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Proposed Residential Development Land Adjacent to Millfield House, Linley Avenue, Haxby, York, YO32 3NF

Noise Impact Assessment

For:
Vincent & Partners

7th February 2024

Ref: NIA-11311-24-11513-v1 Linley Avenue, Haxby
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Contents

1 Introduction

1.1 Overview

Environmental Noise Solutions Ltd (ENS) has been commissioned by Vincent & Partners to undertake a noise survey and assessment for the consented residential development at land adjacent to Millfield House, Linley Avenue, Haxby, York, YO32 3NF (hereafter referred to as 'the site').

Planning permission (ref: 23/00238/FUL) for the development was granted by The City of York Council, subject to conditions. Condition 6 relates to the control of noise as follows:

6. *No above ground works shall take place until a detailed scheme of noise insulation measures for protecting the approved residential property from externally generated noise has been submitted to and approved in writing by the Local Planning Authority. The development shall be constructed in accordance with the approved scheme, which shall be retained and maintained for the lifetime of the development.*

   INFORMATIVE: The building envelope of all residential accommodation shall be constructed so as to achieve internal noise levels in habitable rooms of no greater than 35 dB LAeq (16 hour) during the day (07:00-23:00 hrs) and 30 dB LAeq (8 hour) and LAFMax level during the night (23:00-07:00 hours) should not exceed 45dB(A) on more than 10 occasions in any night time period in bedrooms and should not regularly exceed 55dB(A). These noise levels shall be observed with all windows open in the habitable rooms or if necessary, windows closed and other means of ventilation provided.

   Reason: To protect the amenity of people living in the new property from externally generated noise and in accordance with the National Planning Policy Framework.

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 the requirements of Condition 6 of Planning Permission ref: 23/00238/FUL
- 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). It has been prepared to aid in the discharge of Condition 6 of Planning Permission ref: 23/00238/FUL.

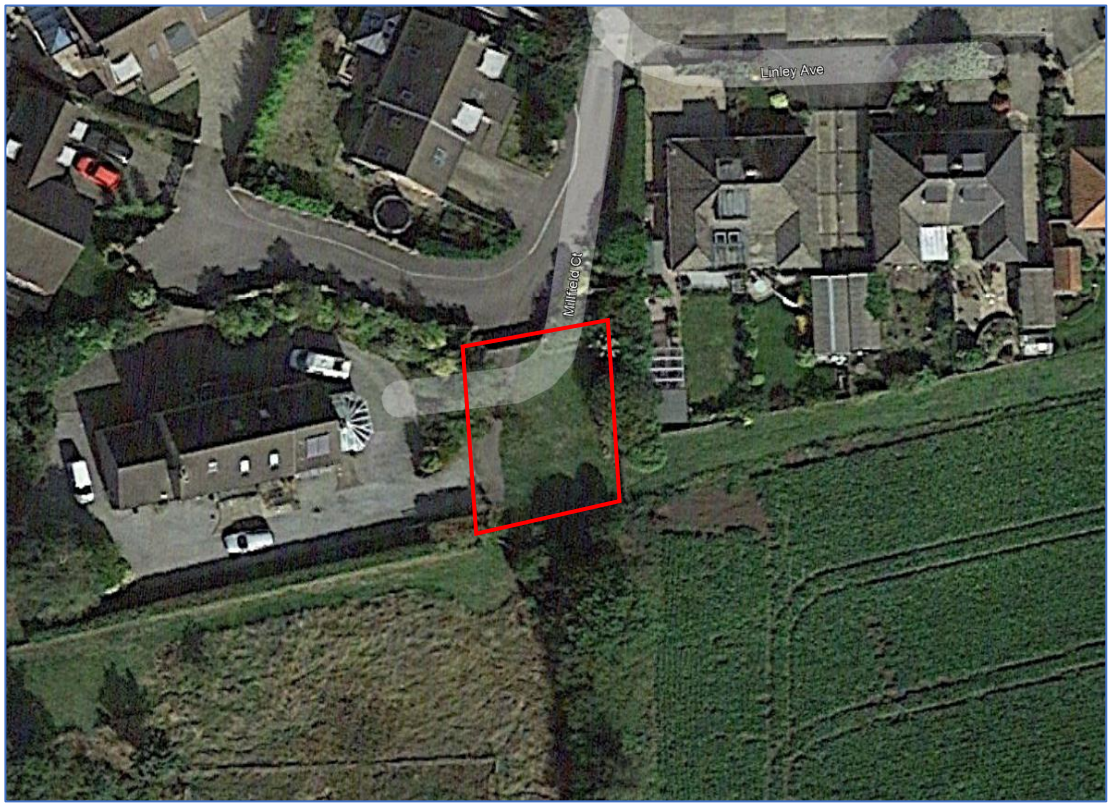
The report has been prepared for Vincent & Partners for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties referring to the report should consult Vincent & Partners and ENS as to the extent to which the findings may be appropriate for 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 comprises land adjacent to Millfield House, a large detached dwelling within the village of Haxby, at the northern outskirts of York, as shown (highlighted in red) in Figure 1.1.

