MEC Consulting Group

ACOUSTIC AIR

Land to the East of Ashby Road, Hinckley
Acoustics Assessment
August 2025

Report Ref: 29356-ENV-0401 Rev A

Land to the East of Ashby Road, Hinckley
Acoustics Assessment
August 2025

REPORT REF: 29356-ENV-0401 Rev A

CLIENT: Davidsons Developments Ltd

ENGINEER: MEC Consulting Group Ltd
The Old Chapel
Station Road
Hugglescote
Leicestershire
LE67 2GB

Tel: 01530 264 753
Email group@m-ec.co.uk

REGISTRATION OF AMENDMENTS

Date	Rev	Comment	Prepared By	Checked By	Approved By
May 2025	-	First issue	**Neil S Forsdyke** MIOA Associate Acoustics & Air Quality Consultant	**Daniel Newbery** BSc (Hons) MIEnvSc MIOA Senior Acoustics & Air Quality Consultant	**Tim Rose** BA (Hons) MCIHT MTPS Regional Director
August 2025	A	Updated Illustrative Masterplan	**Neil S Forsdyke** MIOA Associate Acoustics & Air Quality Consultant	**Daniel Newbery** BSc (Hons) MIEnvSc MIOA Senior Acoustics & Air Quality Consultant	**Tim Rose** BA (Hons) MCIHT MTPS Regional Director

CONTENTS

APPENDICES

1.0 INTRODUCTION

1.1 MEC Consulting Group Ltd (MEC) has been commissioned by Davidsons Developments Ltd, to undertake an Acoustics Assessment for the proposed residential development on Land to the East of Ashby Road, Hinckley (hereafter referred to as 'the Site').

Existing Site

1.2 The Site, comprised of arable land, is bound by arable land to the north, east and southeast; allotments to the south, which are under application for residential development; and existing residential and the A447 Ashby Road to the west.

1.3 The principal source of noise affecting the Site is predicted to be from road traffic using Ashby Road to the west, and the A47 Normandy Way located to the south.

1.4 An approximate redline boundary is presented in Figure 1.1.

Figure 1.1: Approximate Redline Boundary

Development Proposals

1.5 Development proposals comprise the erection of residential dwellings and associated infrastructure, with access via Ashby Road.

1.6 The illustrative layout is provided in **Appendix A**.

Assessment Scope

1.7 The following scope of works has been undertaken:

- An Environmental Sound Survey has been undertaken within the Site in order to determine the prevailing acoustic conditions;
- An indicative construction noise and vibration assessment has been undertaken in accordance with BS 5228-1[1] and BS 5228-2[2];
- An acoustic model has been created in order to predict sound level across the Site based upon the measured sound level data;
- Embedded façade mitigation measures in the form of glazing and whole-dwelling ventilation specifications have been provided to demonstrate compliance with the guidance contained within ProPG[3], BS 8233[4]; and AVOG[5]; and
- Where required, appropriate mitigation measures have been provided to demonstrate compliance with the relevant standards.

1.8 The conclusions of this report aim to demonstrate to the Local Authority (LA) that internal acoustic conditions will be compliant with the relevant British Standards and Acoustics Guidance.

Disclaimer

1.9 MEC has completed this report for the benefit of the individuals referred to in Paragraph 1.1 and any relevant statutory authority which may require reference in relation to approvals for the proposed development. Other third parties should not use or rely upon the contents of this report unless explicit written approval has been gained from MEC.

1.10 MEC accepts no responsibility or liability for:

- The consequence of this documentation being used for any purpose or project other than that for which it was commissioned;
- The issue of this document to any third party with whom approval for use has not been agreed.

[1] BS 5228-1:2009 +A1:2014 *'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.'*
[2] BS 5228-2:2009 +A1:2014 *'Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.'*
[3] Professional Practice Guidance on Planning and Noise, May 2017.
[4] BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings'
[5] Acoustics Ventilation and Overheating, Residential Design Guide, V1.1. January 2020.

2.0 STANDARDS AND GUIDANCE

General

2.1 Acoustics and vibration glossaries are provided in **Appendix B** to assist the reader.

Summary of Guidance and Standards

2.2 The following guidance and standards relevant to the assessment are outlined below:

- National Planning Policy Framework (NPPF) 2024;
- Noise Policy Statement for England (NPSE) 2010;
- BS 5228-1:2009 +A1:2014 *'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.'*;
- BS 5228-2:2009 +A1:2014 *'Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.'*;
- Professional Practice Guidance on Planning and Noise (ProPG) 2017;
- BS 8233:2014 *'Guidance on sound insulation and noise reduction for buildings'*; and
- Acoustics Overheating and Ventilation Guide (AVOG) 2020.

2.3 For conciseness, the guidance and standards most appropriate to this assessment are summarised in this section.

BS 5228-1:2009 +A1:2014 *'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise'*

2.4 BS 5228-1 sets out techniques to predict and assess the likely noise effects from construction works, based on detailed information on the type and number of plant being used, their location, and the length of time they are in operation. The noise prediction method is used to establish likely noise levels in terms of the $L_{Aeq,T}$ over the core working day. This Standard also documents a database of information, comprising previously measured sound power levels for a variety of different construction plant undertaking various common activities.

2.5 Three example methods are presented for determining the significance of construction noise impacts. In summary, these methods adopt either a series of fixed noise level limits, are concerned with ambient noise level changes as a result of the construction operations or a combination of the two.

2.6 With respect to absolute fixed noise limits, BS 5228-1 discusses those included within Committee on the problem of noise – Final Report. These limits are presented according to the nature of the surrounding environment, for a 12-hour working day. The presented limits are:

- 70 dB(A) L_{eq} in rural, suburban and urban areas away from main road traffic and industrial noise; and
- 75 dB(A) L_{eq} in urban areas near main roads and heavy industrial areas.

2.7 The above noise level limits are applicable at the façade of the receptor in question (i.e., not free-field).

2.8 The Standard goes on to provide methods for determining the significance of construction noise levels by considering the change in the ambient noise level that would arise as a result of the construction operations. Two example assessment methods are presented, these are the 'ABC method' as summarised within Table 2.1 and the '5 dB(A) change' method under that table.

Table 2.1: ABC Method for BS 5228-1

Assessment Category and Threshold Value Period	Threshold Value $L_{Aeq,T}$ dB		
	Category A[a]	Category B[b]	Category C[c]
Night-time 23:00 – 07:00	45	50	55
Evenings and Weekends[d]	55	60	65
Daytime 07:00 – 19:00 Saturdays 07:00 – 13:00	65	70	75
Note 1: A potential significant effect is indicated if the $L_{Aeq,T}$ noise level arising from the Site exceeds the threshold value for the category appropriate to the ambient noise level. Note 2: If the ambient noise level exceeds the Category C threshold values given in the table, then a potential significant effect is indicated if the total $L_{Aeq,T}$ noise level for the period increases by more than 3 dB due to the Site noise.			
[a]Category A: threshold values to use when ambient levels (when rounded to the nearest 5dB) are less than these values. [b]Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are the same as category A values. [c]Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5dB) are higher than category A values. [d]19.00-23.00 weekdays, 13.00-23.00 Saturdays and 07.00-23.00 Sundays			

2.9 With respect to the '5 dB(A) change' method, the guidance states:

"Noise levels generated by site activities are deemed to be potentially significant if the total noise (pre-construction ambient plus site noise) exceeds the pre-construction ambient noise by 5 dB or more, subject to lower cut-off values of 65 dB, 55 dB and 45 dB $L_{Aeq,T}$, from site noise alone, for the daytime, evening and night-time periods, respectively; and a duration of one month or more, unless works of a shorter duration are likely to result in significant effect."

BS 5228-2:2009 +A1:2014 *'Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration'*

2.10 This Standard provides recommendations for basic methods of vibration control relating to construction and open sites. The legislative background to vibration control is described and guidance is provided concerning methods of measuring vibration and assessing its effects on the environment.

2.11 Guidance criteria are suggested for the assessment of the significance of vibration effects; such criteria are provided in terms of Peak Particle Velocities (PPV) and are concerned with both human and structural responses to vibration. Those applicable to human perception and disturbance are presented within Table 2.2.

Table 2.2: Guidance Criteria for the assessment of construction vibration for human perception and disturbance.

