fisher acoustics

Flint Glass Works
64 Jersey Street
Manchester M4 6JW

0161 605 0905
info@fisheracoustics.co.uk
www.fisheracoustics.co.uk

MPF/PR0661/L07

9 October 2026

Peter Cregeen
Renaker Build Ltd
1st Floor
NQ Building
47 Bengal Street
Manchester
M4 6BB

Dear Peter

TRINITY ISLANDS D1, MANCHESTER – INTRUSIVE NOISE

I write to confirm the results of the internal noise measurements conducted within the apartments of Tower D1, Trinity Islands, Manchester. The measurements have been conducted to determine the internal noise levels due to external and internal noise sources and to compare the measurement results to the requirements of the planning condition relating to external noise ingress.

INTRUSIVE NOISE CRITERIA - PLANNING CONDITION 120b

Planning condition 120 of the planning approval for Trinity Islands, planning reference 132429/FO/2021, dated 14 December 2021, states:

- 120) Phase D1 hereby approved shall be carried out in accordance with Chapter 11 - Noise and Vibration Matt Fisher Acoustics of the ES stamped as received by the City Council, as Local Planning Authority, on the 7 December 2021 and Memo dated 1 November 2021 'AVO Strategy' stamped as received by the City Council, as Local Planning Authority, on the 3 February 2022.

  The approved noise insulation and ventilation scheme shall be completed before the first occupation of the residential accommodation within phase D1 of development.

  (b) Prior to the first occupation of the residential accommodation within phase D1, a verification report will be required to validate that the work undertaken conforms to the recommendations and requirements approved as part of part (a) of this planning condition. The verification report shall include post completion testing to confirm the noise criteria has been met with window and purge vent doors are closed. In instances of non-conformity, these shall be detailed along with mitigation measures required to ensure compliance with the noise criteria. A verification report and measures shall be agreed until such a time as the development complies with part (a) of this planning condition.

  Any mitigation measures shall be implemented in accordance with a timescale to be agreed with the City Council, as Local Planning Authority. Any measures shall thereafter retained and maintained in situ.

  Noise survey data must include measurements taken during a rush-hour period and night time to determine the appropriate sound insulation measures necessary. The following noise criteria will be required to be achieved with window and purge vent doors are closed:

Bedrooms (night time - 23.00 - 07.00) 30 dB L_{Aeq} (individual noise events shall not exceed 45 dB LAmax,F by more than 15 times

Living Rooms (daytime - 07.00 - 23.00) 35 dB L_{Aeq}

Gardens and terraces (daytime) 55 dB L_{Aeq} (where practically possible)

Due to the proximity of the development to the rail line, it shall 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". Ground borne noise/re-radiated noise shall also be factored into the assessment and design.

Additionally, where entertainment noise is a factor in the noise climate the sound insulation scheme shall be designed to achieve internal noise levels in the 63Hz and 125Hz octave centre frequency bands so as not to exceed (in habitable rooms) 47dB and 41dB (Leq,5min), respectively.

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, H1 and DM1 of the Core Strategy (2007) and saved policy DC26 of the Unitary Development Plan for the City of Manchester (1995).

The applicable internal noise criteria for apartments are reproduced in Table 1.

Room Type	**Time of day**	
	07:00 to 23:00	**23:00 to 07:00**
Living room	35 dB $L_{Aeq, 16\ hours}$	-
Bedroom	-	30 dB $L_{Aeq, 8\ hours}$ Individual noise events should not normally exceed 45 dB (LAmax) more than 15 fifteen times a night

Table 1: Intrusive noise criteria

MEASUREMENT METHODOLOGY

The measurement methodology, as agreed with Manchester City Council, to demonstrate compliance with the criteria identified in Table 1 above is as follows:

1) Daytime internal ambient noise levels shall be measured in 10% of apartments, the location of which will be determined by Fisher Acoustics based on exposure to road traffic noise.

2) Night-time noise levels within bedrooms will be interpolated from the daytime noise levels, based on daytime and night-time external noise measurements.

3) The testing on each day is expected to take place between approximately 5.30pm and 8.00pm (i.e. at a time when internal and external construction noise at D1 has ceased but road traffic levels can be assumed to be typical).

4) Install sound level meters in a living room and bedroom of each apartment under test.

5) Measure internal noise levels in each room for approximately 5 minutes with the MVHR (mechanical ventilation and heat recovery) unit switched off (as the internal noise criteria quoted in the documents referred to in planning condition 164 relate to external noise ingress only). If the average (LAeq) noise level in the room has not stabilised after 5 minutes, the measurement will be continued until a stable LAeq noise level has been established (up to approx. 10 minutes if required).

6) Measure internal noise levels in each room with the MVHR operating in continuous ventilation mode.

