



**1 Christchurch Road
Reading**

Acoustic Report

19 November 2025

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SUMMARY

It is proposed to convert the doctor's surgery at 1 Christchurch Road in Reading to create a new residential property.

Reading Borough Council has specified acoustic requirements to be achieved in the proposed dwelling, requiring a noise survey and assessment of external noise levels to be undertaken.

A noise survey has been undertaken to determine noise levels affecting the site due to environmental noise.

The noise survey results have been assessed in relation to the Reading Borough Council internal noise level standards.

The proposed external façade constructions have been assessed against the requirements.

The Reading Borough Council internal noise requirements should be achievable in the proposed rooms facing Christchurch Road via the addition of secondary glazing.

Internal noise levels should be acceptable in rooms with no line of sight of Christchurch Road by making good the existing glazing.

The internal noise level limits are predicted to be exceeded with windows open, therefore mechanical ventilation will be required throughout the development.

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1.0 Introduction

It is proposed to convert the doctors surgery at 1 Christchurch Road in Reading to create a new residential property. Reading Borough Council has specified acoustic requirements to be achieved in the proposed dwelling, requiring a noise survey and assessment of external noise levels to be undertaken.

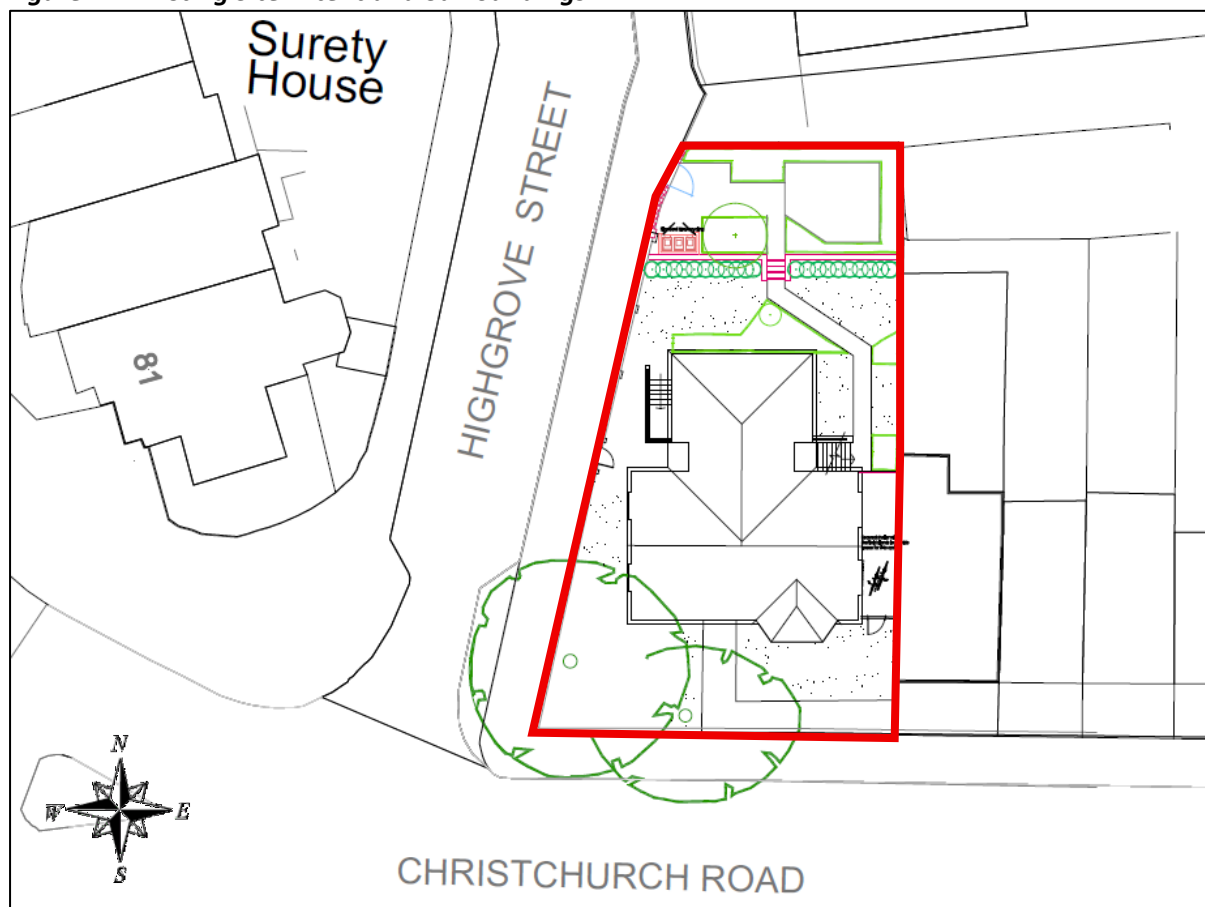
The following report presents the methodology and results of an environmental noise survey carried out at the site and a subsequent assessment to assess the potential impact of noise on the proposed dwelling.