Vibration Level[(a)(b)(c)] PPV	Effect
0.14 mms^{-1}	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3 mms^{-1}	Vibration might be just perceptible in residential environments.
1.0 mms^{-1}	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.
10 mms^{-1}	Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments.
[(a)]The magnitudes of the values presented apply to a measurement position that is representative of the point of entry into the recipient. [(b)]A transfer function (which relates an external level to an internal level) needs to be applied if only external measurements are available. [(c)]Single or infrequent occurrences of these levels do not necessarily correspond to the stated effect in every case. The values are provided to give an initial indication of potential effects, and where these values are routinely measured or expected then an assessment in accordance with BS6472-1 or BS6472-2, and/or other available guidance, might be appropriate to determine whether the time varying exposure is likely to give rise to any degree of adverse comment.	

2.12 The Standard goes on to present guidance criteria applicable to the vibration response limits of buildings in terms of the component PPV. These are presented within Table 2.3. It should be noted that the values presented are applicable to cosmetic damage only. It is stated within BS 5228-2 that minor damage is possible at vibration magnitudes which are greater than twice those given in the table.

Table 2.3: BS 5228-2 Guidance Criteria for the assessment of significance of transient vibration for cosmetic building damage

Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
	4 Hz to 16 Hz	15 Hz and above
Reinforced or framed structures. Industrial and heavy commercial buildings.	50mm/s at 4 Hz and above	50mm/s at 4 Hz and above
Unreinforced or light framed structures. Residential or light commercial buildings.	15mm/s at 4Hz increasing to 20mm/s at 15Hz	20mm/s at 15Hz increasing to 50mm/s at 40Hz and above
Note 1: Values referred to are at the base of the building. Note 2: At frequencies below 4 Hz, a maximum displacement of 0.6mm (zero to peak) is not to be exceeded.		

Professional Practice Guidance on Planning and Noise (ProPG)

2.13 ProPG seeks to secure good acoustic design for new residential developments. The guidance includes a framework to enable situations where noise is not an issue but to help identify the extent of risk at noisier sites. The guidance does not constitute an official government code of practice and neither replaces nor provides an authoritative interpretation of the law or government policy.

2.14 The guidance is restricted to sites that are exposed predominantly to noise from transportation sources. Where industrial or commercial noise is present on the site but is “not dominant”, its contribution may be

included in the noise level used to establish the degree of risk. However, if the industrial/commercial source is dominant, an assessment in accordance with BS 4142 should be conducted.

2.15 A two-stage approach is considered whereby:

- Stage 1 – an initial noise risk assessment of the proposed development site is undertaken;
- Stage 2 – a systematic consideration of internal and external noise levels is considered ensuring good acoustic design and consideration of other relevant issues is recognised.

2.16 ProPG also references the World Health Organisation (WHO) guidance on maximum noise levels at night. Guidance from the WHO states that indoor sound pressure levels should not exceed approximately 45 dB L_{AFmax} more than 10 – 15 times per night. ProPG indicates that individual noise events do not exceed 45 dB L_{AFmax} more than 10 times a night and therefore this is considered as criteria in addition to that outlined in Table 2.4.

2.17 Whilst ProPG does not define a measurement interval for the assessment of L_{AFmax} levels, research undertaken by Paxton et al[6] indicates that, for Maximum Event Level assessments, a sampling interval of between 1 and 3 minutes relates most closely to how awakening events are experienced by people in reality when compared to longer sampling periods.

2.18 For brevity, within the study, the majority of people (circa 75-85%) under test returned to a sleep state by approximately 2.5 minutes after the initial awakening event.

2.19 In summary, a longer sampling period can result in the under assessment of the 10th highest maximum level, therefore, based upon research and the recommendation of the Institute of Acoustics (IOA), a sample measurement of 1 minute has been used to inform this assessment.

2.20 Upon completion of the ProPG's Stage 1 and 2 assessments, the findings should enable one of four possible recommendations to be presented to the decision maker, namely to grant permission without conditions, grant with conditions, 'avoid' or 'prevent'.

BS 8233:2014 *'Guidance on sound insulation and noise reduction for buildings'*

2.21 BS 8233 provides recommendations for the control of noise in and around buildings.

2.22 The guidance provided includes appropriate internal and external noise level criteria which are applicable to residential buildings exposed to steady external noise sources. It is stated in the British Standard that it is desirable for internal ambient noise levels to not exceed the criteria set out in Table 2.4.

[6] Paxton et al., Assessing L_{max} for residential development: The AVO Guide Approach, Institute of Acoustics, 2019

Table 2.4: BS 8233: 2014 Table 4 – Indoor Ambient Noise Levels for Dwellings

Activity	Location	07:00 – 23:00 $L_{Aeq, 16hr}$ dB	23:00 – 07:00 $L_{Aeq, 8hr}$ dB
Resting	Living Room	35	-
Dining	Dining Room/Area	40	-
Sleeping (daytime resting)	Bedroom	35	30

2.23 Additional guidance in BS 8233 indicates that appropriate ventilation should be provided, if relying on closed windows to meet the guide values, and that such ventilation should not compromise the façade insulation and resulting noise levels.

2.24 BS 8233 additionally includes guidance on external amenity areas whereby it states that external noise levels should not exceed 50 dB $L_{Aeq, T}$ with an upper guideline of 55 dB $L_{Aeq, T}$ which would be acceptable in noisier environments.

2.25 Furthermore, due to the nationwide difficulty in satisfying the external criteria outlined above, the standard provides an over-arching consideration of how to treat external amenity areas as follows:

"... 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."

Acoustics Overheating and Ventilation Guide (AVOG)

2.26 The AVOG was published by the Association of Noise Consultants (ANC) and The Institute of Acoustics (IOA) in 2020. The guide outlines a methodology for the assessment of airborne sound during overheating conditions, and emphasises the co-dependency of acoustics, ventilation and overheating design.

2.27 Many developments require closed windows to provide good internal acoustic conditions. This is in direct contrast to the fact that residents typically open windows in order to keep a building cool. These opposing requirements are becoming a major issue in the design of buildings, in particular for housing, especially as the aim is to avoid widespread use of mechanical ventilation and cooling systems.

2.28 AVOG prescribes a two-level assessment procedure, as follows:

- Level 1 – Site Risk Assessment, based on external free-field noise levels (similar to that of ProPG); and
- Level 2 – Assessment of Adverse Effect, based on internal ambient noise level and duration.

2.29 An AVOG Level 2 assessment gives consideration to internal noise levels on a sliding scale depending on the likelihood and duration of overheating.

2.30 This report considers an AVOG Level 1 assessment.

3.0 ENVIRONMENTAL SOUND SURVEY

3.1 An environmental sound survey was undertaken between Tuesday 26th and Wednesday 27th March 2025. The survey was undertaken in full accordance with the guidance set out in BS 7445[7].

3.2 Sound Level Meters (SLMs) were installed at two locations, as follows:

- Continuous Measurement 1 (CM1): along the western boundary, approximately 7m from the carriageway edge of Ashby Road; and
- Continuous Measurement 2 (CM2): to the rear of dwellings located adjacent to Ashby Road.

3.3 A monitoring location plan is provided in Figure 3.1.

Figure 3.1: Measurement Positions

Equipment

3.4 Measurements were taken using Class 1 integrating/averaging SLMs housed in environmental protection apparatus. The SLMs were installed in a free field position at a height of 1.5m above local ground level, and field calibrated before and after the survey using a Class 1 calibrator, with no significant drift in calibration noted.

[7] BS 7445-1:2003 'Description and measurement of environmental noise, Part 1: Guide to quantities and procedures.'

3.5 The SLMs were set up to capture the following parameters at a minimum: L_{Aeq}, L_{A90} and L_{AFmax} values, and full details of the equipment used to undertake the survey are presented in Table 3.1.

Table 3.1: Equipment and Calibration Details

Measurement Position	Description	Manufacturer & Type No.	Serial No.	Calibration Due Date
CM1	Sound Level Meter	Type NOR140	1407932	22/02/2027
	Pre-Amplifier	Type 1209	23695	
	Microphone	Type 1225	505583	
	Calibrator	Norsonic 1255	125525772	18/11/2025
CM2	Sound Level Meter	Type NOR140	1407599	20/08/2026
	Pre-Amplifier	Type 1209	22646	
	Microphone	Type 1225	384571	
	Calibrator	Norsonic 1255	125525494	21/08/2025

Meteorological Conditions

3.6 During setup of the SLMs, weather conditions were overcast, with a light drizzle and south westerly winds of up to 2 m/s. On collection, conditions were sunny and warm, again with south westerly winds of up to 2 m/s.

