



Azymuth Acoustics UK

Professional Acoustic Services

Noise Impact Assessment to support discharge of Planning Condition 16a Ref: Z60104.2

14no. Apartments

Former British Legion
Woodhouse Lane,
Wythenshawe,
Manchester,
M22 9TF

On behalf of

Rowlinson Construction

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Gatley,
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2.0 Baseline Noise Survey

2.2 Braiden Acoustics 2023

2.2.2 Measurement Procedures

The instrumentation used for the NIA consisted of a NTi XL2 integrated real time analyser & B&K 4231 calibrator. The equipment was calibrated before and after measurements.

Unmanned measurements were undertaken between 00:42hrs and 15:29hrs on Thursday 18th May 2023. The noise level measurements were taken at one fixed position on site (~5m from roadside) shown in Figure 2 below:



Figure 2 – Braiden Acoustics Ltd noise level measurement position

The main source of noise impacting the site was identified as road traffic noise from Woodhouse Lane and surrounding road network.

The weather during the survey was described as mild with low wind speeds.

2.2.3 Summary of Measurements

The following table summarises the results of the noise measurements undertaken by Braiden Acoustics at the proposed site in terms of the average day and night noise levels.

Location	Period	L _{Amax}	L _{Aeq}	L _{A90}
Fixed, On-site	Day	89.3	59.6	52.4
Fixed, On-site	Night	75.3	50.1	41.6

Table 1 – Summary of noise measurements

Braiden Acoustics have not provided the 10th highest L_{Amax} value. However, based on the highest measured L_{Amax} value above, Azymuth would estimate that the 10th highest L_{Amax} value over the entire night-time period is likely to be between 68-75dB.

Full noise monitoring results as provided by Braiden Acoustics are included in Appendix C of this report.

2.3 Azymuth 2025

2.3.4 Measurement Procedures

The instrumentation used for the NIA consisted of a SvanTek 971 type 1 precision sound level meter. The equipment was calibrated before and after measurements. The sound level meter measured A-weighted (fast response) noise levels as well as octave bands noise levels for all measurement record.

Daytime noise level measurements were undertaken between 09:07hrs and 11:10hrs on Monday 19th May 2025.

The noise measurements were undertaken using the sound level meter at the position(s) shown in Figure 3 below:

- Position 1: Woodhouse Lane (~1m from roadside)
- Position 2: Church side road (~28m from roadside)



Figure 3 – Noise measurement position(s)

2.3.5 Summary of Measurements

The following table summarises the results of the noise measurements undertaken by Azymuth at the proposed site in terms of the average daytime noise levels.

Location	Period	L _{AFmax}	L _{Aeq}	L _{A10}	L _{A50}	L _{A90}
1) Woodhouse Lane	Day	76.7	61.8	65.0	53.7	46.8
2) Church side road	Day	72.1	58.9	60.1	55.0	52.6

Table 2 – Summary of noise measurements

Azymuth assumes that all noise levels measured on-site during the baseline noise survey are typical of the site.

Full results of the noise levels recorded during the course of the survey are included in Appendix B of this report.

2.3.6 Survey Consistency

Overall, Azymuth's results are consistent with the Braiden Acoustics survey. Daytime ambient noise levels were found to be 60dB and 62dB L_{Aeq} at the fixed on-site position and Azymuth Position 1 respectively. This minor difference in noise levels can be attributed to the ~4m difference in distance from the roadside of each position.

As such, Azymuth believe the Braiden Acoustics night survey measurements to be reflective of the site and have used results as appropriate in the following assessment.

2.4 Description of Noise Climate

The main noise source impacting the site is road traffic from Woodhouse Lane and Sandycroft Avenue, in agreement with Braiden Acoustics. There may be some minor contributions from Poundswick Lane and the tramlines to the south of the site, as well as the nearby Young Lives centre though this was not open for the duration of the daytime survey.

During the manned daytime survey building works were taking place on-site, though overall noise levels from the works were low. This may have had a minor impact on noise levels measured at Position 2.

The weather during the assessment was mild and dry, with low wind speeds.

