

ASDA Manchester Square Gardens

Condition Discharge Noise Impact Assessment Report

31639/PTM1/R0

29 August 2024

For:
TSA Riley
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Document Control

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1.0 Introduction

Hann Tucker Associates Limited (Hann Tucker) has been commissioned by TSA Riley to undertake an assessment for the discharge of Planning Condition 17 attached the decision notice of application ref 125573/FO/2019 at Manchester Square Gardens.

Consent was granted in 2020 for the construction of four buildings of heights varying from 10 storeys to 45 storeys together comprising Co-living bedspaces (use class sui generis) and associated amenity facilities, with ground floor commercial units (Use classes A3 ((Café / Restaurant and D2 Gym)), private amenity space and public realm comprising hard and soft landscaping, car parking and cycle facilities and other associated works.

The decision notice (Ref 125573/FO/2019) included a number of conditions which relate to noise and this assessment has been prepared to support the discharge of noise transfer and noise breakout from the proposed retail store for supermarket use.

The assessment draws upon the results of a baseline noise survey undertaken by Hann Tucker Associates (HTA) Limited to support the discharge of Planning Condition 17.

2.0 Planning Conditions

The Decision Notice associated with the planning application (Ref 125573/FO/2019) details several planning conditions. Planning condition 17 relate to noise from the prior to occupation and state the following:

Planning Condition 17

“Before each of (a) the residential accommodation and (b) each of the Class A3 (Cafe and Restaurant) use and D2 (Gym) units within Block B commences a scheme for acoustically insulating the ground floor commercial to ensure that there is no unacceptable level of noise transfer from the ground floor uses to the residential accommodation above 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 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.

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."

This technical report details design mitigation measures implemented before and during construction in order to reduce noise to within acceptable levels in accordance with relevant standards/guidance and conditions set by Manchester City Council (MCC).

3.0 Acoustic Terminology

For an explanation of the acoustic terminology used in this report please refer to Appendix A.