3.7 Overall, these conditions are not considered to be adverse, and would not have significantly influenced the survey outcome.

Observations

3.8 Site notes indicate the dominant source of noise to be from road traffic using Ashby Road and Normandy Way.

Results

3.9 Table 3.2 and Table 3.3 provide a summary of measured assessment appropriate sound levels at CM1 and CM2 respectively.

3.10 Time history graphs are provided in **Appendix C**.

Table 3.2: Summary of Measured Sound Levels at CM1, dB

Date	Daytime 07:00 – 23:00	Night-time 23:00 – 07:00	
	$L_{Aeq,T}$	$L_{Aeq,8hr}$	Typical Maximum Event Level[a] $L_{AFmax,1min}$
Tue 26th	67[b]	61	78
Wed 27th	68[c]	-	-

[a] Maximum noise level not exceeded more than 10 times per night.
[b] T = 12hr
[c] T = 4hr

3.11 At CM1, the derived daytime $L_{Aeq,16hr}$ was 67 dB (rounding to the nearest whole number for assessment purposes), while the night-time $L_{Aeq,8hr}$ was 61 dB.

3.12 Analysis of the night-time $L_{AFmax,1min}$ noise levels shows that the individual noise events did not exceed 78 dB more than 10 times during the measured night-time period. Analysis of the audio recordings show that all events above 78 dB were caused by vehicular 'pass-bys', with no significant low frequency spectral content. Therefore, a value of 78 dB L_{AFmax} is considered appropriate for assessment purposes.

Table 3.3: Summary of Measured Sound Levels at CM2, dB

Date	Daytime 07:00 – 23:00	Night-time 23:00 – 07:00	
	$L_{Aeq,T}$	$L_{Aeq,8hr}$	Typical Maximum Event Level[(a)] $L_{AFmax,1min}$
Tue 26th	56[(b)]	49	66
Wed 27th	53[(c)]	-	-

[(a)] Maximum noise level not exceeded more than 10 times per night.
[(b)] T = 11hr
[(c)] T = 5hr

3.13 At CM2, the derived daytime $L_{Aeq,16hr}$ was 55 dB, while the night-time $L_{Aeq,8hr}$ was 49 dB.

3.14 Analysis of the night-time $L_{AFmax,1min}$ noise levels shows that the individual noise events did not exceed 66 dB more than 10 times during the measured night-time period. Analysis of the audio recordings show that all events above 66 dB were caused by 'bird-song'.

4.0 ASSESSMENT METHODOLOGY

Construction Noise and Vibration

4.1 Indicative construction noise and vibration levels have been calculated using source data for construction plant that is normally used for this type of development. Noise levels have been calculated for a maximum worst case situation over 1 hour assuming that plant will operate at its closest point to each receptor in the absence of mitigation. In practice, noise levels would tend to be lower due to greater separation distances and screening effects, and they would also tend to reduce over a 12-hour working day due to periods of plant inactivity.

4.2 The main construction phases on the Site will include ground excavation, possible piling, concreting, and building construction. The building construction phase, and the servicing and fitting out of new buildings, is normally not a significant source of noise or vibration for local receptors.

Completed Development

Acoustic Modelling

4.3 An acoustic model of the Site and environs has been generated in Datakustik CadnaA® modelling software. CadnaA® considers various inputs, including topography, buildings and road noise sources, and calculates sound levels in accordance with national and international standards; in this case, the relevant UK standards are the procedures set out within ISO 9613-2[8].

4.4 The modelling assumptions and input information for the acoustic model are as follows:

- Digital Terrain Model – Lidar 1m (Environment Agency, downloaded on 21st March 2024);
- Open Street Map data (publicly available);
- Ground absorption for the Site = 0.5 (mixed ground);
- Building heights estimated following site observations or based upon masterplan;
- Buildings set to be reflective only with no absorption coefficient;
- First order reflections included in the modelling;
- Temperature set to 10°C; and
- Relative humidity set to 70%.

Source Noise Levels

4.5 Based on the environmental sound survey, the sound levels used to calibrate the 3D acoustic model are presented in Table 4.1.

Table 4.1: Sound Levels Used to Calibrated 3D Acoustic Model, dB

Parameter	CM1
Daytime Ambient $L_{Aeq,16hr}$	67
Night-time Ambient $L_{Aeq,8hr}$	61
Night-time Maximum $L_{AFmax,2min}$	78

[8] ISO 9613-2 *'Acoustics – Attenuation of sound during propagation outdoors, Part 2: General method of calculation.*

Modelled Scenarios

4.6 With reference to the noise criteria outlined in Section 2.0, the acoustic model has been used to predict sound levels across the Site in the following scenarios:

- Daytime $L_{Aeq,16hr}$ external sound levels at ground floor (1.5m) height;
- Night-time $L_{Aeq,8hr}$ external sound levels at first floor (4m) height; and
- Night-time $L_{AFmax,1min}$ external sound levels at first floor (4m) height.

5.0 CONSTRUCTION NOISE AND VIBRATION ASSESSMENT

Construction Noise

5.1 Details of typical construction plant noise levels at the standard reference distance of 10m provided by BS 5228 in the absence of noise controls such as screening and operational constraints are given below in Table 5.1. Highest noise levels tend to be associated with plant that will be employed during excavation/piling works. In the absence of specific details on the phasing and siting of construction activities, this information has been used to derive indicative noise levels at selected distance bands from the relevant process using the data and procedures of BS 5228, and the results are presented in Table 5.2.

5.2 Any plant operating close to the Site boundary during earthworks, piling and concreting would have the ability to generate noise levels above the typical daytime construction noise limit contained within AL72[9] of 75 dB L_{Aeq}, over distances of approximately 30m from the boundary.

5.3 Therefore, construction plant operating on the Site will have some potential to affect noise-sensitive premises, predominantly, for existing dwellings located immediately adjacent to the south and western boundaries of the Site. However, in practice, the main construction activities such as ground excavation works and new build construction will only be present for a short period of time at any given moment, and plant will only have to progress a relatively short distance away from the receptors before noise levels fall below the typical construction noise criterion. There would also be no works during the most sensitive evening and night-time periods, other than any emergency operations agreed with the LA in advance.

Table 5.1: Typical Construction Plant Noise Levels, dB

Plant		Typical L_{Aeq} at 10m
1	Earth moving	85
2	Supply vehicles	80
3	Augur piling	85
4	Truck concrete mixer	80
5	Poker vibrators	84
6	Crane	74
7	Vibratory roller	76
8	Wheeled loader	76
9	Compressor	74
10	Welding generators	42

[9] Department of the Environment Advisory Leaflet (AL) 72 'Noise Control on Building Sites'.

Table 5.2: Predicted Indicative Construction Noise Levels

Predicted Indicative Construction Noise Levels $L_{Aeq\ (1hr)}$ dB								
Plant	Activity	Distance from Site (m)						
		10	20	30	40	50	100	150	200
1	Earthworks	85	79	76	73	71	65	62	59
3	Piling	85	79	76	73	71	65	62	59
4+5+7	Concreting	86	80	77	74	72	66	63	60

Significance of Construction Noise Impacts

5.4 Historically based fixed noise limits often tend to be in the region of 70 – 75 dB $L_{Aeq\ (1\ or\ 12\ hour)}$ for daytime construction activities, reducing to about 65 dB(A) in the evening and 50 – 55 dB(A) at night. On this basis, the worst-case noise levels of 85 – 86 dB L_{Aeq} at approximately 10m would exceed the daytime noise limit typically applied to construction works. Therefore, it is recommended that no noisy works should be undertaken outside the normal daytime periods of construction works, e.g., 08:00 – 18:00 Monday to Friday and 08:00 – 13:00 hours on Saturdays unless agreed with the LA.

5.5 The ambient noise levels for the closest premises to the Site have been defined in Section 3.0 as being around 55 dB $L_{Aeq,T}$ during the daytime, which means that receptors fall within the lowest BS 5228-1 ABC Category 'A', as outlined in Table 2.1 that has a threshold of 65 dB during the daytime period. Construction noise levels are likely to exceed this threshold by values of up to 21 dB, which amounts to a significant impact that requires noise control measures to be implemented.

