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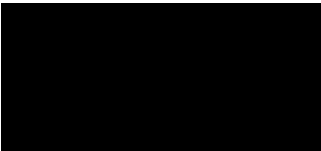
Vibration Impact Assessment

Prepared: 24th September 2026

Report No	23588-3 (R2)
Client	Chaldicotts Ltd
Site	Chaldicott Barns Northern Expansion Chaldicotts Barns Semley SP7 9AW

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1. Quality Management

Report Number	23588 – 3 (R2)
Issue	Revision 2 ¹
Prepared	24 th September 2026
Prepared By	
Authorised By	

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¹ Title and layout plan update

3. Executive Summary

- 3.1.1. A vibration impact assessment has been carried out for a proposed industrial northern expansion at Chaldicotts Barns, Semley (“Proposed Development”).
- 3.1.2. A vibration survey was carried out, in accordance with BS 6472, to measure any potential ground-borne vibration levels generated by the existing test facility for engine and rotor components in operation.
- 3.1.3. The vibration survey data was used as an indication and basis for the new test facility to predict if the vibration dose values (VDVs) are likely to result in any adverse comment from residential receivers.

3.2. Measurement, Assessment and Evaluation

- 3.2.1. The survey and assessment were carried out to BS 6472-1

3.3. Scope

- 3.3.1. This report covers all aspects of the vibration survey, including:
 - an objective vibration survey of the existing conditions;
 - assessment of vibration dose values (VDV) with respect to human response criteria for residential
 - analysis of the data and comparison against the relevant assessment criteria

3.4. Results Summary

- 3.4.1. A vibration survey was carried out, in accordance with BS 6472, to measure any potential ground-borne vibration levels generated by the existing test facility for engine and rotor components in operation.
- 3.4.2. The survey recorded Vibration Dose Values (VDVs) across six consecutive day and night periods.
- 3.4.3. All measured VDV values fall below the BS 6472-1 “low probability of adverse comment” threshold for both daytime and night-time periods.
- 3.4.4. Therefore, it is predicted that vibration levels generated by the new test facility are unlikely to result in any adverse comment from residential receivers.

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5. Background

5.1. Noise Policy Statement for England

- 5.1.1. The Noise Policy Statement for England (NPSE), published in March 2010, states the long-term vision of Government noise policy is to *“promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development”*.
- 5.1.2. This long-term vision is supported by the following aims; through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:
- Avoid significant adverse impacts on health and quality of life;
 - Mitigate and minimise adverse impacts on health and quality of life;
 - Where possible, contribute to the improvement of health and quality of life.
- 5.1.3. The intention is that the NPSE should apply to all types of noise apart from noise in the workplace (occupational noise).

5.2. National Planning Policy Framework

- 5.2.1. The National Planning Policy Framework (NPPF) was published on the 27th of March 2012 and was most recently updated on the 5th September 2023; it sets out the Government’s planning policies for England and how these are expected to be applied. The framework states that the planning system should contribute to and enhance the natural and local environment by:

“preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability”.

- 5.2.2. The NPPF requires that new developments be appropriate to their locations such that the effects of pollution on health have been taken into account. Planning policies and decisions should aim to:
1. avoid noise giving rise to significant adverse impacts on health and the quality of life;
 2. mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development; and,
 3. identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value.
- 5.2.3. Existing businesses near to proposed development should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or ‘agent of change’) should be required to provide suitable mitigation before the development has been completed.

5.3. National Planning Practice Guidance

- 5.3.1. The National Planning Practice Guidance (PPG) is a web-based resource, launched by the Department for Communities and Local Government (DCLG) which was published on the 29th November 2016 and is regularly updated to reflect the changes made to the NPPF and make it more accessible.²

² <http://planningguidance.communities.gov.uk/>

- 5.3.2. There are a number of factors that determine whether a noise could be a concern to a receptor. These include: the absolute level of the noise and when it occurs, whether it is existing or new to the area, temporal characteristics, spectral content and the acoustic absorption in the area.

