



Armstrong House
3 Bassett Avenue
Southampton
SO16 7DP

T: 02381 555 000

**OLD CHARLTON ROAD
HITCHIN**

NOISE ASSESSMENT

Technical Report: R11045-1 Rev 0

Date: 19th March 2025

For: McCarthy Stone
Prospect Place
85 Great North Road
Hatfield
AL9 5DA

24 Acoustics Document Control Sheet

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	Name	Position	Signature	Date
Prepared by	Kiel Edwards BSc AMIOA	Senior Consultant		19/03/2025
Reviewed by	Chris McConnell BSc MSc MIOA	Principal Consultant		19/03/2025
Approved by	Stephen Gosling BEng MIOA	Principal Consultant		19/03/2025
For and on behalf of 24 Acoustics Ltd				

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1.0 INTRODUCTION

- 1.1 McCarthy & Stone has appointed 24 Acoustics Ltd to undertake a noise assessment in relation to the proposed development at Old Charlton Road, Hitchin. The proposed development will comprise a retirement living apartment block with associated parking and amenity areas.
- 1.2 The site is located within Hitchin, near the A602 and local road networks. Accordingly, this noise assessment has included:
- Environmental noise monitoring;
 - Consideration of noise arising from nearby transportation sources;
 - Assessment of transportation noise levels within the proposed dwellings;
 - Assessment of noise levels within external amenity areas.
- 1.3 This report presents the results of the assessment, following site visits and ambient noise surveys undertaken between the 5th and 13th March 2025.
- 1.4 All noise levels in this report are presented in dB relative to 20µPa.

2.0 SITE DESCRIPTION

- 2.1 The site is located off Old Charlton Road in Hitchin and currently comprises four bungalows and associated gardens. The A602 follows the western site boundary, with the road elevated relative to the site, and there are residential buildings and retirement living apartments to the opposite side of the carriageway. Old Charlton Road follows the eastern boundary, which ends to the south of the site at a car park associated with an office building further south. Ten residential properties collectively known as Almshouses are located to the north of the site.
- 2.2 It is proposed to construct 35 retirement living apartments within a three story apartment building. The apartment block will include a communal lounge, reception and ancillary areas. External car parking will be provided to the north of the site, accessed via the existing access off Old Charlton Road. External amenity space will be provided to the west of the building.
- 2.3 Noise sources in the area include road traffic and occasional aircraft movements.
- 2.4 The existing aerial view is shown in Figure 1 with the proposed site layout shown in Figure 2.

3.0 CRITERIA

NPPF/NPSE/PPG

3.1 The National Planning Policy Framework (NPPF) [Reference 1] states in relation to noise that planning policies and decisions should aim to:

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

3.2 The NPPF refers to the Noise Policy Statement for England (NPSE) [Reference 2] which is intended to apply to all forms of noise, including environmental noise, neighbour noise and neighbourhood noise. The NPSE sets out the Government's long-term vision to 'promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development' which is supported by the following aims:

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life.

3.3 The NPSE defines the concept of a 'significant observed adverse effect level' (SOAEL) as 'the level above which significant adverse effects on health and quality of life occur'. The following guidance is provided within the NPSE:

"It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available."

- 3.4 The Planning Practice Guidance (PPG) [Reference 3] is written to support the NPPF with more specific planning guidance. The PPG reflects the NPSE and states that noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment. It also states that opportunities should be taken, where practicable, to achieve improvements to the acoustic environment. The PPG states that noise can over-ride other planning concerns but should not be considered in isolation from the other economic, social and environmental dimensions of the proposed development.

ProPG

- 3.5 The Professional Practice Guidance on Planning and Noise (ProPG) [Reference 4] was published jointly by the Association of Noise Consultants, Institute of Acoustics and Chartered Institute of Environmental Health in May 2017.
- 3.6 The guidance describes a recommended approach for new residential development, which includes four key elements of the assessment process, identified below:
- (i) Good acoustic design process;
 - (ii) Internal noise level guidelines;
 - (iii) External amenity area noise assessment;
 - (iv) Assessment of other relevant issues.
- 3.7 It is important to note that the guidance in ProPG does not constitute an official government code of practice and neither replaces nor provides an authoritative interpretation of the law or government policy.

BS 8233 and World Health Organisation

- 3.8 BS 8233:2014 [Reference 5] provides design guidance for dwelling houses, flats and rooms in residential use and recommends that internal noise levels in dwellings do not exceed 35 dB $L_{Aeq,16 \text{ hour}}$ in living rooms and bedrooms during the day, 40 dB $L_{Aeq, 16 \text{ hour}}$ in dining rooms during the day and 30 dB $L_{Aeq, 8 \text{ hour}}$ in bedrooms at night.
- 3.9 BS 8233 also notes that "Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night."