5.6 Further assessment should be undertaken when the full details of all site operations are known, i.e., plant type, numbers, locations and duration of works.

Construction Vibration

5.7 The separation distances between local receptors and any vibration generating operations will be similar to those for the noise assessment, i.e., 10m or more. The highest levels of groundborne vibration are generated when impulsive forces are applied to the ground, e.g., during driven piling or ground compaction using vibratory rollers. If such techniques can be avoided, the potential for groundborne vibrations will be significantly reduced. For this assessment, it has been assumed that, if piling is required, vibration reducing measures such as auger piling will be used, if possible, although the distances between the Site and local receptors means that significant impacts are not expected and, as for noise, routine planning conditions can be used to minimise effects and protect local residents.

5.8 BS 5228-2 provides some indicative levels of vibration associated with auger piling, i.e., a non-impulsive source of vibration, which provides a worst-case indication of source levels compared to general mobile plant operating on the site. The information indicates levels below 0.4 mm/s peak particle velocity (PPV) at distances beyond 10m.

5.9 BS 5228 also indicates that for people in dwellings the threshold of perception is typically in the PPV range of 0.14 to 0.3 mm/s at frequencies between 8 and 80 Hz. Therefore, given an indicative level of below 0.4 mm/s at distances beyond 10m, the probability of adverse comment from occupiers of buildings would be negligible in the case of auger piling. The risk of minor or cosmetic damage to buildings is also considered to be negligible. Nevertheless, it would be appropriate to keep a watching brief on actual vibration levels generated at the closest dwellings at the outset of each construction phase, with appropriate steps to minimise levels if adverse impacts arise.

6.0 ACOUSTICS ASSESSMENT

ProPG Initial Noise Risk Assessment

6.1 The following assessment has been undertaken using indicative receptors based on the illustrative layout. For conciseness, this report tabulates the most exposed indicative receptor only as Plot X, overlooking Ashby Road at a distance of approximately 12m, to give context to the most stringent mitigation measures. All other receptors are assessed through the various sound level contour and mitigation reference drawings presented in the various appendices to this report.

6.2 As required by the ProPG, an Initial Noise Risk Assessment (INRA) is presented Table 6.1, based on the modelled sound levels.

Table 6.1: Initial Site Noise Risk Assessment, dB

Risk	Negligible		Low		Medium		High	
Period	Day	Night	Day	Night	Day	Night	Day	Night
Pro PG Threshold	< 50	< 40	50 – 60	40 – 50	60 – 70	50 – 60	> 70	> 60
Plot X					67			63
Risk Assessment					Medium			High

6.3 Based on the modelled sound levels, the most exposed receptor overlooking Ashby Road falls within the ProPG risk category of 'Medium' during the day, for which the guidance requires that the Site should follow a good acoustic design process which confirms how the adverse impacts of noise will be mitigated and minimised.

6.4 The noise exposure increases to a 'High' risk during the night-time, for which the guidance indicates that the Site is less likely to be suitable from a noise perspective, and applicants are strongly advised to seek expert advice. The guidance goes on to state that the Site should follow a good acoustic design process which clearly demonstrates how the impacts of noise will be mitigated and minimised and that a significant adverse noise impact will be avoided in the finished development.

6.5 This report is considered to form the basis of the 'Acoustic Design Statement', which considers appropriate design measures to achieve suitable acoustic conditions for residential amenity.

BS 8233 External Amenity Criteria

6.6 The acoustics criterion often the most difficult to meet in residential environments situated next to busy transportation sources is BS 8233's criterion of 55 dB $L_{Aeq,\ 16hr}$ applicable to private external amenity spaces such as gardens.

6.7 Based on the illustrative layout, it has been assumed that indicative dwellings will face the road, with gardens positioned behind and thereby, experiencing additional distance attenuation as well as screening from the dwellings themselves.

6.8 In this scenario, the daytime $L_{Aeq,16hr}$ sound level contour map, shown on drawing 29356_04_120_01 in **Appendix D** indicates that, based on the illustrative layout, and with the exception of a couple of plots adjacent to Ashby Road, standard mitigation in the form of 1.8m high close boarded timber fencing will enable BS 8233's criterion of 55 dB $L_{Aeq,16hr}$ to be satisfied across the Site, with a large portion of the Site satisfying BS 8233's lower-level criterion of 50 dB $L_{Aeq,16hr}$.

6.9 Where exceedances are experienced for the couple of plots adjacent to Ashby Road, acoustic fencing of up to 2m in height will be required to satisfy BS 8233's criterion of 55 dB $L_{Aeq,16hr}$.

6.10 However, it should be noted that the modelling is representative of only one potential Site layout, based on the outline illustrative layout and subsequently, the opportunity remains during the Reserved Matters stage to explore alternative layout options, where re-orientation of the affected plots may enable the outdoor criterion to be met through the provision of standard 1.8m high close boarded timber fencing.

BS 8233 Internal Acoustic Criteria

6.11 Table 6.2 presents the required external to internal reduction requirements for the most exposed receptor overlooking Ashby Road.

Table 6.2: Required Façade Performance, dB

Plot	Parameter	External Level	Internal Criteria	Required Reduction
X	Daytime Ambient $L_{Aeq,16hr}$	67	35	32
	Night-time Ambient $L_{Aeq,8hr}$	63	30	33
	Night-time Maximum $L_{AFmax,1min}$	80	45	35

6.12 For the most exposed dwelling overlooking Ashby Road, the results in Table 6.2 show that a sound reduction of up to 32 dB will be required to achieve the internal $L_{Aeq,16hr}$ criterion during the daytime, with a sound reduction of up to 35 dB required to achieve the L_{Amax} criterion for new receptors during the night-time.

AVOG Level 1 Assessment

6.13 AVOG prescribes a two-stage assessment. Level 1 looks to determine if overheating needs to be considered further, based on the predicted external façade levels for the most exposed receptors.

6.14 The initial Level 1 assessment is presented in Table 6.3.

Table 6.3: AVOG Level 1 Assessment

Plot	Parameter	Predicted External Level dB	Level 1 Risk Grading	Level 2 Advised?
X	Daytime Ambient $L_{Aeq,16hr}$	67	High	Recommended
	Night-time Ambient $L_{Aeq,8hr}$	63	High	Recommended

6.15 The results demonstrate that at the most exposed receptors, an AVOG Level 2 assessment is recommended due to the high sound levels.

6.16 Furthermore, it should be noted that the night-time maximum levels will drive the acoustic design and therefore, the mitigation schedule may be subject to change at Building Control stage based upon the outcome of any Dynamic Thermal Modelling assessment.

6.17 Nevertheless, demonstrating a suitable overheating strategy is not necessarily a planning application consideration, and could therefore be considered at a later stage, as part of other Building Control matters.

7.0 MITIGATION

Construction Noise and Vibration

7.1 In accordance with modern working practices, the principles of the "best practicable means" (BPM), as defined in the Control of Pollution Act 1974 would be used to reduce emissions throughout the construction period. This would incorporate the use of measures to control noise and vibration that do not unreasonably inhibit the work, and the use of working methods that result in minimum effects compatible with normal working practices.

7.2 A CEMP could be developed and implemented to minimise, amongst other things, noise and vibration during construction, which would control emissions relative to accepted criteria. Appropriate contract conditions to minimise noise and vibration would be imposed upon the Contractor, who would also be required to liaise with the LA's Environmental Health Department (EHD) to minimise impacts at all times. Control measures routinely applied in this way would include the following:

- Selecting inherently quiet plant;
- Selecting non-impulsive methods where possible;
- The use, where necessary and practicable, of enclosures and screens around noisy fixed plant;
- Limiting site work where possible to daytime hours; and
- Adherence to relevant British Standards.

7.3 Provision can also be made for specific noise and vibration criteria to be adhered to where feasible, and for suitable plant and working methods to be agreed with the LA prior to commencement of works. The option will also exist for an application for 'Prior Consent' to be made to the LA's EHD under Section 61 of the CoPA. Such an application would provide the EHD with the necessary details relating to construction method statements and construction noise effects, thereby enabling them to check that the best practicable means are being used and that the noise controls are acceptable.

7.4 The above range of noise controls represents the measures that are regularly and successfully applied to large scale construction projects in order to minimise noise effects on local communities. The application of similar control measures during the construction of this development will likewise ensure that the works proceed with the minimum disturbance to local residents.

