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From:	Skylar Clark	Reviewer:	James Atha
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No. 3 Circle Square, Manchester

Commercial units - noise breakout assessment

This document presents an assessment of commercial noise breakout from the retail units within the development in line with Planning condition 15.

The assessment is based on the base build construction details received and is subject to further verification testing which will be carried out in due course. Post-completion verification testing will be required to discharge Planning Condition 15.

The assessment has been carried out on the basis that no entertainment noise is proposed to the ground floor retail units.

Planning condition 15 (134288/FO/2022)

Planning condition 15 has been received from Manchester City Council as part of the approval (Planning Application reference 134288/FO/2022). An excerpt of the relevant wording of this condition, addressed within this document, is provided below:

“Notwithstanding the recommendation within the No.3 Circle Square, Manchester Acoustic planning report by Sandy Brown dated 16 June 2022 and stamped as received on 06-07-22 before the operation of each ground floor commercial units commences a scheme for acoustically insulating each unit to ensure that there is no unacceptable level of noise transfer from these units to the residential accommodation above or any unacceptable noise break out shall be submitted to and approved in writing by the City Council as local planning authority.

Where entertainment noise is proposed the LAeq (entertainment noise) shall be controlled to 10dB below the LA90 (without entertainment noise) in each octave band at the facade of the nearest noise sensitive location, and internal noise levels at structurally adjoined residential properties in the 63Hz and 125Hz octave frequency bands shall be controlled so as not to exceed (in habitable rooms) 47dB and 41dB, respectively. The scheme proposed may need to include different measures such as acoustic lobbies at access and egress points of the premises, acoustic treatment of the building structure, sound limiters linked to sound amplification equipment and

specified maximum internal noise levels 134288/FO/2022 Page 12 of 23 The approved noise insulation scheme shall be completed before any of the approved uses commence.

Prior to occupation a post completion report to verify that all of the recommended mitigation measures have been installed and effectively mitigate any potential adverse noise impacts in adjacent residential accommodation arising directly from the proposed development shall be submitted and agreed in writing by the City Council as local planning authority. Prior to occupation any non compliance shall be suitably mitigated in accordance with an agreed scheme.

The approved details shall be implemented and remain in place for as long as the unit is in use (and any subsequent permitted changes of use under Class E) Reason - To secure a reduction in noise in order to protect future residents from noise nuisance, pursuant to policies SP1 and DM1 of the Core Strategy and saved UDP Policy DC26.

Amplified sound egress limits

The cumulative noise level resulting from amplified sound egress associated with the scheme should not exceed 10 dB below the existing background (L_{A90}) in each octave band at 1 m from the most affected windows of the nearest noise sensitive premises. These limits are set out in Table 1 based on the previous environmental noise survey works carried out at the site.

This is in line with the MCC *Noise and Planning Guidance* document dated May 2022. A 3 dB correction has been applied to both the free-field background noise level and amplified sound limit to account for reflections from the facade of the receptor.

Table 1 Amplified sound limits at 1 m from the nearest noise sensitive premises

	Maximum sound pressure level at 1m from noise sensitive premises, $L_{eq,5min}$ (dB)							L_{Aeq}
	Octave-band centre frequency (Hz)							
	63	125	250	500	1k	2k	4k	
Day (07:00 – 23:00)	54	48	48	49	52	43	34	54
Night (23:00 – 07:00)	44	38	38	39	42	33	24	44

Internal noise transfer criteria

Despite not being specifically covered by the planning condition, it is recommended that internal noise transfer from the commercial units be limited to be no higher than NR25 ($L_{eq,5min}$) within structurally adjoining office spaces.

The planning condition states that internal noise levels at structurally adjoined residential properties in the 63Hz and 125Hz octave frequency bands shall be controlled so as not to

exceed (in habitable rooms) 47dB and 41dB, respectively. As there are no structurally adjoining residential premises, no further action is required to fulfil this requirement.

Assessment

Proposed retail units

Two retail units are proposed at ground floor level along the Brancaster Road elevation, as indicated in blue below.