Figure 1.1: Location of Proposed Development



The ambient noise climate at the site is characterised by distant road traffic on Station Road/Towthorpe Road and the surrounding road network, with occasional train passes along the York to Scarborough railway line also audible. The railway line is set back a significant distance (circa 90 metres) from the site.

Development proposals are for a single 2-storey new-build detached dwelling.

2 Noise Survey

2.1 Overview

In order to determine the level of external noise affecting the proposed development, noise monitoring was carried out on Tuesday 23rd January 2024.

For the purpose of the assessment, a single noise monitoring position (MP1) was adopted at the southern boundary of the site at 4 metres above ground level (see Appendix 2 for monitoring position).

Noise measurements were undertaken in free field conditions using an NTi XL3 Type 1 integrating sound level meter. The meter was connected to a windshield covered microphone positioned at the location 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.

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

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.

2.2 Summary

Table 2.1 presents a summary of the noise data for each measurement session, rounded to the nearest decibel.

Table 2.1: Summary of Noise Measurement Data

Position	Date	Time	$L_{Aeq,T}$ (dB)	L_{A90} (dB)	L_{AFMax} (dB)	Comment
MP1	23/01/24	1047–1149	49	48	63	Distant road traffic dominant, occasional train passes audible (circa 2 no. train passes per hour, typically 63 dB L_{AFMax})
		1542–1600	45	45	51	
		1600–1700	46	44	65	
		1700–1800	46	45	61	
		1800–1900	48	45	64	

Daytime ambient noise levels at the site were measured at ≤ **49 dB $L_{Aeq\,(1\,hour)}$**. Such levels are relatively low.

Maximum noise levels associated with distant train passes were measured at up to **65 dB L_{AFMax}**. However, consultation with the online resource 'Realtime Trains' indicates that there are only typically 3–4 train passes on the line during the night-time period.

With cognisance to the requirements of Condition 6 of Planning Permission ref: 23/00238/FUL , there are therefore an insufficient number of events to warrant consideration of discrete event maxima from train passes.

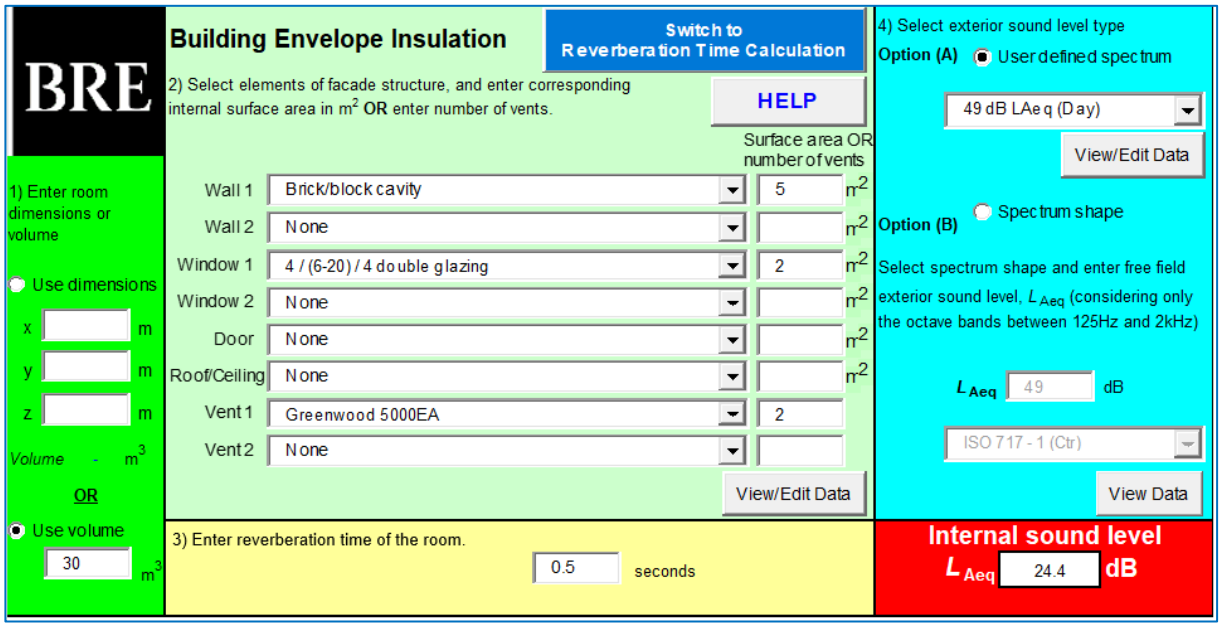
In the absence of train passes, maximum noise levels were < **60 dB L_{AFMax}**.

