Azymuth Acoustics UK

Professional Acoustic Services

Plant Noise Assessment Report
Ref: AA0634.1

Vision House
Floats Rd,
Manchester

On behalf of

Redbridge
1 Stockport Road
Marple
Stockport
SK6 6BD





Azymuth Acoustics UK
Viridor House
No.3 Bolholt Terrace
Bury/Gtr Manchester
BL8 1PP

Tel: +44 (0)161-762 1055
Fax: +44 (0)161-761 1094
Matthew@acousticsuk.com
www.acousticsuk.com

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Ref: AA0634.1	Signature:	Name:	Date:
Produced by:	[redacted]	**James Gibson,** Beng (Hons), SITMA Tester	14/07/2026
Checked by:		**Dominic McCann,** BEng (Hons), MIOA, Director	15/07/2026
Approved by:		**Matthew Gibson,** BEng (Hons), CEng, CEnv, Director	15/07/2026

Disclaimer

This report has been prepared by Azymuth Acoustics UK with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our Standard Terms and Conditions of Business and taking into account the resources devoted to it by agreement with the Client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own discretion and risk.

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1.0 Introduction

Azymuth Acoustics UK (henceforth Azymuth) has been contracted by Redbridge to perform a Plant Noise Assessment report in relation to 8no. plant at located at Vision House, Floats Road, Wythenshawe. Vision House is being converted from an office block into an SEN school.

This report aims to demonstrate compliance with a planning condition relating to potential noise impacts from fixed plant associated with the development.

The Plant Noise Assessment covers the following aspects:

- A discussion of the baseline noise levels for the relevant daytime period
- Summary of data measured at 1m from plants
- Compliance with condition 5b of MCC (listed below)

1.1 Manchester City Council (MCC) Planning Condition 5

5a) Externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location.

5b) Prior to the first operation of any such scheme, a verification report shall be submitted to and approved in writing by the City Council as Local Planning Authority to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the agreed acoustic report. The report shall also undertake post completion testing to confirm that the criteria has been met. Any instances of non-conformity with the recommendations in the verification report shall be detailed along with any measures required to be undertaken prior to the first operation of the scheme to ensure compliance with the agreed noise criteria.

2.0 Results of Noise Measurements

Azymuth has taken 3 measurements to confirm the noise limits and to assist with calculating noise levels at noise sensitive receptors.

- Pos 1 – Inside plant room in roof of proposed building at vision house undertaken on 29/06/2026 at 11:32-11:55
- Pos 2 on the plant platform inside the roof of proposed building at vision house undertaken on 09/07/2026 at 12:33
- Pos 3 – on the ground floor outside the proposed building ~ 6m below plant platform undertaken on 09/07/2026 at 12:51

Azymuth has marked up an image of measurement positions that were undertaken as seen below:

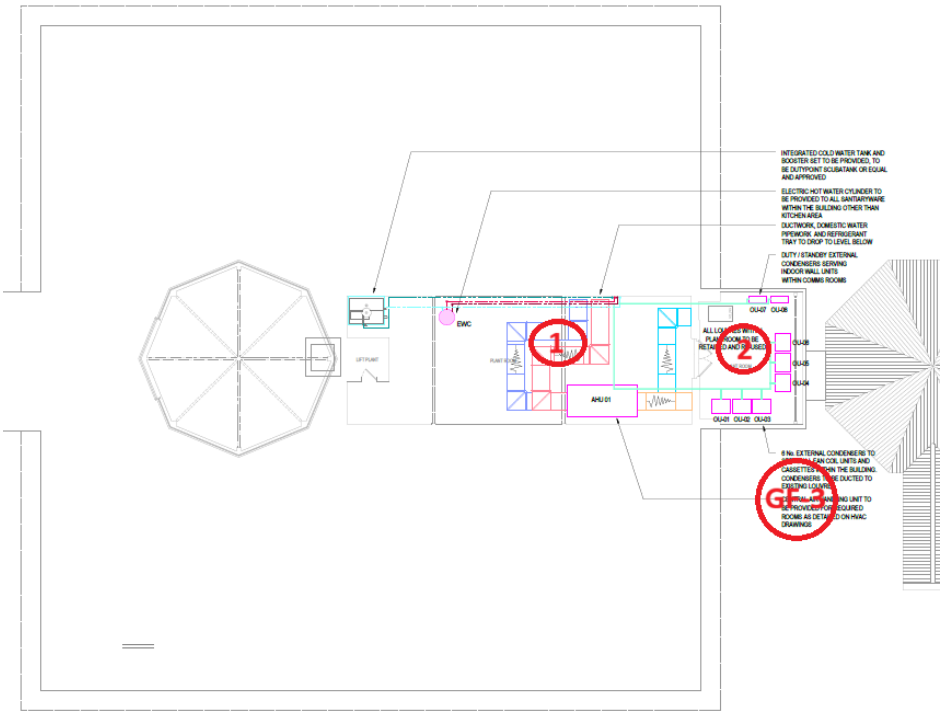


Figure 1 – Mark up of measurement positions undertaken by Azymuth

2.1 Nearfield Ventilation Noise Measurements

The following tables presents the results of the noise measurements at 3 positions inside the Vision house site all within ~1m of the operational Plants.