3.0 Assessment Criteria

In order to assess the extent of any measures required in order to comply with suitable conditions relating to potential noise sources, Azymuth Acoustics UK has reviewed various guidance documents and standards, these include:

- ProPG: Professional Practice Guidance on Planning and Noise (New residential development)
- National Planning Policy Framework (NPPF 2023)
- British Standard 8233:2014
- World Health Organisation Guidelines on Community Noise
- British Standard 4142:2014+A1:2019
- IOA Guide to Noise Requirements of Approved Document O 2022
- Acoustics Ventilation and Overheating Residential Design Guide 2020
- Manchester City Council Planning Application 138185/FO/2023 Condition 16a

3.1 ProPG: Planning and Noise - May 2017

This Professional Practice Guidance on Planning and Noise (ProPG) has been produced to provide practitioners with guidance on a recommended approach to the management of noise within the planning system in England. The National Planning Policy Framework (NPPF) encourages improved standards of design. The CIEH, IOA and the ANC have worked together to produce this guidance which encourages better acoustic design for new residential development and aims to protect people from the harmful effects of noise.

The Professional Practice Guidance on Planning and Noise States 'The recommended approach is intended to give the developer, noise practitioner, and decision maker an early indication of the likely initial suitability of the site for new residential development from a noise perspective and the extent of acoustic issues that would be faced'. It is important that acoustic design is reviewed at an early stage of the development process.

3.2 National Planning Policy Framework (NPPF) 2023

The NPPF provides guidance to local authorities taking into account noise in making planning decisions. Paragraph 185 of the National Planning Policy Framework (NPPF) states that planning policies and decisions should aim to:

- Mitigate and reduce to a minimum to a minimum potential adverse impacts resulting from new development – and avoid noise giving rise to significant adverse impacts on health and quality of life,
- Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason;

The NPPF states that the planning system should distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework. In addition, NPPF states that the planning system should 'prevent 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'.

3.3 British Standard 8233: 2014

BS 8233 provides a code of practice for the sound insulation of a variety of building types affected by general environmental noise. It provides recommendations for control of noise in and around buildings and suggests appropriate internal ambient noise level criteria / limits for a variety of different situations including residential properties.

The following table summarises the noise limits suggested by BS 8233 applying to residential properties:

Activity	Room	Good Design Range $L_{Aeq, T}$ dB	
		07:00-23:00hrs	23:00-07:00hrs
Resting	Living Room	35	-
Dining	Dining Room / Area	40	-
Sleeping (daytime resting)	Bedroom (at night)	35	30

Table 3 – Noise Limits for Residential Properties Suggested in BS 8233

BS 8233 also states that traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50dB $L_{Aeq, T}$, with an upper guideline value of 55dB $L_{Aeq, T}$, which would be acceptable in noisier environments.

3.4 World Health Organisation Environmental Noise Guidelines (ENG) 2018

The main purpose of the 2018 WHO guidelines is to provide recommendations for protecting human health from exposure to environmental noise originating from the following sources: transportation (road traffic, railway and aircraft), wind turbines and leisure activities.

The guidelines set out to define recommended exposure levels for environmental noise in order to protect population health. Exposure limits are average levels defined over a period of one year, measured outdoors in free field at the most exposed façade. It should be noted that the document does not provide guideline limit values for multiple noise sources in combination.

The 2018 guidelines supersede the Community Noise Guidelines from 1999. Nevertheless, the document recommends that all CNG indoor guideline values and any values not covered by the current guidelines should remain valid. As such, the following guidance would remain appropriate:

For protection against sleep disturbance inside dwellings, night-time noise levels should not exceed 30dB L_{Aeq} for continuous noise and 45dB L_{Amax} for typical single sound events (which are exceeded 15 times or more per night – see ProPG Appendix A.12 for more details).

To protect the majority of people from being seriously annoyed during the daytime, the outdoor sound level from steady, continuous noise (interpreted as noise from all sources combined) should not exceed 55dB L_{Aeq} on balconies, terraces and in outdoor living areas.