Perception	Examples of outcomes	Effect level	Action
Not noticeable	No effect	No observed effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect (NOAEL)	No specific measures required
Lowest Observed Adverse Effect Level (LOAEL)			
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level (SOAEL)			
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very intrusive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

Table 1 – Noise exposure hierarchy

- 5.3.3. It is emphasised in the PPG that the planning process should be used to mitigate and minimise the impact of noise. This could include: engineering the noise sources to be quiet, minimising the impact of noise through layout, using conditions/obligations to restrict activities, mitigating the impact in places where noise is likely to be experienced (e.g. using facade sound insulation).

6. Introduction

- 6.1.1. A vibration impact assessment has been carried out for a proposed industrial northern expansion at Chaldicotts Barns, Semley ("Proposed Development").
- 6.1.2. A vibration survey was carried out, in accordance with BS 6472, to measure any potential ground-borne vibration levels generated by the existing test facility for engine and rotor components in operation.
- 6.1.3. The vibration survey data was used as an indication and basis for the new test facility to predict if the vibration dose values (VDVs) are likely to result in any adverse comment from residential receivers.

6.2. Proposed Development

- 6.2.1. An image showing the location of the Proposed Development outlined in red is given in Figure 1.

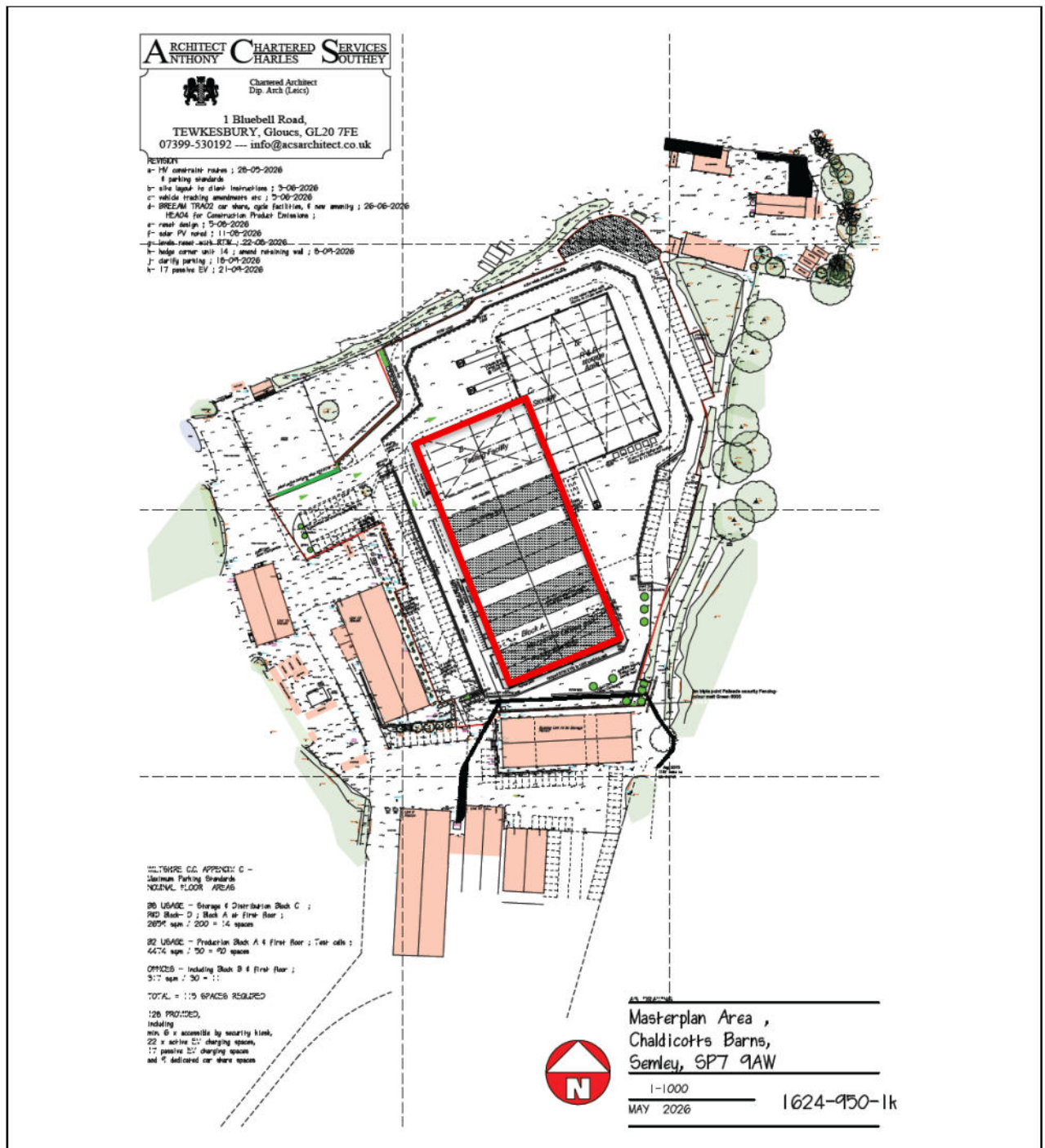


Figure 1 - Plan showing the location of the Proposed Development outlined in red

6.3. Nearest sensitive receivers (“NSR”)

- 6.3.1. The nearest sensitive receiver to the proposed development is the residents at Tokes Farm (≈400m from the nearest site boundary), as shown in Figure 2.



Figure 2 – Location of the nearest residential receivers outlined in blue

7. Assessment Criteria

7.1. BS6472-1– Guide to evaluation of human exposure to vibration in buildings

- 7.1.1. The standard BS6274-1 gives guidance on the probability of adverse comments due to vibration in buildings. The measured quantity used to assess the human response to vibration is the Vibration Dose Value (VDV).
- 7.1.2. The standard BS6274-1:2008 gives guidance on the probability of adverse comments due to vibration in buildings. The measured quantity used to assess the human response to vibration is the Vibration Dose Value (VDV).
- 7.1.3. The VDV is defined as

$$VDV = \left(\int_0^T a^4(t) dt \right)^{0.25}$$

