BRAIDEN ACOUSTICS LTD

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NOISE VERIFICATION REPORT

Prepared for : Watson Homes

Date : 12 May 2025

Site : 121-131 Levenshulme Rd, Gorton

Report No. : 11364revA

1 INTRODUCTION

Braiden Acoustics has been commissioned by Watson Homes to undertake a verification noise survey at the site of 121-131 Levenshulme Rd, Gorton in order to discharge noise-related planning conditions.

1.1 PLANNING PERMISSION

Planning application 135270/FO/2022 proposed "Erection of 6 x 2 storey dwellinghouses and 3 storey building to form 31 apartments (Class C3) together with parking, access road, landscaping and boundary treatment". The application was approved with conditions on the 27 February 2023.

The relevant conditions are:

> *11) a) Before the commencement of any above ground works , a scheme for acoustically insulating the proposed residential accommodation against noise from the railway line situated to the east of the site shall be submitted to and approved in writing by the City Council as local planning authority. There may be other actual or potential sources of noise which require consideration on or near the site, including any local commercial/industrial premises such as retail shops on Levenshulme Road. The approved noise insulation and ventilation scheme shall be completed before any of the dwelling units are occupied.*
>
> *Noise survey data shall include measurements taken during a rush-hour period and night time to determine the appropriate sound insulation measures necessary.*
>
> *Due to the proximity of the development to the railway line it will be necessary for vibration criteria to apply which can be found in BS 6472: 2008 "Guide to evaluation of human exposure to vibration in buildings". Groundborne noise/re-radiated noise shall also be factored into the assessment and design.*
>
> ***b) Prior to first occupation of the residential units, a verification report shall be required to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic consultant's report. The report shall also undertake post completion testing to confirm that the internal noise criteria have been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the internal noise criteria.***
>
> ***Reason- To secure a reduction in noise from traffic or other sources in order to protect future residents from noise disturbance, pursuant to policies SP1 and DM1 of the Manchester Core Strategy (2012), and saved UDP policy DC26.***
>
> ***38) Before occupation of the dwellinghouses location on plots nos. 3,4,5 and 6 , the acoustic fencing as detailed on Proposed site plan ref: 02 rev. P21 received 7th February 2023 shall be implemented.***
>
> ***Reason- To secure a reduction in noise from the adjacent rail line in order to protect future residents from noise disturbance, pursuant to policies SP1 and DM1 of the Manchester Core Strategy (2012), and saved UDP policy DC26.***

A further planning application was made to discharge some conditions, including number 11 above, "Discharge of conditions 11 (acoustic insulation), 12 (waste management) and 31(part B) (sustainability) attached to planning permission referenced 135270/FO/2022". The Decision Notice states:

Condition 11 (acoustic insulation)

The submitted Noise and Vibration Impact report ref: C10764/NIA/1.0 dated July 2022 accompanied the original planning application submission, and the findings and recommendations detailed in the Omnia Noise & Vibration Impact Assessment, were accepted. However, the report concluded that internal noise limits would be exceeded on some façades with a partially open window, and an alternative ventilation was required for these rooms (for example acoustic trickle vents/ventilation units). The developer was required to confirm the ventilation proposals for relevant rooms, noting that the façade insulation and resulting noise levels must not be compromised, and agreement of this scheme will satisfy part a of the above condition. ***However, the ventilation proposals for relevant rooms to address this matter have not been provided for consideration and therefore condition no.11a cannot be discharged at this time.***

Furthermore, condition 11 b requires that prior to first occupation of the residential units, a verification report shall be required to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic consultant's report. The report shall also undertake post completion testing to confirm that the internal noise criteria have been met. *Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the internal noise criteria.*

On the basis that this information has not been provided for consideration condition no.11 b cannot be discharged at this time.

This report shall deal with the comments above. To summarise,

i. Details of the ventilation systems (Condition 11 a)

ii. Confirm all acoustic mitigation measures have been implemented

iii. In-situ noise levels measured to confirm compliance.

An initial report, dated March 2025, was submitted that only assessed internal noise from Plot 1. The subsequent response from the Planner is shown below, with comments from the client in red.