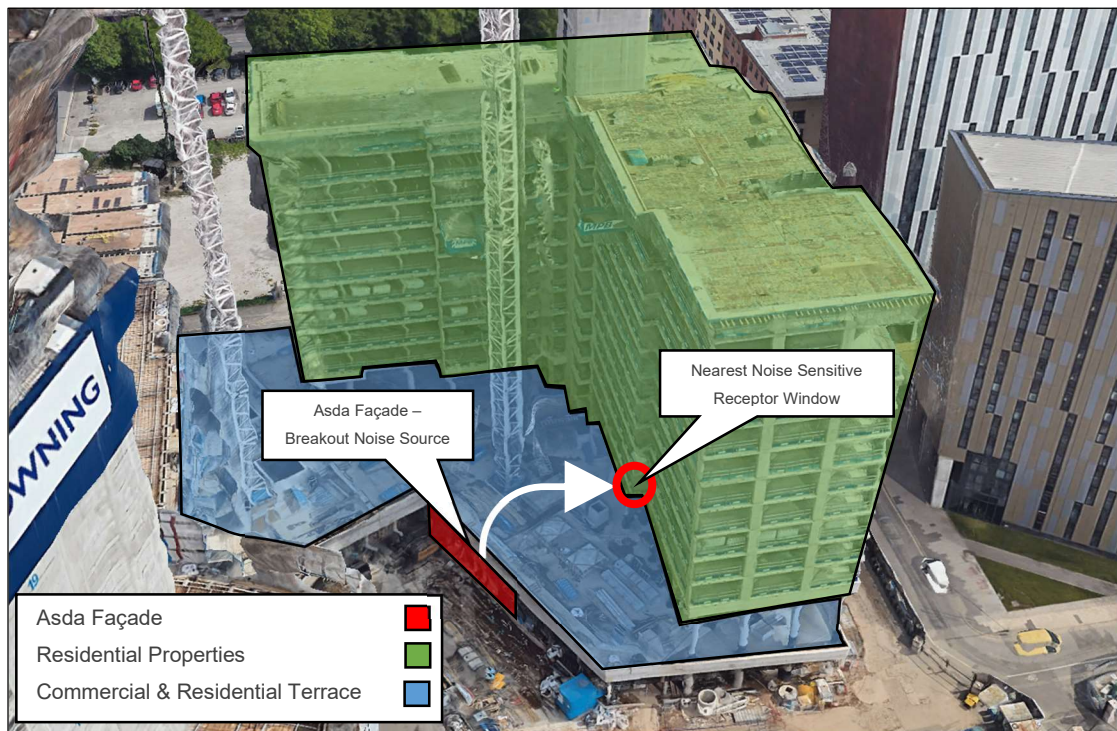
4.0 Site Description

4.1 Location

The site is located to the south side of Manchester, in Deansgate. To the south of the site is the Mancunian Way (A57M), which is a two-lane part of the Manchester inner ring road. To the west of site is Medlock Street Junction which is a roundabout that links three carriageways. To the north of the site is Hume Street which links the site with Oxford Road to the east. To the east of site is Wilmott Street. To the south-east corner of site is bound by Chester Street and Newcastle Street.



The proposed ASDA store is located at Ground Floor level in Block B. Another commercial unit is located at first floor level with an external terrace is located adjacent. The residential apartments closest to the ASDA are located above the terrace area at level 03.



A floor plan of the ASDA store is shown below.



Drawing Reference: Whittam Cox Architects_A-00-01-900_Proposed Site Layout, dated February 2024



5.0 Condition 17 Assessment

5.1 Summary

As part of the condition discharge for the scheme, Manchester City Council (MCC) has requested that an assessment of noise transfer between the ASDA store to apartments above, and noise breakout to the street is controlled by the separating construction elements.

5.2 Criteria

5.2.1 Noise Transfer to Above

The wording of Planning Condition 17 states “...A scheme for acoustically insulating the ground floor commercial to ensure that there is no unacceptable level of noise transfer from the ground floor uses to the residential accommodation shall be submitted...”.

It is understood that ASDA is proposed at ground floor level, with another retail unit to be located at first floor level, which includes a commercial outdoor terrace that sits directly above the ASDA store. Residential apartments are located on the third floor and sit above the external terrace area/first floor retail unit.

It is therefore considered that noise transfer from the ASDA store would be negligible as there is essentially no common floor between it and the apartments. This is due to the double height open terrace area which separates the floor slab to the nearest residential properties above and additional sound insulation of the first-floor commercial unit.

5.2.2 Noise Transfer to External Receptors

Based on the wording of Planning Condition 17 and the measured survey data undertaken by Hann Tucker between Tuesday 30 July to Wednesday 31 July, noise egress from the ASDA unit frontage should be controlled to not exceed the following limits at the façade of the most affected noise sensitive receptor at level 03.

Description	Noise Level Limit (dB $L_{eq,1hour}$) at Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Daytime (07:00 – 23:00)	41	40	44	44	48	40	27



5.3 Commercial Noise Assessment

5.3.1 Anticipated Internal Noise Levels of ASDA Commercial Unit

The table below sets out typical $L_{Aeq,1hr}$ measured noise levels from a commercial retail unit with low level background music, undertaken by Hann Tucker at site of a similar use.

Description	Reverberant Noise Level (dB $L_{Aeq,1hr}$) at Octave Band Centre Frequency (Hz)							dBA
	63	125	250	500	1000	2000	4000	
Commercial Retail unit with low background music	59	62	59	59	57	53	55	62

5.3.2 External Noise Breakout Assessment to Residential Areas

To inform our assessment of noise breakout, we have drawn upon typical noise levels within similar retail spaces that have the potential to incorporate low level background music.

MCC recommends that noise (L_{eq}) breaking out through the building frontage should not exceed 10 dB below the background noise level (L_{90}) in all octave band frequencies at the nearest noise sensitive windows. For this development, the nearest proposed receptor is located 10.5m above at level 03.

The façade consists of full height and width glazing panel system. Glazing test data from Focchi has been provided, detailed in Appendix B. Calculations have been undertaken using the proposed podium glass to demonstrate the ability to comply with the criteria.