- 3.10 The World Health Organisation (WHO) [Reference 6] provides guidance on desirable internal noise levels to minimise the risk of sleep disturbance. The WHO 1999 guidelines suggest internal noise levels not exceeding 30 dB $L_{Aeq, 8 \text{ hour}}$ or regularly exceeding 45 dB $L_{Amax, f}$ for 'a good night's sleep'.
- 3.11 BS 8233 provides an aspirational upper guideline value of 55 dB $L_{Aeq, 16 \text{ hour}}$ for noise levels within external amenity areas. The standard also recognises that higher external amenity noise levels may be acceptable, as shown below.

"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"

Summary of Criteria

- 3.12 In line with the above guidance, noise at the site has been assessed using the following methodology:
- BS 8233: 2014 and the WHO Guidelines for recommended internal noise levels, inside the properties, due to noise from road traffic. An upper internal daytime level of 35 dB $L_{Aeq, 16 \text{ hour}}$ for bedrooms and living rooms should apply; and a night-time level for bedrooms of 30 dB $L_{Aeq, 8 \text{ hour}}$ should apply. Similarly, a maximum night-time internal level of 45 dB $L_{Amax, f}$ should apply in bedrooms for regular events.
 - Assessment of noise levels in external amenity areas, giving consideration to the aspirational guideline values stated in BS 8233: 2014.

4.0 ENVIRONMENTAL NOISE MEASUREMENTS

Measurement Instrumentation and Procedure

- 4.1 Environmental noise measurements were obtained over the period 5th to 13th March 2025 in order to establish the prevailing ambient noise levels at the site. Instrumentation was setup to the west of the site at a height of approximately 3m above local ground level, with direct line of sight to the A602. The measurement location is identified in Figure 1.

4.2 Ambient noise levels were measured using the following equipment:

Rion precision sound level meter	NL-52;
Brüel & Kjær acoustic calibrator	Type 4231.

4.3 The instrumentation was configured to continuously measure and store overall A-weighted and linear octave-band statistical parameters including L_{eq} , L_{max} and L_{90} (all measured on fast response) over 1-minute intervals. Measurements were made in accordance with BS 7445: 1991 "Description and measurement of environmental noise Part 2 - Acquisition of data pertinent to land use [Reference 7].

4.4 The instrumentation was equipped with an environmental microphone and an extension cable. The instruments were powered by external batteries and stored in a weatherproof case. The calibration of all instrumentation was verified before and after the tests and no significant signal variation occurred. Calibration of 24 Acoustics' equipment is traceable to National Standards.

4.5 Weather conditions during the measurement were variable with some periods of rain and wind speeds exceeding 5 m/s. Measurements affected by meteorological conditions have been excluded from the design noise levels.

Results and Observations

4.6 The measured free-field ambient (L_{Aeq}) data values have been averaged to generate the overall 16-hour daytime and 8-hour night-time levels. Typical maximum night-time noise levels have been determined, in terms of the tenth highest value. A summary of the measured noise levels are shown in Table 1 with full results shown graphically in Appendix B.

Measurement Results: Location 1		
Daytime Level (07:00 to 23:00 hours) dB $L_{Aeq, 16 \text{ hour}}$	Night-time Level (23:00 to 07:00 hours)	
	dB $L_{Aeq, 8 \text{ hour}}$	dB $L_{Amax, f}$
64	58	76

Table 1 - Measurement Results

4.7 The measured noise levels include influences from local road traffic on the A602 and local road network as well as occasional aircraft movements.

5.0 CALCULATIONS AND ASSESSMENT

Internal Noise Levels

- 5.1 Calculations have been undertaken, using the measured noise levels, to determine the glazing requirements for the residential rooms, which will ensure that noise levels inside the rooms do not exceed 35 dB $L_{Aeq, 16 \text{ hour}}$ during the day and 30 dB $L_{Aeq, 8 \text{ hour}}$ at night (and also not regularly exceed 45 dB $L_{Amax.f}$ at night) from road traffic noise sources.
- 5.2 The measured noise levels have been corrected for distance from the A602 to determine the external noise levels incident at the proposed façades of the development.
- 5.3 The calculations are based on floor plans from McCarthy Stone issued in March 2025. Typical window dimensions have been assumed based on similar retirement living schemes. If there are any future changes to the site layout, apartment layouts, room volumes or elevations, this assessment should be revised accordingly.
- 5.4 The analysis given below is based on 24 Acoustics' understanding of the envelope construction to be used for this scheme, based on a traditional cavity masonry construction, which would be expected to achieve a minimum sound insulation performance of 52 dB R_w .
- 5.5 The assessment has been undertaken on the basis that mechanical ventilation (MVHR) will be provided to all apartments.
- 5.6 The minimum sound insulation performance required by the glazing is stated in Table 2.

Minimum SRI (dB) per Octave Band Centre Frequency (Hz)					
125	250	500	1k	2k	4k
24	20	25	35	38	35

Table 2 - Minimum Glazing Performance

- 5.7 In making a comparison with the values in Table 2, it is important that the glazing figures used are the result of tests in accordance with ISO 10140, Part 2: 2010 and that the quoted minimum sound reduction specifications are met by the entire glazing system as a whole, including frames, seals, any insulated panels and not just the glass. The requirements also apply to any external glazed doors to habitable rooms (i.e. from balcony areas).
- 5.8 In order to assist with the selection process, the following example window/glazing configuration, if installed correctly, would be capable of achieving the required sound reduction performance:

- Example Window/Glazing Configuration: 4mm glass – 12mm cavity – 4mm glass (minimum 31 dB R_w).

