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Proposed Residential Development
74 Commercial Road, Skelmanthorpe, HD8 9DS

Noise Impact Assessment

For:
JRP Associates

13th March 2025

Ref: NIA-11846-25-12075-v1 Commercial Road (Final).docx
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Contents

1 Introduction

1.1 Overview

Environmental Noise Solutions Ltd (ENS) has been commissioned by JRP Associates to undertake a noise survey and assessment for a proposed new build residential development at 74 Commercial Road, Skelmanthorpe, HD8 9DS (hereafter referred to as 'the site').

Planning permission (ref: 2023/60/92551/E) for the development was granted by Kirklees Council in March 2024, subject to conditions. Condition 12 relates to the control of noise as follows:

'12. *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 and commercial premises shall be submitted to and approved in writing by the Local Planning Authority.*

The report shall:

a) Determine the existing noise climate.

a) Predict the noise climate in living rooms and gardens (daytime), bedrooms (nighttime) and other habitable rooms of the development.

b) 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.'

The objectives of the noise impact assessment were therefore to:

- Determine external noise levels at the site
- Assess the potential impact of the external noise climate on the proposed residential development with reference to pertinent guidance
- Provide recommendations for a scheme of sound attenuation works, as necessary, to protect future occupants of the proposed residential development from a loss of amenity due to noise

This report details the methodology and results of the assessment and provides recommendations for the building envelope (fenestration and ventilation) and boundary treatments. It has been prepared to aid in the discharge of Condition 12 of Planning Permission ref: 2023/60/92551/E.

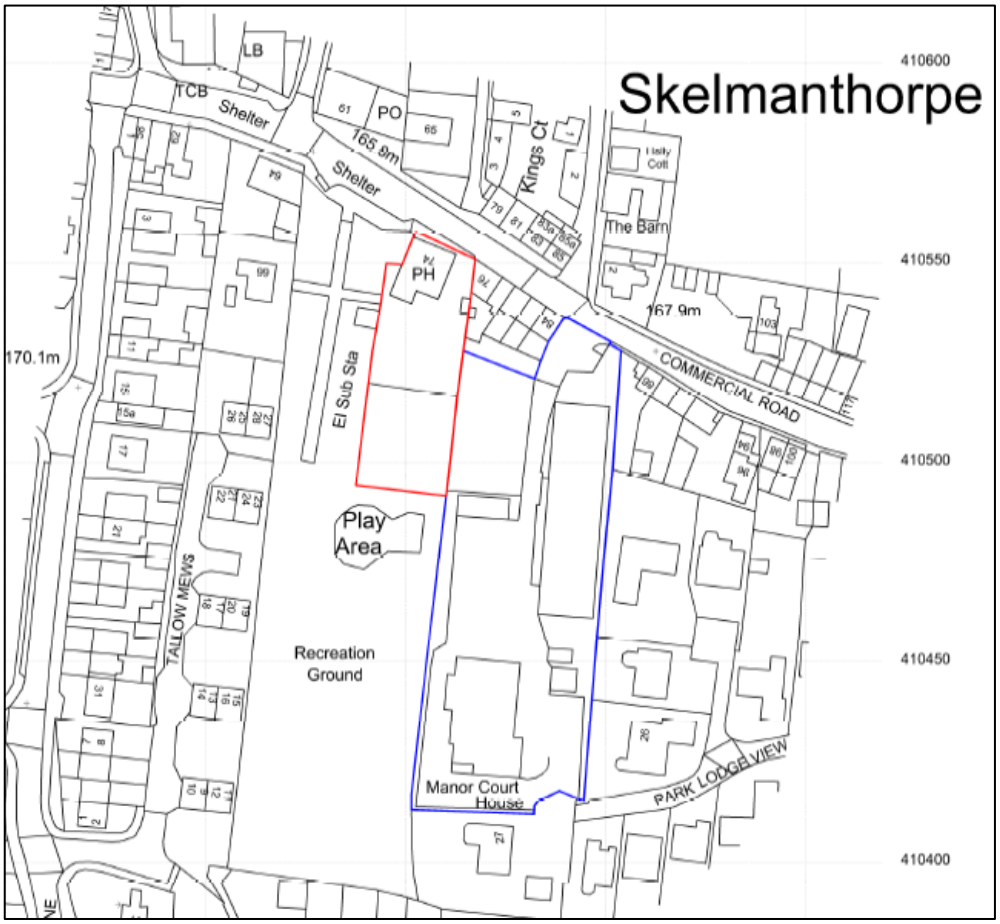
The report has been prepared for JRP Associates for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties referring to the report should consult JRP Associates and ENS as to the extent to which the findings may be appropriate for their use.

