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FINCHWOOD PARK PARCELS 11 AND 12

NOISE ASSESSMENT

Technical Report: R11478-1 Rev 0

Date: 30th January 2026

For: Vistry Thames Valley
550 Oracle Parkway
Thames Valley Park
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24 Acoustics Document Control Sheet

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For and on behalf of 24 Acoustics Ltd				

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1.0 INTRODUCTION

- 1.1 24 Acoustics Ltd has been instructed by Vistry Thames Valley to provide a noise assessment for the proposed residential development at Finchwood Park, Parcels 11 and 12 which has outline consent for residential development.
- 1.2 The reserved matters application for Parcels 11 and 12 is underway and condition 12 of the site's planning consent requires an assessment of noise at the proposed dwellings. Accordingly, this noise assessment has included:
- Environmental noise monitoring;
 - Consideration of the noise arising from nearby sources affecting the site;
 - Assessment of internal noise levels within the dwellings;
 - Assessment of external noise in amenity areas.
- 1.3 This report presents the results of the assessment, following site visits and ambient noise surveys undertaken between 21st and 27th January 2026.
- 1.4 An explanation of acoustical terms used in this report is provided in Appendix A. All sound pressure levels in this report are given in dB re: 20 μ Pa.

2.0 SITE DESCRIPTION

- 2.1 The site is located in a developing residential area currently under construction (outline planning reference O/2014/2179 and 181194).
- 2.2 The newly constructed Nine Mile Ride Extension (NMRE) road is to the north of the site. The existing Hogwood Industrial Estate is located further north to the opposite side of the NMRE carriageway. Completed new-build residential properties are located to the south and east of the site at Parcels 14 and 15 of the wider Finchwood Park development. Parcel 10 is located directly north and west of the site and is currently under construction. The currently undeveloped Parcel 13 is located to the northeast of the site, to the opposite side of the NMRE carriageway, and is allocated for residential development.
- 2.3 It is proposed to construct 161 dwellings across Parcels 11 and 12 with associated external amenity areas and public spaces. Access will be provided via through roads from adjacent parcels.

- 2.4 Noise sources in the area include road traffic on the NMRE. Traffic flows on this road are expected to increase as the wider development is completed.
- 2.5 The existing site and noise measurement locations are shown in Figure 1. The proposed site layout is shown in Figure 2.

3.0 CRITERIA

Planning Condition 12

- 3.1 Planning condition 12 of consent 250931 outlines the requirement for a noise assessment and is reproduced below:

"Prior to above-ground construction of the development hereby approved, a Noise Assessment in accordance with BS4142 shall be submitted to and approved in writing by the Local Planning Authority. The assessment shall:

(i) be carried out by a suitably qualified acoustic consultant/engineer and shall identify all noise sources (including air source heat pumps) affecting both internal and external areas of the development hereby approved;

(ii) ensure that all noise implications are mitigated so that internal ambient noise levels for dwellings shall not exceed 35 dB L_{Aeq} (16 hour) 07:00-23:00 during the daytime and 30 dB L_{Aeq} (8 hour) 23:00-07:00 during the night assuming full road traffic flows at the outset;

(iii) identify design and/or insulation measures required to ensure that ambient internal noise levels and the noise levels within usable external spaces for the dwellings meet the BS8233 sound insulation and noise reduction for buildings design range 'good' for living accommodation.

The approved mitigation measures shall be implemented prior to first occupation of the dwelling to which they relate and be permanently retained and maintained thereafter.

- 3.2 Relevant guidance documents are discussed in the following sections.