It should be noted that exposure levels defined in ENG and CNG are for guidance purposes as relates potential adverse health impacts and should not be interpreted as absolute limits or regulations.

3.5 British Standard 4142:2014+A1:2019

“Methods for assessing and rating industrial sound” describes methods for rating and assessing sound of an industrial and/or commercial nature. The methods described in this British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

- Typically, the greater the difference between background sound and industrial/commercial noise, the greater the magnitude of the impact.

- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.
- A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.
- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.

BS 4142 notes that: “Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.”

3.6 IOA Guide to Noise Requirements of Approved Document O 2024

Approved Document O ‘Overheating’ was released in December 2021 and came into effect in England on 15th June 2022. It introduces requirements for various types of residential premises to limit unwanted solar gains in summer and provide an adequate means to remove heat from the indoor environment (Requirement O1 (1)). Requirement O1(2)(a) of the regulation requires that account must be taken of the safety of an occupant, and their reasonable enjoyment of the residence. There is also a requirement (O2(b)) that mechanical cooling may only be used where sufficient heat cannot be removed from the indoor environment without it.

The guide aims to set out a method to demonstrate compliance to the Building Control Body of the noise constraints in Approved Document O. This guide provides clarity for practitioners and regulators so that assessments can be carried out consistently, and the outcome is repeatable and reliable.

Paragraph 3.3 of Approved Document O states that windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits:

- 40dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am)
- 55dB L_{AFmax} , more than 10 times a night (between 11pm and 7am)

The IOA guide also provides the following clarification of the range of external (free field) limiting noise levels that generally precludes the simplified method for over-heating calculations (ie above these values they recommend dynamic thermal modelling) based on Approved Document O:

Parameter	High Risk Location	Moderate Risk Location
$L_{Aeq, 8hr}$, averaged over 8hrs between 11pm and 7am	45 dB	50 dB
L_{AFmax} , more than 10 times a night between 11pm and 7am	60 dB	65 dB

Table 4 – Noise Limits above which IOA guide recommends dynamic thermal modelling for over-heating assessments

3.7 Acoustics Ventilation and Overheating Residential Design Guide 2020

The Acoustics, Ventilation and Overheating Guide (AVO) is intended to be used by acoustic practitioners as well as all those involved in the planning, development, design and commissioning of new dwellings.

It recommends an approach to acoustic assessments for new residential developments that take due regard of the interdependence of provisions for acoustics, ventilation and overheating. Application of the AVO Guide is intended to demonstrate good acoustic design as described in the ProPG, when considering internal noise level guidelines.

3.8 Manchester City Council Planning Application 138185/FO/2023 Condition 16a

“16) a) Prior to the commencement of above ground works a scheme for acoustically insulating the proposed residential accommodation against noise from Woodhouse Lane shall be submitted to and approved in writing by the City Council as local planning authority. The approved noise insulation and ventilation scheme shall be completed before any of the dwelling units are occupied.”

3.9 Recommended Noise Assessment Criteria

Based on the guidance above it is recommended that the following criteria would be reasonable with the aim of minimising the impact of the environmental noise on the proposed new residential accommodation:

- Daytime noise levels not to exceed 35dB $L_{Aeq, 16hr}$ in living rooms / bedrooms
- Daytime noise levels not to exceed 40dB $L_{Aeq, 16hr}$ in dining room / kitchen
- Night-time noise levels in bedrooms not to exceed 30dB $L_{Aeq, 8hr}$
- Night-time single sound events in bedrooms not to exceed 45dB L_{Amax} more than 15 times a night
- Noise levels in external amenity spaces to not exceed 50dB $L_{Aeq, T}$, with an upper guideline of 55dB $L_{Aeq, T}$ in noisier environments

Table 4, Note 5 of BS 8233:2014 states: ‘If relying on closed windows to meet the guide values, there needs to be an appropriate alternative ventilation that does not compromise the façade insulation or the resulting noise level. If applicable, any room should have adequate ventilation (e.g. trickle ventilators should be open) during assessment.’

