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Haydon House, 296 Joel Street, HA5 2PY Pinner

Noise Impact Assessment Report
Report 30500.NIA.01

Hyde Park Construction
1st Floor
4 Longwalk
Stockley Park UB11 1FE

Report 30500.NIA.01 Revision History			
First Issue Date: 12/06/2025			
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B		E	
C		F	

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1.0 INTRODUCTION

KP Acoustics Ltd has been commissioned to assess the suitability of the site at Haydon House, 296 Joel St, Pinner HA5 2PY for a residential development in accordance with Permitted Development rights as outlined in Class MA (offices to dwelling/houses) of The Town and Country Planning (General Permitted Development) (England) Order 2021.

This report presents the results of an external environmental survey undertaken in order to measure the prevailing background noise levels.

2.0 SITE SURVEYS

2.1 Site Description

The site is bounded by residential houses to the North and South, gardens to the west, and Joel Street to the East. Entrance to the site is located on Joel Street. At the time of the survey, the background noise climate was dominated by road traffic noise from Joel Street.

The site is located in a residential area and the nearest commercial premises has been identified as The Woodman public House, more than 150m North of site as identified in Figure 2.1.

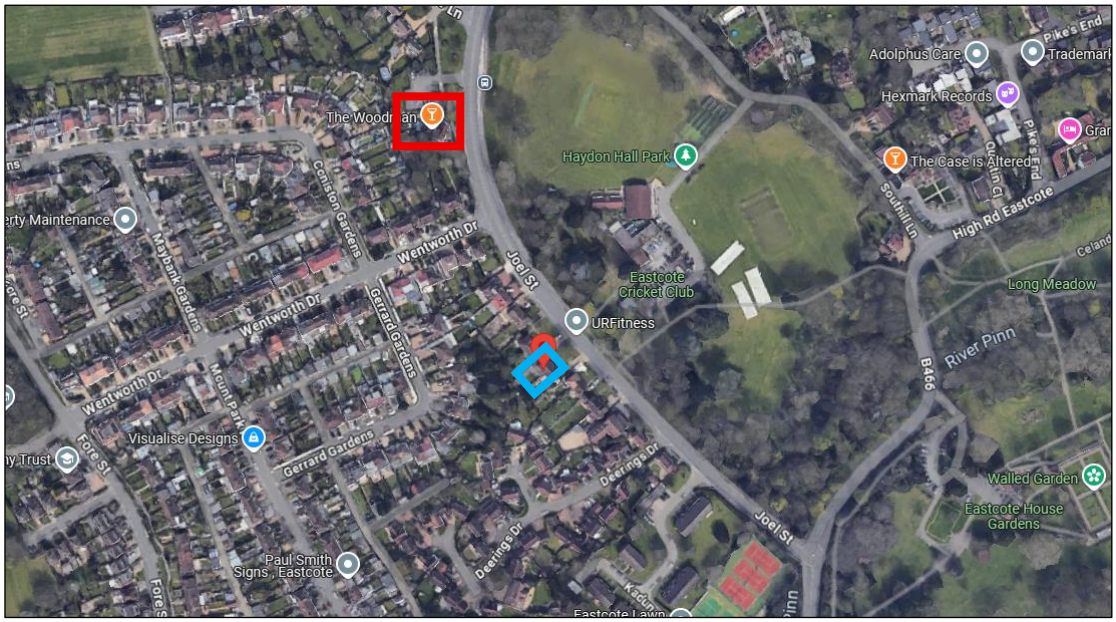

Figure 2.1 Nearest Commercial premises (identified in red) in relation to the proposed development (identified in blue)

2.2 Environmental Noise Survey Procedure

External noise surveys were undertaken on the proposed site as shown in Figure 2.1. The location was chosen in order to collect data representative of the worst-case levels expected on the site due to all nearby sources, including those from nearby commercial premises.

Continuous automated monitoring was undertaken for the duration of the survey between 12:30 on 30/05/2025 and 12:30 on 02/06/2025.

Weather conditions were generally dry with light winds and therefore suitable for the measurement of environmental noise. The measurement procedure complied with ISO 1996-2:2017 Acoustics '*Description, measurement and assessment of environmental noise - Part 2: Determination of environmental noise levels*'.

2.3 Measurement Positions

Measurement positions are as described within Table 2.1 and shown within Figure 2.1.