Condition 11 (acoustic insulation)

The submitted Braiden Acoustics Noise Verification Report, ref. 11364, dated 4 Mar 2025, should confirm the following:

1. *Whether the noise measurements taken (plot 1 internal only, fronting onto Levenshulme Road on the western elevation) are sufficiently representative of daytime/nighttime internal levels, and daytime external levels, at plots 3 to 6, which were also to be subject to mitigation (alternative ventilation and an acoustic barrier) as per the previously submitted Omnia report referenced in the Braiden Acoustics report. We tested plots 1 and 4 but the data for plot 4 was rendered un-usable as there was a fault on the smoke detector in the plot which ruined the readings. This meant data for plot 1 was submitted on the bases that on the Omnia report this was the worst part of the site for acoustic issues. The same measures that were followed on plot 1 have been followed on plots 3-6. As part of the apartment testing still to do we intend to do a further test on plot 6 and so a second report would be submitted further evidencing compliance. On this current submission we were looking to achieve a partial discharge for plots 1-5 and then plot 6 and the apartments would be picked up again. All measures set out in the report have been followed. Attached is an image of the acoustic fence which is constructed inline with the*

2. *Whether train pass-bys were captured by the verification measurements. The data submitted will have a train passing by as the data was obtained over a period of 2 days.*

3. *Whether the noise measurements, which are only stated to have commenced on a Friday and continued throughout a weekend (no dates or times provided) captured the normal operation of the adjacent commercial premises referenced in the Omnia report. The test was set up on a Friday and ran for the weekend. The commercial units to the side of the site were open and operational and the Friday readings captured school run.*

4. *Whether MCC's criteria have been fully met, including LAmax levels of individual noise events and LAeq levels for gardens; refer to guidance at Information for developers \| Manchester City Council. MCC's criteria should also be included within section 3.3 of the report. We feel these have been met for what we are requesting to be discharged*

5. *Survey dates and times should be included along with weather data.* *Weather reports for the period of testing attached*

6. *Noise measurement data should be appended.*

Therefore, this updated report shall address the issues raised above.

1.2 AIM

This report will deal with the comments above for discharge of Condition 11.

2 DESCRIPTION OF SITE

2.1 SITE AND SURROUNDING USES

The triangular parcel of land is flanked by the railway to the north east, residential dwelling to the south and to the west are the rear elevations of commercial premises on Levenshulme Road.

The commercial uses are as follows:

Raja Brothers convenience store	open daily unit 23:00
Jumbo laundrette	open daily unit 20:00
K2K Properties	office hours (closed at the weekends)
FADE barbers	open daily unit 19:30 (18:00 on Sundays)
Big Discount Bargain Store	open daily unit 18:00
Fratelli take away	open 5 days a week unit 23:00 (including weekends)

Figure 1
Ariel view of commercial properties on Levenshulme Road

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2.2 PROPOSED USE

The residential scheme is for 6no. two-storey semi-detached houses and three-storey building to form 31no. apartments.

The site layout is shown in Figure 2.

Figure 2
Site layout

2.3 NOISE AND VIBRATION IMPACT ASSESSMENT

For the original planning application, there was a Noise and Vibration Impact Assessment by Omnia dated July 2022, report number C10764/NIA/1.0.

2.3.1 Vibration

A vibration assessment revealed that vibration levels were less than 'low probability of adverse comment' and therefore no mitigation was required.

2.3.2 Glazing

The Mitigation and Conclusion sections of the report are silent regarding glazing. However, In Section 4.1.1 it states

> *When considering standard glazing, the internal noise level in living rooms would be 30dB.*

Section 4.1 of the same report says that standard glazing is assumed to be:

> *…standard double-glazing unit with configuration 6mm glass/12mm air space/6mm glass…*

2.3.3 Ventilation

Alternative ventilation was recommended in the acoustic report, although, a particular unit or method was not assessed or suggested.

2.4 GARDENS

Section 5.2 of the Omnia report states that "The drawings provided by the client for external fencing provide sufficient acoustic treatment for the external amenities". The Proposed Site Plan drawing show a 2.1m high acoustic fence at the rear of the house facing the railway line.

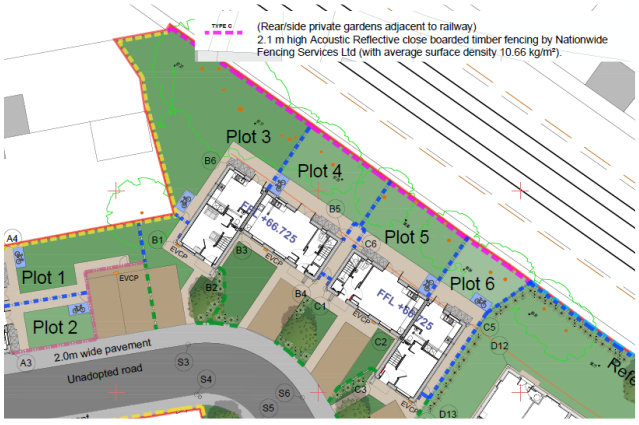

Figure 3
Houses facing railway showing the acoustics fence

3 ACOUSTIC CRITERIA AND METHODOLOGY

This is a residential development that may be susceptible to environmental noise. Potential mitigation measures are determined by recommended indoor noise levels from BS 8233 "Sound insulation and noise reduction for buildings" [1] which, in turn, takes guidance from the research-based World Health Organisation "Guidelines for Community Noise".