The assessment of noise breakout to the nearest receptors based on standard calculation procedures for reverberant noise breakout and source noise levels as previously mentioned. The resultant external noise level has been calculated using the following equation detailed overleaf.

$$SPL_{out} = SPL_{in} - SRI + 10\log_{10}\left(\frac{S}{r^2}\right) - 14$$

Where:

- a) SRI is the estimated sound reduction performance of the façade element.
- b) r is the distance from radiating element to receptors.
- c) S is the approximate surface area of radiating element.



The tables presented below outline summary calculations for the operational noise levels assumed.

Typical internal noise levels in a bar with background music playing

Assessment to Residential Receptor	Octave Band Centre Frequency (Hz)						
	63	125	250	500	1k	2k	4k
Internal noise level (dB L _{eq}) <i>SPL_{in}</i>	59	62	59	59	57	53	55
Composite sound reduction of glazing elements (dB) <i>SRI</i>	27	27	34	43	43	44	53
Distance & radiating area propagation correction (dB) $10\log_{10}\left(\frac{S}{r^2}\right)$ & Internal diffuse field to external free-field hemispherical radiation correction (dB) <i>-14</i>	-15	-15	-15	-15	-15	-15	-15
External noise level at nearest receptor (dB L _{eq}) <i>SPL_{out}</i>	16	18	8	-1	-3	-8	-15
Criteria at nearest receptor (dB L _{eq})	47 ^[1]	41 ^[1]	44	44	48	40	27
Noise Impact at Receptor (dB)	-31	-23	-36	-45	-51	-48	-42

It should be noted that our assessment presented above has been undertaken with consideration to daytime operation, in line with the proposed opening times (07:00 – 23:00). Ultimately, the above demonstrates the proposed external façade systems are readily available to control noise break-out from commercial units to nearby receptors.

Please note that the above assessment has been undertaken using typical noise levels for a retail unit with low background music. Calculations predict that maximum noise emissions from the ASDA retail unit would still achieve the criteria at levels of ≤90 dBA internally. It is considered unlikely that noise levels within the ASDA store would come close to these levels, therefore, noise impact is considered negligible to nearby receptors.

6.0 Conclusions

Hann Tucker Associates Limited (Hann Tucker) has been commissioned by TSA Riley to undertake a noise impact assessment for a proposed ASDA site in Manchester, Square Gardens.

The assessment for the discharge of planning conditions 17 regarding noise transfer resulted in no assessment required. The assessment of noise breakout to nearby receptors resulted in a review of the installed glazing on the ASDA frontage, which indicated that an appropriate level of protection will be achieved to future noise sensitive receptors on the Site.



It has been demonstrated above that the conditions relating to noise prior to first occupation have been demonstrated to meet the minimum requirements of National, British and local planning policies and guidance. It is therefore recommended that noise need not be a determining factor in granting the discharge of Condition 17.

Appendix A

The acoustic terms used in this report are defined as follows:

dB Decibel - Used as a measurement of sound level. Decibels are not an absolute unit of measurement but an expression of ratio between two quantities expressed in logarithmic form. The relationships between Decibel levels do not work in the same way that non-logarithmic (linear) numbers work (e.g. 30dB + 30dB = 33dB, not 60dB).

dBA The human ear is more susceptible to mid-frequency noise than the high and low frequencies. The 'A'-weighting scale approximates this response and allows sound levels to be expressed as an overall single figure value in dBA. The _A subscript is applied to an acoustical parameter to indicate the stated noise level is A-weighted

It should be noted that levels in dBA do not have a linear relationship to each other; for similar noises, a change in noise level of 10dBA represents a doubling or halving of subjective loudness. A change of 3dBA is just perceptible.

L_{90,T} L₉₀ is the noise level exceeded for 90% of the period *T* (i.e. the quietest 10% of the measurement) and is often used to describe the background noise level.

L_{eq,T} L_{eq,T} is the equivalent continuous sound pressure level. It is an average of the total sound energy measured over a specified time period, *T*.

L_{max} L_{max} is the maximum sound pressure level recorded over the period stated. L_{max} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the L_{eq} noise level.

Sound Pressure Level (L_p) is the sound pressure relative to a standard reference pressure of 2×10^{-5} Pa. This level varies for a given source according to a number of factors (including but not limited to: distance from the source; positioning; screening and meteorological effects).

