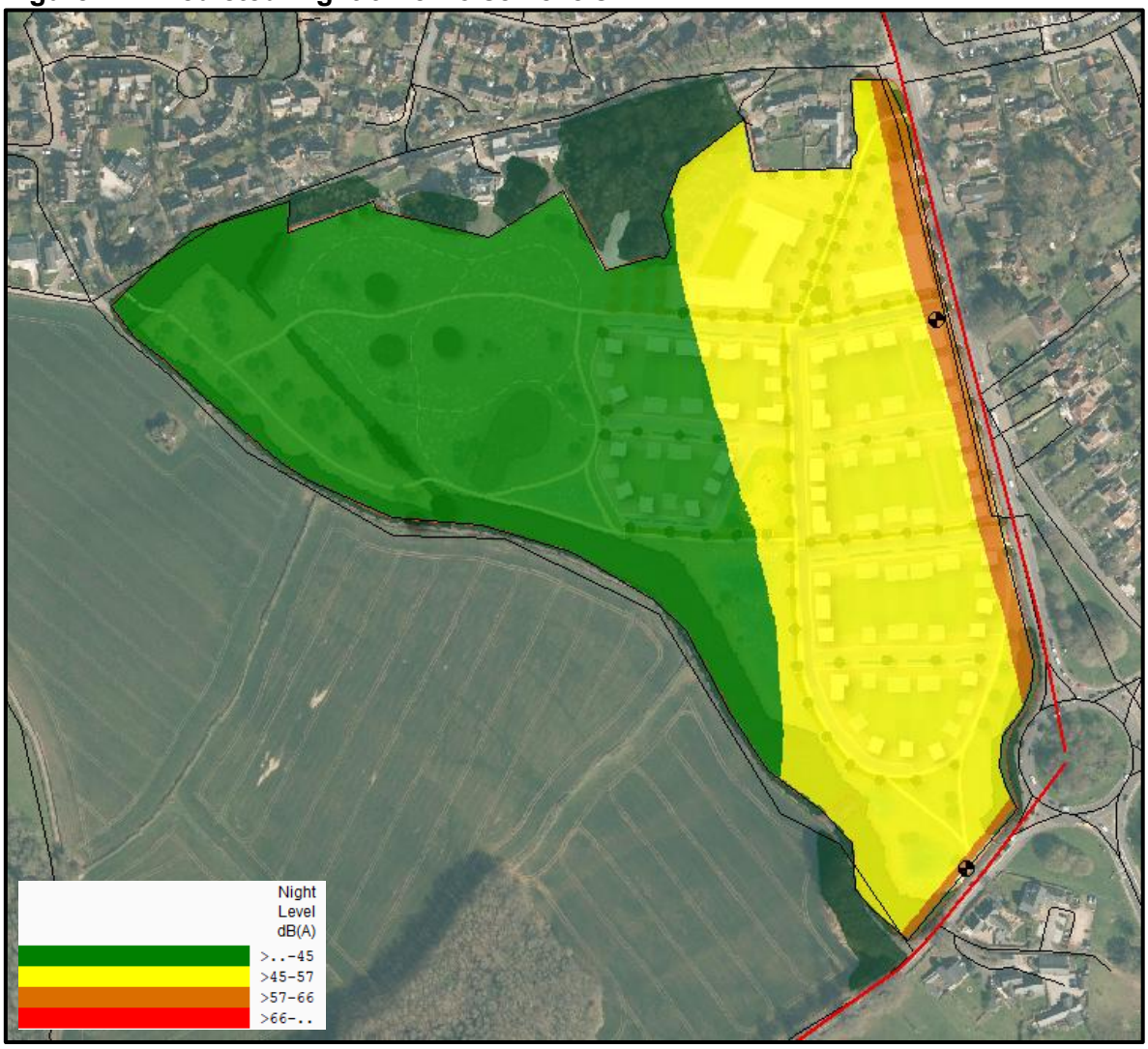
4.7 **Figure 4.1** and **Figure 4.2** present the predicted daytime (07:00 – 23:00) and night-time (23:00 – 07:00) noise levels across the Site without development as per the NECs in TAN 11.

Figure 4.1 Predicted Daytime Noise Levels



4.8 It can be seen from the above figure that the majority of the proposed development area is within NEC A and B during the daytime period with the area adjacent to the A466 in NEC C.