Noise level thresholds are usually given for the night-time – 2300-0700 hrs and day time – 0700-2300 hrs.

3.1 NATIONAL PLANNING POLICY FRAMEWORK (NPPF)

The National Planning Policy Framework is the current document for planning guidance. Paragraph 123 of the NPPF says that planning decisions should aim to:

- avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
- mitigate and reduce to a minimum, other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;
- recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and
- identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

3.2 BS 8233: 2014

The British Standard BS 8233:2014 "Guidance on sound insulation and noise reduction for buildings" gives guidance on recommended indoor ambient noise levels for residential dwellings.

Room	Criterion	$L_{Aeq,T}$	
		night	day
Bedroom	Sleeping	30	35
Dining Room/Area	Dining	--	40
Living Room	Resting	--	35

Table 1
Recommending indoor ambient noise level thresholds from anonymous noise (taken from Table 4, BS 8233:2014)

NOTE 7 Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.

Internal noise levels in habitable rooms are calculated using either the simple or rigorous method as described in Annex G in BS 8233:2104.

3.2.1 Noise levels in external living areas

For external living areas such as gardens and balconies, BS 8233:2014 § 7.7.3.2 recommends an upper limit of 55dB $L_{Aeq,day}$ although there is a caveat:

However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.

3.2.2 Maximum noise levels

In the 2014 edition of the Standard, the criterion of 45dB L_{AFMax} inside bedrooms has been removed although there is Note 4:

NOTE 4 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 LAmax,P depending on the character and number of events per night. Sporadic noise events could require separate values.

The use of the phrases 'may be set' and 'could require' imply that this is a discretionary criterion.

3.3 COUNCIL CRITERIA

It is usual that Councils adhere to noise levels given in BS 8233.

L_{Aeq} 35 dB 16 hours – indoors, daytime (07.00-23.00)

L_{Aeq} 30 dB 8 hours – indoors, night-time (23.00-07.00)

L_{Aeq} 55 dB 16 hours – indoors, daytime (07.00-23.00)

4 MONITORING DETAILS

4.1 MONITORING DETAILS

Personnel: John Braiden, BSc & MSc Acoustics, MIOA.

Equipment: NTi XL2 integrated real time analyser & B&K 4231 calibrator.

The sound level meter was calibrated before after the measurements with no significant drift reported.

4.2 INTERNAL NOISE MONITORING

Noise measurements focussed on noise from within habitable rooms at first floor level .

Monitoring was unmanned but audio was recorded.

4.2.1 Location

The microphones were approximately 1.2 m from local ground and placed in the middle of a first-floor habitable room, with the doors and windows closed but the MVHR unit on.

NB** It should be noted that the rooms were unfurnished and without carpets, so reverberation noise contributed to the measured noise levels. When the rooms are fully furnished then the reverberation noise will decrease and therefore the overall noise level in the rooms will also decrease.

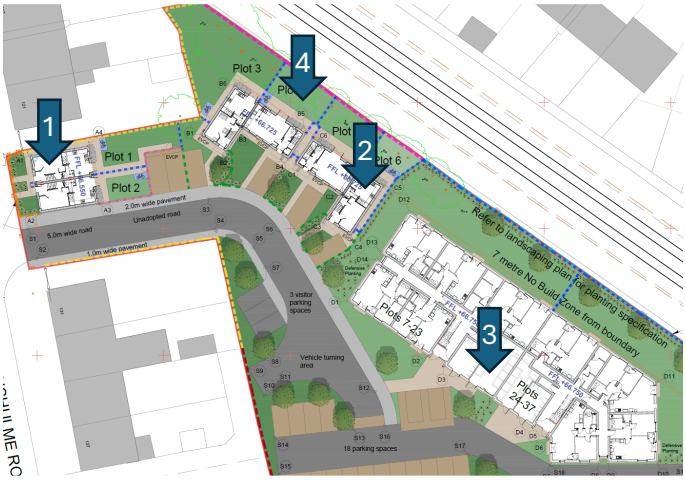

Figure 4
Noise monitoring locations

4.2.2 Results

Noise monitoring took place during a busy weekday (Friday), that included Friday evening rush hour traffic, and throughout the weekend.

