

Apartment Development, Oldham Road, New Cross, Manchester M4

Technical Note 1

For GMI Construction, Carvers Warehouse, 77 Dale Street Manchester M1 2HG

Our Reference
21801TN01SWPK

Your Reference
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Issue Date
27/09/2023

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Revision History
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1 Planning Condition 16(b) – Residential Hub Noise

1.1 Overview

- 1.1.1 Environoise Consulting Limited has previously been commissioned by GMI to provide verification measurements and assessment of Residential Hub noise breakout (through the façade) and break through (through the separating floor) associated with the proposed apartment development at Oldham Road New Cross, Manchester M4 to address planning condition 16(b) of the decision notice. The condition is reproduced below alongside Planning Condition 16(a) which is given for context:

16(a)

...a scheme of acoustic insulation for the commercial unit shall be submitted for approval by the City Council, as Local Planning Authority. Where entertainment noise is proposed the L_{Aeq} (entertainment noise) shall be controlled to 10dB below the L_{A90} (without entertainment noise) in each octave band at the façade of the nearest noise sensitive location, and internal noise levels at structurally adjoined residential properties in the 63Hz and 125Hz octave band frequency bands shall be controlled so as not to exceed (in habitable rooms) 47dB and 41dB, respectively.

16(b)

Prior to the first use of the commercial unit, a verification report will be required to validate that the work undertaken conforms to the recommendations and recommendations and requirements approved as part of (a) of this planning condition. The verification report shall include post completion testing to confirm the noise criteria has been met. In instances of non-conformity, these shall be detailed along with mitigation measures required to ensure compliance with the noise criteria.

- 1.1.2 The ground floor Residential Hub is primarily to be used as a co-working environment with occasional social events whereby background music will be played.

1.2 Scope of Technical Note

- 1.2.1 Assessments of Residential Hub break-out and break-through noise have previously been done (Environoise 'Noise Level Verification' report ref: 21801R07aSWPK) to demonstrate that proposed constructions are sufficient so that the Planning Condition 16(b) can be satisfied. Manchester City Council (MCC) have subsequently requested further measurements specifically in relation to noise breakthrough to apartments above. This is understood to be due to the installation of a sound system mounted into the ceiling of the Residential Hub and Lounge which may partially bypass the suspended ceiling (depending on the directivity of speaker emissions).

- 1.2.2 This technical note details the findings of a survey and assessment methodology utilised to assess the level of music breakthrough from the Residential Hub into Apartments above with the sound system in-situ and in use.

1.3 Music Breakthrough to Apartments Above

Noise Survey

- 1.3.1 Further noise level measurements were taken between 10.34 and 11.29hrs on Monday 25th September 2023 within the Residential Hub and directly above in a bedroom of Apartment 1 on the first floor. The following measurements were taken:
- 2 x 10-minute ambient ($L_{Aeq,10min}$) noise level measurements within a bedroom of Apartment 1 with the installed sound system in the Residential Hub turned off to determine a baseline level. One of these measurements was taken immediately before and the other, immediately after the next set of measurements.
 - 3 x 10-minute ambient ($L_{Aeq,10min}$) noise level measurements taken simultaneously in the Residential Hub and Apartment 1 with the installed sound system in Residential Hub turned on. The source was electronic music reproduced at 82dB $L_{Aeq,30min}$ with a significant and consistent low frequency component which is suitable for the purpose of testing the level of music breakthrough against Planning Condition 16b criteria at 63Hz and 125Hz.
- 1.3.2 Noise survey results for are given in Table 1.1, with the values being the logarithmic average of each set of measurements (individual measurements given in Appendix A).

Table 1.1: Measured music levels.

Room	Measurement	Octave band (Hz) sound pressure level [$L_{Aeq,T}$ (dB)]	
		63	125
Residential Hub	Sound system turned on	75	80
Bedroom, Apartment 1	Baseline with speaker turned off	46	41
	Sound system in Residential Hub turned on	49	44

Assessment

- 1.3.3 In Table 1.2, the Residential Hub music levels are compared to the Bedroom noise levels corrected (through logarithmic subtraction) for the baseline (non-music) noise to obtain music breakthrough levels which are compared to Planning Condition 16b criteria.

Table 1.2: Internal music levels in Bedroom of Apartment 1 compared to Planning Condition 16b criteria.

Proposed Apartments	Octave band (Hz) sound pressure level [L _{Aeq,T} (dB)]	
	63	125
Noise level in apartment with sound system in Residential Hub turned on [A]	49	44
Noise level in apartment with sound system in Residential Hub turned off [B]	46	41
Music level in apartment [C = A log subtract B]	45	41
Planning condition 16 criteria [D]	47	41
Level of excess [= C – D]	0 (-2)	0

- 1.3.4 As shown in Table 1.2, measured music levels meet the Planning Condition 16b criteria for ‘structurally adjoined residential properties’. It is anticipated that significantly lower music noise levels would be set for the proposed co-working and social event use, in which further compliance of the targets would be achieved.

1.4 Music Breakout to Residential Receptors

- 1.4.1 Due to the high sound insulation performance of the separating floor between the Residential Hub and Apartments, it is the level of music breakout (through the façade) to existing residential receptors (in other buildings) that will determine the music limits. Music limiting levels are given for the installed sound system so that all Planning Condition 16a targets can be met.

Table 1.3: Music limiting levels in Residential Hub.

	Octave band (Hz) sound pressure level [L _{eq} (dB)]							Overall L _{Aeq} (dB)
	63	125	250	500	1k	2k	4k	
Music limiting levels (to be achieved in Residential Hub / Lounge)	70	75	75	75	75	75	70	80

1.5 Residual Music Breakthrough to Apartments Above

- 1.5.1 Table 1.4 provides the music breakthrough levels where the installed sound system is limited to the values given in given in Table 1.3.

Table 1.4: Residual music breakthrough levels with the music limiting levels implemented.

	Octave band (Hz) sound pressure level [$L_{Aeq,T}$ (dB)]	
	63	125
Limited music level in Residential Hub / Lounge	70	75
Music level in apartment	40	36
Planning condition 16 criteria	47	41
Level of excess	0 (-7)	0 (-5)

- 1.5.2 As shown in Table 1.4, the music levels in apartments above the Residential Hub will be significantly under Planning Condition 16b criteria for 'structurally adjoined residential properties' where limiting levels in Table 1.3 are implemented.

Appendix A: Noise Survey Data

Table A1: Individual noise survey measurement results.

Room	Measurement	Octave band (Hz) sound pressure level [L _{Aeq,T} (dB)]	
		63	125
Bedroom, Apartment 1	10-minute measurement with sound system turned off (1)	48	42
	Speaker turned on (measurement 1)	49	44
	Speaker turned on (measurement 2)	49	45
	Speaker turned on (measurement 3)	49	44
	10-minute measurement with sound system turned off (2)	45	40
Residential Hub	Speaker turned on (measurement 1)	76	81
	Speaker turned on (measurement 2)	76	80
	Speaker turned on (measurement 3)	74	79