BS 8233: 2014 and World Health Organisation Criteria

- 3.3 BS 8233:2014 provides design guidance for dwelling houses, flats and rooms in residential use and recommends that internal noise levels in dwellings do not exceed 35 dB $L_{Aeq,16 \text{ hour}}$ in living rooms and bedrooms during the day, 40 dB $L_{Aeq, 16 \text{ hour}}$ in dining rooms during the day and 30 dB $L_{Aeq, 8 \text{ hour}}$ in bedrooms at night.
- 3.4 The standard states that the above limits apply to steady external noise sources without specific character, and also states the following:
- "Noise has a specific character if it contains features such as a distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low-frequency content, in which case lower noise limits might be appropriate."*
- 3.5 BS 8233 also notes that *"Regular individual noise events (for example, scheduled aircraft or passing trains) can cause sleep disturbance. A guideline value may be set in terms of SEL or $L_{Amax,f}$ depending on the character and number of events per night."*
- 3.6 The World Health Organisation (WHO) [Reference 6] provides guidance on desirable internal noise levels to minimise the risk of sleep disturbance. The WHO 2000 guidelines suggest internal noise levels not exceeding 30 dB $L_{Aeq,8hr}$ or regularly exceeding 45 dB $L_{Amax,f}$ for 'a good night's sleep'.
- 3.7 BS 8233:2014 suggests an upper guideline value of 55 dB $L_{Aeq,16 \text{ hour}}$ for noise levels in external amenity spaces such as gardens. This is considered an aspirational limit and BS 8233. BS 8233 also states that development should not be prohibited on the basis of noise levels within external amenity areas.

MCS 020a

- 3.8 MCS Air Source Heat Pump Sound Calculations, presents a methodology for assessing the noise impact from air source heat pumps. It determines the overall noise level from ASHPs at neighbouring noise sensitive receptor locations.
- 3.9 To calculate the sound pressure from the ASHP the document takes into account the following parameters:

- Manufacturer's stated sound power level for the air source heat pump.
- Directivity in relation to where the heat pump is located relative to nearby reflective surfaces.
- Distance from the pump to the assessment location.
- The effect of acoustic screening from walls or barriers/fencing.

3.10 Compliance is secured where the resultant level does not exceed 37 dBA.

4.0 ENVIRONMENTAL NOISE MEASUREMENTS AND RESULTS

Measurement Instrumentation and Procedure

4.1 Environmental noise measurements were undertaken between 21st and 27th January 2026 in order to determine prevailing noise levels at the site. Measurements were undertaken using the following equipment:

- | | |
|---|-----------|
| • 2 x Svantek precision sound level meter | Type 958a |
| • Brüel & Kjær acoustic calibrator | Type 4231 |

4.2 Measurements were undertaken to the north and west of the site, as described below and shown in Figure 1.

- Measurement Location 1: To the north of the site, near the NMRE. Approximately 25m from the centre of the NMRE at 2m above local ground level in free-field conditions;
- Measurement Location 2: To the west of the site, nearest western point to the NMRE and Parcel 10. Approximately 100m from the centre of the NMRE at 3.5m above local ground level in free-field conditions.

4.3 The instrumentation's calibration was verified before and after the surveys in accordance with the manufacturer's instructions. No significant drift in calibration was recorded. Microphones were fitted with environmental weather shields during the measurement periods. Measurements were made in accordance with BS 7445: 1991 "Description and measurement of environmental noise Part 2 - Acquisition of data pertinent to land use".

- 4.4 Measurements were influenced by construction activities, ongoing during weekdays (07:00 to 16:00 hours) and Saturdays (07:00 to 13:00 hours). Periods affected by construction noise have been removed from the analysis.
- 4.5 Weather conditions during the survey were variable with periods of precipitation and wind speeds exceeding 5m/s. Measurements affected by meteorological conditions have been removed from the analysis.

Results

- 4.6 The measured noise levels are shown graphically in Appendix B and summarised in Table 1.

Location	Daytime (07:00 - 23:00) dB LAeq, 16 hour	Night Time (23:00 – 07:00)	
		dB LAeq, 8 hour	Typical dB LAmax, f
1 (north)	59	48	68
2 (west)	46	42	62

Table 1 - Measured Noise Levels

- 4.7 24 Acoustics determines the typical maximum level to be the tenth highest during the relevant night-time period.
- 4.8 Measurements include road traffic noise from the NMRE and surrounding road network. Measurement results and detailed on-site observations demonstrate that noise from Hogwood Industrial Estate is not significant at the site.