4.2.2.1 Plot 1

The summary for internal monitoring within a first-floor habitable room, facing Levenshulme Road, in Plot 1, is shown below.

Date & Time	Friday 31-01-2025 from 15:00:00 for almost 48 hours
Weather:	temperature 4 – 8°C, wind 1 – 3 m/s (2 – 7mph), some light rain and cloud cover.

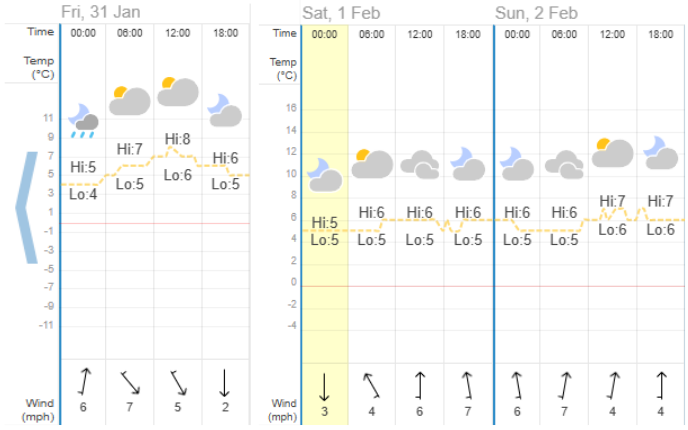

Figure 5
Weather during monitoring of Plot 1

Plot 1 is one of pair of houses that front on to Levenshulme Road on the western elevation which is the most exposed to noise.

The internal noise levels within the habitable room of Plot 1 are shown below.

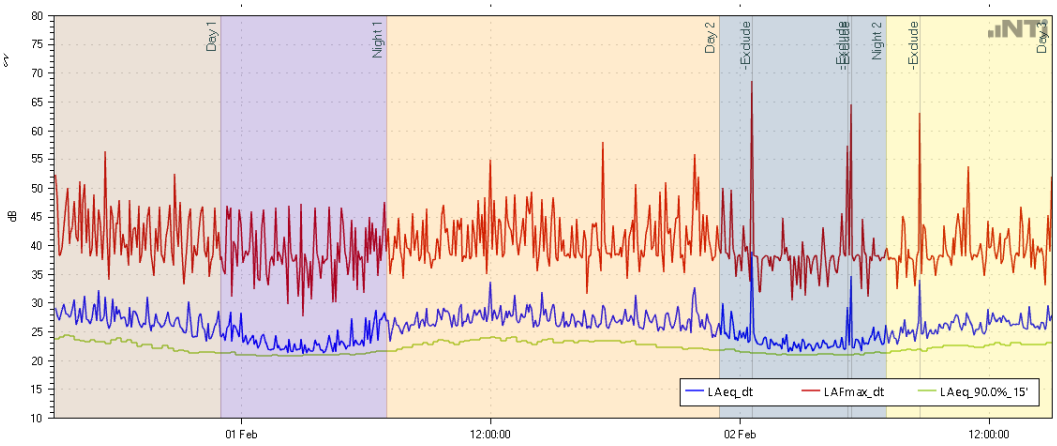

Figure 6
Internal noise monitoring – Plot 1

There were some sirens that were excluded from the data.

Outside of the school run (Sacred Hearth Primary School is approximately 300m to the north west) the area is generally quiet. The trains are infrequent (one an hour typically) and Ryder Brow railway station is only 120m north west of the site, so any passing trains will be slow moving.

As Section 2.1 shows, many of the commercial uses were open during the noise monitoring.

The night time max level is the level that is not exceeded more than ten times during the night time period.

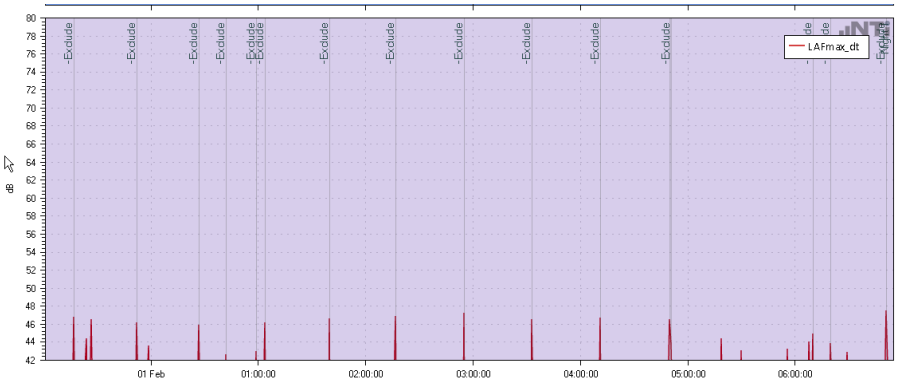

Figure 7
Max levels that were exceed no more than 10 times during the night – Plot 1

During the night in Plot 1 there were some strange 'whooshing' noises seemingly coming from the inside of the property. ***These noise events need to be investigated and eliminated.***

When the erroneous noise events are excluded, Figure 7 shows that a max level of 42dB was not exceeded more than 10 times during the night period.