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

1.2 Site Description and Development Proposals

The site is located to the south of Commercial Road within the village of Skelmanthorpe, Huddersfield, as shown (highlighted in red) in Figure 1.1.

Figure 1.1: Location of Proposed Development



The site is bound by:

- Commercial Road to the north
- POS to the south and west
- Existing residential dwellings and Manor Croft Works (commercial units) to the east

Proposals are for the demolition of an existing public house to form a new build residential development consisting of 4 no. dwellings with associated access road and landscaping.

The ambient noise climate at the site is dominated by road traffic on Commercial Road with no other significant noise sources noted.

Referring to the units located to the east of the site, Holdson Limited operates from the units for storage and distribution purposes. The storage units are operational from 09:00 to 17:00, Monday to Friday. The premises are generally unmanned, as the site serves as a secondary storage facility for the company. Weekly deliveries and dispatches occur infrequently, only during daytime hours, and are conducted using vans rather than heavy goods vehicles (HGVs).

It is further noted that operations at Manor Croft Works are constrained by Condition 9 of Planning Permission ref: 2009/62/91179/E2, as follows:

'9. Unless otherwise agreed in writing with the Local Planning Authority no activities shall be carried out on the premises, including deliveries to or dispatches from the premises, outside the hours of 0700hrs and 1900hrs Monday to Friday and 0700hrs and 1300hrs Saturdays. No activities shall take place on Sundays or Bank Holidays.'

This is consistent with observations made at the site. During the course of the noise survey no significant noise was noted from the business and no external plant was noted during the daytime or night time periods.

2 Policy Context and Assessment Guidance

2.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF)[1] was updated in December 2024 and sets out the Government's planning policies for England and how these are expected to be applied.

Where issues of noise impact are concerned the NPPF provides brief guidance in paragraph 187 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'.

Paragraph 198 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'.

With regard to extant community noise sources and the potential to affect proposed new developments, Paragraph 200 states that:

'Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.'

The NPPF also refers to the 2010 DEFRA publication, the Noise Policy Statement for England (NPSE) which reinforces and supplements the NPPF.

2.2 Noise Policy Statement for England

The Noise Policy Statement for England[2] (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

1 National Planning Policy Framework. Ministry of Housing, Communities and Local Government (2021)
2 Government Department for Environment, Food and Rural Affairs. Noise Policy Statement for England. March 2010.

The 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

According to the explanatory notes in the statement, where a noise level falls between the lowest observable adverse effect level (LOAEL) and a level which represents a significant observable adverse effect level (SOAEL):

'….all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life whilst also taking into consideration the guiding principles of sustainable development. This does not mean that such effects cannot occur.'

2.3 Planning Practice Guidance on Noise

Planning Practice Guidance[3] (PPG) is an online resource 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

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.

The PPG also provides general advice on the typical options available for mitigating noise, suggesting 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'.

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. The following guidance documents provide some meaningful context.

2.4 ProPG Planning and Noise: New Residential Development

ProPG Planning and Noise: New Residential Development (ProPG)[4] was published in 2017 by the Association of Noise Consultants, Institute of Acoustics and the Chartered Institute of Environmental Health.