Future Road Traffic Noise Levels

- 4.9 The Finchwood Park residential development has not yet been completed and the Nine Mile Ride Extension is expected to see higher vehicle flows as the wider development progresses.
- 4.10 The following assessment has been based on the measured levels discussed above and with consideration to the projected peak hour vehicle movements associated with the new road in 2026 provided in the Royal Haskoning DHV transport assessment issued for planning in October 2014 (ref. PB2112/RR01002/303814/Lond) and in the Nine Mile Ride Extension South (NMRES) Transport Assessment by JNPGROUP in 2019 (ref. M42740-JNP-66-XX-RP-D-1003).

- 4.11 Consideration has also been given to the 12 hour traffic flows undertaken on the existing Nine Mile Ride road to the east of the site in 2023 (site no. 804576) by the Department for Transport.
- 4.12 Calculations have been undertaken to determine the likely level of road traffic noise incident at the site based on the above traffic flow data. Resultant noise levels based on the predicted 1-hour peak flow and Department for Transport 12 hour traffic counts are all below the on-site measured noise levels.
- 4.13 To approximate road traffic noise levels on the NMRE when the development is complete and fully occupied, a +3 dB correction has been applied to the measured noise levels outlined in Table 1, which is a robust assumption.

5.0 ASSESSMENT AND RECOMMENDED MITIGATION MEASURES

Internal Noise Levels

- 5.1 The following calculations are based on site layout and house type drawings by ECE Architecture issued in January 2026.
- 5.2 The following assessment is based on a cavity masonry external wall construction specified to achieve a minimum sound insulation performance of 52 dB R_w .

Window/Glazing System

- 5.3 To achieve suitable internal noise levels to habitable rooms, an increased window/glazing acoustic specification will be required to properties directly overlooking NMRE. The window/glazing acoustic specification to properties further within the site is lower.
- 5.4 The minimum acoustic requirements for window/glazing systems apply to all new habitable rooms as described in Table 2 with glazing type locations identified in Figure 2.

Glazing Type	Minimum Octave (Hz) Band Sound Reduction Index, dB						Minimum Overall dB R_w
	125	250	500	1k	2k	4k	
1	26	22	28	38	41	42	33
2	24	20	25	35	38	35	31

Table 2 - Glazing Sound Insulation Specifications

- 5.5 In making a comparison with the values in Table 2, it is important that the glazing figures used are the result of tests in accordance with ISO 10140, Part 2: 2010. The quoted minimum sound reduction specifications must be achieved by the entire glazing system as a whole, including frames, seals, any insulated panels and not just the glass. The requirements also apply to any external doors to habitable rooms.
- 5.6 For guidance, the following glazing configuration would be capable of achieving the required sound reduction performance if installed properly (i.e. with appropriate frames and seals, etc.):
- Glazing Type 1: 8mm glass – 12mm cavity – 4mm glass;
 - Glazing Type 2: 4mm glass – 12mm cavity – 4mm glass.
- 5.7 All recommendations made apply to the acoustic performance of the window systems and compliance with other requirements (e.g. security/thermal) should be checked by others.
- 5.8 Following the above measures, suitable internal noise levels can be achieved for the proposed dwellings.

Ventilators

- 5.9 Habitable rooms closest to NMRE will require attenuated through wall/window trickle ventilators. Lower rated ventilators are recommended further within the site. The minimum acoustic performance requirements for ventilators are shown in Table 3 with locations identified in Figure 2.

Ventilator Type	Minimum $D_{n,ew}$ (dB) per Octave Band Centre Frequency (Hz)						Minimum Overall dB $D_{n,e,w}$
	125	250	500	1k	2k	4k	
1	38	35	32	40	46	60	39
2	23	26	29	30	33	33	31

Table 3 - Ventilator Sound Insulation Specification

- 5.10 In making a comparison with the above ventilator specifications, it is important that the figures used are the result of laboratory tests with the vent in the open position.

- 5.11 Note that the stated performance values assume two ventilators per habitable room, providing a minimum cumulative equivalent area of 8000mm² for multi storey dwellings (i.e. houses) and 10000mm² for single level dwellings (i.e. bungalows/apartments), following the requirements of Approved Document F.
- 5.12 The ventilation sound insulation performances outlined in Table 3 will require acoustically attenuated trickle vents. Mechanically assisted ventilation (MEV or MVHR) would be suitable throughout the development.
- 5.13 With the above measures in place, the criteria outlined in section 3 will be readily achievable.