A summary of the night and day noise levels, according to the measured data, is:

L_{Aeq} (day) 27dB

L_{Aeq} (night) 24 dB

$L_{Amax,<10}$ (night) 42 dB

4.2.2.2 Plot 6

The summary for internal noise monitoring within a first-floor bedroom to the rear of Plot 6 is shown below.

Date & Time Friday 11-04-2025 from 15:00:00 for almost 48 hours
Weather: temperature 2 – 20°C, wind 1 – 5 m/s (2 – 11mph), no precipitation and little cloud.

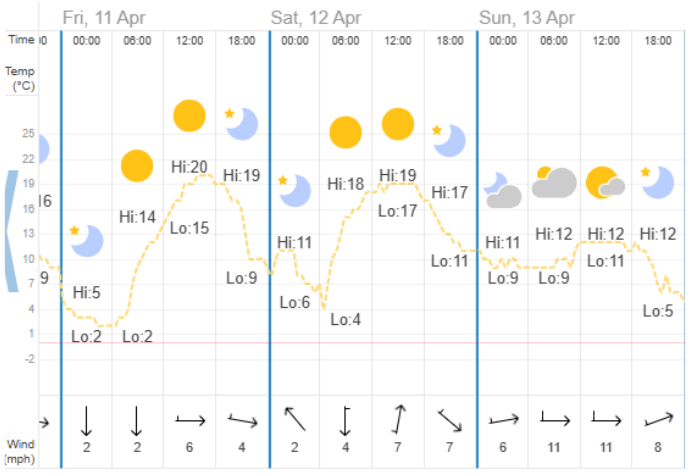

Figure 8
Temperature during noise monitoring of Plot 6

The rear of Plot 6 faces the railway.

The internal noise levels within a first-floor rear bedroom of Plot 6 are shown below. The MVHR unit was running during the noise monitoring.

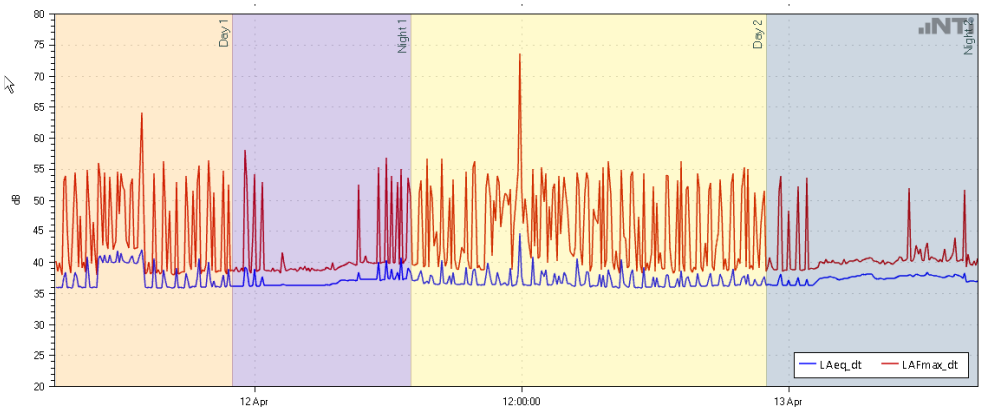

Figure 9
Internal noise monitoring – Plot 6

The train passes are clearly evident in Figure 9 and are denoted by the larger spikes. There are some smaller spikes which are airplane passes.

There are no other predominant noise sources at the part of the site.

The night time max level is the level that is not exceeded more than ten times during the night time period.