3 Planning Practice Guidance on Noise: http://planningguidance.planningportal.gov.uk/blog/guidance/noise/

4 'ProPG Planning and Noise: New Residential Development (ProPG)', 2017. Association of Noise Consultants (ANC), Institute of Acoustics (IOA) and the Chartered Institute of Environmental Health (CIEH)

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'[5] (BS 8233), see Table 2.1.

Table 2.1: Indoor Ambient Noise Levels in Dwellings

Activity	Location	Good Indoor Ambient Noise Levels	
Resting	Living Room	35 dB $L_{Aeq\ (0700\text{-}2300)}$	-
Dining	Dining Room/Area	40 dB $L_{Aeq\ (0700\text{-}2300)}$	-
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq\ (0700\text{-}2300)}$	30 dB $L_{Aeq\ (2300\text{-}0700)}$ 45 dB $L_{AFMax\ (2300\text{-}0700)}$

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.'

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'.

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'.

On the basis of the above, the following criteria (with windows closed and an alternative means of ventilation provided) are considered appropriate for the proposed residential development and considered to represent good resting and sleeping conditions:

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

With reference to external amenity, BS 8233 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.'

5 British Standards Institution (2014). *British Standard 8233:2014 Guidance on Sound Insulation and Noise Reduction for Buildings.*

2.5 Approved Document O

Approved Document O, 2021 is written in support of Part O of Schedule 1 to the Building Regulations 2010. The approved document details methods of addressing overheating of residential dwellings and is applicable only across England.

The approved document has the following relevant guidance in Section 3 regarding noise ingress into buildings:

'In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am).

Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits.

- *40dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am)*
- *55dB L_{Amax}, more than 10 times a night (between 11pm and 7am)'*

3 Noise Survey

3.1 Overview

In order to determine the level of external noise affecting the proposed development, noise monitoring was carried out on Thursday 19th December 2024 and the early hours of Friday 20th December 2024. Additional monitoring was undertaken on Thursday 9th January 2024.

The adopted noise monitoring positions (shown in Appendix 2) were as follows:

- MP1 was located at 1 metre from the existing building façade overlooking Commercial Road at 4 metres above ground level (AGL)
- MP2 was located circa 20 metres back from Commercial Road and at 4 metres AGL
- MP3 was located on the south-eastern boundary of the site overlooking Manor Croft Works at 4 metres AGL
- MP4 was located to the rear of the existing building at 1.5 metres AGL (screened from Commercial Road)

Noise measurements were undertaken using Bruel & Kjaer 2250 and NTi XL3 Type 1 integrating sound level meters. Each meter was connected to a windshield covered microphone positioned at the locations detailed above. The measurement system calibration was verified immediately before and after the survey period using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration levels greater than 0.5 dB was noted.

Measurements consisted of A–weighted broadband parameters including L_{Aeq}, L_{A10} L_{A90}, and L_{AFMax} together with linear octave and 1/3rd octave band data.

The noted weather conditions during the survey were dry with wind speeds < 5 m/s. Weather conditions were therefore considered appropriate for noise monitoring.

3.2 Summary

Table 3.1 overleaf presents a summary of the noise data for each measurement session, at each measurement position, rounded to the nearest decibel. As measurements at MP1 were made at 1 metre from the existing building façade, a –3 dB façade enhancement correction has been applied to the measured levels in order to establish the free field levels.

Table 3.1: Summary of Noise Measurement Data

Position	Date	Time	L_{Aeq} (dB)	L_{A90} (dB)	L_{A10} (dB)	L_{AFMax} (dB)	Comment
MP1	19/12/2024	1000-1100	62	50	67	-	Dominated by road traffic on Commercial Road
	19/12/2024	1100-1200	62	50	67	-	
	19/12/2024	1200-1300	62	49	67	-	
	20/12/2024	0511-0600	57	33	64	76	
	20/12/2024	0600-0700	59	39	66	75	
	20/12/2024	0700-0800	62	47	67	-	
MP2	09/01/2025	1242-1258	48	41	52	62*	Dominated by road traffic on Commercial Road
		1317-1335	49	40	53	62*	
MP3	09/01/2025	0600-0700	43	34	45	54*	Distant road traffic noise
	09/01/2025	0700-1100	45	40	47	-	
	09/01/2025	1340-1410	45	40	47	-	
MP4	09/01/2025	1103-1133	41	35	44	-	Distant road traffic noise
	09/01/2025	1410-1440	44	38	46	-	

3.3 Analysis

The ambient noise climate at the site is dominated by road traffic on Commercial Road, with no other significant noise sources noted.