2.0 Description of Site and Proposals

The site is currently occupied by a doctor's surgery and is located on the northern side of Christchurch Road to the south-east of Reading in a predominantly residential area. The site is bounded by Christchurch Road to the south, Highgrove Street to the west, and residential properties to the east and north.

Figure 2.1 shows the approximate existing site extent in red in relation to the surrounding area.

Figure 2.1 Existing Site Extent and Surroundings



It is proposed to convert the building to create a single residential dwelling.

3.0 Reading Borough Council Requirements

Reading Borough Council has advised the following in relation to the proposals:

“A noise assessment is likely to be required to determine whether the insulation is sufficient for reasonable internal noise levels for residents. The property is located on a relatively busy junction.

The noise assessment will be assessed against the recommendations for internal noise levels within dwellings and external noise levels within gardens / balconies in accordance with BS 8233:2014 and WHO guidelines for Community Noise. The report should identify any mitigation measures that are necessary to ensure that the recommended standard is met.

The noise assessment data should also include noise events (L_{AMax}) and the design should aim to prevent noise levels from noise events exceeding 45dB within bedrooms at night, as this is linked with sleep disturbance.”

British Standard (BS) 8233: 2014 “Guidance on sound insulation and noise reduction for buildings” is the industry standard for ‘desirable’ internal noise level standards for dwellings, as shown in Table 3.1.

Table 3.1 BS 8233 Desirable Internal Noise Levels

Activity	Location	07:00 to 23:00 (hours)	23:00 to 07:00 (hours)
Resting	Living room	35 dB L _{Aeq,16hour}	-
Dining	Dining room/area	40 dB L _{Aeq,16hour}	-
Sleeping (daytime resting)	Bedroom	35 dB L _{Aeq,16hour}	30 dB L _{Aeq,8hour}

The standard advises that the limits shown in Table 3.1 could be increased by 5 dB whilst still achieving ‘reasonable’ conditions.

In relation to individual noise events during night-time periods, the standard advises the following:

“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_r}, depending on the character and number of events per night.”

In relation to night-time maximum noise events, we have considered the World Health Organisation (WHO) document “Guidelines for Community Noise” (1999), which advises the following:

“For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45dB L_{AMax} more than 10-15 times per night (Vallet & Vernet 1991).”

We have therefore considered the above standards in our noise survey methodology and noise assessment.

