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**55 VASTERN ROAD
NOISE ASSESSMENT, CONDITION 16**

Technical Report: R10314-25 Rev 0

Date: 10th February 2026

For: Berkeley Homes
Berkeley House
Mill Lane
Taplow
Maidenhead
SL6 0AG

24 Acoustics Document Control Sheet

Project Title: 55 Vastern Road – Noise Assessment, Condition 16

Report Ref: R10314-25 Rev 0

Date: 10th February 2026

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Document Status and Approval Schedule

Revision	Description	Prepared By	Reviewed By	Approved By
0	Approved for issue	Stephen Gosling	Neil McLeod	Neil McLeod

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1.0 INTRODUCTION

- 1.1 24 Acoustics Ltd has been appointed by Berkeley Homes to undertake an assessment of noise associated with roof mounted air source heat pumps serving a new residential scheme at Vastern Road, Reading. Planning condition 16 states:

16. No mechanical plant associated with the development shall be installed until a noise assessment of the proposed mechanical plant has been submitted and approved by the Local Planning Authority. The assessment shall be carried out in accordance with the BS4142:2014+A1:2019 methodology. The predicted specific sound level ($LA_{eq,Tr}$) (with reference to BS:4142) from any plant associated with the development as measured at a point 1m external to the nearest noise-sensitive facade shall be at least 10dB below the pre-existing background sound level, $LA_{90,T}$ when all plant/equipment (or any part of it) is in operation. The predicted rating level, $L_{Ar,Tr}$ (specific sound level plus any adjustment for the characteristic features of the sound) as measured at a point 1m external to the nearest noise-sensitive facade (habitable window of a dwelling) shall not exceed the pre-existing background sound level, $LA_{90,T}$ when all plant/equipment (or any part of it) is in operation. The plant shall thereafter only be installed in accordance with the assessment and shall thereafter be maintained so that it operates to at least the same standard.

- 1.2 Accordingly, this assessment includes:

- Measurement of background noise levels
- Assessment of noise from the proposed ASHP units

- 1.3 All sound pressure levels quoted in this report are in dB relative to 20 μ Pa. A glossary of the acoustic terminology used in this report is provided in Appendix A.

2.0 DESCRIPTION

- 2.1 The development, known as Reading Riverside, is a large residential development site comprising 6 apartment blocks located on Vastern Road. The proposed equipment will be located at roof level (level 10) on Block D, at a height of approximately 30m above ground.
- 2.2 The nearest residential properties are located on Lynmouth Road to the north west and west at horizontal distance of approximately 60m. See Figures 1 and 2 for further details.

- 2.3 The proposed equipment comprises 5 x Clade Birch 120/75 air source heat pumps. A solid 1.8m high screen is located around the perimeter of the plant area.

3.0 CRITERIA

BS 4142: 2014+A1:2019 Methods for Rating Industrial and Commercial Sound

- 3.1 BS 4142:2014 provides a method for rating the effects of industrial and commercial sound on residential areas. The standard advocates a comparison between the typical measured L_{A90} background noise level and L_{Aeq} noise level from the source being considered.
- 3.2 The standard states that a difference between the rating level and the background level of around +10 dBA is an indication of a significant adverse impact, depending on the context and a difference of around +5 dBA is likely to be an indication of an adverse impact again depending on the context. Where the rating level does not exceed the background noise level, this is an indication of the specific sound source having a low impact (depending upon the context).
- 3.3 For new plant and equipment, the planning condition requires the resultant noise level at existing noise sensitive properties to be controlled to at least 10 dB below the prevailing background noise level.

4.0 NOISE MEASUREMENTS

- 4.1 Noise measurements were undertaken between 2nd – 8th November 2023 using the following equipment:
- Rion precision sound level meter Type NL-52;
 - Brüel & Kjær acoustic calibrator Type 4231.
- 4.2 The noise monitoring equipment was located at a height of 1.5m at a location equivalent of properties on Lynmouth Road and is shown in Figure 1.
- 4.3 Measurements were undertaken in terms of the overall free-field A-weighted L_{eq} , L_{90} and $L_{max,f}$ noise levels. 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 The instrumentations' calibration was checked before and after the survey in accordance with the manufacturer's instructions. No significant drift in calibration was recorded. Calibration of 24 Acoustics' equipment is traceable to National Standards.
- 4.5 The instrumentation was fitted with environmental weather shields during the surveys. Weather conditions during the surveys were fine and dry.
- 4.6 The results of the background noise measurements are shown graphically in Appendix B and are summarised in Table 1.