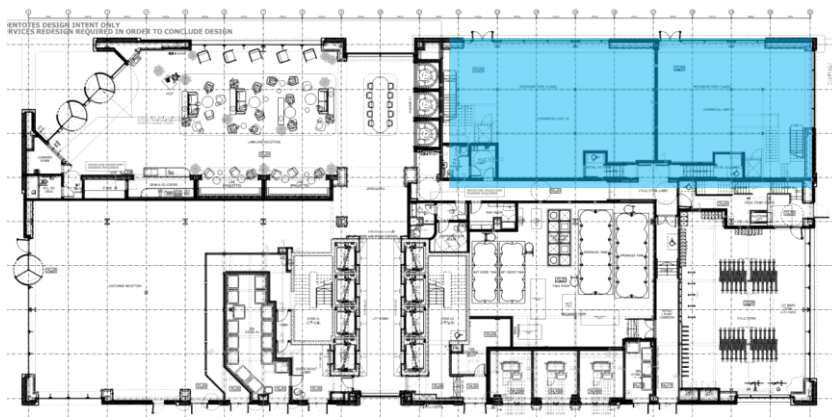


Figure 1 Retail units at 3 Circle Square

It is proposed to limit any amplified sound within the base build (shell) units to be no higher than L_{Aeq} 60 dB. This would allow for background music only inside the units and would not constitute 'entertainment noise' in line with the planning condition.

Should loud amplified sound/ music be desired by an incoming tenant/future occupiers of the units, they would be required to undertake the required enhancement works and assessments needed to demonstrate compliance with the relevant planning noise criteria. Enhancements and mitigation measures may include:

- Sound insulating ceilings to the units
- Creation of sound lobbies for entrance doors
- Treatment/attenuation to ventilation routes
- Boxing of structural elements/cladding elements
- Use of electronic limiters on any amplified sound equipment.

Any further assessment required shall be carried out in accordance with prevailing guidance, and Planning Condition 15 will be required to be re-discharged.

Cladding specification and details

A minimum overall sound insulation performance of $R'_w + C_{tr}$ 32 dB has been specified for the cladding to the commercial units. The received cladding elevation details are provided below.

SANDY BROWN

Consultants in Acoustics, Noise & Vibration

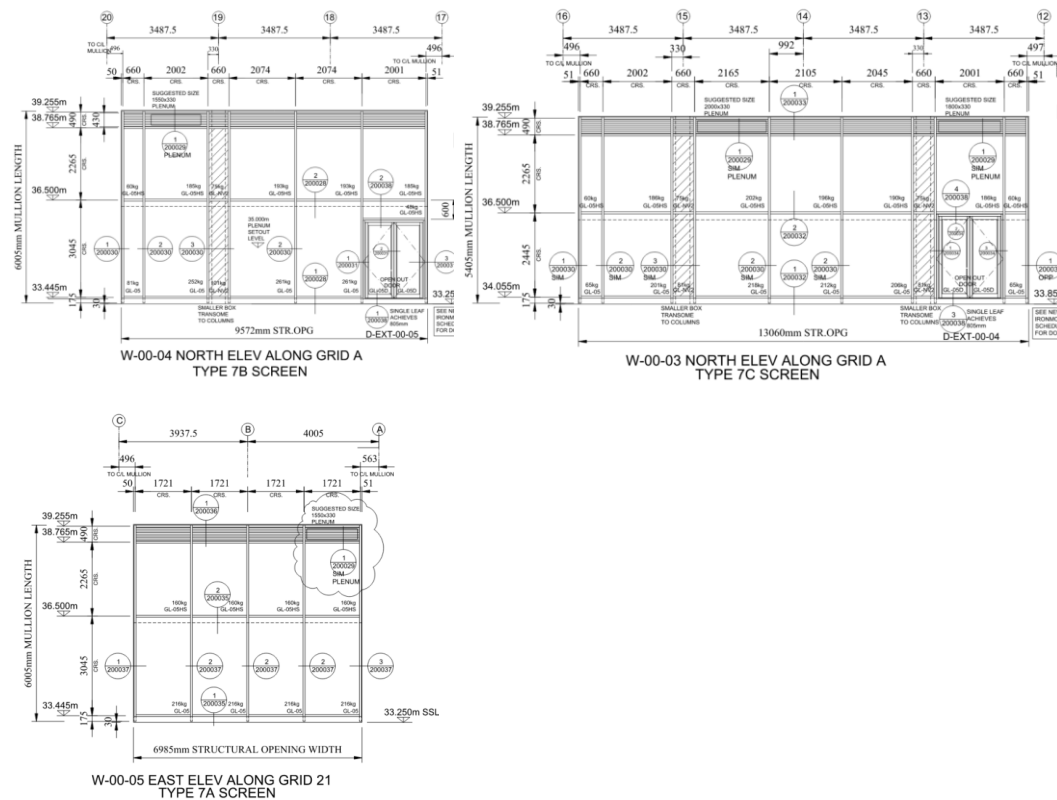


Figure 2 Retail unit cladding details received

These comprise of glazed curtain walling systems with louvres at high level. Insulated panels are proposed to be installed to close off the rear of the louvres.