4.0 Noise Survey

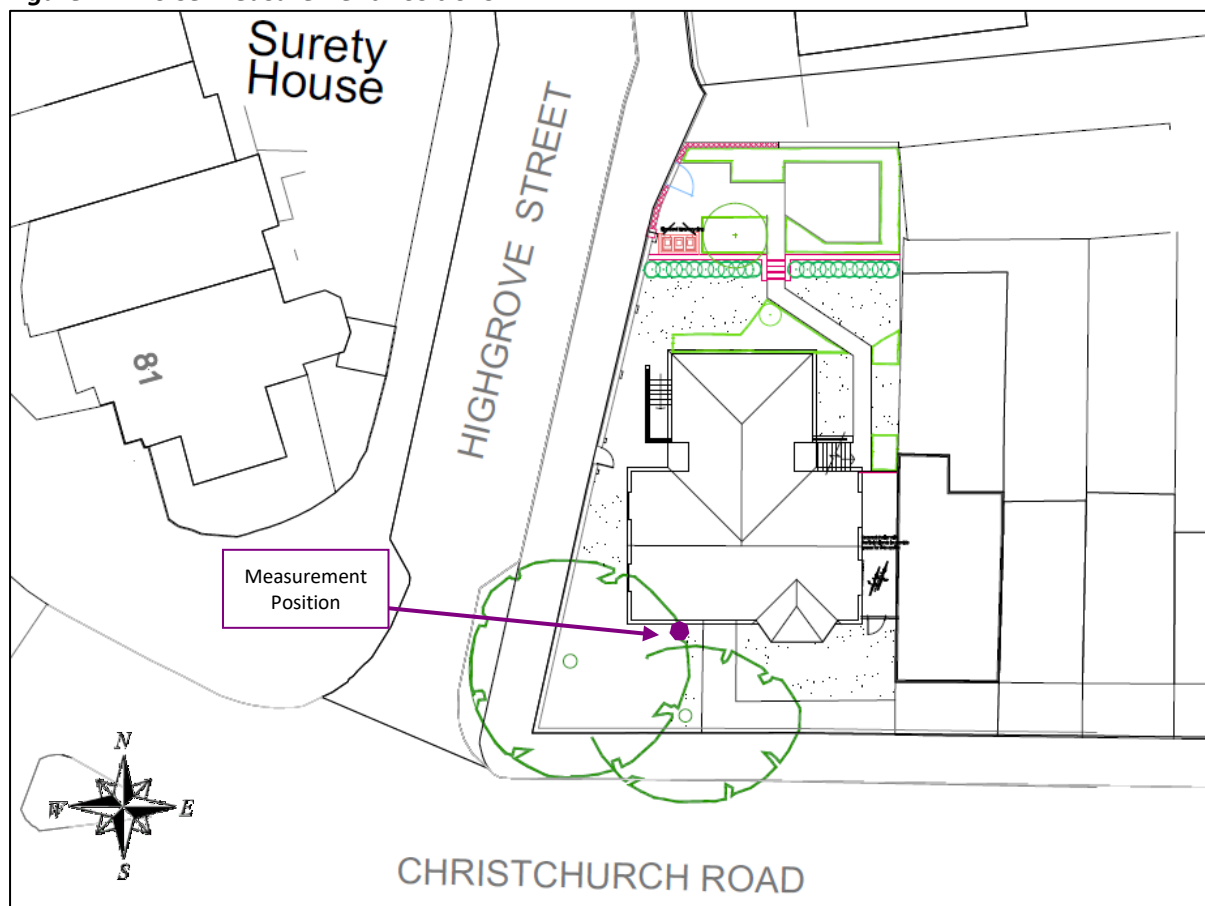
4.1 Noise Survey Methodology

An unmanned environmental noise survey was undertaken over a 4-day period between Thursday 25 September 2025 and Monday 29 September 2025.

The noise survey period was selected to determine typical noise levels affecting the proposed development site during the daytime and night-time, over weekday and weekend periods, when the proposed dwelling will be occupied.

The noise survey was undertaken with the measurement microphone attached to a balcony at first-floor level on the southern façade of the building, indicated **purple** in on Figure 4.1.

Figure 4.1 Noise Measurement Positions



The measurement position was selected as being representative of worst-case road traffic noise levels affecting the building façades.

The equipment used for the noise survey is summarised in Table 4.1.

Table 4.1 Description of Equipment used for Noise Survey

Item	Make & Model	Serial Number
Type 1 automated logging sound level meter	Norsonic 140	1406015
Type 1 ½" microphone	Norsonic 1225	168230
Calibrator	01 dB CAL 31	87267

L_{Amax} and L_{Aeq} sound pressure levels were measured over contiguous 15-minute intervals throughout the noise survey period.

Due to the nature of the noise survey, i.e. unmanned, we are unable to comment on the weather conditions throughout the entire noise survey period. However, at the beginning of the survey period, conditions were dry with a clear sky and light wind. We understand these conditions were representative of the remainder of the survey period and are considered appropriate for undertaking environmental noise measurements.

The noise monitoring equipment was calibrated before and after the noise survey period. No significant change was found. Laboratory equipment calibration certificates can be provided upon request.

4.2 Noise Survey Results

Appendix B presents time history graphs showing the L_{Amax} and L_{Aeq} sound pressure levels measured throughout the noise survey (shown as 15-minute periods).

As the measurement microphone was located approximately 1m from an existing façade, a correction of -3 dB has been applied to the measurement results so as to replicate free-field conditions, in accordance with BS 8233: 2014.

We would consider the measured levels to be reasonable, taking into account the location of the measurement position and the dominant nearby noise sources.

4.3 Observations

At the beginning and end of the survey period, the daytime noise climate at the measurement position was noted to be dominated by road traffic using Christchurch Road to the south of the site.

5.0 External Noise Intrusion

This section presents our assessment of the measured external noise levels in relation to the Reading Borough Council requirements.

5.1 External Noise Levels

Based on the noise survey results, the worst-case external noise levels affecting the proposed residential facades are presented in Table 5.1.

Table 5.1 Noise Levels affecting Proposed Façades

Daytime L_{Aeq} (16 hour) (dB)	Night-time L_{Aeq} (8 hour) (dB)	Night-time L_{Amax} (15 minute) (dB) (10th highest)
63	57	74

5.2 External Façade Acoustic Requirements

Our calculations indicate that the Reading Borough Council internal noise requirements should be achievable in the proposed rooms facing Christchurch Road via the addition of secondary glazing. The combination of the existing glazing (made good) and the additional secondary glazing shall achieve a sound insulation performance of at least R_w 45 dB.