For the prediction of daytime road traffic noise, the Department of Transport's Memorandum on the Calculation of Road Traffic Noise (CRTN) explains that the following shortened measurement procedure may be used. Measurements of L_{A10} are made over any three consecutive hours between 10:00 and 17:00 hours. Using $L_{A10\,(3\,hour)}$ as the arithmetic mean of the three consecutive values of hourly L_{A10}, the $L_{A10\,(18\,hour)}$ can be calculated from the equation:

$$L_{A10\,(18\,hour)} = L_{A10\,(3\,hour)} - 1\ dB$$

A study prepared by TRL Limited on behalf of the Department for Environment, Food and Rural Affairs (DEFRA) entitled 'Converting the UK Traffic Noise Index $L_{A10\,(18\,hour)}$ to EU Noise Indices for Noise Mapping' presents a methodology for calculating daytime $L_{Aeq\,(0700\text{-}2300)}$ and night time $L_{Aeq\,(2300\text{-}0700)}$ ambient noise levels based on the $L_{A10\,(18\,hour)}$ noise levels, as follows:

$$L_{Aeq\,(0700\text{-}2300)} = \frac{10 * \log\left([(10^{((0.95 * L_{A10\,(18\,hour)} + 1.44)/10)*12}] + [10^{((0.97 * L_{A10\,(18\,hour)} - 2.87)/10)*4}]\right)}{16}$$

$$L_{Aeq\,(2300\text{-}0700)} = 0.90 * L_{A10,\,18\,hour} - 3.77$$

Based on the above formulae, the daytime and night-time ambient noise levels at MP1 have been measured / calculated at **64 dB $L_{Aeq\,(0700–2300)}$** and **56 dB $L_{Aeq\,(2300–0700)}$** respectively. Maximum noise levels associated with passing vehicles on Commercial Road were measured at up to **76 dB L_{AFMax}** during the night time period.

Noise levels at MP2 (representative of proposed Plot 2) were circa 12 dB lower than at MP1. This equates to daytime and night-time ambient noise levels of **52 dB $L_{Aeq\,(0700–2300)}$** and **44 dB $L_{Aeq\,(2300–0700)}$** respectively. Maximum noise levels at MP2 were measured at up to **62 dB L_{AFMax}** due to passing vehicles.

Noise levels across the remainder of the site decrease with increased distance from Commercial Road.

4 Noise Assessment

4.1 Design Noise Levels

The design noise levels for the road-fronting elevation of Plot 1 have been measured / calculated as follows:

- **64 dB $L_{Aeq\ (0700\text{-}2300)}$** during the daytime
- **56 dB $L_{Aeq\ (2300\text{-}0700)}$** during the night-time
- **≤ 76 dB L_{AFMax}** during the night-time

The design noise levels for remaining habitable rooms are as follows:

- **≤ 52 dB $L_{Aeq\ (0700\text{-}2300)}$** during the daytime
- **≤ 44 dB $L_{Aeq\ (2300\text{-}0700)}$** during the night-time
- **≤ 62 dB L_{AFMax}** during the night-time

4.2 Scheme of Sound Attenuation

In order to calculate the sound insulation requirements for 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, typical 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).

Plot 1

Due to the elevated noise levels on Commercial Road, it is recommended that Plot 1 is provided with a mechanical extract ventilation (MEV) system.