Date	Background Noise Level	
	Daytime dB LA90, 1 hour (07:00 to 23:00)	Night Time dB LA90, 15 min (23:00 to 07:00)
Thursday 2/11/2023	47.3	41.8
Friday 3/11/2023	45.4	42.4
Saturday 4/11/2023	46.1	41.5
Sunday 5/11/2023	45.0	41.6
Monday 6/11/2023	45.1	42.8
Tuesday 7/11/2023	45.2	41.9
Wednesday 8/11/2023	48.5	-
Representative	46	42

Table 1 - Summary of Measured Noise Levels

- 4.7 24 Acoustics determines the typical background noise level to be the average minus one standard deviation.
- 4.8 Using the values in Table 1, target levels of 36 dB LA90 (daytime) and 32 dB LA90 (night-time) have been derived.

5.0 ASSESSMENT

- 5.1 The proposed equipment comprises 5 No Glade Birch 120/75 units, located at roof level of Block D. The manufacturer gives a rated sound power level of 75 dBA and a rated sound pressure level of 43 dBA at 10m. See Appendix C.
- 5.2 With corrections for distance (67m incorporating horizontal and vertical distance), local reflections and screening, calculations have been undertaken to confirm the plant noise levels at the nearest residential properties.

- 5.3 Table 2 presents the calculated noise levels, compared to the measured background noise levels, in line with BS 4142.

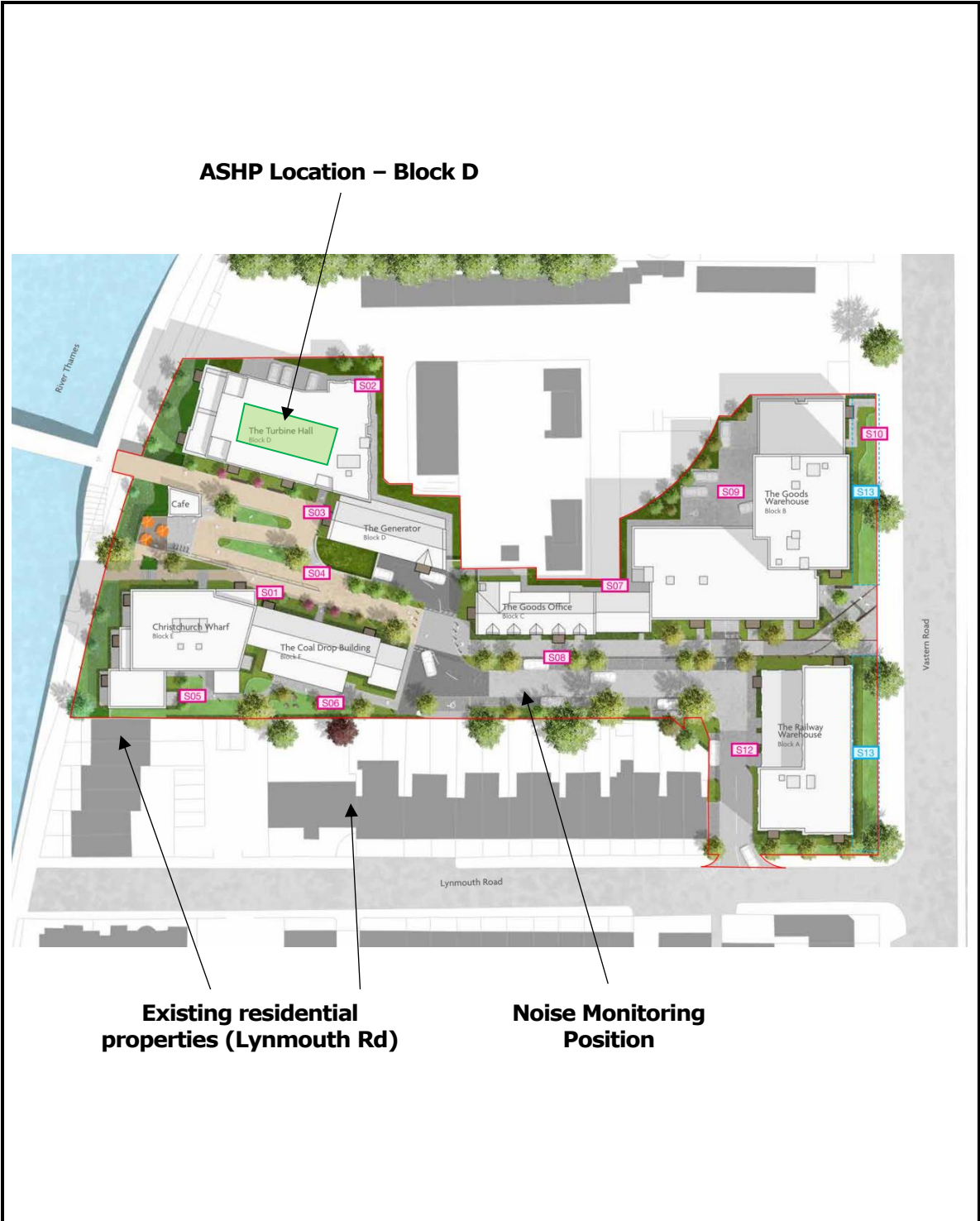
	Daytime (07:00 to 23:00 hours)	Night Time (23:00 to 07:00 hours)
Predicted Plant Noise Level	23 dB $L_{Aeq, Tr}$	23 dB $L_{Aeq, Tr}$
Background Noise Level	46 dB $L_{Aeq, 15min}$	42 dB $L_{Aeq, 15 mins}$
Level Difference	-23 dB	-19 dB