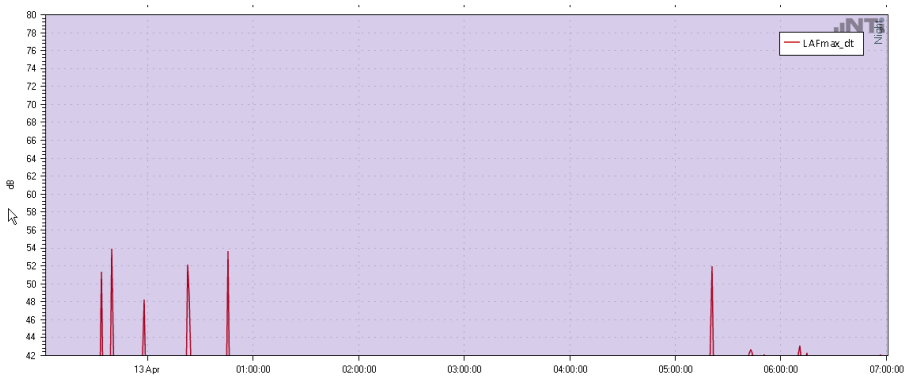

Figure 10
Max levels that were exceed no more than 10 times during the night – Plot 6

Figure 10 shows that a max level of 42dB was not exceeded more than 10 times during the night period.

A summary of the night and day noise levels, according to the measured data, is:

L_{Aeq} (day) 37dB

L_{Aeq} (night) 37 dB

$L_{Amax,<10}$ (night) 42 dB

The underlaying noise level in the bedroom was due to the MVHR unit; hence the same day and night time noise level.

NB Please note that the access panel to the MVR unit, in the ceiling void, was not in place during the noise monitoring. Therefore, the noise level in the rooms will decrease once the access panels are installed.

4.2.2.3 Flat 11

Internal noise monitoring was also undertaken within flat 11 facing into the central courtyard with the site.

The summary for the noise monitoring within Flat 11 is shown below.

Date & Time Friday 02-05-2025 from 16:00:00 for almost 48 hours
Weather: temperature 5 – 17°C, wind 1 – 6 m/s (3 – 13mph), no precipitation and little cloud.

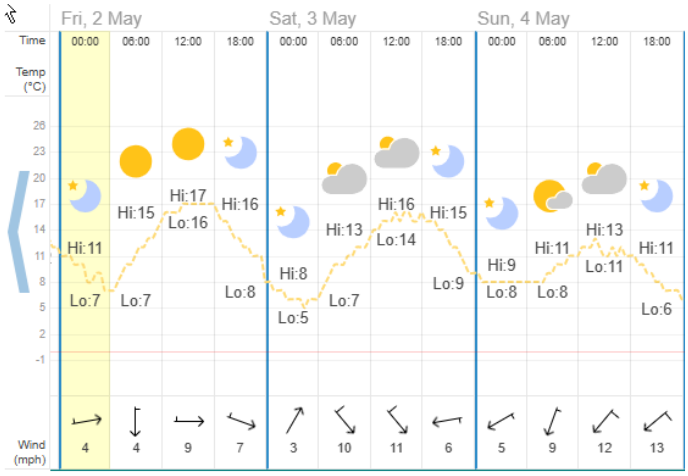

Figure 11
Temperature during noise monitoring of Flat 11

The front of Flat 11 faces toward the central courtyard of the site.

The internal noise levels within a first-floor rear bedroom of Flat 11 are shown below. There are no MVHR units on this façade, although there are extract units in cupboards in the halls for extraction from "wet" rooms (kitchen and bathroom).

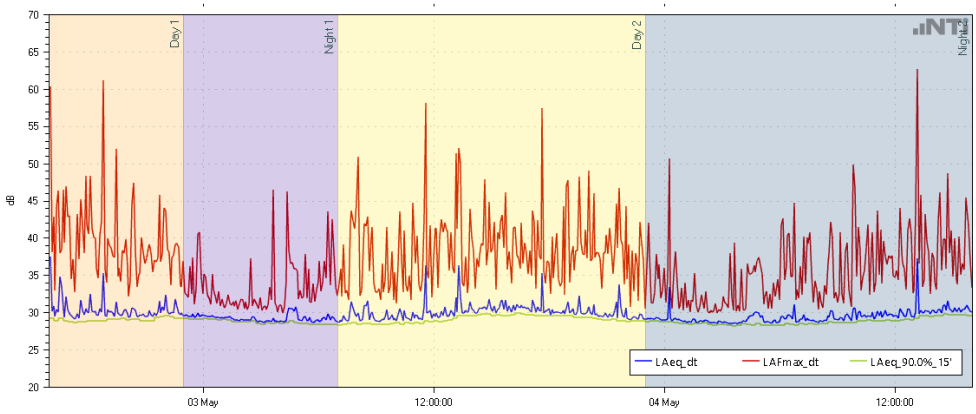

Figure 12
Internal noise monitoring – Flat 11

The night time max level is the level that is not exceeded more than ten times during the night time period.