Approved Document F 'Ventilation' (ADF) states that where MEV is used, background ventilators of at least 4000 mm² EA must be provided to each habitable room, with 1 no. ventilator required per bedroom and 2 no. ventilators required in living rooms.

All habitable rooms on the front façade of Plot 1 overlooking Commercial Road should be provided with enhanced glazing rated at least **33 dB R_w+C_{tr}**, such as 6 mm glass / 6-20 / 6.8 Optiphon, in conjunction with acoustic wall vents rated at least **41 dB $D_{n,e,w}+C_{tr}$**, such as the Ryton AAC125HP or equivalent (1 no. vent per habitable room).

Habitable rooms on the rear façade should be fitted with glazing rated at least **28 dB R_w+C_{tr}** (such as 6 mm glass / 6-20 / 4 mm glass) combined with trickle vents rated at least **33 dB $D_{n,e,w}$ + C_{tr}** (such as the Greenwood 5000EA).

Plots 2–4

Habitable rooms of remaining plots may be fitted with glazing rated at least **28 dB R_w+C_{tr}** combined with trickle vents rated at least **33 dB $D_{n,e,w}+C_{tr}$** (such as the Greenwood 5000EA).

See Appendix 4 for selected BRE calculation spreadsheets.

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.

- Internal noise levels due to mechanical ventilation plant should not exceed 26 dB(A) in bedrooms and 30 dB(A) in living rooms

- When selecting a glazing system to satisfy the requirements outlined above, it is important to ensure that the R_w+C_{tr} value is achieved (rather than simply the R_w value). Published R_w values tend to be higher than corresponding R_w+C_{tr} values; therefore, incorrect selection could result in an overestimation of sound reduction performance which in turn could result in higher internal noise levels

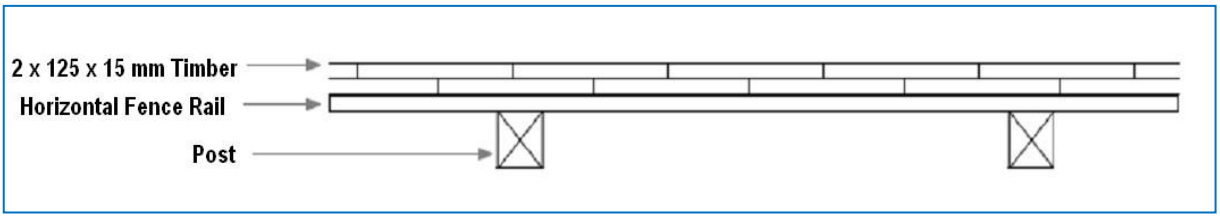
4.3 External Noise Amenity

In order to reduce garden levels as low as practicable, it is recommended that the garden of Plot 1 is provided with circa 2000 mm high solid timber fences or brick walls (see Appendix 3 for barrier locations).

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

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).

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



Noise levels for the remainder of the site were measured at < 50 dB $L_{Aeq,\,T}$, which readily satisfies the guideline value for external amenity areas, as recommended by BS8233 / ProPG, with no specific mitigation measures required.

5 Mitigation of Overheating

ADO states that for moderate risk locations (i.e. outside of London) the minimum free area of the open window should be at least 4% of the floor area of the room.

As the open area varies as a function of the floor area, for a typical floor-to-ceiling height of 2.4m, a free area of 4% of the floor area equates to an external to internal noise reduction of 10 dB.

With reference to the internal targets contained in ADO, it is assumed that open windows can form the overheating mitigation strategy with no additional ventilation or cooling, providing the external noise levels outside bedrooms at night do not exceed **50 dB $L_{Aeq\ (2300\text{-}0700)}$** and **65 dB L_{AFMax}** (more than 10 times).

Based on the results of the noise measurements undertaken for the site, it is assumed that the road-fronting bedroom windows of Plot 1 would be closed during night-time hours (2300-0700 hours).

This information should be provided to the overheating assessor for the site, in order to determine the extent of additional mitigation required to comply with ADO.