In line with IOA guidance on Approved Document O, Azymuth would recommend the following external noise level targets:

- 50dB $L_{Aeq, T}$, averaged over 8 hours (between 11pm and 7am)
- 65dB L_{AFmax} , more than 10 times a night (between 11pm and 7am)



4.0 Assessment of Results

4.1 Assessment of Noise Risk

The following noise and overheating risk assessment highlights the level of risk of an adverse effect based on the guidance from the ProPG and AVO guidance documents.

All noise levels have been derived from the SoundPLAN noise model.

Location	Time of Day	Calculated Noise Levels (dBA)	ProPG Risk of Adverse Effect	AVO Guide Risk (overheating) Category
1) Elevations facing Woodhouse Lane	Daytime $L_{Aeq, 16hr}$	55 – 58	Low	Low/Medium
	Night-time $L_{Aeq, 8hr}$	46 – 49	Low/Medium	Negligible/Low
2) Side elevations	Daytime $L_{Aeq, 16hr}$	48	Negligible	Negligible
	Night-time $L_{Aeq, 8hr}$	40	Negligible/Low	Negligible
3) Rear elevations	Daytime $L_{Aeq, 16hr}$	45	Negligible	Negligible
	Night-time $L_{Aeq, 8hr}$	44	Negligible/Low	Negligible

Table 5 – Noise risk assessment for Woodhouse Lane development

As shown above, the development generally possesses a negligible to low risk of adverse noise effect and overheating as per the ProPG and AVO guidance documents. The worst effected elevations are those facing Woodhouse Lane though the risk is still low to medium. Natural ventilation via opening windows provides a viable ventilation strategy.

It should be noted that ProPG does not account for daytime L_{Amax} instances that may arise from vehicles passing by. These instances may cause annoyance during the day to the potential residents. This has been considered when providing mitigation recommendations in Section 5.0.

4.1.1 Approved Document O Noise Assessment

The calculated night-time L_{Aeq} noise levels shown in Table 4 comply with the 50dB noise limit as per IOA Approved Document O guidance. The estimated 10th highest L_{Amax} range 68-75dB somewhat exceeds the 65dB noise limit, indicating occasional future instances of L_{Amax} exceedance. The reality of overheating due to this exceedance is low, as occupants typically have windows on more than one elevation.

4.2 Building Regulations Part O Assessment

A Building Regulations Part O 2021 overheating assessment was undertaken by Energy Counsel in March 2025, via the CIBSE TM59 2017 methodology (ref. Z60104.1). In the assessment windows were modelled as open during the day and closed at night. It is understood all bedroom, bathroom and kitchen areas are to be serviced by continuous mechanical supply and extract ventilation with heat recovery (MVHR).

The results of the Energy Counsel assessment state there is no risk of overheating.

4.3 SoundPLAN Model

Azymuth has undertaken acoustic modelling with the SoundPLAN 9.1 noise modelling software to predict and visualise the impact of noise on the proposed development site.

4.3.1 Grid Noise Map (GNM)

Azymuth have produced the following road traffic day and night GNM.