Figure 4.2 Predicted Night-time Noise Levels



4.9 It can be seen from the above figure that the night-time NEC's are similar to that for the daytime with the majority of the proposed development area within NEC A and B with the area adjacent to the A466 in NEC C.

4.10 Whilst the maximum noise levels did exceed 82dB LAmax during the night-time period, it did not regular exceed this level every hour. Therefore, maximum events do not impact on the above defined NEC's.

4.11 **Figure 4.3** and **Figure 4.4** present the predicted daytime (07:00 – 23:00) and night-time (23:00 – 07:00) noise levels across the Site with the inclusion of the illustrative masterplan.

Figure 4.3 Predicted Daytime Noise Levels With Development

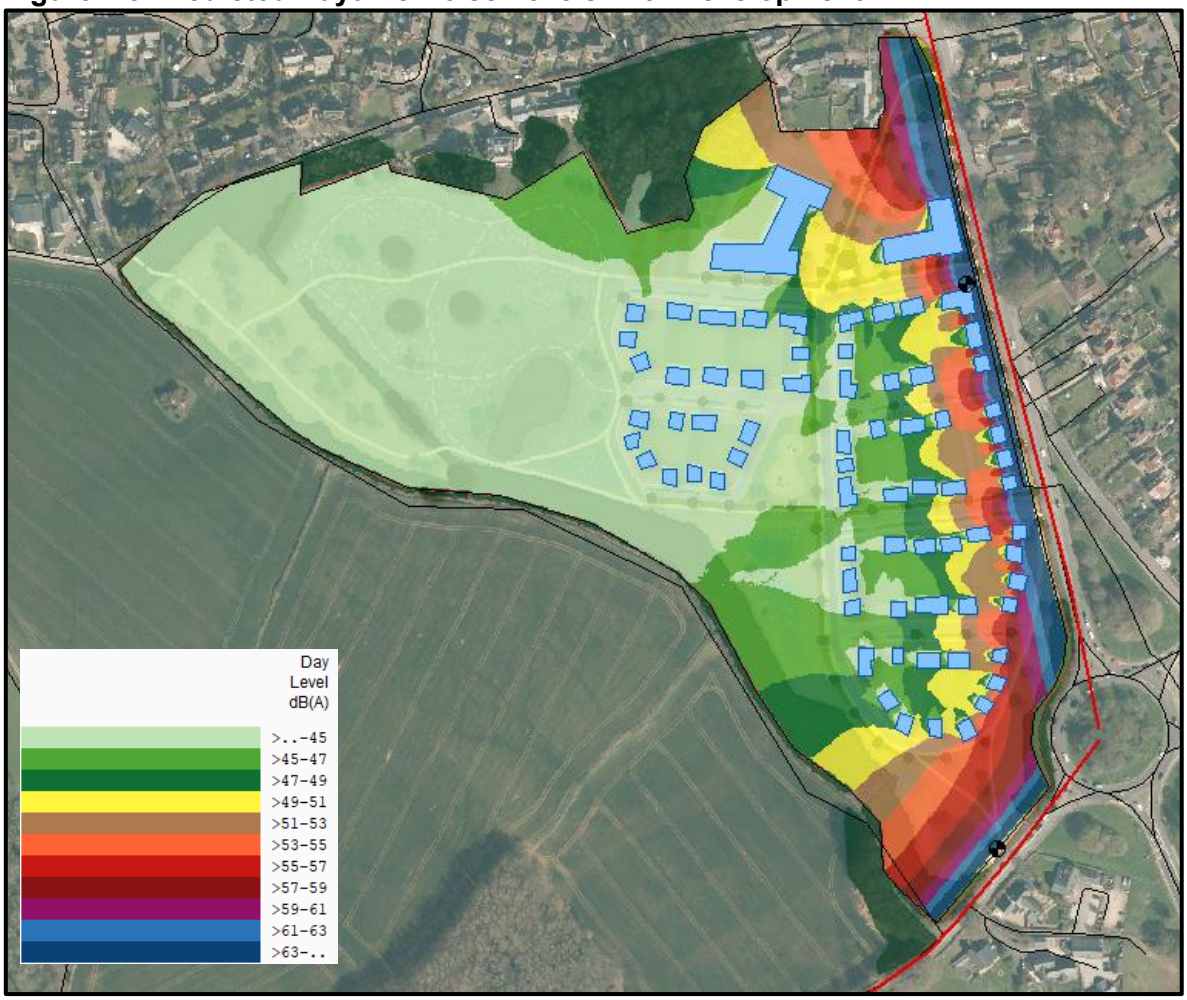
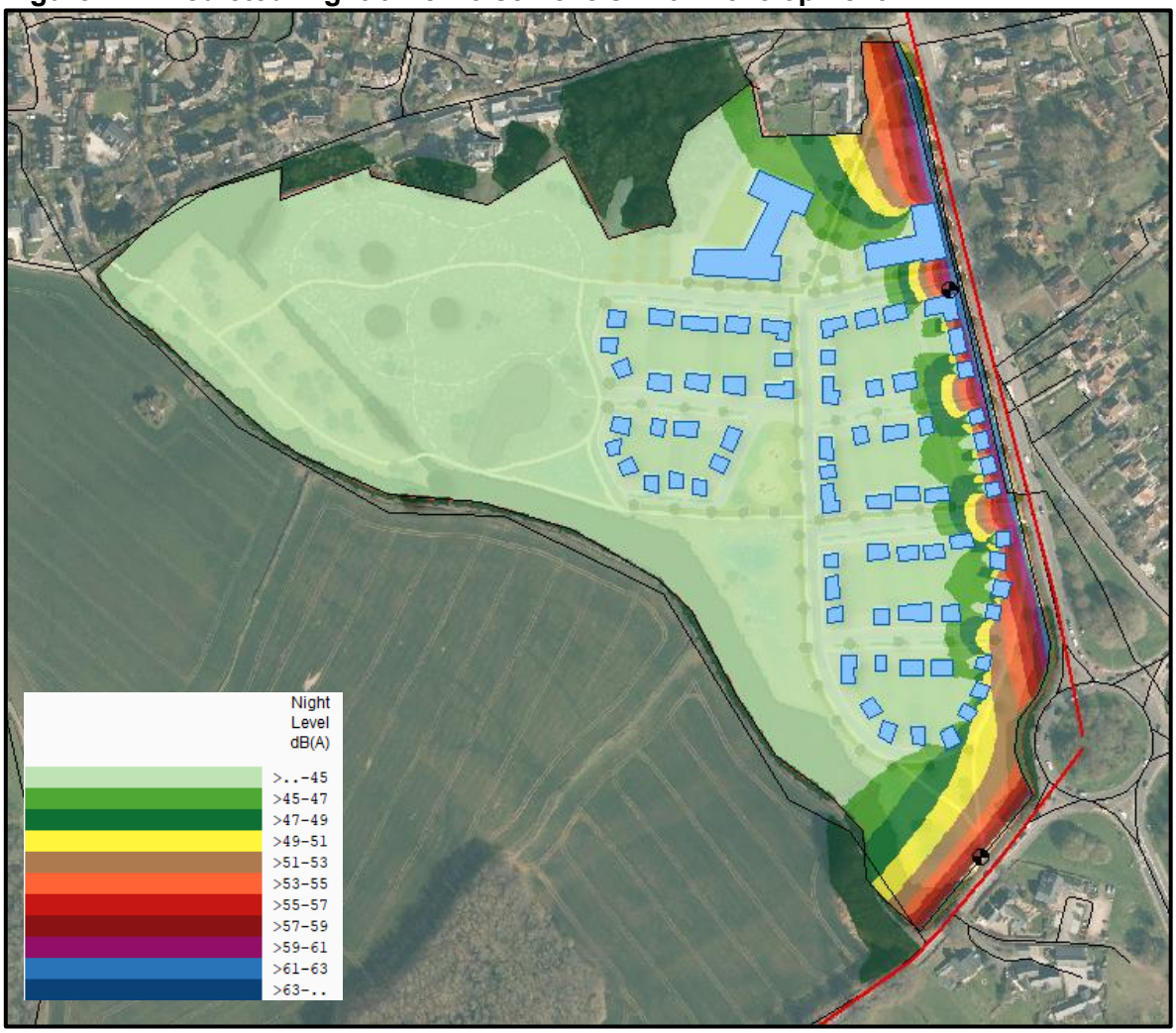


Figure 4.4 Predicted Night-time Noise Levels With Development



External Ambient Noise Levels

4.12 The predicted daytime noise levels as shown in **Figure 4.3**, indicate that provided outdoor amenity areas for dwellings in close proximity to the southern and eastern boundary are screened from the roads by the dwelling, noise levels will be below the lower guideline value of 50 dB $L_{Aeq, 16hr}$.