Table 2 - Predicted Plant Noise Levels

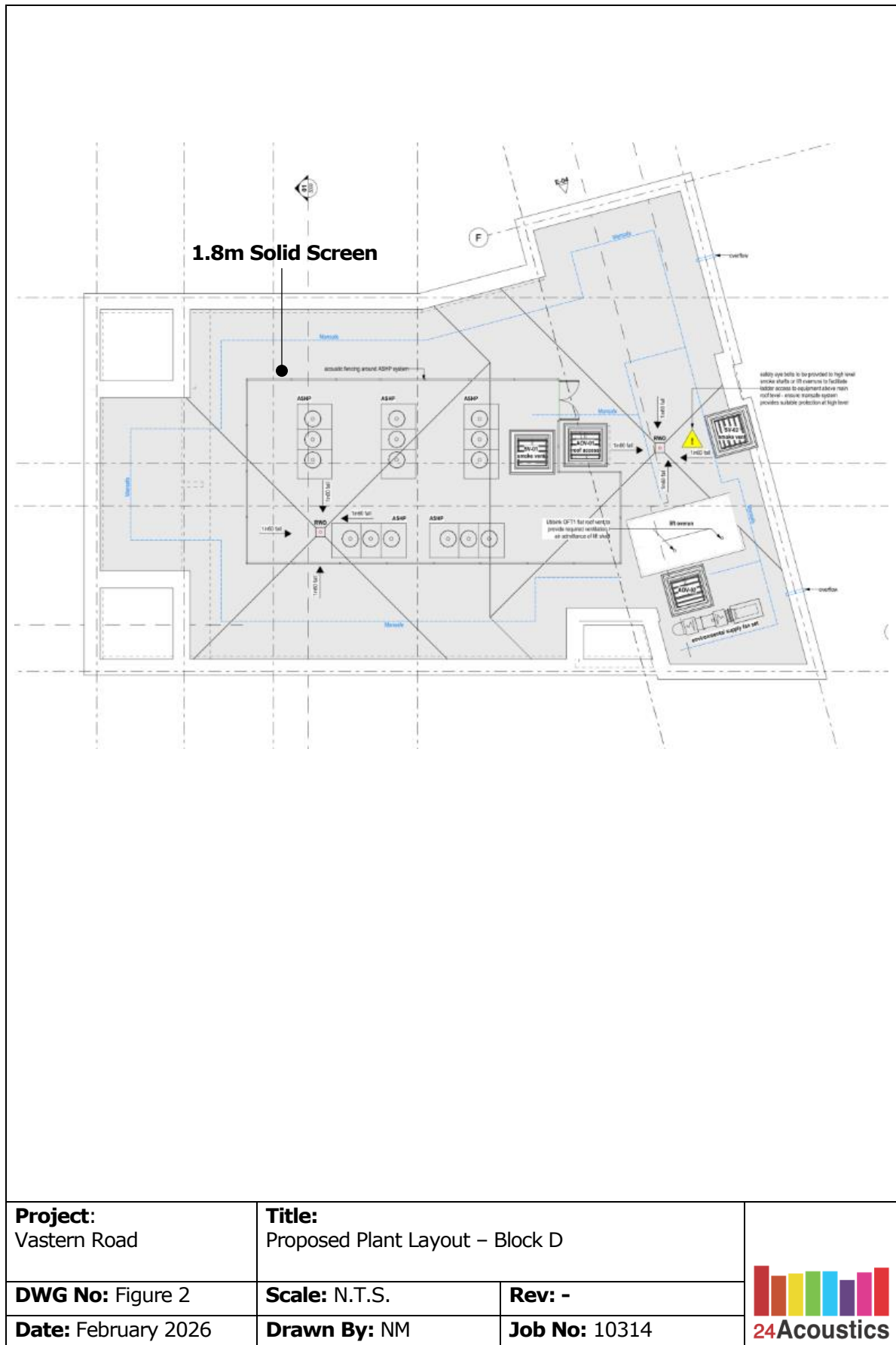
- 5.4 The resultant plant noise levels are not expected to exhibit tonal or other distinctive characteristics. For the majority of time, when full duty is not required, the resultant noise levels will be lower than the values in Table 2.
- 5.5 The calculations demonstrate that the resultant noise arising from the proposed plant would be significantly below the prevailing background noise level and therefore meet the requirements of Condition 16.

