SANDY BROWN

Consultants in Acoustics, Noise & Vibration

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30 May 2025

203 Riverside Way, Uxbridge

Planning noise report

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Version	Date	Comments	Author	Reviewer
A	30 May 25	Initial issue	AA	BS

Summary

Sandy Brown has been commissioned by Aviva Investors to provide acoustic advice in relation to 203 Riverside Way, Uxbridge, UB8 2YF.

As part of recent upgrade works to improve the efficiency and sustainability of the building, a single external condenser unit was installed. Retrospective planning permission for this unit is required.

An environmental noise survey has been carried out to determine the existing sound levels in the area. The noise survey was carried out between 15 May 2025 and 20 May 2025. The representative background sound levels measured during the survey were $L_{A90,15min}$ 41 dB during the day and $L_{A90,15min}$ 36 dB at night.

Based on the requirements of the London Borough of Hillingdon and on the results of the noise survey, all plant must be designed such that the cumulative noise level at 1 m from the worst affected windows of the nearby noise sensitive premises are 5 dB below than representative background levels of $L_{Aeq,15min}$ 36 dB during the day, when the unit would be operational.

The assessment was carried out for the VRF unit installed. It shows the rating level at noise sensitive receptor of the hotel to be L_{Aeq} 37 dB. This is below daytime background level measured by 4dB, indicating low risk of adverse impact. This is based on a worst case assessment and it is expected that the noise levels experienced at the majority of the noise sensitive receptors (the nearby Premier Inn hotel) will be even lower.

Contents

1 Introduction

Sandy Brown has been commissioned by Aviva Investors to provide acoustic advice in relation to 203 Riverside Way, Uxbridge, UB8 2YF.

As part of recent upgrade works to improve the efficiency and sustainability of the building, a single external condenser unit was installed. Retrospective planning permission for this unit is required. As part of this, an environmental noise survey is needed to establish the existing background sound levels in the vicinity of nearby noise sensitive premises and to set appropriate limits for noise egress from the unit.

This report presents the survey method and results, and a discussion of acceptable limits for noise emissions from the building services plant. An assessment of noise egress from the VRF condenser unit is also presented.

2 Site description

The site location in relation to its surroundings is shown in Figure 1 in green. The site is located within the Riverside Way industrial estate and is surrounded by local roads serving the estate. The nearest main road to the site is St John's Road, to the east.

Figure 1 Aerial view of site (courtesy of Google Earth Pro)

The site is surrounded mostly by other commercial buildings. The nearest noise-sensitive receptor to the site is the Premier Inn hotel, located south of the site, as shown in red in Figure 1.

3 Building services noise egress criteria

3.1 Standard guidance

BS 4142:2014:+A1:2019 *Methods for rating and assessing industrial and commercial sound* (BS 4142) provides a method for assessing noise from items such as building services plant against the existing background sound levels at nearby noise sensitive premises.

BS 4142 suggests that if the noise level is 10 dB or more higher than the existing background sound level, it is likely to be an indication of a significant adverse impact. If the level is 5 dB above the existing background sound level, it is likely to be an indication of an adverse impact. If the level does not exceed the background sound level, it is an indication of having a low impact.

If the noise contains 'attention catching features' such as tones, bangs etc, a penalty, based on the type and impact of those features, is applied.

3.2 Local Authority criteria

The London Borough of Hillingdon (LBH) provide guidance on plant noise egress in their noise *Supplementary Planning Document – Development Control for Noise Generating and Noise Sensitive Development* (SPD). This document draws from BS 4142:2014 and provides the standards set out in Table 1.

Table 1 London Borough of Hillingdon external noise standards (Taken from Table 2 in their SPD)

Noise impact from relevant proposed industrial or commercial premises or Plant	Development outcome
Rating Level ($L_{Ar,Tr}$) is at least 5 dB(A) below the Background Level L_{A90}	Normally acceptable
Rating level ($L_{Ar,Tr}$) is no more than 5 dB(A) above the Background Level L_{A90}	Acceptable only if there are overriding economic or social reasons for the development to proceed
Rating level ($L_{Ar,Tr}$) is more than 5 dB(A) above the Background Level L_{A90}	Normally unacceptable

4 Noise survey method

The survey included unattended noise measurements.