7.5 No adverse vibration impacts are expected during the construction works, nevertheless, appropriate vibration control measures consistent with the requirement to apply best practicable means under CoPA would be implemented at all times.

Completed Development

<u>External Sound Levels</u>

7.6 Modelling has demonstrated that, based on the illustrative layout, acoustic garden fencing of up to 2m in height will be required for the most exposed garden areas adjacent to Ashby Road.

7.7 It should be noted that unless highlighted otherwise within drawing 29356_04_120_01, the model has included for standard 1.8m high close boarded timber fence along all garden boundaries.

7.8 Where acoustic fencing is to be used, the following specification is recommended as a minimum:

- Good quality timber with no warping, knots etc;
- At least 25mm thick in all places;
- Close-boarder and continued across the front of posts to minimise gaps;
- Boards should overlap 25mm as a minimum;
- No gaps should be present between gravel board and the ground; and
- Minimum mass of 10 to 15kg/m^2.

Internal Sound Levels

7.9 Acoustic modelling has demonstrated potential façade sound levels and, in accordance with BS 8233, ProPG and AVOG, sound reduction performance requirements of the façade have been determined.

7.10 In terms of acoustics, windows and ventilation strategies are the 'weakest' acoustics point in any façade and subsequently, the composite sound reduction performance is typically dominated by these elements. Therefore, minimum performance requirements to be provided by the glazing and ventilation elements at all dwellings are presented herein.

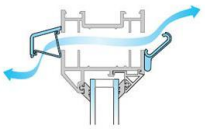
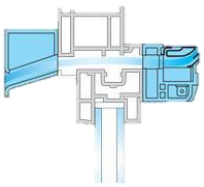
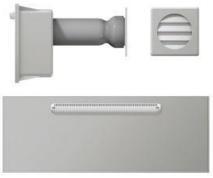
7.11 Drawing on the above, and the acoustic modelling undertaken, Table 7.1 provides typical reduction requirements and potential glazing and ventilation solutions across the Site in order to demonstrate compliance with the internal sound level criteria outlined in BS 8233 and ProPG during typical conditions; internal sound level criteria outlined in AVOG during overheating conditions; whilst adhering to the ventilation requirements of AD-F[10].

7.12 This table should be read in conjunction with the drawings in **Appendix E** whereby drawing 29356_04_120_04 demonstrates the required reduction for bedrooms and drawing 29356_04_120_05 demonstrates the required reduction for all other habitable rooms.

7.13 For each reference in Table 7.1, the sound reduction performance requirements, in octave band and weighted reduction format, are presented in **Appendix F**.

[10] The Building Regulations 2010, Ventilation, Approved Document F, 2021 Edition.

Table 7.1: Suggested Internal Mitigation Measures

Mitigation Ref.	Example Glazing Solution	Example Whole-Dwelling Ventilation Solution (AD-F)
Ref. A	4mm glass panel 12mm air gap 4mm glass panel Approx. 27 dB $R_w + C_{tr}$	<u>Standard Non-Acoustic Trickle Vent</u> Direct airpath trickle vent located in the top of the window frame  Approx. $D_{ne,\,w} + C_{tr}$ = 32 dB
Ref: B	8mm pane 12mm air space 10mm pane Approx. $R_w + C_{tr}$ = 33 dB	<u>Acoustically Rated Trickle Vent</u> Slots typically located in the window frame with more torturous path and acoustic lining  Approx. $D_{ne,w} + C_{tr}$ = 35 dB
Ref: C	6mm pane 18mm air space 9.5 mm laminated pane Approx. $R_w + C_{tr}$ = 36 dB	<u>Acoustically Rated Through Wall Trickle Vent</u> Through wall trickle vent with torturous airpath.  Approx. $D_{ne,w} + C_{tr}$ = 42 dB

8.0 CONCLUSIONS

8.1 MEC has been commissioned by Davidsons Developments Ltd, to undertake an Acoustics Assessment for the proposed residential development on Land to the East of Ashby Road, Hinckley.

Construction Noise and Vibration

8.2 Due to the low ambient sound levels and the proximity of receptors, construction plant will have the potential to affect noise-sensitive dwellings located immediately adjacent to the Site, where construction noise levels may occasionally exceed relevant noise thresholds and amount to a significant impact that requires appropriate noise control measures to be implemented.

8.3 Further assessment should be undertaken when the full details of all site operations are known, i.e., plant type, numbers, locations and duration of works. Specific noise and vibration control measures can be defined at that time and implemented by way of a Code of Construction Practice or Construction Environmental Management Plan and planning conditions prior to construction commencing.

Completed Development

8.4 Detailed assessments of the Site, during typical conditions, have been undertaken in accordance with BS 8233 and ProPG criteria whilst giving consideration to typical condition ventilation requirements in AD-F.

8.5 Acoustic modelling has demonstrated that based on the illustrative layout, with the exception of a couple of plots adjacent to Ashby Road, standard mitigation in the form of 1.8m high close boarded timber fencing will enable BS 8233's criterion of 55 dB $L_{Aeq,16hr}$ to be satisfied across the Site, with a large portion of the Site satisfying BS 8233's lower-level criterion of 50 dB $L_{Aeq,16hr.}$

8.6 Where exceedances are experienced for the couple of plots adjacent to Ashby Road, acoustic fencing of up to 2m in height will be required to satisfy BS 8233's criterion of 55 dB $L_{Aeq,16hr}$.

8.7 However, it should be noted that the modelling is representative of only one potential Site layout, based on the outline illustrative layout and subsequently, the opportunity remains during the Reserved Matters stage to explore alternative layout options, where re-orientation of the affected plots, may enable the outdoor criterion to be met through the provision of standard 1.8m high close boarded timber fencing.

8.8 With regards to internal acoustic conditions, the majority of new dwellings will satisfy the criteria in BS 8233 and ProPG through the provision of standard thermal double glazing and direct airpath window mounted trickle ventilators to achieve the whole-dwelling ventilation requirements of AD-F, with uprated acoustic glazing and trickle ventilators required for the most exposed plots overlooking Ashby Road.

8.9 When considering the planning guidance outlined in AVOG, an open window acoustics strategy is not permissible during periods of overheating. Therefore, further investigations will be required as part of any Reserved Matters application, during the detailed design phase. In any event, the application should not be delayed on these grounds, as it needs to be recognised that the overheating strategy will be determined under AD-O at Building Control stage.

Conclusion

8.10 In conclusion, it is considered that with the implementation of the recommended mitigation strategy, the Site is suitable for residential development.

MEC
Consulting Group

APPENDICES

APPENDIX A

play area

suds

edge lane

primary street

connector street

courtyard

ecology corridor

ecology corridor

Primary street

ASHBY ROAD

GRANGE

ASHBY

Key

- Application site boundary
- Existing (retained) trees & hedgerow
- Proposed tree/hedge removal
- Root protection areas
- Indicative proposed planting
- Open space
- Indicative surface water attenuation basin
- Existing Public Right of Way
- Proposed pedestrian/cycle link
- Proposed vehicular access
- Potential for childrens play
- MANCO strip
- Indicative extent of residential area
- Potential locations of landmark buildings

N 0 10 20 m

DAVIDSONS HOMES

nineteen47
CHARTERED TOWN PLANNERS & URBAN DESIGNERS

Project
Ashby Road, Hinckley

Drawing Title
Illustrative Layout

Project Code	Drawing Nr	Rev
n2452	005	J
Date	Drawing Scale	
25.07.2025	1:500 @ A0	

MEC
Consulting Group

APPENDICES

APPENDIX B

GLOSSARY OF TECHNICAL TERMS

Noise

Noise is defined as unwanted sound. Human ears are able to respond to sound in the frequency range 20 Hz (deep bass) to 20,000 Hz (high treble) and over the audible range of 0 dB (the threshold of perception) to 140 dB (the threshold of pain). The ear does not respond equally to different frequencies of the same magnitude, but is more responsive to mid-frequencies than to lower or higher frequencies. To quantify noise in a manner that approximates the response of the human ear, a weighting mechanism is used. This reduces the importance of lower and higher frequencies, in a similar manner to the human ear.