Nearfield plant measurements inside plant room	**L_{Aeq}**	**L_{A10}**	**L_{A90}**
plant off – baseline / residual level	33.1	37.2	33.5
plant ON	45.7	47.2	41.9

Table 1 – Pos 1 Results of Nearfield ASHP measurements @ ~1m from nearest unit

Nearfield plant measurements inside plant platform	**L_{Aeq}**	**L_{A10}**	**L_{A90}**
plant off – baseline / residual level	40.4	42.6	37.7
plant ON	66.5	70.5	55.1

Table 2 – Pos 2 Results of Nearfield ASHP measurements @ ~1m from nearest unit

Nearfield plant measurements on ground floor outside Vision house	**L_{Aeq}**	**L_{A10}**	**L_{A90}**
plant off – baseline / residual level	40.4	42.6	37.7
plant ON	56.9	57.4	56.2

Table 3 – Pos 3 Results of Nearfield ASHP measurements @ ~1m from nearest unit

The results of the nearfield noise measurements are dominated by the noise from the operation plant units themselves and as such the residual noise at this location is having negligible influence on the measurements recorded at this position.

Azymuth concludes that all plant complies with the 1m 70dB noise limit (externally to the building – ie as represented by results at Position 3) set out in the Noise Impact Assessment:

- AA0634 Vision House, Floats Road, Manchester dated 17/12/25

3.0 Assessment of Noise at Nearest Receptors

3.1 SoundPLAN Model

Azymuth has undertaken acoustic modelling with the SoundPLAN noise modelling software to predict and visualise the impact of noise from the site on the surrounding environment. This in turn shows the negligible impact of noise from the operational plant at the off-site receptor locations.

3.1.1 Grid Noise Map (GNM)

Azymuth have produced the following GNM to visualise the effect of noise emitting from the premises on the surrounding environment.

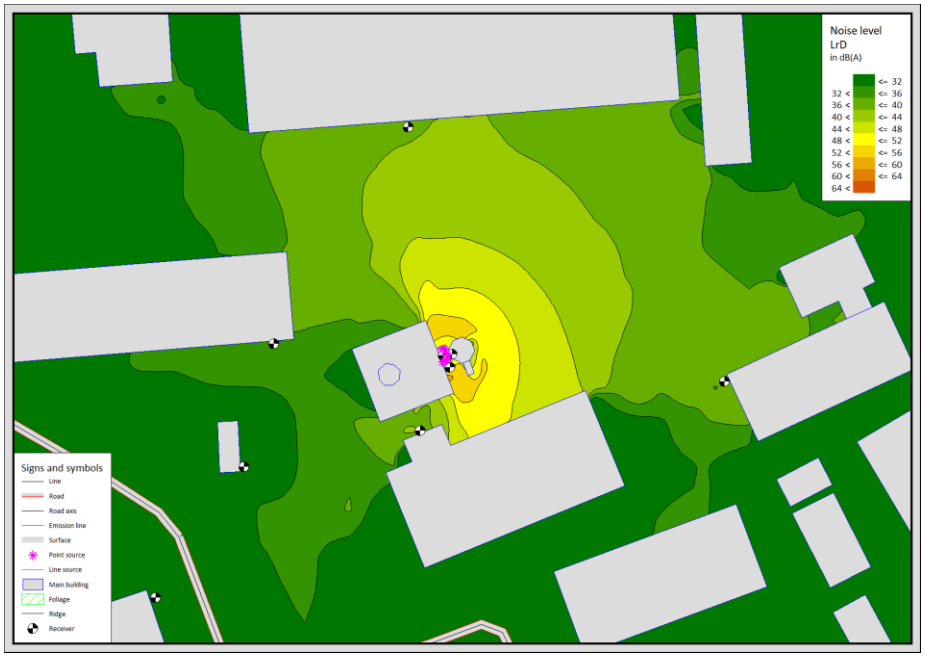


Figure 2 – GNM for external plant at Vision House, Wythenshawe

3.2 Assessment for Nearest Residential Receptors

With the data Azymuth has currently measured the following table sets out the nearest residential noise sensitive receptors, the predicted sound level as a result of external plant noise at these receptors and how this noise level relates to the background sound level.

Azymuth has used the current measured data from the ASHP as implemented into the SoundPlan model to quantify the impact of noise at these receivers. Background noise levels from both the Azymuth survey on the 19th December 2025 and the Jameson Acoustics survey from July 2025 have been used in the assessment.

Due to the distance from source and receiver no penalties for intermittency or tonality have been applied, ie the plant will effectively be inaudible.