The measurements and information described in this report are provided in accordance with requirements of BS 7445, as referenced in Appendix A.

Unattended noise monitoring was undertaken at the site over six days.

The measurements were taken over 15 minute periods between 11:50 on 15 May 2025 and 11:00 on 20 May 2025.

The microphone for the sound level meter was fixed on a tripod with a pole extending approximately 0.5 m out of a partially open window on level 1 on the southern facade of the site. The measurement position is indicated in Figure 1, denoted by the letter 'L', and a photograph showing the measurement position is provided in Figure 2. This location was chosen to be reasonably representative of noise levels at the site and outside the nearest noise-sensitive premises. The measurements are considered to be facade noise levels.

Figure 2 Photograph of unattended measurement position

Details of the equipment used, the noise indices measured and weather conditions during the survey are provided in Appendix A.

5 Noise survey results

5.1 Observations

The dominant noise sources observed at the site during the survey were from cars passing on Riverside Road and general traffic on St Johns Road. Occasional air traffic was also noted during the equipment installation and collection.

Less significant noise sources included various industrial activity noises such as metal dropping, pallet moving and reverse beeping, and pedestrians within nearby sites.Noise measurement results

5.2.1 Unattended measurement results

A graph showing the results of the unattended measurements is provided in Appendix B.

Ambient noise levels measured during the unattended survey are presented in Table 2.

Table 2 Ambient noise levels measured during the unattended survey

Date	Day (07:00 – 23:00) $L_{Aeq,16h}$ (dB)	Night (23:00 – 07:00) $L_{Aeq,8h}$ (dB)
Thursday 15 May 2025	-	49
Friday 16 May 2025	54	53
Saturday 17 May 2025	52	50
Sunday 18 May 2025	48	54
Monday 19 May 2025	53	59
Average	57	53

In line with BS 4142:2014+A1:2019, representative background sound levels have been determined using statistical analysis of the continuous measurements.

Day and night statistical analysis of representative values for the site are given in Figure 3.