Furthermore, the perception of noise may be determined by a number of other factors, which may not necessarily be acoustic. In general, the impact of noise depends upon its level, the margin by which it exceeds the background level, its character and its variation over a given period of time. In some cases, the time of day and other acoustic features such as tonality or impulsiveness may be important, as may the disposition of the affected individual. Any assessment of noise should give due consideration to all of these factors when assessing the significance of a noise source.

The most widely used weighting mechanism that best corresponds to the response of the human ear is the 'A'-weighting scale. This is widely used for environmental noise measurements, and the levels are denoted as dB(A) or L_{Aeq}, L_{A90} etc., according to the parameter being measured.

The decibel scale is logarithmic rather than linear, and hence a 3 dB increase in sound level represents a doubling of the sound energy present. Judgement of sound is subjective, but as a general guide a 10 dB(A) increase can be taken to represent a doubling of loudness, whilst an increase in the order of 3 dB(A) is generally regarded as the minimum difference needed to perceive a change under normal listening conditions.

Typical sound levels found in the environment

Sound Level	Location
0 dB(A)	Threshold of hearing
20 to 30 dB(A)	Quiet bedroom at night
30 to 40 dB(A)	Living room during the day
40 to 50 dB(A)	Typical office
50 to 60 dB(A)	Inside a car
60 to 70 dB(A)	Typical high street
70 to 90 dB(A)	Inside a factory
100 to 110 dB(A)	Burglar alarm at 1m away
110 to 130 dB(A)	Jet aircraft taking off
140 dB(A)	Threshold of pain

Descriptor	Terminology
Sound Pressure	Sound, or sound pressure, is a fluctuation in air pressure over the static ambient pressure.
Sound Pressure Level	The sound level is the sound pressure relative to a standard reference pressure of 20μPa (20x10-6 Pascals) on a decibel scale.
Decibel (dB)	A scale for comparing the ratios of two quantities, including sound pressure and sound power. The difference in level between two sounds s1 and s2 is given by 20 log10 (s1 / s2). The decibel can also be used to measure absolute quantities by specifying a reference value that fixes one point on the scale. For sound pressure, the reference value is 20μPa.
A-weighting (dB(A))	The unit of sound level, weighted according to the A-scale, which takes into account the increased sensitivity of the human ear at some frequencies.
Noise Level Indices	Noise levels usually fluctuate over time, so it is often necessary to consider an average or statistical noise level. This can be done in several ways, so a number of different noise indices have been defined, according to how the averaging or statistics are carried out.
$L_{eq, T}$	A noise level index called the equivalent continuous noise level over the time period, *T*. This is the level of a notional steady sound that would contain the same amount of sound energy as the actual, possibly fluctuating, sound that was recorded.
$L_{AFmax, T}$	A noise level index defined as the maximum noise level during the measurement period. L_{Max} is sometimes used for the assessment of discrete loud noises, which may have little effect on the overall L_{eq} noise level but will still affect the noise environment. It is typically measured using the 'fast' sound level meter response.
$L_{90, T}$	A noise level index. The noise level exceeded for 90% of the time over the period, *T*. *L*90 can be considered to be the "average minimum" noise level and is often used to describe the background noise.
$L_{10, T}$	A noise level index. The noise level exceeded for 10% of the time over the period, *T*. *L*10 can be considered to be the "average maximum" noise level. Generally used to describe road traffic noise.
Free-Field	Far from the presence of sound reflecting objects (except the ground), usually taken to mean at least 3.5m.
Façade	At a distance of 1m in front of a large sound reflecting object such as a building facade.
Fast/Slow Time Weighting	Averaging times used in sound level meters.
Octave Band	A range of frequencies whose upper limit is twice the frequency of the lower limit
One-third Octave Band	A frequency band in which the upper limit is 21/3 times the frequency of the lower limit.
Rating Level	The specific sound level, plus any adjustment for characteristic feature of sound in BS 4142.
Specific Sound Level	The A-weighted L_{eq} sound level produced by a sound source during a specified period of time. Commonly known as the sound source under investigation as defined in BS 4142.
Typical Maximum Level	The 90th percentile maximum event level (L_{AFmax}) measured during a period. Used for assessing night-time maximum levels under typical and overheating conditions.

Vibration

Vibrating sources, such as motor vehicle engines or the movement of vehicles over road surface irregularities, can produce not only displacement of the air molecules which we perceive as noise, but also displacement within the material components of the source or materials in contact with the source. These energy waves can travel through the ground in a similar manner to air pressure waves through the atmosphere and, dependent on the amount of energy being transmitted, be perceived as vibration.

Vibration can produce three effects:

- at levels above the threshold of perception it may cause human annoyance;
- at extreme levels (above those commonly associated with road traffic) it may cause building damage; and
- it may be re-radiated as audible noise.

Vibration can be defined as an oscillating motion about a fixed reference position. The number of times that a complete oscillation takes place during one second is called the 'frequency' measured in hertz (Hz) or cycles/second. The movement of an oscillating body can be described in terms of its displacement, velocity or acceleration.

For a simple oscillating signal, the peak-to-peak value measures the maximum excursion of the vibration about the stable reference position, it is particularly useful for measuring the vibratory displacement of machine parts. The peak value is the highest positive excursion from the stable reference position and is used to measure the energy level of short duration shocks; these are commonly measured as peak particle velocity (ppv) in mm/s.

For a complex vibration signal, the peak measures described above will not take account of the fluctuations that occur with time; this is called the signal's 'time history'. The RMS or 'root mean square' value is the most appropriate unit for measuring either the destructive abilities of a vibration or its potential for causing human annoyance because it takes account of the full time history of the signal and provides an amplitude value which is directly related to the energy content. Values are commonly measured as rms accelerations in m/s^2.

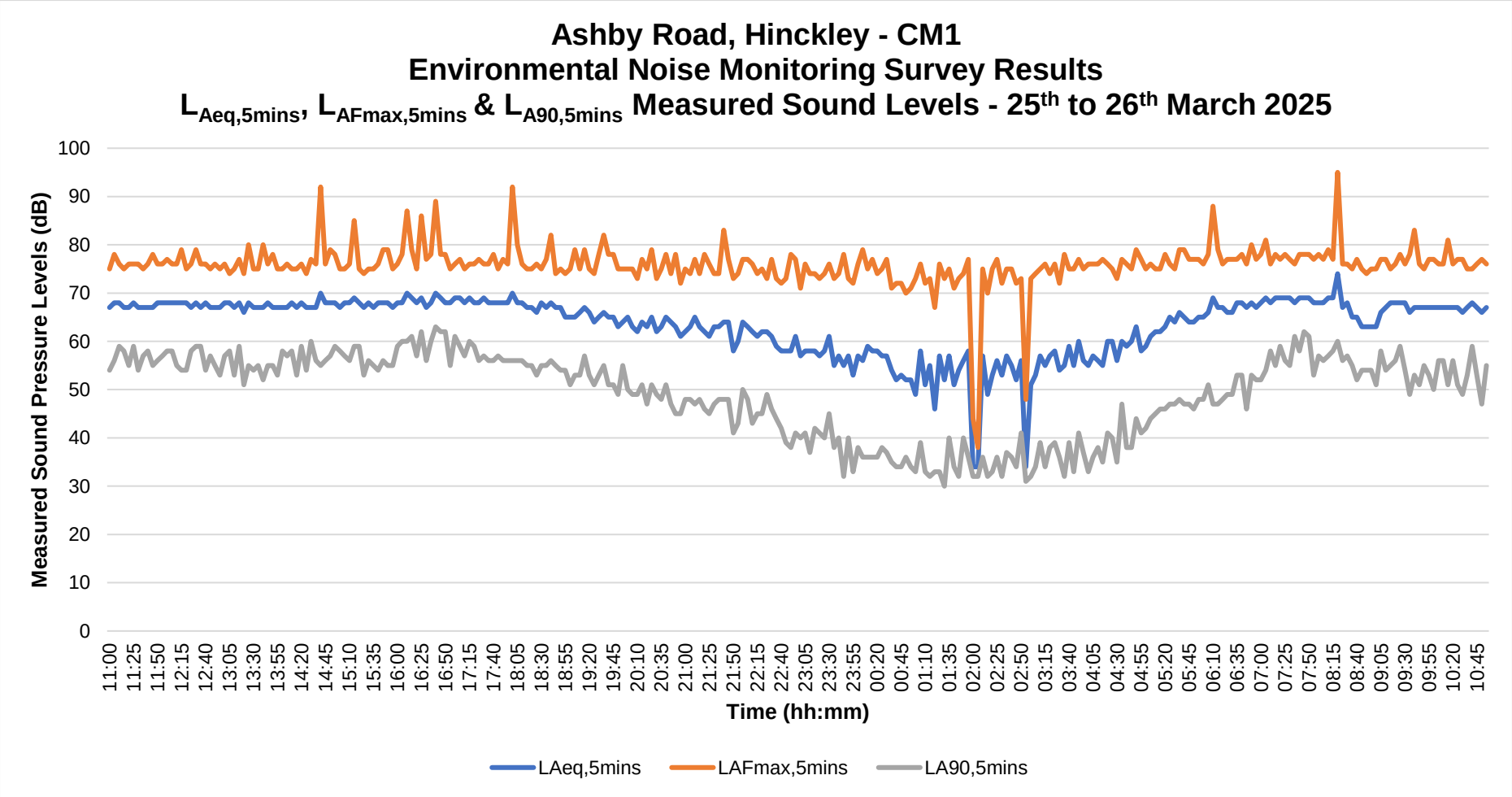
For a symmetrical signal the positive and negative excursions are equal, therefore, if the signal were to be averaged a ‘zero’ value would be obtained. This effect can be countered by first squaring the signal values before taking a mean. (The square of a negative value produces a positive value.) This squaring action will of course overestimate the vibrational energy and needs to be countered in turn by finally taking a square root of the mean, hence the term ‘root mean square’.