Sound Power Level (SWL or L_w) is the total amount of sound energy inherent in a particular sound source, independent of its environment. It is a logarithmic measure of the sound power in comparison to a specified reference level (usually 10^{-12} W).

Appendix B

Specifications and Other Information

Schalldämm-Maß nach EN 20140 - 3

Messung der Luftschalldämmung von Bauteilen im Prüfstand

Auftraggeber: SCHÜCO International KG, 33525 Bielefeld

Produktbezeichnung FW 50+ SG



Aufbau des Probekörpers

Pfosten-Riegel-Fassadenelement

Material Aluminium

Öffnungsart Festverglasung

Außenmaß 1230 mm x 1480 mm

Füllung Mehrscheibenisolierverglasung

Scheibenaufbau 10/20/8 VSG

Gasfüllung im SZR Luft

Prüfdatum 31. März 2003

Prüföffnung 1,25 m x 1,50 m = 1,88 m²

Prüfstandtrennwand Beton-Doppelwand

Prüfschall Rosa Rauschen

Volumina der Prüfräume $V_S = 109,9 \text{ m}^3$
 $V_E = 101,3 \text{ m}^3$

Maximales Schalldämm-Maß

$R_{w, \max} = 62 \text{ dB}$ (bezogen auf die Prüffläche)

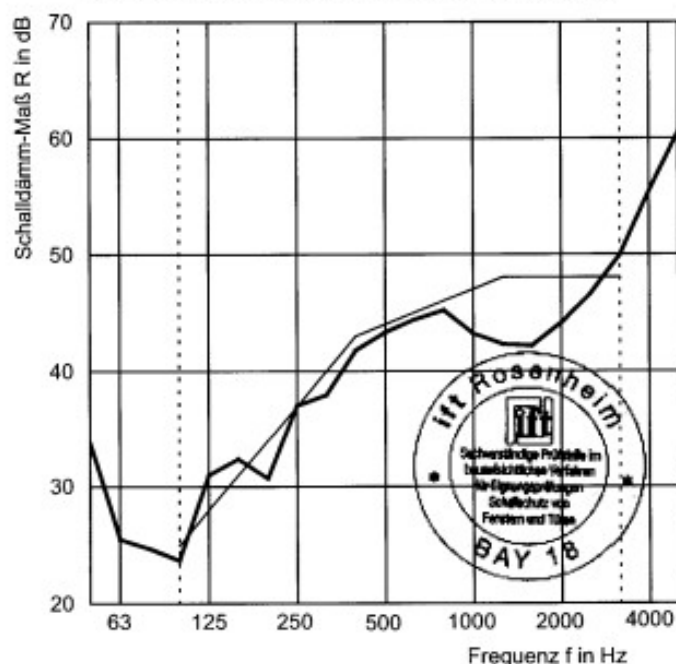
Einbaubedingungen

Element stumpf in die Prüföffnung eingesetzt und verkeilt. Anschlussfugen vollständig mit Schaumstoff ausgestopft und beidseitig mit plastischem Dichtstoff gedichtet.

Klima in den Prüfräumen 21 °C / 46 % RF

f in Hz	R in dB
50	33,8
63	25,5
80	24,7
100	23,7
125	31,0
160	32,4
200	30,7
250	37,1
315	38,0
400	41,8
500	43,3
630	44,4
800	45,2
1000	43,2
1250	42,3
1600	42,2
2000	44,1
2500	46,6
3150	49,9
4000	55,4
5000	60,5

— verschobene Bezugskurve
— Messkurve
— Frequenzbereich entspr. der Bezugskurve nach EN ISO 717-1



Bewertung nach EN ISO 717-1 (in Terzbändern):

$R_w (C; C_{tr}) = 44 (-2; -5) \text{ dB}$

$C_{50-3150} = -2 \text{ dB}; C_{100-5000} = -1 \text{ dB}; C_{50-5000} = -1 \text{ dB}$

$C_{tr, 50-3150} = -6 \text{ dB}; C_{tr, 100-5000} = -5 \text{ dB}; C_{tr, 50-5000} = -6 \text{ dB}$

Prüfbericht Nr.: 161 26794/2.0.0

ift Rosenheim

10. April 2003

[Signature]
I. A. Markus Pütz
Prüfbed Bauakustik