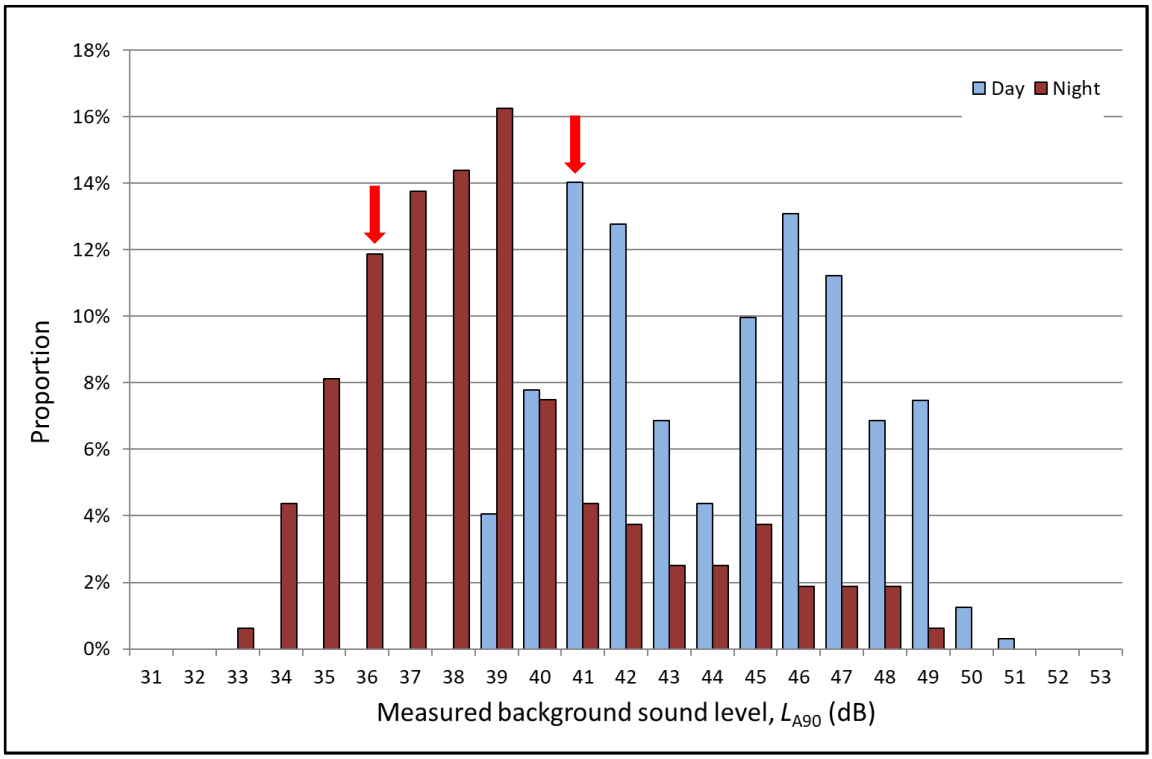


Figure 3 Day and night statistical values

From this analysis, the representative background sound levels measured during the survey were $L_{A90,15min}$ 41 dB during the day and $L_{A90,15min}$ 36 dB at night.

5.3 Basic limits

Based on the above criteria and the measurement results, the cumulative noise level from the operation of all new plant should not exceed the limits set out in Table 3.

The limits apply at 1 m from the worst affected windows of the nearest noise sensitive premises and are presented as facade levels. In this case these limits would apply at Hotel noise sensitive receptor indicated in red in Figure 1.

Table 3 Plant noise limits at 1 m from the nearest noise sensitive premises

Time of day	Maximum sound pressure level at 1 m from noise sensitive premises, $L_{Aeq,15min}$ (dB)
Day (07:00-23:00)	36
Night (23:00-07:00)	31

5.4 Plant noise assessment

5.4.1 Basis of the assessment

A single VRF condenser unit has been installed as part of the development and operates between 07:00 and 17:00 between Monday and Friday, and between 07:00 and 12:00 on Saturday and Sunday. Based on this, it is assumed the unit will only be operational during the day time, with no night time operation. The unit is located on the west facade as shown in yellow in Figure 1

The sound power level data of the unit installed is indicated in Table 4.

Table 4 The sound power level data of VRF unit installed

	Octave-band centre frequency (Hz)								
	63	125	250	500	1000	2000	4000	8000	dBA
SAMSUNG DVM S2 (AM140AXVGGR/EU)	73[1]	73	75	78	78	72	65	51	81

[1] Not indicated in datasheet. Assumed for assessment purposes.

The assessment included corrections for distance attenuation, directivity and facade reflections. No screening was assumed between the unit and noise sensitive receptors.

5.4.2 Assessment results

The full calculations are provided in Appendix C.

The predicted rating level with a comparison to the background noise level is presented in Table 5. Discussion of the assessment impact is presented in Section 5.4.3.

Table 5 Assessment of rating level

Results	Calculated	Commentary
Specific sound level calculated at noise sensitive receiver (90 m away)	L_{Aeq} 37 dB	Accounting for spherical propagation, air absorption and ground absorption
Acoustic feature correction	0 dB	Based on observations on site
Rating level	L_{Aeq} 37 dB	
Background sound level	$L_{A90,15min}$ 41 dB	During the day (operational time)
Excess of rating over background sound level	-4 dB	
Comparison to plant noise egress limit	Below background but just less than -5 dB suggested by the council	

5.4.3 Discussion

The assessment showed that the calculated sound pressure level at the closest noise sensitive receptor is below the daytime background noise level by 4 dB. This is above the recommended rating level by the local authority by 1 dB. However, this is still considered to be 'low impact' based on guidance in BS 4142:2014+A1:2019.

It should be noted that the assessment has not included any corrections for screening (which applies to most of the noise-sensitive receptors) or for directivity of the unit (eg, with the fan on the unit facing the road rather than the receptor. Based on this, it is considered to be a worst case assessment, and lower noise levels are expected to most, if not all, of the noise sensitive receptor locations.

Furthermore, the nearest noise sensitive receptor is a hotel, which is expected to include mechanical ventilation and would therefore be unlikely to rely on openable windows. There are no other noise sensitive premises (eg, residential properties) in close proximity of the site.

Based on this, it is expected that the unit is unlikely to result in an adverse impact.

6 Conclusion

The representative background sound levels measured during the survey were $L_{A90,15min}$ 41 dB during the day and $L_{A90,15min}$ 36 dB at night.