Icon	Descriptor	Location Description
1	Noise Measurement Position 1	The microphone was installed on a tripod on a flat roof overlooking Joel Street at the South façade, as shown in Figure 2.1. The microphone was positioned within free-field conditions.

Table 2.1 Measurement positions and descriptions

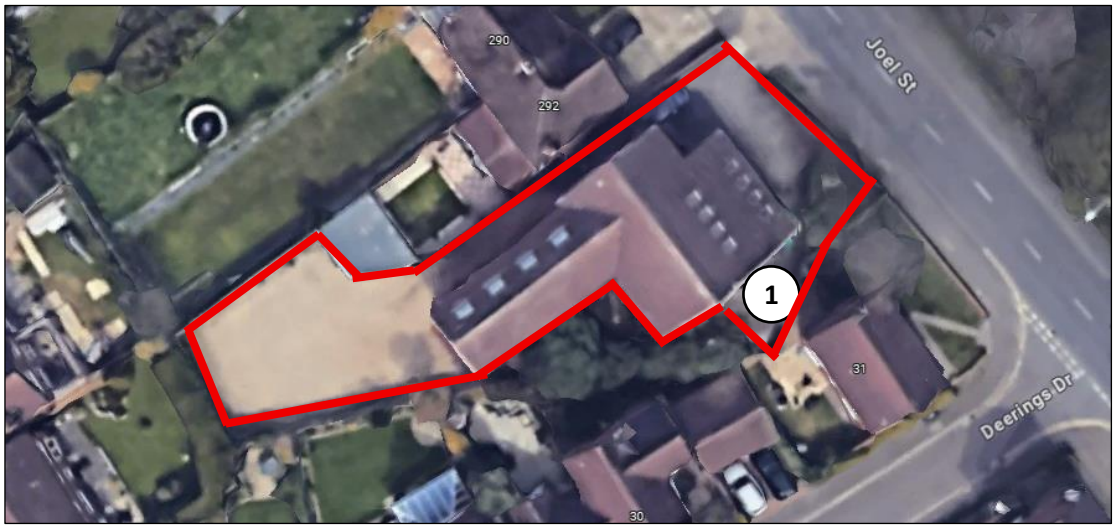

Figure 2.1 Site measurement positions (Image Source: Google Maps)

2.4 Equipment

The equipment calibration was verified before and after use and no abnormalities were observed. The equipment used is described within Table 2.2.

Measurement instrumentation		Serial no.	Calibration Date	Cert no.
Noise Kit 40	NTI Audio XL2 Class 1 Sound Level Meter	A2A-24279-E1	27/01/2024	UK-24-007
	Free-field microphone NTI Acoustics MC230A	A26879		
	Preamp NTI Acoustics MA220	14180		
	NTI Audio External Weatherproof Shroud	-	-	-
Larson Davis CAL200 Class 1 Calibrator		17148	17/12/2024	UCRT24/2677

Table 2.2 Measurement instrumentation

3.0 RESULTS

3.1 External Noise Surveys

The $L_{Aeq:\ 5min}$, $L_{Amax:\ 5min}$, $L_{A10:\ 5min}$ and $L_{A90:\ 5min}$ acoustic parameters were measured throughout the duration of the survey. Measured levels are shown as a time history in Figures 30500.TH1.

Measured noise levels are representative of noise exposure levels expected to be experienced in all spaces on the east façade of the development which is understood to be closest to the dominating traffic noise, and is shown in Table 3.1.

Time Period	External Noise Measurement Position 1 (Measured Noise level – dBA)
Daytime $L_{Aeq,16hour}$	57
Night-time $L_{Aeq,8hour}$	53

Table 3.1 Site average noise levels for daytime and night time

4.0 NOISE ASSESSMENT GUIDANCE

4.1 Permitted Development Rights

It is understood that the office development would be converted into residential units under the Permitted Development Rights. Therefore, this assessment would be targeted to demonstrate the noise requirement as per Citation *"Amendments in relation to change of use of offices to dwelling houses"* of The Town and Country Planning (General Permitted Development) (England) (Amendment) Order 2021:

"(2) Before beginning development under Class MA, the developer must apply to the local planning authority for a determination as to whether the prior approval of the authority will be required as to –

(a) transport impacts of the development, particularly to ensure safe site access;

(b) contamination risks in relation to the building;

(c) flooding risks in relation to the building;

(d) impacts of noise from commercial premises on the intended occupiers of the development;"

The measurements undertaken on site do not only encompass noise generated by any nearby commercial units, but it would also encompass the full spectrum of noise sources in the area affecting the premises.