5.9 The above assessment demonstrates that the internal noise level criteria, as outlined in Section 3, will be readily achievable within the proposed apartments.

Noise Levels in External Amenity Areas

5.10 In order to reduce noise levels from the A602 affecting the external amenity area to the west of the site, it is recommended to provide a solid fence along the western site boundary as per the extent shown in Figure 2. The fence should have a minimum height of 2m and should comprise a solid construction of minimum surface density of 15 kg/m², with no holes or gaps.

5.11 With reference to the measurement results and screening provided by the proposed boundary fence, noise levels in the external amenity area to the west of the site (near the A602) will fall below the BS 8233 aspirational guideline value of 55 dB $L_{Aeq, 16 \text{ hour}}$ which is acceptable in planning terms.

6.0 CONCLUSIONS

6.1 McCarthy Stone Ltd has appointed 24 Acoustics Ltd to undertake a noise assessment for a proposed retirement living apartment building at Old Charlton Road, Hitchin. This report has considered noise from road traffic incident at the proposed development.

6.2 Ambient noise measurements have been carried out at the site to determine the prevailing noise levels from the local road network during daytime and night-time periods.

6.3 Recommendations have been provided for the acoustic performance of glazing to habitable rooms. It is concluded that with the recommended measures given, noise within habitable rooms would comply with maximum internal levels of 35 dB L_{Aeq} during the daytime, 30 dB L_{Aeq} at night and 45 dB $L_{Amax, f}$ at night for regular events.

6.4 With the described boundary fence mitigation, noise levels in the external amenity area near the A602 will fall below the BS8233 aspirational guideline value of 55 dB $L_{Aeq, 16 \text{ hour}}$.

6.5 On the above basis, an appropriate acoustic environment will be provided to the proposed residential properties.

REFERENCES

1. Ministry of Housing, Communities and Local Government. National Planning Policy Framework, 2025.
2. DEFRA, Noise Policy Statement for England, March 2010.
3. Planning Practice Guidance, Department of Communities and Local Government, 2019.
4. ProPG: Planning and Noise. Professional Practice Guidance on Planning & Noise, New Residential Development, May 2017. Association of Noise Consultants, Institute of Acoustics, Chartered Institute of Environmental Health.
5. British Standards Institution. British Standard 8233: Guidance on sound insulation and noise reduction for buildings, 2014.
6. World Health Organisation, Guidelines for Community Noise, 1999.
7. British Standards Institution. British Standard 7445: 1991 Description and measurement of environmental noise Part 2 - Acquisition of data pertinent to land use.



 Measurement Location

Project: Old Charlton Road, Hitchin	Title: Site Location and Measurement Locations		 24Acoustics
DWG No: Figure 1	Scale: N.T.S.	Rev: -	
Date: March 2025	Drawn By: KE	Job No: 11045	



Project: Old Charlton Road, Hitchin	Title: Proposed Site Layout		 24Acoustics
DWG No: Figure 2	Scale: N.T.S.	Rev: -	
Date: March 2025	Drawn By: KE	Job No: 11045	

APPENDIX A: ACOUSTIC TERMINOLOGY

Noise is defined as unwanted sound. The range of audible sound is from 0 to 140 dB. The frequency response of the ear is usually taken to be around 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dBA weighting. This is an internationally accepted standard for noise measurements.

For variable sources, such as traffic, a difference of 3 dBA is just distinguishable. In addition, a doubling of traffic flow will increase the overall noise by 3 dBA. The 'loudness' of a noise is a purely subjective parameter, but it is generally accepted that an increase/ decrease of 10 dBA corresponds to a doubling/ halving in perceived loudness.

External noise levels are rarely steady, but rise and fall according to activities within an area. In attempt to produce a figure that relates this variable noise level to subjective response, a number of noise indices have been developed. These include:

- i) The L_{Amax} noise level

This is the maximum noise level recorded over the measurement period.

- ii) The L_{Aeq} noise level

This is "equivalent continuous A-weighted sound pressure level, in decibels" and is defined in British Standard BS 7445 as the "value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval, T , has the same mean square sound pressure as a sound under consideration whose level varies with time".

It is a unit commonly used to describe construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.

iii) The L_{A10} noise level

This is the noise level that is exceeded for 10% of the measurement period and gives an indication of the noisier levels. It is a unit that has been used over many years for the measurement and assessment of road traffic noise.

iv) The L_{A90} noise level

This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during the quieter periods. It is often referred to as the background noise level and is used in the assessment of disturbance from industrial noise.

APPENDIX B: ENVIRONMENTAL NOISE MEASUREMENTS

