Our ref: NIA/10591/22/10730/v1/Upper Road, Batley

24th June 2024

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Dear Sir

NOISE IMPACT ASSESSMENT FOR PROPOSED RESIDENTIAL DEVELOPMENT
THE FORMER OLD SHOULDER OF MUTTON PUBLIC HOUSE, 156 UPPER ROAD, BATLEY, WF17 7BJ

1.00 INTRODUCTION

1.01 Environmental Noise Solutions has been commissioned by Mr Jordan Buchan to carry out a noise impact assessment for a proposed residential development at the former Old Shoulder of Mutton public house (hereafter referred to as the subject site).

1.02 Planning permission (ref: 2022/62/91343/E) for the development was granted by Kirklees Council in July 2022 subject to conditions. Condition 16 relates to the control of noise as follows:

> 16. Before construction work commences a report specifying the measures to be taken to protect the development from noise from all significant noise sources that are likely to affect the proposed development including road traffic shall be submitted to and approved in writing by the Local Planning Authority.
>
> The report shall:
> a) Determine the existing noise climate
> b) Predict the noise climate in gardens (daytime), bedrooms (night-time) and other habitable rooms of the development
> c) Detail the proposed attenuation/design necessary to protect the amenity of the occupants of the new residences (including ventilation if required).
>
> The development shall not be occupied until all works specified in the approved report have been carried out in full and such works shall be thereafter retained.

1.03 The objectives of the noise impact assessment were therefore to:

- Determine the ambient noise climate at the subject site during the daytime and night time
- Assess the potential impact of the ambient noise climate on the proposed residential development with reference to relevant guidelines
- Provide recommendations for a scheme of sound attenuation works, as necessary

1.04 This report details the methodology and results of the assessment. It has been prepared to aid in the discharge of Condition 16 of Planning Permission ref: 2022/62/91343/E.

1.05 This report has been prepared for Mr. Jordan Buchan for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to the report should consult Mr. Jordan Buchan and ENS as to the extent to which the findings may be appropriate for their use.

1.06 A glossary of acoustic terms used in the main body of the text is contained in Appendix 1.

2.00 SUBJECT SITE SETTING AND PROPOSED DEVELOPMENT

2.01 The subject site comprises the former Old Shoulder of Mutton Public House (an existing two storey building) and associated car park. It is located in an urban setting in Batley, to the north-west of Dewsbury, and is bound by (see Appendix 2 for site location plan):

- The A638 Halifax Road to the west
- Upper Road to the south
- Existing residential dwellings to the north and east

2.02 Development proposals are to convert the existing public house into two separate residential dwellings and to erect a single new-build dwelling to the rear of the existing building.

2.03 The ambient noise climate at the subject site is characterised by road traffic on the A638 Halifax Road and (to a lesser extent) Upper Road.

3.00 BASELINE NOISE SURVEY

3.01 In order to establish the ambient noise levels at the subject site, baseline noise surveys were carried out on Thursday 6th October through to Friday 7th October 2022 and on Monday 10th October 2022.

3.02 For the purpose of the assessment, the following noise monitoring positions were adopted (the approximate location of the noise monitoring positions is contained in Appendix 2 for reference):

- MP1 was located on the western façade of the former public house at first-floor level and at 1 metre from the building façade

- MP2 was located on the eastern façade of the former public house at first-floor level and at 1 metre from the building façade

- MP3 was located circa 20 metres from Upper Road at 1.5 metres above ground level (AGL)

- MP4 was located at the southern façade of the proposed new-build dwelling at circa 10 metres from Upper Road at 4 metres AGL

3.03 Noise measurements were undertaken using Bruel & Kjaer 2250 Type 1 integrating sound level meters. The measurement system calibration was verified immediately before the commencement of the measurement sessions and again at the end, using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration level was noted. Weather conditions throughout the survey were appropriate for monitoring.

3.04 The table overleaf contains a summary of the measurement data for each measurement session, at each measurement position, rounded to the nearest decibel. As noise measurements at MP1 and MP2 were made at 1 metre from the existing building façade, a –3 decibel façade enhancement correction has been applied to the measured levels in order to establish the free field level.