In order to demonstrate if the current external building fabric of the site would be sufficient to protect the future residents, the measured internal noise levels would be assessed against the recommendations of the British Standard BS8233:2014 *"Sound insulation and noise reduction for buildings"*.

4.2 BS8233:2014

BS8233:2014 *'Sound insulation and noise reduction for buildings'* describes recommended internal noise levels for residential spaces. These levels are shown in Table 4.1.

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living Rooms	35 dB(A)	-
Dining	Dining Room/area	40 dB(A)	-
Sleeping (daytime resting)	Bedrooms	35 dB(A)	30 dB(A)

Table 4.1 BS8233 recommended internal background noise levels

5.0 NOISE IMPACT ASSESSMENT – PERMITTED DEVELOPMENT

As aforementioned, the nearest commercial noise source is a public house over 150 meters away, and therefore commercial noise sources are not expected to have an adverse effect on the development. There was no evidence of noise generated from the public house on site, and the shape of Figure 30500.TH1 clearly resembles traffic noise due to the fluctuating nature of each parameter.

It is only required to consider mitigation of commercial noise sources in the context of a Permitted Development scheme. However, the next section provides good practice in terms of specifying suitable glazing based on the non-commercial noise sources measured. It is recommended that the windows are specified to ensure the internal noise levels outlined in BS8233 are met.

The following section outlines an appropriate optional glazing specification, which would allow internal noise levels to be met. This section is outlined for guidance purposes only.

6.0 GLAZED EXTERNAL BUILDING FABRIC SPECIFICATION (GUIDANCE PURPOSES ONLY)

This section serves the purpose of providing good design practice, and is not required by Permitted Development rights due to there being no commercial premises in the immediate vicinity of the site. As aforementioned, the nearest commercial noise source is a public house over 150 meters away, and therefore the impact of commercial noise sources is not expected to have an adverse effect on the development.

It is noted that there is no existing glazing on the east façade as the building has been boarded up and therefore no internal measurements were taken.

For guidance purposes, a glazing specification has been proposed based on measured external noise levels and the sound reduction required to meet the recommended internal noise level criteria outlined in BS8233. Sound reduction performance calculations have been undertaken in order to provide a guideline performance from glazed elements in order to achieve the recommended internal noise levels shown in Table 4.1, taking into account average and maximum noise levels monitored during the environmental noise survey as well as the non-glazed external building fabric construction.

Minimum octave band sound reduction index (SRI) values recommended for all glazed elements to be installed are shown in Table 6.1. The recommended performance is specified for the whole window unit, including the frame, seals, etc. as appropriate. Sole glass performance data would not demonstrate compliance with this specification.

It is assumed that the existing double-glazed window system on the west façade would have been implemented on the east façade, which is no longer in place. This spystem is assumed to comprise 4/12/4mm glazing and the acoustic performance is exemplified in Figure 6.1 below.

Figure 6.1 Existing West façade windows

We understand that the windows on the east elevation with an estimated 4/12/4mm construction would be reinstated to achieve the specification shown in Table 6.1, which is the expected performance of this glazing system. It is noted that windows on all other elevations should be fitted with glazing which achieve the same specification outlined in the following table.

Elevation	Octave band centre frequency SRI, dB						R_w ($C;C_{tr}$), dB
	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	
All elevations	24	20	25	35	38	35	**31(-1;-4)**

Table 6.1 Required glazing performance

Provided that the windows on the east façade are reinstated and would achieve the same, or better octave band sound reduction performance than outlined in Table 6.1, the glazing would allow the recommended internal noise levels stipulated in BS8233:2014 to be met.

7.0 APPROVED DOCUMENT O (NOT APPLICABLE - GUIDANCE PURPOSES ONLY)

Approved Document O (ADO) guidance does not apply to this development as this is only applicable to new build developments.

However, an assessment has been undertaken to provide guidance on using openable windows as part of an overheating strategy during night-time hours. Guidance has been given below with respect to achieving the levels within this standard:

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

a. 40dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am)

b. 55dB L_{AFmax}, more than 10 times a night (between 11pm and 7am)."

Where an openable window for the removal of excess heat is predicted to result in the above internal noise levels to be exceeded, then the overheating mitigation strategy must adopt one of the alternative means listed within Paragraph 2.10 of ADO which concern mechanical ventilation strategies.