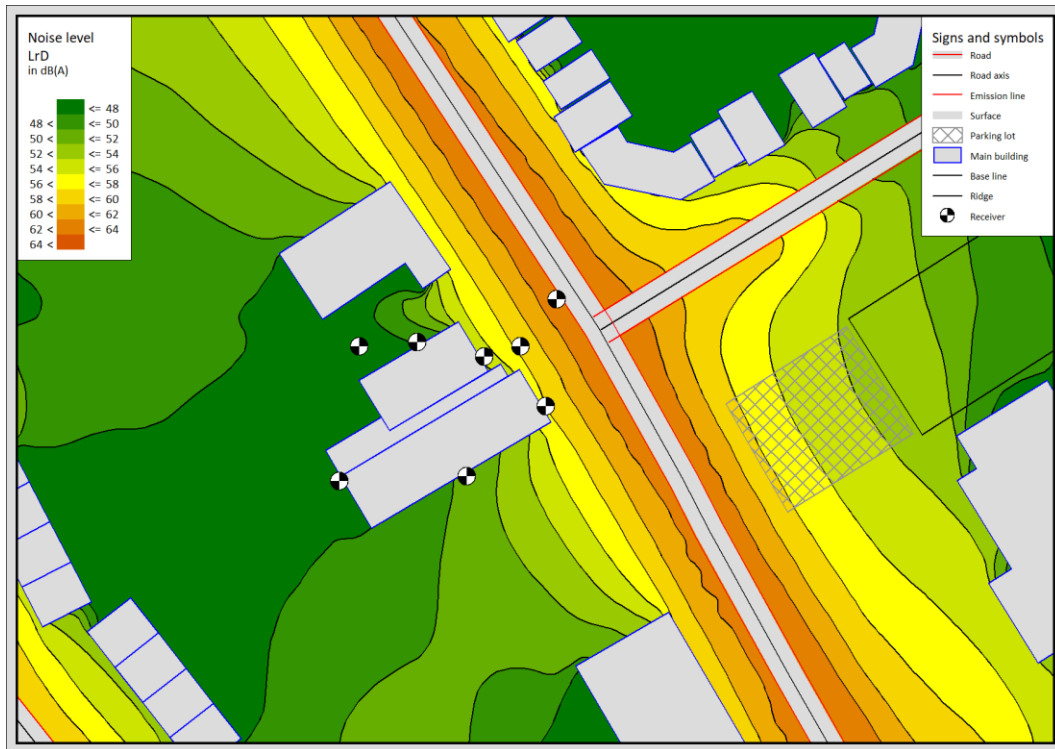


Figure 4 – Daytime GNM road traffic noise



Figure 5 – Night-time GNM road traffic noise

5.0 Recommendations for Noise Mitigation

Based on survey data and the predicted noise levels derived from SoundPLAN, Azymuth have produced the following recommendations in order to mitigate the effects of noise within the proposed development. If these recommendations are followed, noise levels within the development will satisfy the criteria as set out in Section 3.9.

NB all recommended mitigation specifications are subject to good workmanship and for materials to be installed as the manufacturer intends. Any poor workmanship may lead to weaknesses in the sound attenuation provided by the building elements.

Mitigation specifications have been colour coded relating to Section 5.3.

5.1 Recommended Glazing Specification

The table below outlines the glazing specifications Azymuth would recommend in order to achieve the specified internal ambient noise level targets.

Location (Habitable Spaces)	Glazing Specification	Appropriate Glazing Types
All elevations	Any building regulations approved min. 29dB R_w and 25dB R_w+C_{tr}	Good quality double glazed units e.g 4/16/4mm

Table 6 – Azymuth recommended glazing specification for Woodhouse Lane development

5.2 Recommended Ventilation Specification

Table 6 outlines the recommended ventilation that should be paired with the glazing specifications to ensure the appropriate sound insulation targets are met. With reference to the AVO and ProPG guidance, Azymuth recommends the following ventilation specification to ensure sufficient air flow to dwellings whilst also achieving internal noise level targets.

Location (Habitable Spaces)	Ventilation Specification	Appropriate Ventilation Types
All dwellings	Natural ventilation, Any Building Regulations Approved Document F Trickle vents	Opening windows, with Trickle vents min. 31dB D_{new} for background ventilation

Table 7 – Azymuth recommended ventilation specification for Woodhouse Lane development

However it is understood all bedroom, bathroom and kitchen areas are to be serviced by continuous mechanical supply and extract ventilation with heat recovery (MVHR). This exceeds the specification recommended by Azymuth in terms of internal noise level targets.