Appendix C at the rear of this report presents a datasheet for the proposed secondary glazing.

Internal noise levels should be acceptable in rooms with no line of sight of Christchurch Road by making good the existing glazing.

Non-glazed façade areas are assumed to achieve at least R_w 52 dB. The external facades consist of masonry walls, which are expected to achieve this requirement.

5.3 Ventilation

Table 5.2 presents the predicted internal noise levels assuming a standard 13 dB reduction via an open window, in comparison with the Reading Borough Council requirements.

Table 5.2 Predicted Internal Noise Levels with Open Windows

Scenario	Daytime	Night-time
	L_{Aeq} (16 hour) (dB)	L_{Aeq} (8 hour) (dB)
Predicted Internal Noise Level	50	44
BS 8233: 2014 Limit + 5 dB	40	35

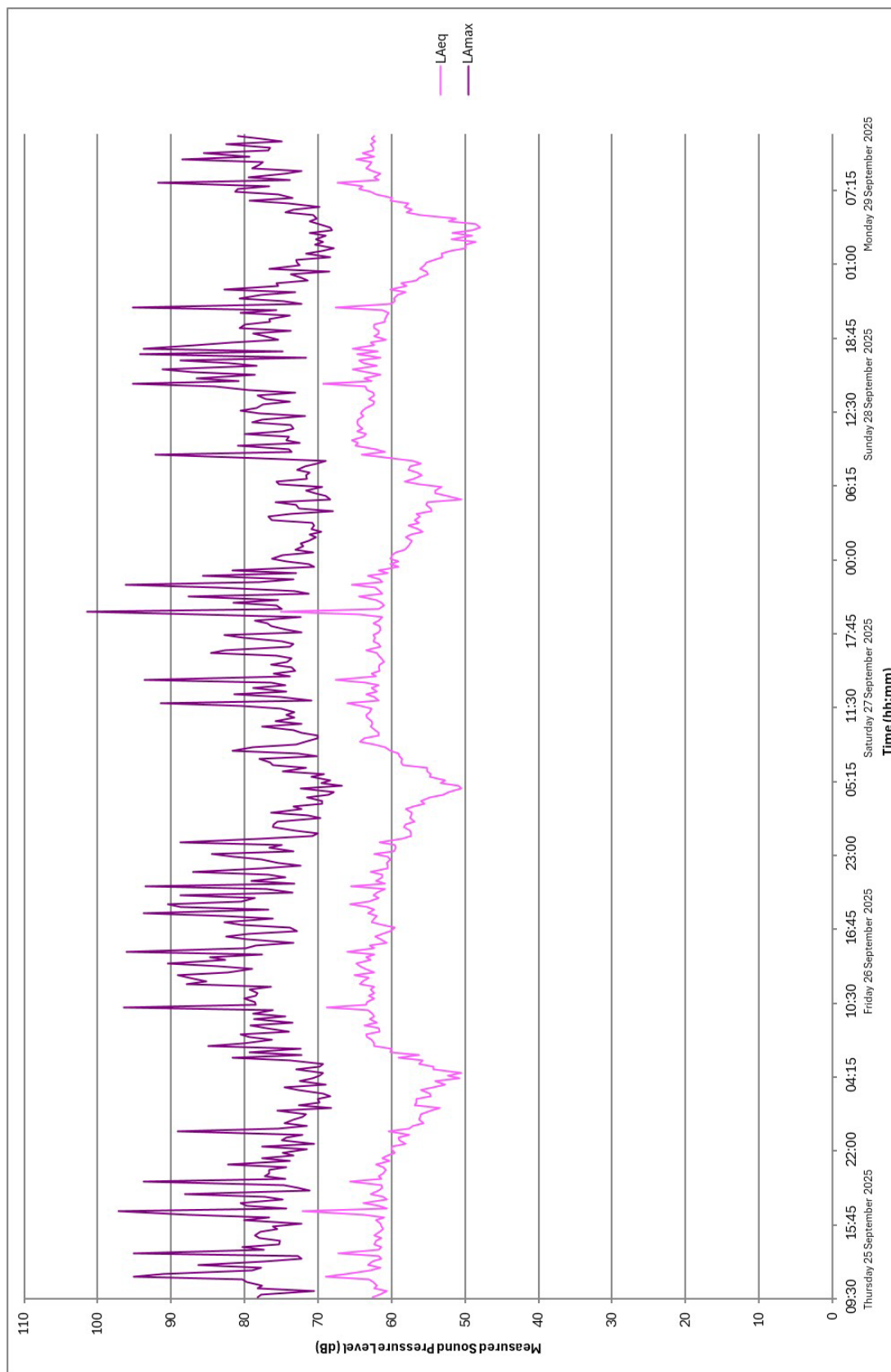
It can therefore be seen that the limits are predicted to be exceeded, therefore in accordance with the standard Reading Borough Council requirements, mechanical ventilation will be required.