Table 3.1 – Summary of Noise Measurement Data

Position	Date	Time	L_{Aeq} (dB)	L_{A90} (dB)	L_{A10} (dB)	Comment
MP1	10/10/22	1116–1216	68	59	70	Road traffic on Halifax Road
		1216–1316	67	58	70	
		1316–1416	67	57	70	
	06/10/22	2041–2300	66	51	70	
	06-07/10/22	2300–0622	62	39	66	Road traffic on Halifax Road (typically 83 dB L_{AFMax})
Daytime and night-time ambient noise level circa 67 dB $L_{Aeq\ (0700\text{-}2300)}$ and 62 dB $L_{Aeq\ (2300\text{-}0700)}$ respectively Typical maximum noise level 83 dB L_{AFMax} during the night-time						
MP2	06/10/22	1607–1707	57	51	59	Road traffic on Halifax Road
		2035–2300	52	43	54	
	06-07/10/22	2300–0622	49	35	52	Road traffic on Halifax Road (typically 70 dB L_{AFMax})
Daytime and night time ambient noise level circa 57 dB $L_{Aeq,\ T}$ and 49 dB $L_{Aeq,T}$ respectively Typical maximum noise level 70 dB L_{AFMax} during the night-time						
MP3	06/10/22	1629–1644	53	49	56	Road traffic on Halifax Road
Daytime ambient noise level circa 50 dB $L_{Aeq,T}$						
MP4	06/10/22	1611–1627	56	48	55	Road traffic on Halifax Road
Daytime ambient noise level circa 56 dB $L_{Aeq,T}$						

3.05 The noise environment at the subject site was observed to be dominated by road traffic on Halifax Road.

3.06 Daytime and night-time ambient noise levels at MP1 were measured at **67 dB $L_{Aeq\ (0700\text{-}2300)}$** and **62 dB $L_{Aeq\ (2300\text{-}0700)}$** respectively, with maximum noise levels typically **83 dB L_{AFMax}** during the night-time.

3.07 Noise levels at the rear of the site were circa 10-13 dB lower due to increased distance from the A638 Halifax Road.

4.00 NATIONAL PLANNING POLICY FRAMEWORK AND OTHER RELEVANT GUIDANCE

National Planning Policy Framework

4.01 The National Planning Policy Framework (NPPF) was updated in July 2021 and sets out the Government's planning policies for England and how these are expected to be applied.

4.02 Where issues of noise impact are concerned the NPPF provides brief guidance in paragraph 174 where it states that planning policies and decisions should contribute to and enhance the natural and local environment by:

'preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of…..noise pollution'.

4.03 Paragraph 185 advises that:

'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…..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'.

4.04 The NPPF also refers to the DEFRA publication, the Noise Policy Statement for England (NPSE) which reinforces and supplements the NPPF.

Noise Policy Statement for England

4.05 The Noise Policy Statement for England (NPSE) sets out the long-term vision of promoting good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development. This long-term vision 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.
- Where possible, contribute to the improvement of health and quality of life.

4.06 NPSE describes the following levels at which noise impacts may be identified:

- NOEL – No Observed Effect Level. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected.
- SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.

Planning Practice Guidance – Noise

4.07 Planning Practice Guidance (PPG) is an online resource (last updated 2019) which provides additional guidance and elaboration on the NPPF. It advises that 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.
- Whether or not a good standard of amenity can be achieved.

4.08 In line with the Explanatory Note of the NPSE, the PPG references 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:

'…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'.

4.09 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'.

<u>ProPG Planning and Noise: New Residential Development</u>

4.10 ProPG Planning and Noise: New Residential Development (ProPG) was published in May 2017 by the Association of Noise Consultants, Institute of Acoustics and the Chartered Institute of Environmental Health.

4.11 Stage 2: Element 2 of ProPG sets indoor ambient noise levels for residential dwellings based on the guidance contained in British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' (BS 8233) (see table below).

Table 4.1 – Indoor Ambient Noise Levels in Dwellings

Activity	Location	Good Indoor Ambient Noise Levels	
Resting	Living Room	35 dB $L_{Aeq\ (0700–2300)}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq\ (0700–2300)}$	30 dB $L_{Aeq\ (2300–0700)}$ 45 dB $L_{AFMax\ (2300–0700)}$

4.12 Note 4 to the above table states: *''A guideline value may be set in terms of SEL or $L_{Amax,F}$, depending on the character and number of events per night. Sporadic noise events could require separate values. In most circumstances in noise sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night.'*

4.13 Note 5 to the above table states: *'Where it is not possible to meet internal target levels with windows open, internal noise levels can be assessed with windows closed, however any façade openings used to provide whole dwelling ventilation (e.g. trickle ventilators) should be assessed in the "open" position and, in this scenario, the internal L_{Aeq} target levels should not normally be exceeded, subject to the further advice in Note 7'*.