Receiver	Distance from Source to Receiver (~m)	Specific Noise Level at Receptor (dBA)	Background Sound Level at Receptor, L_{90} (dBA)	Penality for Tonality, Impulsivity and/or Intermittency (dBA)	Noise Rating Level (dBA)	Rating Level re. Background Sound Level
Nearest Residential Receptors for BS 4142						
Kinmel Walk	280	27.5	57.4	0	8.8	-29.9
Sharrington Drive	310	25	46.4	0	6.4	-21.4

Table 4 – BS 4142 assessment of noise originating from Vision House for residential receptors

It is therefore indicative that the operational plant has negligible impact on the surrounding environment.

3.3 BS 8233 Assessment – Nearest Commercial Receptors

The indoor ambient noise level guidance for offices (in adjacent warehouses), as stated in BS 8233, is based on various design ranges as shown in the Table below. Assuming ~13dB of attenuation for a partly open window we are able to derive external noise limits for these receptors.

Location	Design Range $L_{Aeq,T}$ (dB) Inside these premises	External Noise Limit with Partly Open Window $L_{Aeq,T}$ (dB)
Staff/meeting room, training room	35-45	48
Executive office	35-40	48

Table 5 – Typical design range noise levels in non-domestic buildings, BS 8233

Azymuth have assessed noise levels from external plant against these external noise limits to ensure there are no noise impacts in adjacent offices associated with the various warehouses surrounding the site.

Commercial Receptors (not covered by BS 4142)				
Receiver	**Distance from Source to Receiver (~m)**	**Noise Level at Receptor (dBA)**	**External Noise Limit with Partly Open Window $L_{Aeq,T}$ (dB)**	**Rating Level re. Noise limit Sound Level**
JD Sports / RFP	35	38.5	48	-9.5
Porcelain Superstore	70	35	48	-13
Self Storage Manchester	121	38.7	48	-12.3

Table 6 – BS 8233 assessment of noise originating from Vision House for commercial receptors

Predicted worst-case noise levels at adjacent warehouse spaces are below the external noise level limits (as per BS 8233) resulting in no noise impacts.

4.0 Summary

Azymuth has undertaken noise survey of the operational plant units at the Vision House Building with all potential receptors being complaint with the noise limits set out in Azymuth's NIA report. The results of the noise survey can be summarised as follows:

- Nearfield noise level (@ ~1m) is 66-67 dBA.
- The calculated noise level at 1 Kimmel walk indicates a rating level of 27-28dBA, ie more than 10dB below the background sound level.
- The calculated noise level at Sharrington Drive indicates a rating level of 25dBA, ie more than 10dB below the background sound level.
- All commerical receptors comply with the noise limit set at 48dBA.

From the above it can be seen that the rating levels are significantly better than the 5dB below background sound level stipulatd in Condition 5a and 5b. This clearly indicates that the plant is fully compliant with Condition 5a and 5b.

Appendix A – Glossary of Acoustic Term

Decibel (dB)
This is the unit used to measure sound. The human ear has an approximately logarithmic response to acoustic pressure over a very large dynamic range (typically 20 micro Pascal to 100 Pascal).

dB (A)
This is a measure of the overall noise level of sound across the audible spectrum with a frequency weighting (i.e. A-weighting) to compensate for the sensitivity of the human ear to sound of different frequencies. The A-weighting curve is implemented in sound level meters using an electronic filter that approximately corresponds to the frequency response of the ear.

Octave Band Noise Level
The human ear is sensitive to sound over a range of frequencies between approximately 20Hz to 20kHz. The ear is also generally more sensitive to medium and high frequencies than to low frequencies. In order to define the frequency content of a noise, the spectrum can be divided into frequency bands. The most commonly used frequency bands are octave bands, in which the mid-frequency of each band is twice that of the band below it.

L_{Aeq}
This is the equivalent steady sound level in dB(A) containing the same acoustic energy as the actual fluctuating sound level over a given time period.

Reverberation Time (RT or sometimes T_{30} or T_{60})
This is the time taken for the reverberant sound energy in an enclosure to decay one millionth of its equilibrium value, i.e. by 60dB, after the source has been switched off. The reverberation time is frequency dependent and it is customary to measure its value in octave or one-third octave bands. Reverberation occurs when sound waves are repeatedly reflected from each surface of the room.

Sound Reduction Index (SRI)
Difference measured between the amount of energy flowing towards the wall in the source room and the total amount of energy entering the receiving room (usual range 100 - 3150Hz for one third octave band values). The SRI varies with frequency and is measured in a laboratory in either octave or one-third octave bands.

SRI = L1 - L2 + 10 log (S/A), where:
L1 = Noise level in the source room
L2 = Noise levels in the receiving room
S = Surface area of test specimen
A = Equivalent acoustic absorption area in the receiving room

Weighted Sound Reduction Index (R_w)
This is a weighted single figure descriptor of the sound insulation performance of a partition measured under laboratory conditions. The procedure used to quantify the R_w is to compare the sound reduction index (SRI) in each of the one-third octave bands from 100Hz to 3150Hz against a set of standard reference curves.