3 Noise Assessment

Daytime ambient noise levels at the site were measured at ≤ **49 dB $L_{Aeq,\ T}$**. In the absence of train passes, maximum noise levels at the site were ≤ **60 dB L_{AFMax}**. Such levels are relatively low.

As evidenced in the calculation sheet below, a typical standard double-glazed window rated at least **25 dB R_w+C_{tr}** (such as 4 mm glass / 12 mm cavity / 4 mm glass) in conjunction with 2 no. standard trickle vents rated at least **32 dB $D_{n,e,w}$** per 5000 mm² EA vent open (such as the Greenwood 5000EA, or equivalent) will provide circa 25 dB(A) sound insulation from external to internal at the site.

Figure 3.1: Example BRE Calculation Spreadsheet



For reference, the World Health Organisation (WHO) Guidelines for Community Noise (1999) states *"the noise reduction from outside to inside with the window partly open is 15 dB."*

The resultant internal noise levels are set out in the table below.

Table 3.1 – External Noise Levels and Resultant Internal Noise Levels

External Noise Level	Reduction	Resultant Internal Level
≤ 49 dB $L_{Aeq\ (0700-2300)}$ ≤ 60 dB L_{AFMax}	–25 dB (closed windows)	≤ 24 dB $L_{Aeq\ (0700-2300)}$ ≤ 35 dB L_{AFMax}
	–15 dB (open windows)	≤ 34 dB $L_{Aeq\ (0700-2300)}$ ≤ 45 dB L_{AFMax}

On the basis of the above, the criteria contained in Condition 6 of Planning Permission ref: 23/00238/FUL will be readily achieved with the provision of standard double glazing and standard trickle vents.

4 Summary and Conclusions

A noise impact assessment has been undertaken for the consented residential development at land adjacent to Millfield House, Linley Avenue, Haxby, York, YO32 3NF.

The ambient noise climate at the site is characterised by distant road traffic on Station Road/Towthorpe Road and the surrounding road network, with occasional train passes along the York to Scarborough railway line also audible.

Ambient noise levels at the site are relatively low. As a consequence, standard double glazing and standard trickle vents are appropriate throughout the development.

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.