4.14 This is consistent with the guidance contained within the PPG, which states that:

'… consideration should also be given to whether adverse internal effects can be completely removed by closing windows and, in the case of new residential development, if the proposed mitigation relies on windows being kept closed most of the time. In both cases a suitable alternative means of ventilation is likely to be necessary. Further information on ventilation can be found in the Building Regulations'.

4.15 On the basis of the above, the following criteria (with windows closed and an alternative means of ventilation provided) are considered appropriate for the subject site:

- ≤ 35 dB $L_{Aeq\ (0700\text{-}2300)}$ in habitable rooms during the daytime
- ≤ 30 dB $L_{Aeq\ (2300\text{-}0700)}$ in bedrooms during the night time
- 45 dB L_{AFMax} not regularly exceeded in bedrooms during the night time

4.16 With regard to external amenity, ProPG reflects the advice in BS 8233, which 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 $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ 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.'

5.00 SOUND ATTENUATION SCHEME PROPOSALS

5.01 The design noise levels at the road-fronting elevation of the former public house building are as follows:

- **67 dB $L_{Aeq\ (0700\text{-}2300)}$** during the daytime
- **62 dB $L_{Aeq\ (2300\text{-}0700)}$** (and typically **83 dB L_{AFMax}**) during the night-time

5.02 The design noise levels at the rear of the subject site (representative of the new proposed dwelling) are as follows:

- **57 dB $L_{Aeq\ (0700\text{-}2300)}$** during the daytime
- **49 dB $L_{Aeq\ (2300\text{-}0700)}$** (and typically **70 dB L_{AFMax}**) during the night-time

5.03 In order to calculate the sound insulation requirements for road-fronting habitable rooms the Building Research Establishment (BRE) building envelope insulation calculation spreadsheet was used. This spreadsheet is based on the calculation methodology advocated in BS 8233. The spreadsheet allows input of external noise levels, room dimensions and reverberation time together with parameters for the various elements of the building envelope and calculates the internal noise level in terms of the external noise level metric (L_{Aeq} and L_{AFMax} in this case).

5.04 Due to elevated noise levels from the A638 Halifax Road, it is recommended that the former public house building is provided with a mechanical ventilation strategy.

- An individual room ventilator, such as the Titon Sonair unit

5.05 In dwellings where the air permeability is tighter than (<) 5 $m^3/(h.m)^2$, 2500 mm^2EA background ventilators may be required where MEV or PIV systems are proposed (2 no. vents per habitable room – to be confirmed with the developer). In order to maintain the sound insulation properties of the façade, any trickle vents should be rated at least **42 dB $D_{n,e,w}$** per 2500 mm^2 EA (vent open), such as the Greenwood 2500EAW.AC1, or equivalent.

5.06 An indicative scheme of sound insulation is summarised in Table 5.1 (see Appendix 3 for selected BRE calculation spreadsheets)

Table 5.1 – Scheme of Sound Insulation Works

Location	Noise Level	Internal Criteria	Glazing and Ventilation
Former public house	67 dB $L_{Aeq\ (0700\text{-}2300)}$ 62 dB $L_{Aeq\ (2300\text{-}0700)}$ 83 dB L_{AFMax}	≤ 35 dB $L_{Aeq\ (0700\text{-}2300)}$ ≤ 30 dB $L_{Aeq\ (2300–0700)}$ ≤ 45 dB $L_{AFMax\ (2300–0700)}$	Enhanced double glazing rated at 38 dB R_w+C e.g. 6 / (6-20) / 8.8 Optiphon and mechanical ventilation
New-build dwelling	57 dB $L_{Aeq\ (0700\text{-}2300)}$ 49 dB $L_{Aeq\ (2300\text{-}0700)}$ 70 dB L_{AFMax}	≤ 35 dB $L_{Aeq\ (0700\text{-}2300)}$ ≤ 30 dB $L_{Aeq\ (2300–0700)}$ ≤ 45 dB $L_{AFMax\ (2300–0700)}$	Standard double glazing rated at 28 dB R_w+C e.g. 4 / (6-20) / 4 and acoustic trickle vents

* Acoustic trickle vents rated at least 39 dB $D_{n,e,w}$ per 5000 mm² EA in open position, such as the Greenwood 5000EAW.AC1 (note: 2 no. required per habitable room) – ventilation requirements to be confirmed by developer

5.07 The following points should be noted:

- The glazing recommendations apply to the window within a sealed unit. It is the responsibility of the window supplier to ensure that the window frame does not compromise the performance of the glazing.