5.3 Mitigation Specifications

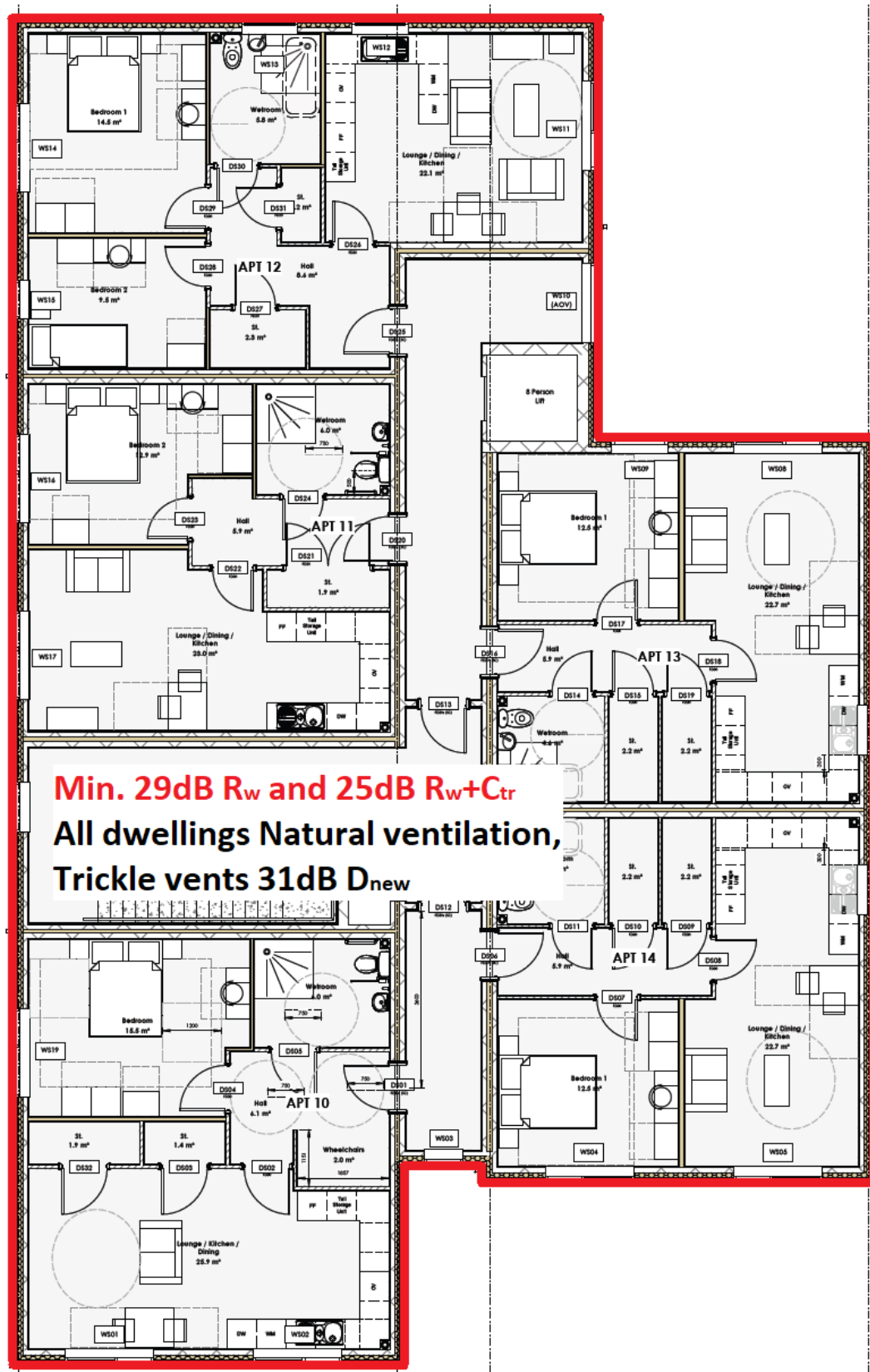


Figure 6 – Mitigation specifications for Woodhouse Lane development

The mitigation specifications as shown above should be applied to all floors.

5.4 Other Elements of Building Envelope

Other elements of the building envelope should have the following sound insulation performance:

- External Walls: minimum sound insulation 55dB R_w . This minimum is likely to be significantly exceeded by a normal brickwork façade. Where alternative external wall types (eg composite cladding panels / Metsec build-ups) are proposed on habitable areas it will be appropriate to check whether they comply with the target 55dB R_w .
- Roof: minimum sound insulation 45dB R_w . This minimum would likely be exceeded with a traditional slate or tile roof with mineral wool loft insulation above plasterboard ceilings or by a suitably insulated concrete roof or composite flat roof. (NB for composite flat roof build-ups a minimum 200mm roof void and 100mm mineral wool insulation would be recommended over and above the rigid insulation required to provide the required levels of thermal insulation).