Based on the requirements of the London Borough of Hillingdon and on the results of the noise survey, all plant must be designed such that the cumulative noise level at 1 m from the worst affected windows of the nearby noise sensitive premises does not exceed $L_{Aeq,15min}$ 36 dB during the day, and $L_{Aeq,15min}$ 31 dB during the night.

These limits are cumulative and apply to all plant operating under normal conditions. If plant items contain tonal or attention catching features, a penalty based on the type and impact of those features will be applied, and the limits will be more stringent than those set.

The assessment was carried out for the VRF unit installed. It shows the rating level at noise sensitive receptor of the hotel to be 37 dBA. This is below daytime background level measured by 4dB, indicating low impact. This is marginally above the recommended rating level by the local authority by 1 dB. However, the assessment is considered to be a worst case scenario and noise levels are expected to be lower in reality. Based on this, it is expected that the unit is unlikely to result in an adverse impact.

Appendix A

Survey details

Reference standards

- BS 7445 Part 1: 2003 *Description and measurement of environmental noise, Part 1. Guide to quantities and procedures*
- BS 7445: Part 2: 1991 *Description and measurement of environmental noise, Part 2. Guide to the acquisition of data pertinent to land use*.

Equipment

The unattended noise measurements were taken using a 01dB Cube sound level meter.

Calibration details for the equipment used during the survey are provided in Table A1.

Table A1 Equipment calibration data

Equipment description	Type/serial number	Manufacturer	Calibration expiry	Calibration certification number
Sound level meter	CUBE/11021	01dB	13 Mar 27	TCRT25/1228
Microphone	40CD/255759	GRAS	13 Mar 27	TCRT25/1228
Pre-amp	PRE22/1605109	01dB	13 Mar 27	TCRT25/1228
Calibrator	CAL31/89180	01dB	12 Mar 27	TCRT25/1194

[1] Calibration of the meters used for the measurements is traceable to national standards. Calibration certificates for the sound level meters used in this survey are available upon request.

Calibration checks were carried out on the meters and their measurement chains at the beginning and end of the survey. No significant calibration deviation occurred.

Noise indices

Noise indices recorded included the following:

- $L_{Aeq,T}$ The A-weighted equivalent continuous sound pressure level over a period of time, T.
- $L_{AFmax,T}$ The A-weighted maximum sound pressure level that occurred during a given period, T, with a fast time weighting.
- $L_{A90,T}$ The A-weighted sound pressure level exceeded for 90% of the measurement period. Indicative of the background sound level.

Sound pressure level measurements are normally taken with an A-weighting (denoted by a subscript 'A', eg, L_{A90}) to approximate the frequency response of the human ear.

A more detailed explanation of these quantities can be found in BS 7445: Part 1: 2003 *Description and measurement of environmental noise, Part 1. Guide to quantities and procedures.*