Although not applicable in the context of a Permitted Development scheme, should there be a desire to meet the recommended internal L_{Aeq} and L_{max} noise levels stipulated in ADO by using openable windows as a ventilation strategy, it has been calculated that the minimum percentage of window to floor area would not exceed 1%.

8.0 CONCLUSION

An environmental noise survey has been undertaken at Haydon House, 296 Joel St, Pinner HA5 2PY allowing the assessment of daytime and night-time levels likely to be experienced by the proposed development.

No commercial sources have been identified in the immediate vicinity of the proposed development. The proposed development is therefore not likely to be adversely affected by commercial noise and is deemed suitable under the requirements of Class MA Permitted Development rights.

Although not applicable for Permitted Development schemes, further guidance has been provided in terms of controlling noise from non-commercial sources, where the glazing is to be reinstated and where windows are to be opened. These recommendation are not required in terms of Permitted Development and serve only as general design guidance for information.

296 Joel Street, Pinner, London - Position 1
Environmental Time History
30/05/2025 to 02/06/2025

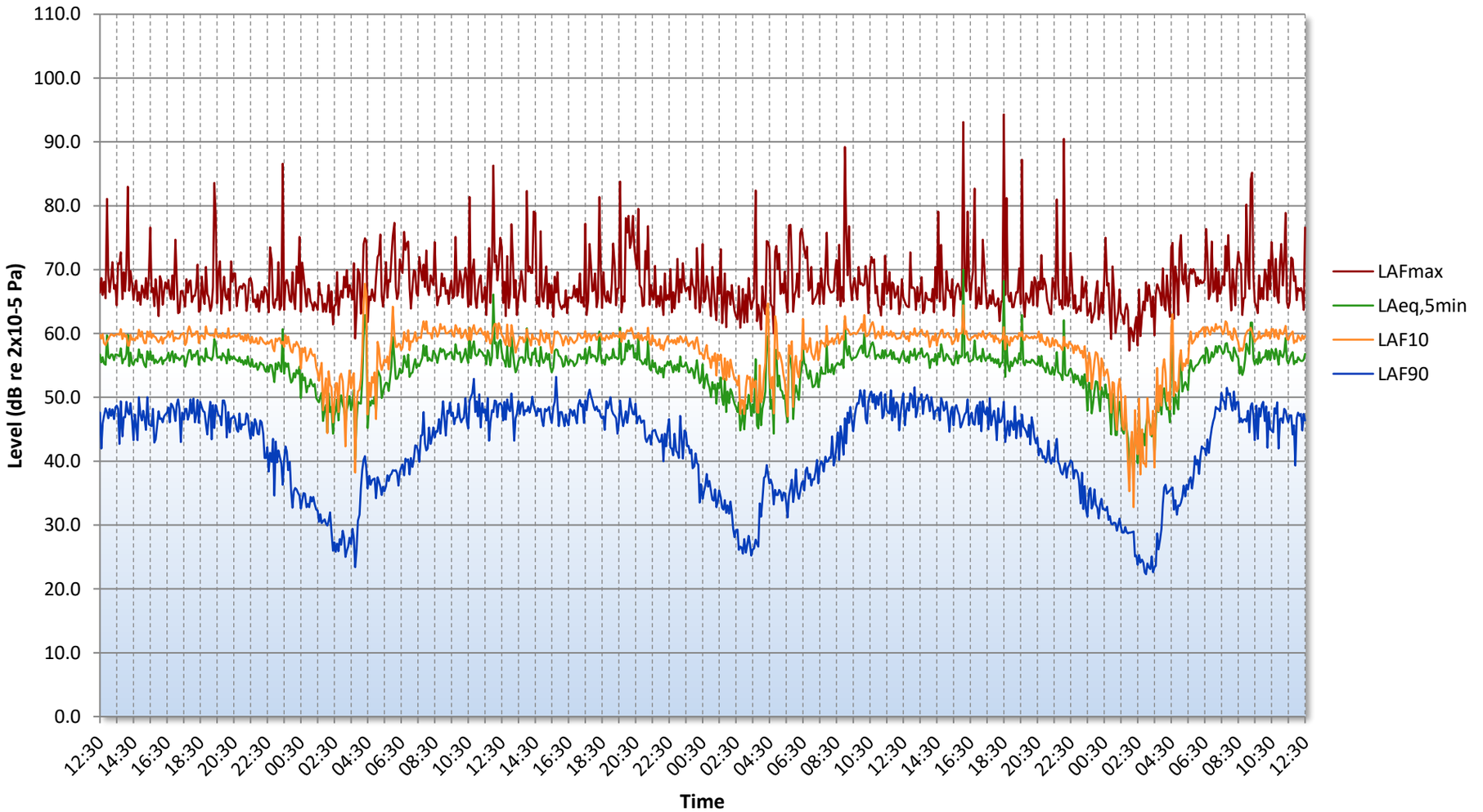

Figure 30500.TH1

APPENDIX A

GENERAL ACOUSTIC TERMINOLOGY

Decibel scale - dB

In practice, when sound intensity or sound pressure is measured, a logarithmic scale is used in which the unit is the 'decibel', dB. This is derived from the human auditory system, where the dynamic range of human hearing is so large, in the order of 10^{13} units, that only a logarithmic scale is the sensible solution for displaying such a range.

Decibel scale, 'A' weighted - dB(A)

The human ear is less sensitive at frequency extremes, below 125Hz and above 16Khz. A sound level meter models the ears variable sensitivity to sound at different frequencies. This is achieved by building a filter into the Sound Level Meter with a similar frequency response to that of the ear, an A-weighted filter where the unit is dB(A).

L_{eq}

The sound from noise sources often fluctuates widely during a given period of time. An average value can be measured, the equivalent sound pressure level L_{eq}. The L_{eq} is the equivalent sound level which would deliver the same sound energy as the actual fluctuating sound measured in the same time period.

L_{10}

This is the level exceeded for no more than 10% of the time. This parameter is often used as a "not to exceed" criterion for noise.

L_{90}

This is the level exceeded for no more than 90% of the time. This parameter is often used as a descriptor of "background noise" for environmental impact studies.

L_{max}

This is the maximum sound pressure level that has been measured over a period.

Octave Bands