For remaining bedrooms across the site, windows may be opened to the minimum free area of 4% of the floor area, meaning that the overheating mitigation strategy is not constrained by acoustics.

6 Summary and Conclusions

A noise impact assessment has been undertaken for the proposed residential development at 74 Commercial Road, Skelmanthorpe, HD8 9DS.

The ambient noise climate at the site is dominated by road traffic on Commercial Road, with no other significant noise sources noted.

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

Appendix 1 – Abbreviations and Definitions

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:

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

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

A-weighting
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.

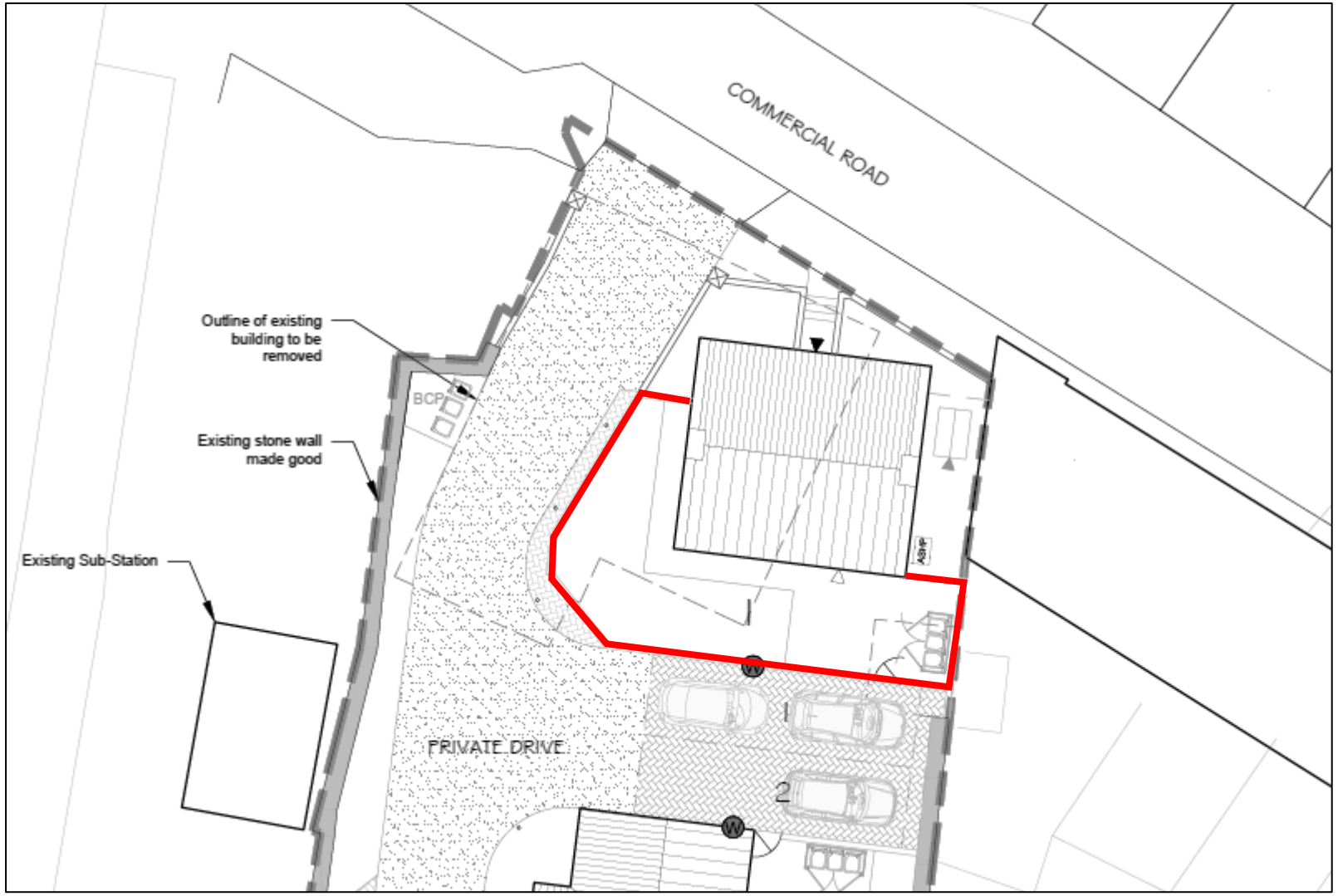
$L_{AF\ max}$
The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