6.0 Summary

Azymuth has been contracted by Rowlinson Construction to perform a Noise Impact Assessment (NIA) and Approved Document O noise assessment, in relation to 14no. new build apartments to be located at the former British Legion site on Woodhouse Lane, Wythenshawe. This NIA is intended to provide information on potential noise levels affecting the site in order to support the discharge of Planning Condition 16a. It is understood there shall be no externally mounted plant as such Planning Condition 17a should be simply discharged.

This report follows the previous NIA undertaken by Braiden Acoustics Ltd in May 2023 (ref. 11148). Overall results are consistent across both surveys.

A baseline noise survey was undertaken in the vicinity of Woodhouse Lane. Daytime ambient noise levels were measured to be between 59-62dB $L_{Aeq,16hr}$. Night-time ambient noise level was measured to be ~50dB $L_{Aeq,8hr}$. The main source of noise affecting the site is road traffic noise Woodhouse Lane and Sandycroft Avenue.

The development generally possesses a negligible to low risk of adverse noise effect and overheating as per the ProPG and AVO guidance documents respectively, and general compliance with external noise level targets as per IOA Approved Document O guidance. Moreover, a Building Regulations Part O 2021 overheating assessment was undertaken by Energy Counsel in March 2025, via the CIBSE TM59 2017 methodology (ref. Z60104.1). The results state there is no risk of overheating.

Azymuth have produced a noise model in SoundPLAN 9.1 to predict and visualise the effect of noise from the surrounding environment on the site.

As such, Azymuth have provided the following recommendations to mitigate the effects of external noise in the internal areas of the development.

Glazing

- ➔ All elevations: min. 29dB R_w and 25dB $R_{w+C_{tr}}$

Ventilation

- ➔ All dwellings: Natural ventilation, Trickle vents min. 31dB D_{new}

Other Elements of Building Envelope

- ➔ External Walls: min. 55dB R_w
- ➔ Roof: min. 45dB R_w

If the above recommendations are to be adhered to then the noise levels in all dwellings shall satisfy the assessment criteria contained within Section 3.9. However it is understood all bedroom, living room, bathroom and kitchen areas are to be serviced by MVHR. Thus the proposed ventilation specification exceeds that recommended by Azymuth and as such shall satisfy the assessment criteria.

The report demonstrates compliance with the requirements of Condition 16a (ie in terms of protection of the proposed dwellings from environmental noise).

Condition 17a can also be deemed to be satisfied by default as no externally mounted plant is proposed for these apartments and as such there will be no noise to assess.

Appendix A – Glossary of Acoustic Terms

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 T₃₀ or T₆₀)

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.

Appendix B – Azymuth Noise Survey Data

Start	Position	Time	L _{Amax}	L _{Aeq}	L _{A10}	L _{A50}	L _{A90}
Monday 19th May 2025							
09:12:00	1	00:05:00	76.1	62.3	66.5	54.8	46.1
09:17:00	1	00:05:00	79.3	62.6	67.2	56.4	45.6
09:22:00	1	00:05:00	77.7	59.6	63.8	51.9	48.1
09:27:00	1	00:05:00	77.1	63.5	67	57.5	48.2
09:32:00	1	00:05:00	75.3	64.1	67.4	62.1	53.2
09:37:00	1	00:05:00	75.6	63.3	67.5	56.9	49.3
09:43:00	2	00:05:00	70.3	56.5	58.8	53.2	51.7
09:48:00	2	00:05:00	78.6	58	60.3	53.6	52.1
09:53:00	2	00:05:00	68.4	53.9	55.7	52.7	51.4
09:58:00	2	00:05:00	66.7	54	55.8	52.5	51.4
10:03:00	2	00:05:00	67.2	55.1	57.6	52.9	51.4
10:08:00	2	00:05:00	71.5	57.9	61.4	53.1	51.5
10:14:00	1	00:05:00	73.4	59	63.5	49.4	43.4
10:19:00	1	00:05:00	74.8	59.8	63.6	52.7	45.3
10:24:00	1	00:05:00	82.9	61.7	65	50.8	45.8
10:29:00	1	00:05:00	73.6	60.6	64.9	54	46.9
10:34:00	1	00:05:00	74	57.6	59.2	47.2	44.5
10:39:00	1	00:05:00	80.2	62.2	64.6	51.2	45.7
10:45:00	2	00:05:00	67.9	54.8	57.2	52.1	50.8
10:50:00	2	00:05:00	80.6	59.5	60.3	52.2	50.8
10:55:00	2	00:05:00	77.4	60.2	64.6	56	51.2
11:00:00	2	00:05:00	72.6	64.4	67.2	63.6	59.2
11:05:00	2	00:05:00	72.1	59.4	61.9	58.8	52
11:10:00	2	00:05:00	72.4	59.4	60.1	59	58.1