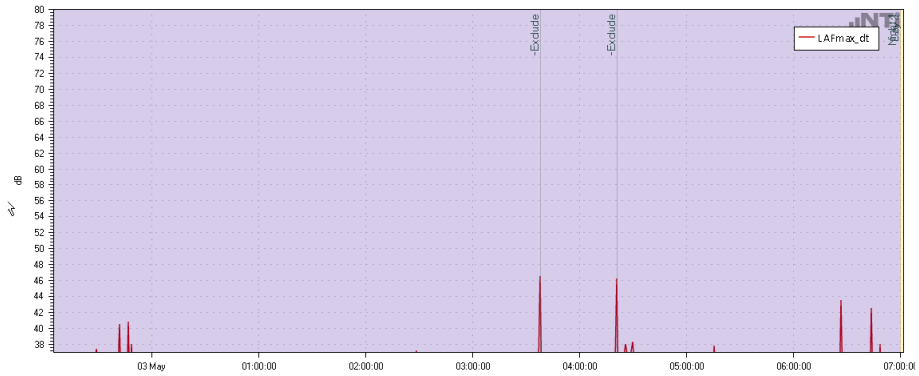

Figure 13
Max levels that were exceed no more than 10 times during the night – Flat 11

Figure 13 shows that a max level of 38dB was not exceeded more than 10 times during the night period.

A summary of the night and day noise levels, according to the measured data, is:

L_{Aeq} (day)	30dB
L_{Aeq} (night)	30 dB
$L_{Amax,<10}$ (night)	38 dB

There are no predominant noise sources at the part of the site. This is borne out of the data where the day and night time levels were very similar. At this location the surrounding buildings shield noise from the surrounding road and rail network.

4.3 External Noise Monitoring - Plot 4

Noise monitoring was made one metre from a ground floor window of Plot 4 in order to determine daytime noise levels within the gardens facing the railway so that efficacy of the acoustics barrier can be assessed.

Date & Time	Friday 02-05-2025 from 15:00:00 for 48 hours
Weather:	temperature 5 – 17°C, wind 1 – 6 m/s (3 – 13mph), no precipitation and little cloud.

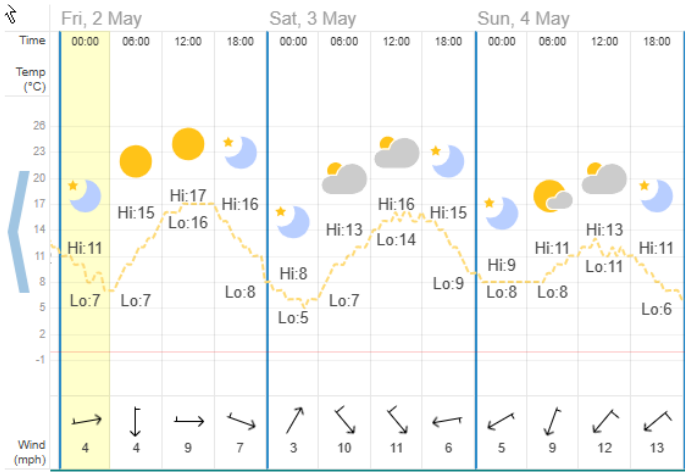

Figure 14
Temperature during noise monitoring of Plot 4

The time history of the external noise measurements at Plot 4 are shown below.

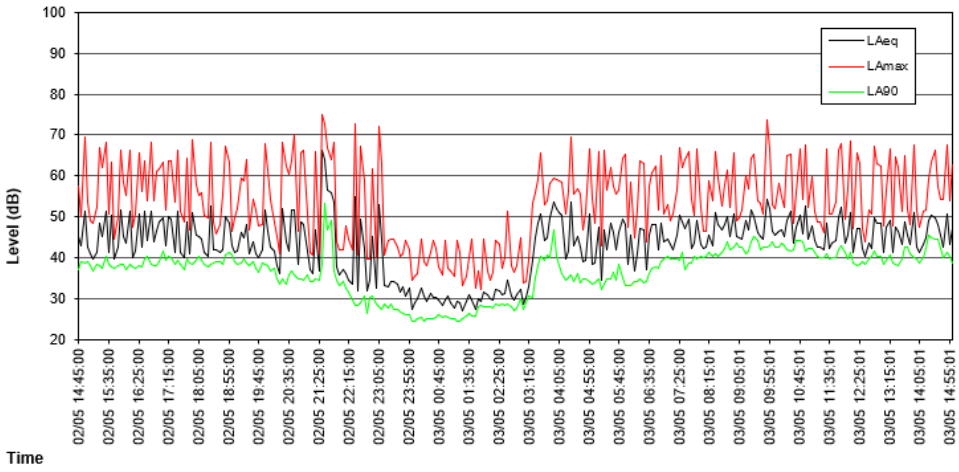

Figure 15
External noise monitoring – Plot 4

A summary of the 'free field[1]' daytime[2] noise levels, according to the measured data, is:

