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75 – 77 LONDON STREET, READING
NOISE ASSESSMENT

Technical Report: R11802-1 Rev 0

Date: 13th July 2026

For: The Keen Partnership
The Courtyard
Edinburgh Road
Reading
RG30 2UA

24 Acoustics Document Control Sheet

Project Title: 75 – 77 London Street, Reading – Noise Assessment

Report Ref: R11802-1 Rev 0

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For and on behalf of 24 Acoustics Ltd				

Document Status and Approval Schedule

Revision	Description	Prepared By	Reviewed and Approved By
0	Approved for issue	Beatriz Nogueira	Steve Gosling

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1.0 INTRODUCTION

- 1.1 Planning permission has been granted for a residential development at 75 – 77 London Street, Reading with conditions (reference 220244). The Keen Partnership has appointed 24 Acoustics Ltd to undertake a noise assessment in line with requirements of condition 11. Condition 11 relates to external noise impact on new residents, stating:

"No development hereby permitted shall commence on site until a detailed scheme, informed by an assessment of the current noise environment, for protecting the dwellings from the external noise environment of the area has been submitted to and approved, in writing, by the Local Planning Authority. The scheme itself shall be designed, specified and constructed so that the sound insulation performance of the structure and the layout of the dwellings are such that the indoor ambient noise levels do not exceed the values detailed in Table 4 of BS 8233:2014 and designed to mitigate the LMAX value stated in the approved assessment. Where opening windows will lead to an internal noise level increase of 5 dBA or greater above BS 8233:2014 recommended internal levels, the scheme shall include provision of alternative mechanical ventilation with minimum performance equivalent to a mechanical heat recovery (MVHR) system with cool air bypass as an alternative means of cooling and ventilation. Noise from the system should not result in BS8233 internal levels being exceeded."

- 1.2 This report presents the results of the assessment, following noise measurements undertaken between 17th and 25th June 2026.
- 1.3 All noise levels in this report are presented in dB relative to 20µPa.

2.0 SITE DESCRIPTION

- 2.1 Site surroundings comprise residential flats and commercial units. The site location is shown in Figure 1.
- 2.2 The scheme includes the demolition of buildings at the rear portion of the site (former Olympia Hall), the erection of 2 blocks comprising 12 flats, as well as the conversion of ground floor of 75-77 London Street to 3 flats. A site layout is shown in Figure 2.
- 2.3 The flats at 75-77 will be part of a listed building, and therefore the façade character must be protected.

3.0 CRITERIA

Planning Condition 11

- 3.1 Condition 11 of the planning approval granted for the site (reference 220244) relates to external noise impact on new residents, stating:

"No development hereby permitted shall commence on site until a detailed scheme, informed by an assessment of the current noise environment, for protecting the dwellings from the external noise environment of the area has been submitted to and approved, in writing, by the Local Planning Authority. The scheme itself shall be designed, specified and constructed so that the sound insulation performance of the structure and the layout of the dwellings are such that the indoor ambient noise levels do not exceed the values detailed in Table 4 of BS 8233:2014 and designed to mitigate the LMAX value stated in the approved assessment. Where opening windows will lead to an internal noise level increase of 5 dBA or greater above BS 8233:2014 recommended internal levels, the scheme shall include provision of alternative mechanical ventilation with minimum performance equivalent to a mechanical heat recovery (MVHR) system with cool air bypass as an alternative means of cooling and ventilation. Noise from the system should not result in BS8233 internal levels being exceeded."

BS 8233 and World Health Organisation

- 3.2 BS 8233:2014 [Reference 1] 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.
- 3.3 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."
- 3.4 The World Health Organisation (WHO) [Reference 2] 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'.

4.0 ENVIRONMENTAL NOISE MEASUREMENTS

Measurement Instrumentation and Procedure

- 4.1 Environmental noise measurements were undertaken at the site between 17th and 25th June 2026 in order to establish existing ambient noise levels.
- 4.2 Noise measurements were undertaken at locations representative of proposed dwelling façades, as described below:
- Location 1: window at 1st floor of 75 London Street, facing the street. .
 - Location 2: rear of the site, near the Olympia Hall entrance at 1st floor height. At approximately 20 metres from East Street
- 4.3 The monitoring locations are illustrated in Figure 1.
- 4.4 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 3]. All noise measurements were undertaken in free-field conditions, using the following equipment:
- 2 no. Rion (Class 1) precision sound level meter Type NL52;
 - Brüel and Kjær acoustic calibrator Type 4231.
- 4.5 The instrumentation was equipped with environmental microphone protection. The instruments were powered by external batteries and stored in weatherproof cases. 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.
- 4.6 The weather conditions throughout the survey period were dry with wind speeds lower than 5 m/s.

Noise Measurement Results

- 4.7 The measured free-field ambient (L_{Aeq}) data values have been averaged to generate 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.
- 4.8 The measured noise levels at locations 1 and 2 are summarised in Tables 1 and 2 respectively, with full results shown graphically in Appendix B.