6.0 CONCLUSIONS

- 6.1 24 Acoustics Ltd has been instructed by Berkeley Homes to undertake a noise assessment for proposed ASHPs at Vastern Road.
- 6.2 Noise measurements have been undertaken to determine the prevailing background noise levels. Calculations have been undertaken, using manufacturers' source noise data, to determine noise levels at the nearest residential properties.
- 6.3 The assessment has demonstrated that noise from the proposed replacement plant at the nearest existing residential properties will meet the requirements of Condition 16.



Project: Vastern Road	Title: Site Overview		 24Acoustics
DWG No: Figure 1	Scale: N.T.S.	Rev: 0	
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APPENDIX A – ACOUSTIC TERMINOLOGY

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 dBA weighting. This is an internationally accepted standard for noise measurements.

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

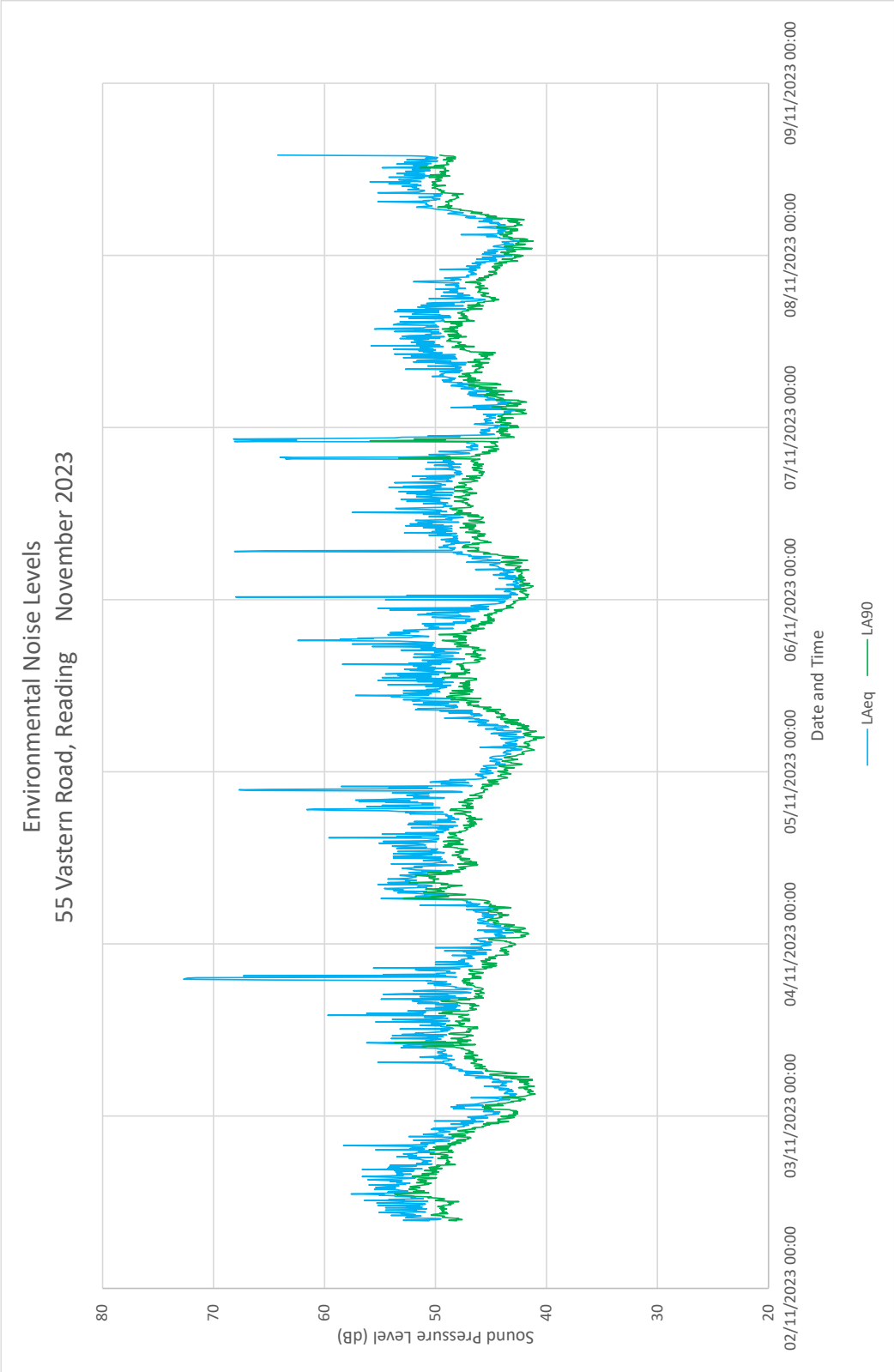
iii) The L_{A10} noise level

This is the noise level that is exceeded for 10% of the measurement period and gives an indication of the noisier levels. It is a unit that has been used over many years for the measurement and assessment of road traffic noise.

iv) The L_{A90} noise level