- The opening and free area of the ventilation units should be checked by a mechanical service engineer before designs are finalised. Should the equivalent open area be insufficient to meet the minimum requirements of ADF, it may be necessary to increase the number of units per habitable room. Where this applies, the required sound reduction of the ventilation units may need to be increased accordingly

- The ceilings (and side cheeks to the dormer windows) in any room-in-roof habitable areas which require enhanced glazing should be double boarded, with 100 mm (minimum) mineral wool insulation above. The glazing requirements are also applicable to 'Velux' windows.

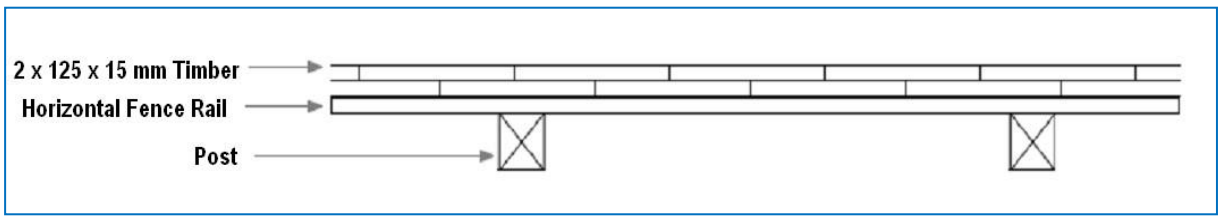
<u>External Amenity (Gardens)</u>

5.08 In order to reduce garden levels as low as practicable, it is recommended that the garden of the road-fronting dwelling is provided with a circa 2-metre-high solid timber fence or brick wall.

5.09 A brick wall of any construction is appropriate, providing there are no gaps in the construction.

5.10 If a solid timber fence is installed, then it should be ensured that it has a mass per unit area of ≥ 10 kg/m². The fence should have no gaps or holes and should be fully sealed at the ground (i.e. include a gravel board).

5.11 An indicative acoustic fence detail is illustrated below. The double-thickness solid timber construction is considered robust and appropriate.



6.00 CONCLUSIONS

6.01 A noise impact assessment has been undertaken for the proposed residential development at the former Old Shoulder of Mutton public house.

6.02 The noise environment at the subject site was observed to be dominated by road traffic on Halifax Road.

6.03 A scheme of sound attenuation works has been developed to protect the proposed residential development from the ambient noise climate.

I trust the foregoing is sufficient for your needs. Should you have any queries regarding the above, please do not hesitate to contact me.

Yours sincerely

Simon Jefferson
AMIOA, Diploma in Acoustics and Noise Control
For Environmental Noise Solutions Limited

Appendix 1
Glossary of Acoustic Terms

Sound Pressure Level (L_p)

The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 µPa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude. Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

$$L_p = 20 \log_{10}(p/p_0)$$

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_0 = reference sound pressure (20 µPa).

A-weighting Network

A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$

The value of the A-weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T, has the same mean-square sound pressure as a sound that varies with time. $L_{Aeq, 16h}$ (07:00 to 23:00 hours) and $L_{Aeq, 8h}$ (23:00 to 07:00 hours) are used to qualify daytime and night time noise levels.

$L_{A10, T}$

The A-weighted sound pressure level in decibels exceeded for 10% of the measurement period, T. $L_{A10, 18h}$ is the arithmetic mean of the 18 hourly values from 06:00 to 24:00 hours.

$L_{A90, T}$

The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T. L_{A90} is typically taken as representative of background noise.

$L_{AF\ max}$

The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

Sound Exposure Level (SEL or L_{AE})

The energy produced by a discrete noise event averaged over one second, no matter how long the event actually took. This allows for comparison between different noise events which occur over different lengths of time.

Weighted Sound Reduction Index (R_W)

Single number quantity which characterises the airborne sound insulation properties of a material or building element over a defined range of frequencies (R_W is used to characterise the insulation of a material or product that has been measured in a laboratory).

Appendix 2
Site Plan and Approximate Noise Monitoring Positions

Appendix 3
BRE Calculation Spreadsheets

Daytime Ambient Noise Levels – Habitable rooms of former public house

BRE

Building Envelope Insulation

Switch to Reverberation Time Calculation

2) Select elements of facade structure, and enter corresponding internal surface area in m^2 OR enter number of vents.

HELP

		Surface area OR number of vents	
Wall 1	Brick/block cavity	5	m^2
Wall 2	None		m^2
Window 1	6 / 6-20 / 8.8 Optiphon	3	m^2
Window 2	None		m^2
Door	None		m^2
Roof/Ceiling	None		m^2
Vent 1	Titon Sonair F+	1	
Vent 2	None		

View/Edit Data

1) Enter room dimensions or volume

Use dimensions

x m

y m

z m

Volume - m^3

OR

Use volume

36 m^3

3) Enter reverberation time of the room.