where VDV is the vibration dose value measured in $ms^{-1.75}$, $a(t)$ is the frequency weighted acceleration in ms^{-2} and T is the total period of the day or night (in seconds) during which vibration can occur.

- 7.1.4. The standard gives guidance on the probability that the determined vibration dose might result in adverse comment by those who experience it. This guidance is summarised below in Table 2.

Place and time	Low probability of adverse comment ($ms^{-1.75}$)	Adverse comment possible ($ms^{-1.75}$)	Adverse comment probable ($ms^{-1.75}$)
Residential buildings 16h day	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Residential buildings 8h night	0.1 to 0.2	0.2 to 0.4	0.4 to 0.8

Table 2 – Vibration dose value ranges which might result in various probabilities of adverse comment within residential buildings: Table 1 of BS6472-1:2008

8. Survey

8.1. Measurement Location

- 8.1.1. Vibration monitoring was carried out to measure any potential ground-borne vibration levels generated by the existing test facility for engine and rotor components in operation.
- 8.1.2. The tri-axial vibration monitor was placed directly onto a concrete slab near to the existing test facility.
- 8.1.3. The location of the vibration monitor is shown in Figure 3.



Figure 3 – Vibration monitoring location on site

8.2. Measurement and Timescale

- 8.2.1. Measurements of Vibration Dose Value (VDV) were recorded in 30 second intervals and were subsequently converted into daily and night-time period values of Vibration Dose Values (VDV).

9. Results

9.1. Human Response – Calculation of VDV

9.1.1. The measured data was analysed in accordance to the standard BS 6472-1.

9.1.2. The measured 30 second VDV's were integrated over 16-hour period between 7 am and 11 pm to give $VDV_{16h, day}$ and between 11 pm and 7 am to calculate $VDV_{8h, night}$ in each of the component directions. The results are shown in Table 3.

Date	Period	x-direction ($ms^{-1.75}$)	y-direction ($ms^{-1.75}$)	z-direction ($ms^{-1.75}$)
18 th / 19 th June 2026	$VDV_{8h, night}$	0.013	0.022	0.022
19 th June 2026	$VDV_{16h, day}$	0.019	0.023	0.029
19 th / 20 th June 2026	$VDV_{8h, night}$	0.013	0.022	0.022
20 th June 2026	$VDV_{16h, day}$	0.018	0.023	0.029
20 th / 21 st June 2026	$VDV_{8h, night}$	0.014	0.022	0.022
21 st June 2026	$VDV_{16h, day}$	0.025	0.023	0.029
21 st / 22 nd June 2026	$VDV_{8h, night}$	0.013	0.021	0.022
22 nd June 2026	$VDV_{16h, day}$	0.024	0.023	0.032
22 nd / 23 rd June 2026	$VDV_{8h, night}$	0.013	0.021	0.023
23 rd June 2026	$VDV_{16h, day}$	0.025	0.024	0.030
23 rd / 24 th June 2026	$VDV_{8h, night}$	0.014	0.021	0.023
24 th June 2026	$VDV_{16h, day}$	0.023	0.024	0.030