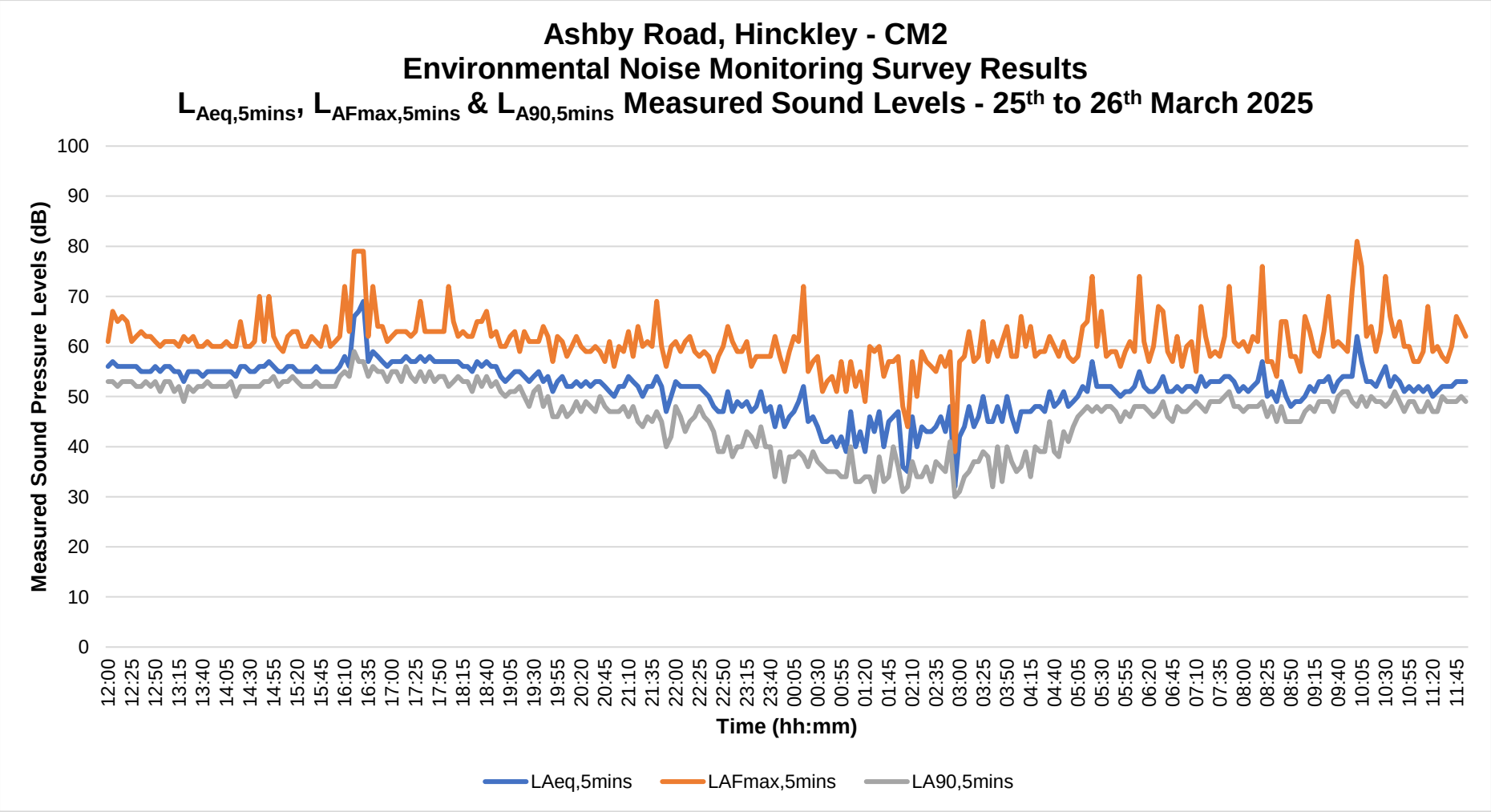
The probability of adverse comment due to a given vibration time history can be determined by using the rms frequency weighted acceleration and the duration of exposure to calculate a Vibration Dose Value (VDV). The VDV has ‘fourth power’ time dependency, therefore, unlike the rms value (which uses the square root of a squared value) the VDV is derived from the fourth root of the integral of the fourth power of the acceleration, in units of $m/s^{1.75}$. It provides a time dependent and frequency weighted unit of vibration that correlates with human response.

MEC
Consulting Group

APPENDICES

APPENDIX C


Ashby Road, Hinckley - CM1
Environmental Noise Monitoring Survey Results
LAeq,5mins, LAFmax,5mins & LA90,5mins Measured Sound Levels - 25th to 26th March 2025
Measured Sound Pressure Levels (dB)
100
90
80
70
60
50
40
30
20
10
0
11:00
11:25
11:50
12:15
12:40
13:05
13:30
13:55
14:20
14:45
15:10
15:35
16:00
16:25
16:50
17:15
17:40
18:05
18:30
18:55
19:20
19:45
20:10
20:35
21:00
21:25
21:50
22:15
22:40
23:05
23:30
23:55
00:20
00:45
01:10
01:35
02:00
02:25
02:50
03:15
03:40
04:05
04:30
04:55
05:20
05:45
06:10
06:35
07:00
07:25
07:50
08:15
08:40
09:05
09:30
09:55
10:20
10:45
Time (hh:mm)
LAeq,5mins
LAFmax,5mins
LA90,5mins


Ashby Road, Hinckley - CM2
Environmental Noise Monitoring Survey Results
LAeq,5mins, LAFmax,5mins & LA90,5mins Measured Sound Levels - 25th to 26th March 2025
Measured Sound Pressure Levels (dB)
100
90
80
70
60
50
40
30
20
10
0
12:00
12:25
12:50
13:15
13:40
14:05
14:30
14:55
15:20
15:45
16:10
16:35
17:00
17:25
17:50
18:15
18:40
19:05
19:30
19:55
20:20
20:45
21:10
21:35
22:00
22:25
22:50
23:15
23:40
00:05
00:30
00:55
01:20
01:45
02:10
02:35
03:00
03:25
03:50
04:15
04:40
05:05
05:30
05:55
06:20
06:45
07:10
07:35
08:00
08:25
08:50
09:15
09:40
10:05
10:30
10:55
11:20
11:45
Time (hh:mm)
LAeq,5mins
LAFmax,5mins
LA90,5mins

MEC
Consulting Group

APPENDICES

APPENDIX D

NOTES:

1. DO NOT SCALE THIS DRAWING.

KEY

- 0–50dB(A)
- 50–55dB(A)
- 55–60dB(A)
- 60–65dB(A)
- 65–70dB(A)
- 70–75dB(A)
- 75–80dB(A)
- >80dB(A)
- 2m Acoustic Fencing