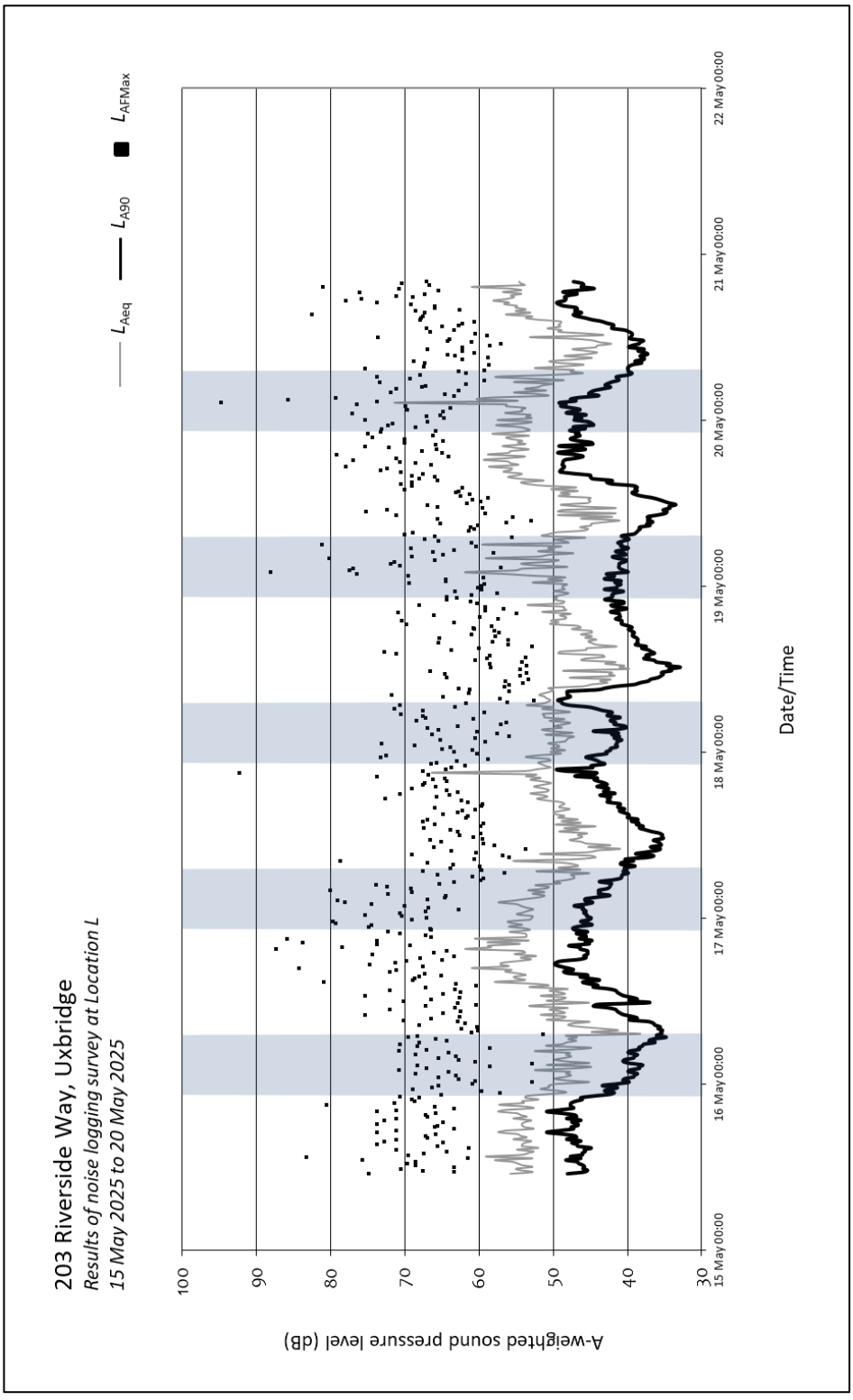
Weather conditions

During the unattended noise measurements, weather reports for the area indicated that temperatures varied between 11°C at night and 20°C during the day, and the wind speed was less than 5 m/s.

These weather conditions are considered suitable for obtaining representative measurements.

Appendix B

Results of unattended measurements at Position L


203 Riverside Way, Uxbridge
Results of noise logging survey at Location L
15 May 2025 to 20 May 2025
L_{Aeq}
L_{A90}
L_{AFMax}
A-weighted sound pressure level (dB)
100
90
80
70
60
50
40
30
15 May 00:00
16 May 00:00
17 May 00:00
18 May 00:00
19 May 00:00
20 May 00:00
21 May 00:00
22 May 00:00
Date/Time

Appendix C

Calculation sheet

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Project number	26046	**Project name**	203 Riverside Way		
Calculation revision	A				
Calculation by	AA			**Date created**	30/05/2025
Checked by	BS			**Date checked**	30/05/2025
Calculation description	SAMSUNG DVM S2 (AM140AXVGGR/EU) to NSR				

Comments	**Octave band centre frequency (Hz)**								
	63	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**	**dBA**
SAMSUNG DVM S2									
Sound power level	73	73	75	78	78	72	65	61	81
Additional source directivity; Q = 2	3	3	3	3	3	3	3	3	
Total sound power level	76	76	78	81	81	75	68	64	84
Losses									
Distance attenuation - Point source, r=90m	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	
Total losses	*50*	*50*	*50*	*50*	*50*	*50*	*50*	*50*	
Sound pressure level after losses	26	26	28	31	31	25	18	14	34
Facade correction	3	3	3	3	3	3	3	3	
Total facade sound pressure level at receptor	29	29	31	34	34	28	21	17	37