Table 3 - Calculated values of daytime and night-time VDV's in the basement

10. Vibration Assessment

10.1. BS 6472-1 – Human response to vibration assessment

10.1.1. The calculated values of VDV along each coordinate axis have been assessed against BS 6472-1. The results are summarised in Table 4.

Date	Period	x-direction ($\text{ms}^{-1.75}$)	y-direction ($\text{ms}^{-1.75}$)	z-direction ($\text{ms}^{-1.75}$)	BS 6472 outcome
18 th / 19 th June 2026	VDV _{8h, night}	0.013	0.022	0.022	✓ Below low probability threshold
19 th June 2026	VDV _{16h, day}	0.019	0.023	0.029	✓ Below low probability threshold
19 th / 20 th June 2026	VDV _{8h, night}	0.013	0.022	0.022	✓ Below low probability threshold
20 th June 2026	VDV _{16h, day}	0.018	0.023	0.029	✓ Below low probability threshold
20 th / 21 st June 2026	VDV _{8h, night}	0.014	0.022	0.022	✓ Below low probability threshold
21 st June 2026	VDV _{16h, day}	0.025	0.023	0.029	✓ Below low probability threshold
21 st / 22 nd June 2026	VDV _{8h, night}	0.013	0.021	0.022	✓ Below low probability threshold
22 nd June 2026	VDV _{16h, day}	0.024	0.023	0.032	✓ Below low probability threshold
22 nd / 23 rd June 2026	VDV _{8h, night}	0.013	0.021	0.023	✓ Below low probability threshold
23 rd June 2026	VDV _{16h, day}	0.025	0.024	0.030	✓ Below low probability threshold
23 rd / 24 th June 2026	VDV _{8h, night}	0.014	0.021	0.023	✓ Below low probability threshold
24 th June 2026	VDV _{16h, day}	0.023	0.024	0.030	✓ Below low probability threshold

Table 4 - Evaluation of day and night-time VDV_s measured in the basement

10.1.2. The results show that all measured VDV values fall below the BS 6472-1 “low probability of adverse comment” threshold for both daytime and night-time periods.

11. Conclusions

- 11.1.1. A vibration impact assessment has been carried out for a proposed industrial northern expansion at Chaldicotts Barns, Semley ("Proposed Development").
- 11.1.2. A vibration survey was carried out, in accordance with BS 6472, to measure any potential ground-borne vibration levels generated by the existing test facility for engine and rotor components in operation.
- 11.1.3. The survey recorded Vibration Dose Values (VDVs) across six consecutive day and night periods.
- 11.1.4. All measured VDV values fall below the BS 6472-1 "low probability of adverse comment" threshold for both daytime and night-time periods.
- 11.1.5. Therefore, it is predicted that vibration levels generated by the new test facility are unlikely to result in any adverse comment from residential receivers.

12. Appendix

APPENDIX A: Summary Information

Required ISO Test Report Information (cross referenced where required)			
		Measurements carried out to:	Analysed to:
A	Standards	BS 6472-1	BS 6472-1
B	Organisation performed the measurements	noise.co.uk Ltd, The Haybarn, Newnham Grounds, Kings Newnham Lane, Bretford, Coventry, CV23 0JU.	
C	Name of Client	Chaldicotts Ltd	
D	Full site address	Chaldicotts Barns Semley,	
E	Date of surveys	Survey Date: 18 th June 2026 - 24 th June 2026	
F	Description & identification of Proposed Development	Vibration assessment of commercial sound sources affecting existing residential receivers	
G	Brief Description of details of Procedure & equipment	See Section 8 of this report.	

APPENDIX B: Technical Appendix

12.1.1. Measurements were made using the following equipment:

Basement

Manufacturer and Type	Serial Number
Vibroek V901	583

12.1.2. The equipment has traceable calibration. The vibration level meter was calibrated immediately prior to and immediately after the measurements were carried out.