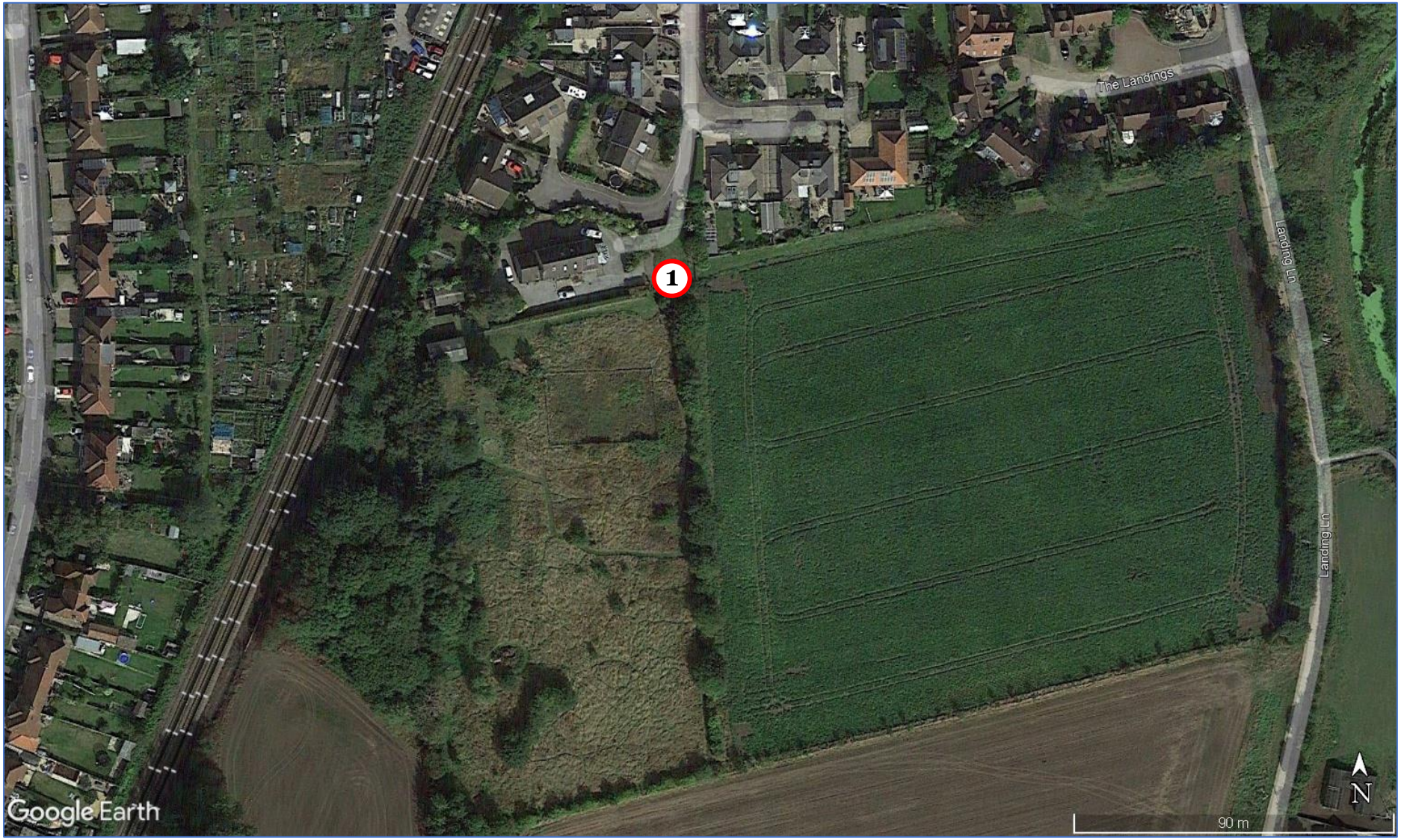
$L_{A90, T}$
The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T. L_{A90} is typically taken as representative of background noise.

$L_{AF\ max}$
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 Position



Outline Specification

EXTERNAL CAVITY WALLS

To be 302.5mm overall, consisting of 102.5mm Brickwork external leaf, 100mm cavity fully filled with 95mm Xtratherm Cavity Therm or equal and approved with 5mm flute, 100mm Aglite 7.3N/mm2 inner leaf of solid blockwork, block density 1350Kg to 1600Kg.

To internal side of blockwork walls provide 12.5mm plasterboard on dabs with a skim finish.

WINDOWS

Shall be double glazed (24mm overall unit thickness) low E glass and Argon filled in polyester powder coated aluminium thermally broken frames.

Thermal Bridging Around Openings. Openings to be provided with proprietary insulated cavity closers to comply with current Building Regulations and to comply with the requirements. See Robust details.

GLAZING

All glass is to be of British manufacture to BS 952.

All glazing work is to be carried out to BS 6262, 1982.

Safety glass to be of British manufacture to BS 6206, 1981, and used where recommended by BS 6262.

Double glazed units to be kite marked and designed to meet the requirements of BS 5713, 1979. Double-glazed units to have manufacturer's 5-year warranty.

Workmanship is to conform to BS 8000, 1990, Workmanship on Building Sites, Part 7, Code of Practice for Glazing.