External Amenity Areas

- 5.14 Based on the measurement results and screening provided by intervening buildings, noise levels within external amenity areas across the site will be below 55 dB L_{Aeq}, 16 hour.

MCS 020A - Heat Pump Noise Assessment

- 5.15 The manufacturer's sound power data for the proposed ASHP units are summarised in Table 4.

Unit	Sound Power Level (SWL dBA)
Daikin – Altherma 3 High Capacity Monoblock	62
Daikin – Altherma 3 Low Capacity Monoblock	62

Table 4 - Heat Pump Sound Power Data

- 5.16 The units are expected to be located to the rear of each property with larger dwellings (e.g. 3 bed or more) requiring the high-capacity Monoblock unit.
- 5.17 Noise from ASHP units has been assessed to areas of terrace housing where heat pumps will be installed in closest proximity to neighbouring dwellings.
- 5.18 As discussed with Vistry Thames Valley, the following design considerations have been included in the assessment:

- ASHP units located to the rear garden of the properties, adjacent to the rear façade and/or 1.8m high garden fence
- ASHP units installed at least 4 m from the nearest neighbouring window
- ASHP units not installed to the corner of gardens (i.e. near two reflective surfaces such as rear wall and garden fence)
- ASHP units will be oriented to face away from the nearest receptors

5.19 With the above design elements in place, screening will be provided to neighbouring properties by the 1.8m high garden fences.

5.20 The proposed heat pumps will be oriented to face directly away from the nearest receptors, hence a directivity factor of -3 dB has been applied.

5.21 Calculations have been undertaken with allowance for distance, screening, directivity and the contribution from multiple nearby units. Resultant noise levels at the nearest receptors are at or below 37 dB $L_{Aeq T}$.

5.22 The calculations demonstrate that the proposed external heat pumps can achieve the upper noise level of 37 dBA at the nearest receptors, which is acceptable. For the majority of time, when full duty is not required, the resultant noise levels will be lower than this value.

6.0 CONCLUSIONS

- 6.0 24 Acoustics Ltd has been instructed by Vistry Thames Valley to undertake a noise assessment at Parcels 11 and 12, Finchwood Park, Wokingham. This report has assessed noise from nearby roads including current and future traffic flows.
- 6.1 Environmental noise measurements have been undertaken at the site, to determine the level of noise from the existing sources, during daytime and night-time periods.
- 6.2 An assessment of the potential future increase in traffic noise levels has been undertaken, with reference to transport assessments submitted at planning for the wider Finchwood Park development area.
- 6.3 Calculations have been undertaken in order to determine suitable sound insulation performances for glazing and ventilation to achieve acceptable internal road traffic noise levels at the proposed dwellings, in accordance with defined criteria (BS 8233:2014 and WHO).
- 6.4 An assessment has been undertaken of noise from the proposed air source heat pump units at the development. It is concluded that, with the outlined measures, suitable noise levels will be achieved throughout the development and the requirements of planning condition 12 will be achieved.



-  Measurement Location 1
-  Measurement Location 2

Project: Finchwood Park, Parcels 11 and 12	Title: Site Location, Measurement Locations		 24Acoustics
DWG No: Figure 1	Scale: N.T.S.	Rev: -	
Date: January 2026	Drawn By: KE	Job No: 11478	



Glazing Type 1 + Vent Type 1	
Glazing Type 2 + Vent Type 2	(all unmarked façades)

Project: Finchwood Park, Parcels 11 and 12	Title: Site Layout	
DWG No: Figure 2	Scale: N.T.S.	
Date: January 2026	Drawn By: KE	
	Rev: -	
	Job No: 11478	

APPENDIX A: NOISE UNITS

Noise is defined as unwanted sound. The range of audible sound is from 0 to 140 dB. The frequency response of the ear is usually taken to be around 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dB(A) weighting. This is an internationally accepted standard for noise measurements.