Internal noise levels associated with the mechanical ventilation system shall be limited so as not to exceed the noise limits specified by BS 8233: 2014 for living rooms and bedrooms.

Appendix A – Acoustic Terminology

Parameter	Description
Decibel (dB)	A logarithmic scale representing the sound pressure or power level relative to the threshold of hearing (20×10^{-6} Pascals).
Sound Pressure Level (L_p)	The sound pressure level is the sound pressure fluctuation caused by vibrating objects relative to the threshold of hearing.
A-weighting (L_A or dBA)	The sound level in dB with a filter applied to increase certain frequencies and decrease others to correspond with the average human response to sound.
L_{Amax}	The A-weighted maximum noise level measured during the measurement period.
$L_{Aeq,T}$	The A-weighted equivalent continuous noise level over the time period T (typically T = 16 hours for daytime periods, T = 8 hours for night-time periods). This is the sound level that is equivalent to the average energy of noise recorded over a given period.
L_{A90} (15 min)	The noise level exceeded for 90% of the time (also referred to as the background noise level), measured over a 15-minute period
R_w	The weighted (w) sound reduction index (R), a single figure rating of the laboratory airborne sound insulation performance of a construction, usually measured across the frequency range 100-3150Hz. The higher the value, the greater the sound insulation, and the more onerous the requirement.
$D_{n,e,w}$	The weighted (w) element (e) normalised (n) level difference (D), a single figure indicator of the ability of a small building element (such as a trickle ventilator) to reduce sound. The higher the value, the greater the sound reduction, and vice versa.

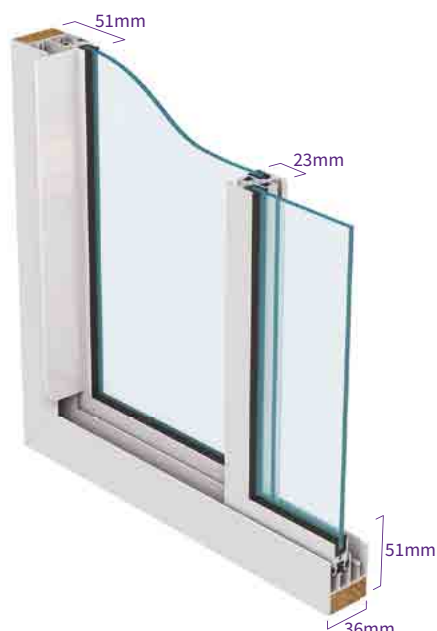
Appendix B – Time History Graph



Appendix C – Secondary Glazing Datasheet



A slim and versatile horizontal sliding system that provides easy access to the external window for ventilation.



FEATURES

- Available with 2, 3 or 4 sliding sashes (panels)
- Sashes slide on glide pads (ref R1)
- Full height, integral projecting handle (ref H1)
- 23mm wide interlock stile
- Twin brush seals ensure high sealing efficiency
- Fixings concealed within the frame – trims not required
- Sashes are removable for maintenance and cleaning
- Frames may be linked with a colour matched aluminium transom/mullion section

DIMENSIONS

Recommended maximum frame

Format	Height (mm)	Width (mm)
2 PANES	2200	2800
3 PANES	2200	4200
4 PANES	2200	4900

Maximum sash (h)2200mm x (w)1400mm, minimum sash (h)350mm x (w)250mm

Overall dimensions are subject to a maximum sash weight of 40kg and a risk assessment covering window location and type of end user

Sash height to width ratio should not normally exceed 4:1

FRAME COLOUR

Stock finish is white HIPCA 9910 semi-gloss

Any standard powder paint, wood grain finish or anodised finish to order

OPTIONS

Glazing	4mm to 6.8mm
Frames	Heavy duty interlock stile Heavy duty box interlock stile Low profile running track to clear inward opening windows (ref F2) Triple track allowing 3 sashes to stack at one end (ref F3) Curved jambs- minimum radius 450mm
Hardware	R2 Medium duty ball-race with nylon tyre
Ironmongery (see page 44/45)	H3 Recessed finger pull for contra-sliding L1 Shoot-bolt L2 Lockable fitch catch L4 Plunge lock L13 Sliding latch L28 'U' channel track restrictor