Date	Sound Pressure Level (dB)		
	Daytime (07:00 to 23:00)	Night-time (23:00 to 07:00)	
	L _{Aeq} , 16 hour	L _{Aeq} , 8 hour	Typical L _{Amax} , f
Wednesday 17/6/2026	67	59	76
Thursday 18/6/2026	66	60	80
Friday 19/6/2026	67	62	79
Saturday 20/6/2026	66	60	77
Sunday 21/6/2026	66	58	76
Monday 22/6/2026	66	59	78
Tuesday 23/6/2026	67	59	78
Representative	67	60	78

Table 1: Measured Noise Levels at Location 1

Date	Sound Pressure Level (dB)		
	Daytime (07:00 to 23:00)	Night-time (23:00 to 07:00)	
	L _{Aeq} , 16 hour	L _{Aeq} , 8 hour	Typical L _{Amax} , f
Wednesday 17/6/2026	55	42	63
Thursday 18/6/2026	50	42	63
Friday 19/6/2026	51	42	62
Saturday 20/6/2026	50	41	63
Sunday 21/6/2026	48	43	64
Monday 22/6/2026	51	44	63
Tuesday 23/6/2026	50	48	68
Representative	52	43	63

Table 2: Measured Noise Levels at Location 2

5.0 CALCULATIONS AND ASSESSMENT

- 5.1 Calculations have been undertaken using the measured noise levels to determine noise reduction requirements for the external façade. The calculations are based on the floor plans and elevations provided by The Keen Partnership on 3rd February 2026.
- 5.2 Non-glazed elements of the façade shall be designed and specified to achieve a minimum sound insulation performance of 52 dB R_w. This required performance is readily achieved by cavity masonry constructions.

Glazing

- 5.3 The minimum required sound reduction performances for glazing and where they apply are stated in Table 3.

Glazing	Minimum SRI (dB) per Octave Band Centre Frequency (Hz)					
	125	250	500	1k	2k	4k
Bedrooms fronting London Street	28	29	33	42	45	52
All other habitable rooms	24	20	25	35	38	35

Table 3: Minimum Glazing Sound Insulation Performance

- 5.4 In making a comparison with the values in Table 2, it is important that suppliers provide glazing figures that 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.
- 5.5 In order to assist with the selection process, the following glazing configurations, if installed properly, would be capable of achieving the required sound reduction performance:

Bedrooms fronting London Street - Minimum 39 dB R_w

Heritage secondary glazing (eg, Selectaglaze / Storm Windows) 6 mm thick laminated glass, set off from primary glazing by a minimum of 60 mm

All other habitable rooms - Minimum 31 dB R_w

Standard double glazing

4 mm glass: 12 mm cavity (minimum): 4 mm glass

MVHR

- 5.6 Calculations have been undertaken to determine internal noise levels at habitable rooms with windows open. The calculations have assumed a loss of 13 dBA from a fully open window to bedrooms, in order to achieve the best practicable ventilation rates.
- 5.7 Internal noise levels at bedrooms fronting London Street with windows open are likely to be 5 dBA higher than the BS 8233:2014 recommended limits. As mentioned above, it is recommended that an alternative means of ventilation (such as MVHR) is provided to these bedrooms.
- 5.8 For all other façades, using open windows will lead to acceptable internal noise levels.

Ventilation

- 5.9 No trickle ventilators should be used for habitable rooms fronting London Street. The rooms will require System 4 ventilation (MVHR) with summer bypass [Reference 4].
- 5.10 For all other façades, trickle ventilators shall be selected to meet the minimum required sound reduction performances as stated in Table 4.

Trickle Ventilator	Minimum $D_{n,e}$ (dB) per Octave Band Centre Frequency (Hz)					
	125	250	500	1k	2k	4k
All other habitable rooms	23	26	29	30	33	33

Table 4: Minimum Ventilator Sound Insulation Performance

- 5.11 Note that the stated minimum performance values for each ventilation unit are for the open vent and calculations assume two ventilators per habitable room.
- 5.12 In making a comparison with the ventilation acoustic specifications in Table 3, it is important that the vent manufacturer's test data is the result of laboratory tests undertaken on the specific model, size and free area of the proposed unit. The tests must be undertaken with the vent open and installed in a manner that is representative of the proposed installation.
- 5.13 For guidance purposes, the following ventilator type would be capable of achieving the required sound reduction performances:

All habitable rooms which do not front London Street - Minimum $D_{n,e,w}$ 31 dB

- 5.14 The above assessment demonstrates that the internal noise level criteria as outlined in Section 3 and Planning Condition 11 will be readily achievable, subject to the appropriate specification and design of the external façade elements.