For variable sources, such as traffic, a difference of 3 dB(A) is just distinguishable. In addition, a doubling of traffic flow will increase the overall noise by 3 dB(A). The 'loudness' of a noise is a purely subjective parameter, but it is generally accepted that an increase/ decrease of 10 dB(A) corresponds to a doubling/ halving in perceived loudness.

External noise levels are rarely steady, but rise and fall according to activities within an area. In attempt to produce a figure that relates this variable noise level to subjective response, a number of noise indices have been developed. These include:

- i) The L_{Amax} noise level

This is the maximum noise level recorded over the measurement period.

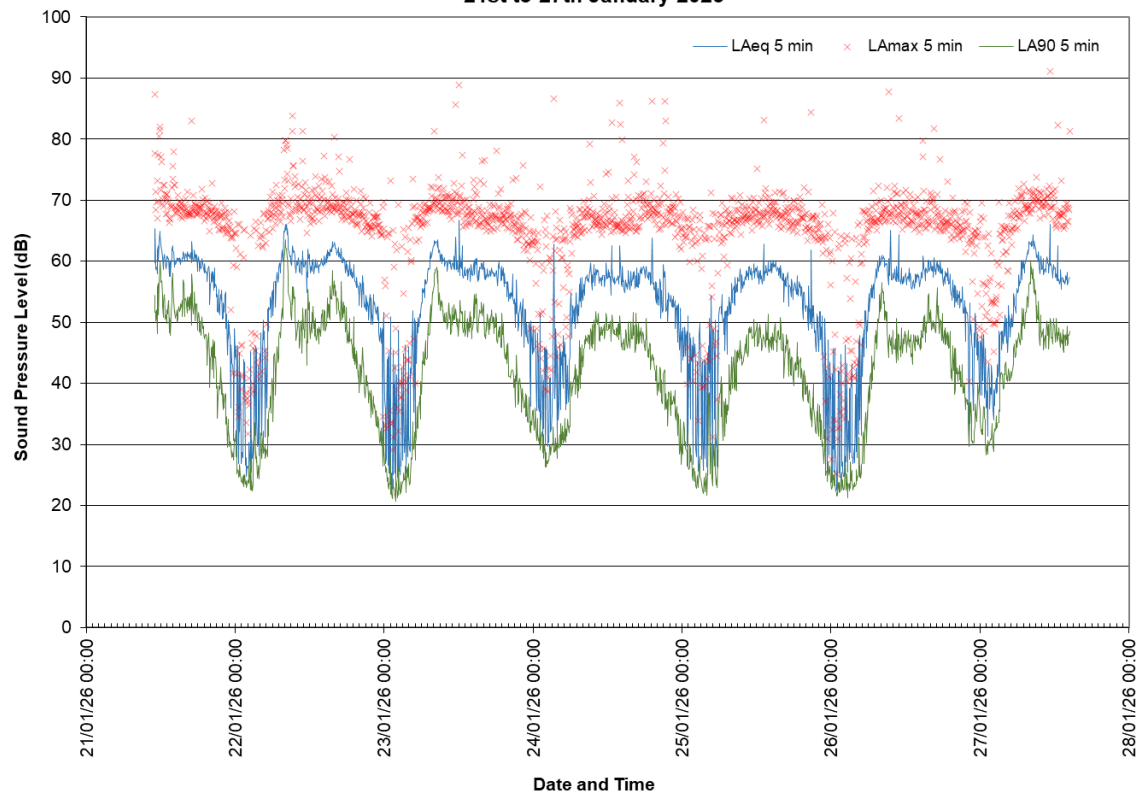
- ii) The L_{Aeq} noise level

This is "equivalent continuous A-weighted sound pressure level, in decibels" and is defined in British Standard BS 7445 as the "value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval, T , has the same mean square sound pressure as a sound under consideration whose level varies with time".

It is a unit commonly used to describe construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.

APPENDIX B: NOISE MEASUREMENT RESULTS

Finchwood Park Parcels 11 and 12
Location 1: Measurement Results
21st to 27th January 2025



Finchwood Park Parcels 11 and 12
Location 2: Measurement Results
21st to 27th January 2026