REV:	AMENDMENTS:	DRN:	CHK:	APP:	DATE:
A	UPDATED ILLUSTRATIVE LAYOUT	HJ	NF	TR	04.06.25
-		GP	EW	NF	16.05.25

PROJECT:
ASHBY ROAD,
HINCKLEY

DRAWING TITLE:
DAYTIME AMBIENT SOUND LEVELS
LAeq,16hour

CLIENT:
DAVIDSONS DEVELOPMENTS LTD

DRAWING NUMBER:
29356_04_120_01

REVISION:	SHEET SIZE:	SCALE:
A	A3	NFS

STATUS:
FOR INFORMATION / APPROVAL

MEC Consulting Group
Birmingham | Brighton | Leicester

Telephone: 01530 264 753
Email: group@m-ec.co.uk
Website: www.m-ec.co.uk

NOTES:

1. DO NOT SCALE THIS DRAWING.

KEY

- 0–50dB(A)
- 50–55dB(A)
- 55–60dB(A)
- 60–65dB(A)
- 65–70dB(A)
- 70–75dB(A)
- 75–80dB(A)
- >80dB(A)
- 2m Acoustic Fencing

REV:	AMENDMENTS:	DRN:	CHK:	APP:	DATE:
A	UPDATED ILLUSTRATIVE LAYOUT	HJ	NF	TR	04.08.25
-		GP	EW	NF	16.05.25

PROJECT:
ASHBY ROAD,
HINCKLEY

DRAWING TITLE:
NIGHT-TIME AMBIENT SOUND LEVELS
LAeq,8hour

CLIENT:
DAVIDSONS DEVELOPMENTS LTD

DRAWING NUMBER:
29356_04_120_02

REVISION:	SHEET SIZE:	SCALE:
A	A3	NFS

STATUS:
FOR INFORMATION / APPROVAL

MEC Consulting Group
Birmingham | Brighton | Leicester

Telephone: 01530 264 753
Email: group@m-ec.co.uk
Website: www.m-ec.co.uk

NOTES:

1. DO NOT SCALE THIS DRAWING.

KEY

- 0–50dB(A)
- 50–55dB(A)
- 55–60dB(A)
- 60–65dB(A)
- 65–70dB(A)
- 70–75dB(A)
- 75–80dB(A)
- >80dB(A)
- 2m Acoustic Fencing

REV:	AMENDMENTS:	DRN:	CHK:	APP:	DATE:
A	UPDATED ILLUSTRATIVE LAYOUT	HJ	NF	TR	04.08.25
-		CP	EW	NF	16.05.25

PROJECT:
ASHBY ROAD,
HINCKLEY

DRAWING TITLE:
NIGHT-TIME MAXIMUM SOUND LEVELS
LAFmax,T

CLIENT:
DAVIDSONS DEVELOPMENTS LTD

DRAWING NUMBER:
29356_04_120_03

REVISION:	SHEET SIZE:	SCALE:
A	A3	NFS

STATUS:
FOR INFORMATION / APPROVAL

MEC
Consulting Group
Birmingham | Brighton | Leicester

Telephone: 01530 264 753
Email: group@m-ec.co.uk
Website: www.m-ec.co.uk

MEC
Consulting Group

APPENDICES

APPENDIX E

NOTES:

1. DO NOT SCALE THIS DRAWING.
2. Please refer to report reference 29356-ENV-0401 for details on the proposed glazing and ventilation references.

KEY

- Ref. A
- Ref. B
- Ref. C
- Ref. D

REV:	AMENDMENTS:	DRN:	CHK:	APP:	DATE:
A	UPDATED ILLUSTRATIVE LAYOUT	HJ	NF	TR	04.08.25
-		CP	EW	NF	16.05.25

PROJECT:
ASHBY ROAD,
HINCKLEY

DRAWING TITLE:
MITIGATION REFERENCE FOR HABITABLE BEDROOMS

CLIENT:
DAVIDSONS DEVELOPMENTS LTD

DRAWING NUMBER:
29356_04_120_04

REVISION:	SHEET SIZE:	SCALE:
A	A3	NFS

STATUS:
FOR INFORMATION / APPROVAL

MEC Consulting Group
Birmingham | Brighton | Leicester

Telephone: 01530 264 753
Email: group@m-ec.co.uk
Website: www.m-ec.co.uk

NOTES:

1. DO NOT SCALE THIS DRAWING.
2. Please refer to report reference 29356-ENV-0401 for details on the proposed glazing and ventilation references.

KEY

- Ref. A
- Ref. B
- Ref. C
- Ref. D

REV:	AMENDMENTS:	DRN:	CHK:	APP:	DATE:
A	UPDATED ILLUSTRATIVE LAYOUT	HJ	NF	TR	04.08.25
-		CP	EW	NF	16.05.25

PROJECT:
ASHBY ROAD,
HINCKLEY

DRAWING TITLE:
MITIGATION REFERENCE FOR ALL OTHER HABITABLE ROOMS (NON-BEDROOMS)

CLIENT:
DAVIDSONS DEVELOPMENTS LTD

DRAWING NUMBER:
29356_04_120_05

REVISION:	SHEET SIZE:	SCALE:
A	A3	NFS

STATUS:
FOR INFORMATION / APPROVAL

MEC Consulting Group
Birmingham | Brighton | Leicester

Telephone: 01530 264 753
Email: group@m-ec.co.uk
Website: www.m-ec.co.uk

MEC
Consulting Group

APPENDICES

APPENDIX F

Reference A Performance Requirements

Façade Element	Sound Insulation Performance Requirements (dB) in Octave Band Centre Frequencies (Hz)						R_w / $D_{ne,w}$ (dB)	C_{tr} (dB)
	125	250	500	1k	2k	4k		
Glazing	22	20	26	36	39	31	31	-4
Ventilation (Trickle)	32	32	31	33	31	31	32	0
The glazing reduction requirements can typically be found in a configuration of 4/12/4, where the information is presented in terms of the thickness of one pane of glass in mm, followed by the size of the air gap in mm, followed by the thickness of the second pane of glass in mm. The background ventilation requirements can be found in standard window mounted non-acoustic trickle ventilators.								

Reference B Performance Requirements

Façade Element	Sound Insulation Performance Requirements (dB) in Octave Band Centre Frequencies (Hz)						R_w / $D_{ne,w}$ (dB)	C_{tr} (dB)
	125	250	500	1k	2k	4k		
Glazing	29	27	35	37	36	45	36	-3
Ventilation (Trickle)	31	35	40	39	31	31	36	-1
The glazing reduction requirements can typically be found in a configuration of 8/12/10. The background ventilation requirements can be found in window mounted acoustic trickle ventilators.								

Reference C Performance Requirements

Façade Element	Sound Insulation Performance Requirements (dB) in Octave Band Centre Frequencies (Hz)						R_w / $D_{ne,w}$ (dB)	C_{tr} (dB)
	125	250	500	1k	2k	4k		
Glazing	25	29	40	48	47	56	42	-6
Ventilation (Trickle)	43	36	38	52	62	70	45	-3
The glazing reduction requirements can typically be found in a configuration of 6/18/9.5 laminated pane. The background ventilation requirements can be found in through wall acoustic trickle ventilators.								

Reference D Performance Requirements

Façade Element	Sound Insulation Performance Requirements (dB) in Octave Band Centre Frequencies (Hz)						R_w / $D_{ne,w}$ (dB)	C_{tr} (dB)
	125	250	500	1k	2k	4k		
Glazing	31	41	48	53	58	67	50	-6
Ventilation (Trickle)	46	46	49	55	66	66	54	-3
The glazing reduction requirements can typically be found in a configuration of 8.8/20/16.8. The background ventilation requirements can be found in high performance through wall acoustic trickle ventilators.								

Minimum performance requirements for overheating ventilation only applicable if passive ventilation is used. If mechanical ventilation is chosen, please refer to the main body of the acoustics report for suitable noise limits.

It is appreciated that it is impractical to achieve every octave band minimum performance requirement, therefore, during procurement of solutions, the $R_w + C_{tr}$ or $D_{ne,w} + C_{tr}$ should be adhered to at a minimum.

- CIVIL ENGINEERING
- TRANSPORT
- FLOOD RISK & DRAINAGE
- STRUCTURES
- GEO-ENVIRONMENTAL
- ACOUSTIC AIR
- UTILITIES
- GEOMATICS
- LIGHTING
- EXPERT WITNESS

MEC
Consulting Group

E: group@m-ec.co.uk
W: www.m-ec.co.uk