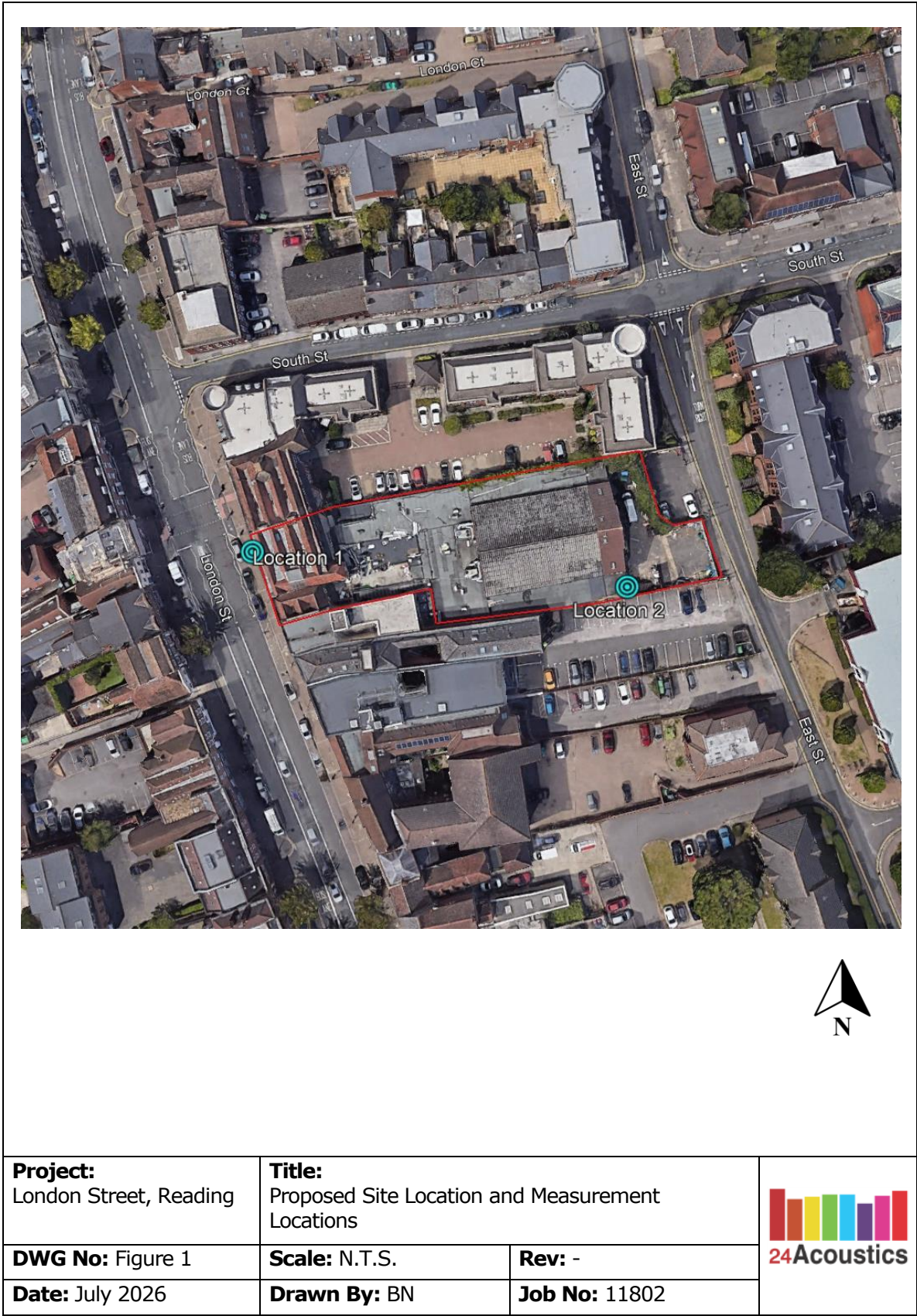
6.0 CONCLUSIONS

- 6.1 The Keen Partnership has appointed 24 Acoustics Ltd to undertake a noise assessment in relation to a new residential scheme on 75-77 London Street, Reading.
- 6.2 Noise measurements have been carried out at the site to determine the prevailing levels during daytime and night-time periods.
- 6.3 Recommendations have been provided for the acoustic performance of glazing and ventilation to habitable rooms. It is concluded that with the recommended measures given, including MVHR with summer bypass, noise within all habitable rooms would comply with planning condition 11.
- 6.4 On the above basis, an appropriate acoustic environment will be provided to the proposed residential properties and condition 11 can be discharged.

REFERENCES

1. British Standards Institution. *British Standard 8233: Guidance on sound insulation and noise reduction for buildings*, 2014.
2. World Health Organisation. *Guidelines for Community Noise*, 1999.
3. British Standards Institution. *British Standard 7445: 1991 Description and measurement of environmental noise Part 2 - Acquisition of data pertinent to land use*.
4. Building Regulations. *Approved Document F – Ventilation*, 2021.

FIGURES





SITE PLAN SHOWING:

- PART 1 - LISTED GEORGIAN BUILDINGS REAR EXTENSION
- PART 2 - PROPOSED NEW BUILD FLATS

NEW BUILD FLATS - 12 FLATS TOTAL:

Ground Floor 2x 3b5p / 2x 2b4p
First Floor 4x 2b4p
Roof 4x 2b3p



Project: London Street, Reading	Title: Site Layout		
DWG No: Figure 2	Scale: N.T.S.	Rev: 2	
Date: July 2026	Drawn By: BN	Job No: 11802	

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