0.5 seconds

4) Select exterior sound level type

Option (A) User defined spectrum

67 dB LAeq (Day)

View/Edit Data

Option (B) Spectrum shape

Select spectrum shape and enter free field exterior sound level, L_{Aeq} (considering only the octave bands between 125Hz and 2kHz)

L_{Aeq} 67 dB

ISO 717 - 1 (Ctr)

View Data

Internal sound level

L_{Aeq} 30.2 dB

Night-time Maximum Noise Levels – Bedrooms of former public house

BRE

Building Envelope Insulation

Switch to Reverberation Time Calculation

2) Select elements of facade structure, and enter corresponding internal surface area in m^2 OR enter number of vents.

HELP

		Surface area OR number of vents	
Wall 1	Brick/block cavity	5	m^2
Wall 2	None		m^2
Window 1	6 / 6-20 / 8.8 Optiphon	2	m^2
Window 2	None		m^2
Door	None		m^2
Roof/Ceiling	None		m^2
Vent 1	Titon Sonair F+	1	
Vent 2	None		

View/Edit Data

1) Enter room dimensions or volume

Use dimensions

x m

y m

z m

Volume - m^3

OR

Use volume

30 m^3

3) Enter reverberation time of the room.

0.5 seconds

4) Select exterior sound level type

Option (A) User defined spectrum

83 dB LAFMax

View/Edit Data

Option (B) Spectrum shape

Select spectrum shape and enter free field exterior sound level, L_{Aeq} (considering only the octave bands between 125Hz and 2kHz)

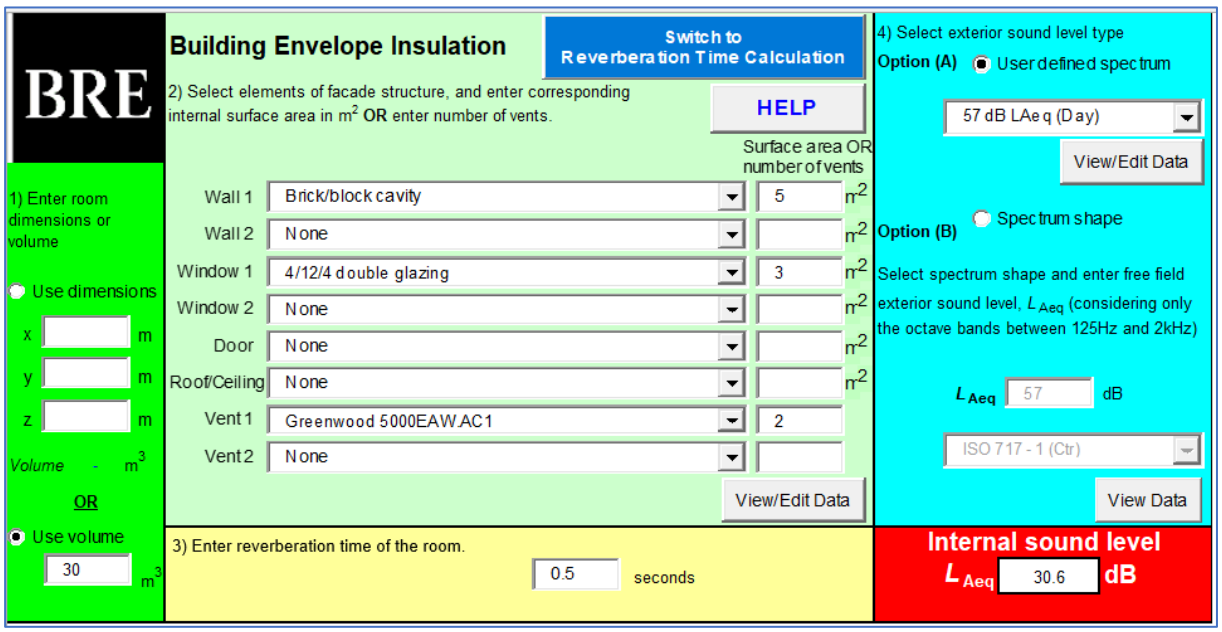
L_{Aeq} 83 dB

ISO 717 - 1 (C)

View Data

Internal sound level

L_{AFMax} 42.0 dB

Appendix 3
BRE Calculation Spreadsheets

Daytime Ambient Noise Levels – Habitable rooms of new build dwelling