4.13 Where it is not possible to place gardens on the screened side of dwellings, additional mitigation may be required for proposed dwellings situated closest to A466 and this should be considered at the appropriate design stage once a fixed masterplan is available.

Internal Ambient Noise Levels

4.14 For internal noise levels, a partially open window typically provides up to 15 dB sound reduction between outside and inside. As set out in BS 8233, internal noise levels during the day should be less than 35dB L_{Aeq} and 30dB L_{Aeq} during the night. Therefore, a level at

the façade of less than 50dB during the day or 45dB during the night would achieve acceptable internal noise levels with an open window.

4.15 The results presented in **Figures 4.3** and **4.4** indicate that the closest proposed facades to the A466 and A48 would be subject to noise levels in excess of the guideline values during both the day and night-time periods.

4.16 For those plots subject to noise levels in excess of the guidance, a suitable glazing unit and alternative ventilation would be required to achieve acceptable internal noise levels.

4.17 Windows do not reduce noise equally across the entire frequency spectrum, so the frequency content of the sound will influence the overall sound reduction performance of a given window and by extension, the resulting noise levels within the receiving room.

4.18 However, many glazing manufacturers test their products under laboratory conditions using a typical road traffic noise frequency spectrum source. The resultant measured noise attenuation, in dB, gives a very useful guide to in-situ sound reduction performance of the window for situations where road traffic noise dominates. This performance index is known as the $R_w + C_{tr}$ dB noise level.

4.19 A double-glazed unit that can achieve a sound reduction of approximately 31dB $R_w + C_{tr}$. An example glazing unit that would achieve this would be 6/12/10 which consists of a 6mm glass pane and 10mm glass pane separated by a 12mm air gap. Other glazing specifications are available and would be confirmed during the detailed design.

4.20 Where a closed window would be required for internal noise level limits to be achieved, alternative ventilation (to an open window), will be needed to comply with the requirements of the Building Regulations Approved Document F.

4.21 The acoustic performance of ventilators is often referred to as a $D_{n,e,w}$ figure, which is the weighted element-normalized level difference that applies to small building elements with a surface area of less than $1m^2$.

4.22 On average, the $D_{n,e,w}$ value is typically 6dB more than the R_w index. Therefore, a $D_{n,e,w} + C_{tr}$ of 37dB would be required. An example ventilator to achieve 37dB would be a Greenwood Airvac Acoustic Air Brick AAB-4000. Alternative ventilators are available and can be determined during detailed design.

4.23 No further mitigation is considered necessary to achieve acceptable internal noise levels, however final specifications should be determined on a plot-by-plot basis at the appropriate design stage and will need to take account of overheating.

5 Summary and Conclusions

Summary

5.1 Rappor was instructed by Barwood Development Securities Ltd (Barwood Land) to undertake a noise assessment to support an outline planning application for a proposed residential-led mixed use development at land off Mounton Road, Chepstow.

5.2 This report sets out the results of a baseline noise survey undertaken at the Site and considers the potential impacts of nearby existing noise sources on the proposed development. The results have been assessed in accordance with TAN 11 and BS 8233 to determine the suitability of the Site for the proposed development.

5.3 For outdoor amenity areas, it is considered that external noise levels as outlined within BS 8233, can be achieved through careful consideration of the development layout (i.e placing gardens on the screened side of dwellings). Where this is not possible, additional mitigation measures should be considered at the appropriate design stage.

5.4 It is considered likely that the majority of dwellings will achieve acceptable internal noise levels with open windows however for properties situated closest to the A466 and A48, it is considered that through the use of suitable double glazing and trickle vents, acceptable internal noise levels can be achieved.

Conclusions

5.5 Rappor concludes that based on the results of the noise assessment, noise is not considered a material constraint to the proposed development.

Appendix A – Acoustic Terminology

Glossary of Acoustic Terminology

Term	Description
Ambient Sound Level, $L_{Aeq,\ T}$	Equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, T
Background Sound Level, $L_{A90,T}$	A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting, F, and quoted to the nearest whole number of decibels
Specific Sound Level	Equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, Tr
Rating level, $L_{Ar,Tr}$	Specific sound level plus any adjustment for the characteristic features of the sound

Appendix B – Measurement Equipment

Details of Monitoring Equipment

Location	Item Description	Serial Number
NML1	Svantek SV307A Class 1 Sound Level Meter	116137
NML2	Svantek SV307A Class 1 Sound Level Meter	116148
Both	Svantek SV36 Acoustic Calibrator	122250

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