Single Event Level / Sound Exposure Level (SEL or L_{AE})
The energy produced by a discrete noise event averaged over one second, regardless of the event duration. 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).

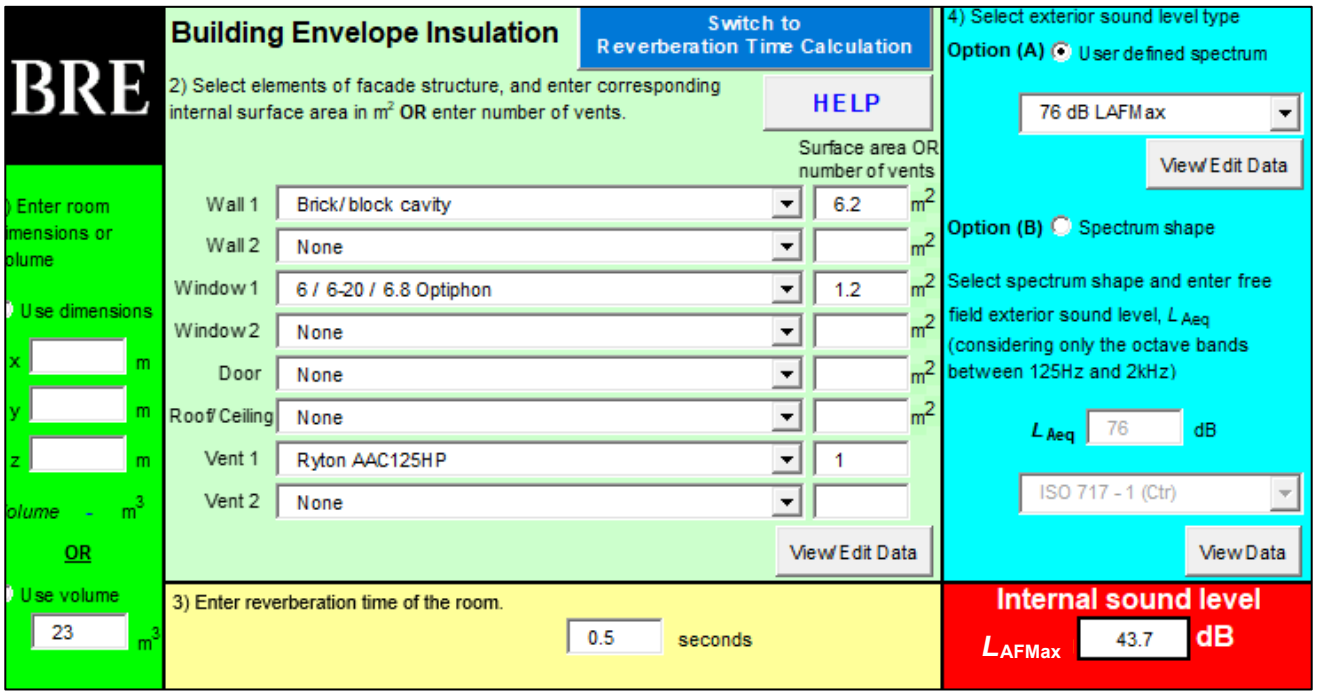
Appendix 2 – Noise Measurement Positions

Appendix 3 – Plot 1 Boundary Treatment



Appendix 4 – Selected BRE Calculation Spreadsheets

Plot 1 Night-time Maximum Noise Levels – Bedrooms



Plot 1 Daytime Ambient Noise Levels – Bedrooms