In order to completely determine the composition of a sound it is necessary to determine the sound level at each frequency individually. Usually, values are stated in octave bands. The audible frequency region is divided into 11 such octave bands whose centre frequencies are defined in accordance with international standards. These centre frequencies are: 16, 31.5, 63, 125, 250, 500, 1000, 2000, 4000, 8000 and 16000 Hertz.

Environmental noise terms are defined in BS7445, *Description and Measurement of Environmental Noise*.

APPENDIX A

APPLIED ACOUSTIC TERMINOLOGY

Addition of noise from several sources

Noise from different sound sources combines to produce a sound level higher than that from any individual source. Two equally intense sound sources operating together produce a sound level which is 3dB higher than a single source and 4 sources produce a 6dB higher sound level.

Attenuation by distance

Sound which propagates from a point source in free air attenuates by 6dB for each doubling of distance from the noise source. Sound energy from line sources (e.g. stream of cars) drops off by 3dB for each doubling of distance.

Subjective impression of noise

Hearing perception is highly individualised. Sensitivity to noise also depends on frequency content, time of occurrence, duration of sound and psychological factors such as emotion and expectations. The following table is a guide to explain increases or decreases in sound levels for many scenarios.

Change in sound level (dB)	Change in perceived loudness
1	Imperceptible
3	Just barely perceptible
6	Clearly noticeable
10	About twice as loud

Transmission path(s)

The transmission path is the path the sound takes from the source to the receiver. Where multiple paths exist in parallel, the reduction in each path should be calculated and summed at the receiving point. Outdoor barriers can block transmission paths, for example traffic noise. The effectiveness of barriers is dependent on factors such as its distance from the noise source and the receiver, its height and construction.

Ground-borne vibration

In addition to airborne noise levels caused by transportation, construction, and industrial sources there is also the generation of ground-borne vibration to consider. This can lead to structure-borne noise, perceptible vibration, or in rare cases, building damage.

Sound insulation - Absorption within porous materials

Upon encountering a porous material, sound energy is absorbed. Porous materials which are intended to absorb sound are known as absorbents, and usually absorb 50 to 90% of the energy and are frequency dependent. Some are designed to absorb low frequencies, some for high frequencies and more exotic designs being able to absorb very wide ranges of frequencies. The energy is converted into both mechanical movement and heat within the material; both the stiffness and mass of panels affect the sound insulation performance.