Day 49 – 3 = 46 dB(A)

5 ACOUSTIC ASSESSMENT

5.1 INTERNAL NOISE LEVELS

5.1.1 Glazing

The glazing that has been installed is standard 4mm double glazing:

DESCRIPTION

Position	Product	Process	Thickness (nominal) mm	Weight kg/m²
Pilkington **Insulight™** Therm				
Glass 1	Pilkington **Optifloat™** Clear	Annealed	4.0	
Cavity 1	Argon (90%)		20.0	
Glass 2	Pilkington **K Glass™** S	Annealed	4.0	
Product Code	4-20Ar-KS4		28.0	20.00

Figure 16
Glazing specifications

5.1.2 Ventilation

Alternative ventilation is provided, for the relevant facades, by a whole house system:

Envirovent Energisava 250

Figure 17
Photo of ventilation unit

5.1.3 Summary of noise monitoring

Noise monitoring was undertaken at the locations described in the last Section.

A summary of the day and night internal noise level are presented in Table 2.

[1] 3dB is deducted from the noise data as the monitoring was 1m from the façade.

[2] Night time noise levels for outdoor amenity spaces are not relevant.

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Plot / Flat	period	room		Internal Levels L_{Aeq} (dB)			Result
				Limit	*Meas*	Diff	Discussion
Plot 1	night	bedroom	L_{Aeq}	30	24	-6	under the limit
	night	bedroom	L_{Amax}	45	42	-3	under the limit
	day	lounge	L_{Aeq}	35	27	-8	under the limit
Plot 6	night	bedroom	L_{Aeq}	30	37	+7	Over the limit
	night	bedroom	L_{Amax}	45	42	-3	under the limit
	day	lounge	L_{Aeq}	35	37	+2	Close to the limit
Flat 11	night	bedroom	L_{Aeq}	30	30	0	On the limit
	night	bedroom	L_{Amax}	45	38	-7	Under the limit
	day	lounge	L_{Aeq}	35	30	-5	Under the limit
Plot 4 (ext)	night	bedroom	L_{Aeq}	n/a			
	day	lounge	L_{Aeq}	55	46	-9	Under the limit

Table 2
Measured noise level compared with limits.

Noise levels were met, or were close to the limits, except for night time levels for the units / plots that had MVHR units due to the absence of the access panels.

The access panels are 25mm MDF with seals around the sides, which should significantly decrease the internal noise levels in these rooms

5.2 ACOUSTIC BARRIER

The aforementioned Noise Impact Assessment does not mention an acoustic barrier, through the site layout plan does; it states:

> *(Rear/side private gardens adjacent to railway)*
>
> *2.1 m high Acoustic Reflective close boarded timber fencing by Nationwide Fencing Services Ltd (with average surface density 10.66 kg/m^2)*

Figure 18
Brochure of Acoustic Reflective barrier

A photo was taken from the upstairs rear bedroom of Plot 6, which clearly shows the installed acoustic barrier.

Figure 19
Installed Acoustic Barrier

Therefore Condition 38 can be discharged.

6 Conclusion

A verification acoustic survey has taken place at 121-131 Levenshulme Rd, Gorton to partially discharge noise conditions of planning application 135270/FO/2022 for the erection of residential dwellings.

Condition 11 – internal noise levels

Details of the Mechanical Ventilation Heat Recovery units have now been detailed and documented, so that Condition 11 a) can be fully discharged.

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Condition 11 b) can be discharged, as the external and internal noise measurements were within or near to the noise limits. However, habitable rooms with MVHR units in the ceiling voids were over the limits due to missing access panels. The panels are 25mm MDF with seals around the edges so should significantly reduce the internal noise levels once fitted.

A strange 'whooshing' noise was detected in Plot 1 during analysis of the maximum night time internal noise levels. This needs to be investigated and eliminated.

Condition 38 – acoustic barrier

Evidence of the installed acoustic barrier has been detailed in this report; so that Condition 38 can be fully discharged.

7 REFERENCES

[1] BS8233: 2014
Sound Insulation and noise reduction for buildings – Code of Practice,
British Standards Institute, 2014.

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Appendix

A1 SITE LAYOUT – GROUND FLOOR

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