This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during the quieter periods. It is often referred to as the background noise level and is used in the assessment of disturbance from industrial noise.

APPENDIX B – ENVIRONMENTAL NOISE MEASUREMENTS



APPENDIX C – MANUFACTURER’S TEST DATA AND OVERVIEW BIRCH 120/75

Unit model number, operating conditions and other identifying information

Birch LN 120 / 75 v3.6
Compressor 60 Hz – Fans 4.6V Supply (583 rpm)

DECLARED DUAL-NUMBER NOISE EMISSION VALUES

In accordance with BS EN ISO 4871: 2009

Acoustics. Declaration and verification of noise emission values of machinery and equipment

Measured in accordance with BS EN ISO 9614 – Part 1: 2009

Acoustics. Determination of sound power levels of noise sources using sound intensity measurement at discrete points (survey grade)

Measured A-weighted sound power level, $L_{w(A)}$ (reference 1×10^{-12} watts), in decibels:	75 dB(A) _{1,2}
A-weighted sound pressure level at 10m, $L_{p(A)}$ (reference 2×10^{-5} Pascals), in decibels:	43 dB(A) _{1,2}
Uncertainty, K_{wg} in decibels:	4 dB(A)

Note 1: Values determined in accordance with test standard BS EN ISO 9614 - Part 1: 2009 (survey grade)

Note 2: The sum of a measured noise emission value and its associated uncertainty represents an upper boundary of the range of values which is likely to occur in measurements