The proposed glazing/cladding element constructions are indicated in Table 2, along with the predicted sound insulation performance.

Table 2 Sound insulation performances for cladding elements to retail units

Glazing/element type	Construction	Predicted sound insulation performance, $R_w + C_{tr}$ (dB)
GL-5	8.8 mm laminated glass/24 mm void/8 mm glass	34
GL-5HS	8.8 mm laminated glass/24 mm void/8 mm glass	34
GL-NV2	13.5 mm laminated glass/22 mm void/6 mm glass	35

Insulated panel to louvres	3 mm aluminium / 39 mm core containing insulation / 2 mm aluminium	26
Curtain walling frame	Typical/standard aluminium curtain walling framing system	33
Door		32 ^[1]

[1] Performance based on specified requirements.

Composite calculations have been undertaken to estimate the overall sound insulation performance of the cladding to the retail units. It is anticipated that the $R'_w + C_{tr}$ 32 dB specified standard is achievable with the proposed construction details.

Floor details

The Cat-A speculative office floor above the retail units comprises of 150 mm thick concrete on trapezoidal metal decking with a raised access floor above, as per the excerpt provided in Figure 3.

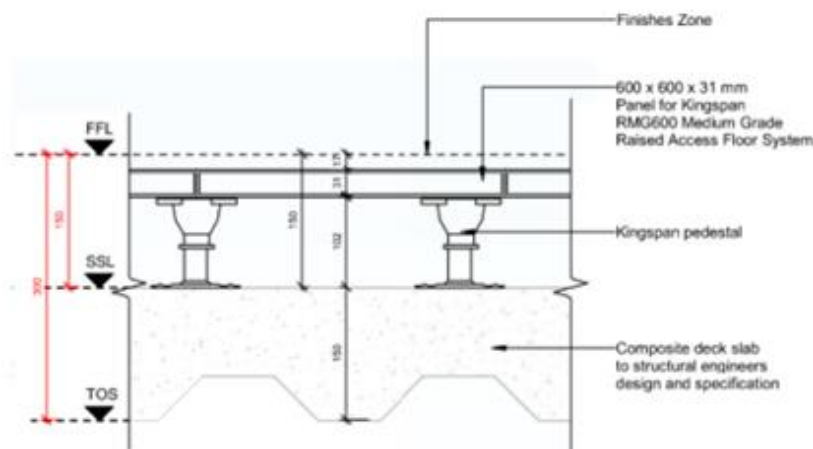


Figure 3 Typical office floor build-up

This arrangement is expected to be capable of providing a sound insulation performance of at least $D_{nT,w}$ 50 dB.

Assessment

The proposed construction details for the cladding and floors to the retail units have been assessed and are predicted to be in line with the specified requirements.

On this basis, background music level of L_{Aeq} 60 dB or less within the retail units will be sufficiently controlled to meet with the requirements of MCC, applicable outside the nearby noise sensitive premises. In this case, the nearest noise sensitive receptor is the Vita Students building which is approximately 14 metres away from the retail units.

It would be possible to for the units accommodate higher levels of amplified sound. This would however then constitute 'entertainment' noise. Manchester City Council would then typically require enhancements (such as acoustic door lobbies) to be installed.

Should loud amplified sound/ music be desired by an incoming tenant, they would be required to undertake the required enhancement works and assessments needed to demonstrate compliance with the relevant planning noise criteria. Enhancements and mitigation measures may include:

- Sound insulating ceilings to the units
- Creation of sound lobbies for entrance doors
- Treatment/attenuation to ventilation routes
- Boxing of structural elements/cladding elements
- Use of electronic limiters on any amplified sound equipment.

Any further assessment required shall be carried out in accordance with prevailing guidance, and Planning Condition 15 will be required to be re-discharged.

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