Table B1 – Fully tabulated noise measurement results

Appendix C – Braiden Acoustics Noise Monitoring Results

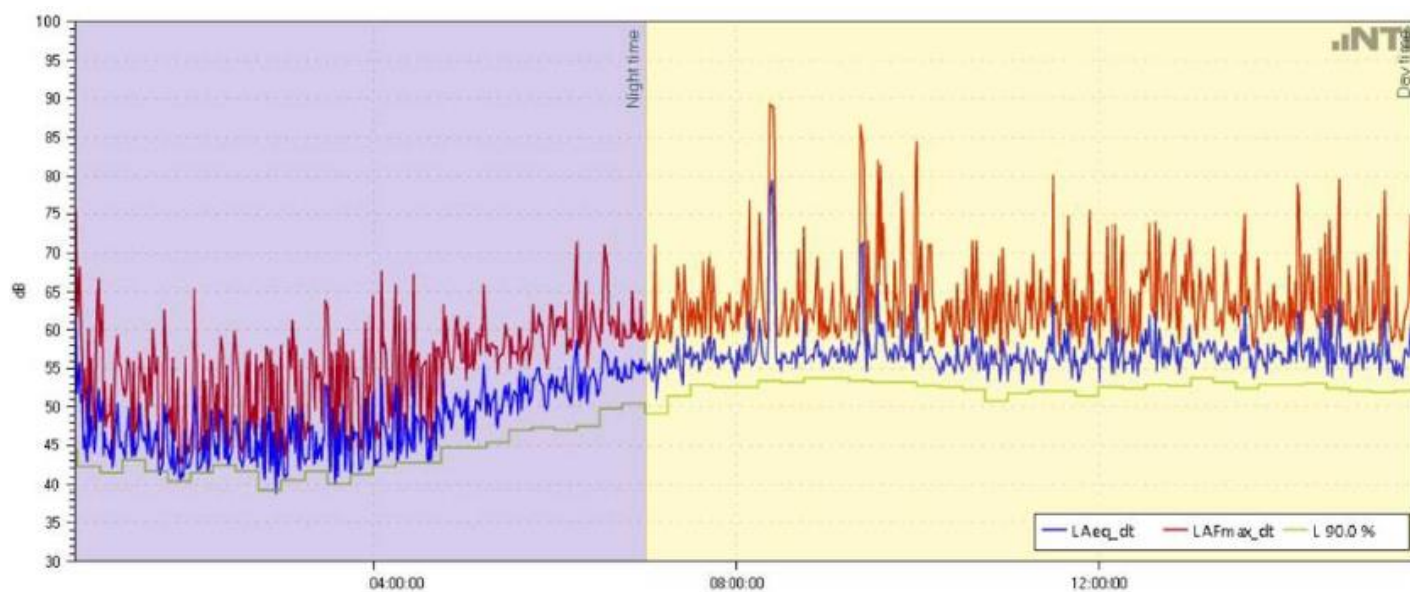


Figure C1 – Time history of Noise Level Measurements (dB) from Braiden Acoustics May 2023 monitoring results
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