7) Measure the reverberation time in each room to allow the measured noise levels to be corrected to allow for the reduction in internal noise level that will occur upon furnishing of the rooms.

8) Analyse the data to determine the 16-hour daytime noise level in the rooms due to external noise intrusion. With reference to the results of external noise survey measurements, determine the expected 8-hour night-time internal noise levels within bedrooms based on the change in external noise levels between the daytime and night time.

9) For information purposes, advise the noise level in each of the measured rooms due to the operation of the MVHR units.

10) Issue a letter report which tabulates the results of the measurements and compares the measured internal noise levels within each room with the requirements of the planning condition.

The measurements were conducted by Fisher Acoustics Ltd between the following times:

- 1655 hours and 1920 hours on Tuesday 04 August 2026
- 1705 hours and 1930 hours on Wednesday 05 August 2026
- 1640 hours and 1915 hours on Tuesday 18 August 2026
- 1650 hours and 1905 hours on Thursday 20 August 2026
- 1640 hours and 1825 hours on Thursday 25 August 2026

There was occasional construction activity within the building during the internal measurements. As far as possible, measurements avoided construction noise. Traffic flows on the roads adjacent to the site were found to be typical for the duration of the internal noise measurements. There were occasional train movements on the rail line that lies approximately 180 metres to the northeast of D1. The train movements did not contribute to internal noise levels.

The measurements were undertaken with the windows closed. The tested rooms were unfurnished.

The measurements were conducted in general accordance with 'ANC Guidelines -Noise Measurements in Buildings, Part 2: Noise from External Sources (e.g. traffic noise) within Buildings'.

The measurements were conducted in rooms on various levels of the building with a bias to measuring apartments on the closest elevations of the building to Trinity Way and Regent Road, as these are the most dominant noise sources in the area. Level 4 is the lowest level of the building that includes apartments.

MEASUREMENT TOLERANCE

As described in the ANC Guidelines, BS EN 61672-1: 2013 'Electroacoustics. Sound level meters – Specifications' gives the tolerance limits that are applicable to noise level measurements carried out using Class 1 sound level meters. These tolerance limits are given in 1/3 octave bands (ie across the sound spectrum), from which it is possible to determine the influence of the tolerance limits on an overall dB(A) measured noise level.

Using the 1/3 octave band data, the overall measurement tolerance on the measured internal noise levels is +/- 1.2 dB(A). It follows that a measured noise level within 1.2dB(A) of the applicable criterion could be compliant with the criterion.

MEASURED INTERNAL NOISE LEVELS

The reverberation times of the rooms were greater than will be the case when the rooms are fully furnished. Therefore, the measured noise levels have been corrected to allow for the expected reduction in reverberation time following the full furnishing of the rooms.

The measured reverberation times have been corrected to 0.5 seconds for living rooms and 0.45 seconds for bedrooms. In addition, a correction must also be applied to the measured 5-minute daytime internal noise levels in order to determine the expected 16-hour daytime internal noise levels within living rooms. In order to determine the correction, reference has been made to external noise survey data gathered at the same time as the internal noise measurements and to the results of longer term measurements, including full night time external noise surveys.

The measured daytime noise levels were determined by road traffic on Trinity Way (A6042), Regent Road and to a lesser degree by road traffic on Water Street.

Table 2 shows the measured, RT-corrected average ($L_{Aeq,16h}$) daytime noise levels in living rooms with the MVHR switched off.

Apartment Number	Corrected Average Daytime Noise Level, dB (LAeq,16h)
	Living Room/ Kitchen Limit = 35 dB LAeq,16h (Measurement tolerance 1.2 dB(A))
04.02	32.9
04.03	27.6
04.08	22.7
04.10	27.3
05.01	24.2
05.03	26.7
05.05	22.1
05.09	23.0
06.04	25.8
06.08	23.6
06.10	28.0
07.01	23.3
07.02	30.2
07.03	29.0
07.05	23.2
07.07	22.2
08.02	28.7
08.04	28.8
08.08	23.2
08.10	29.9
09.01	26.3
09.03	22.7
09.05	23.2
09.09	24.8
10.02	27.7
10.04	33.8
10.06	27.1
10.10	27.0
11.01	21.9
11.02	31.8
11.05	22.1
12.02	30.5
12.04	27.6
12.08	22.3
13.02	28.5
13.03	25.6
13.10	27.3
14.01	22.6
14.04	28.0
14.08	22.1
15.01	23.8
15.04	28.1
15.05	23.4
16.03	27.2
16.04	26.1
16.06	25.7
17.02	29.6
17.10	29.1
18.01	22.2
18.05	25.0

Apartment Number	Corrected Average Daytime Noise Level, dB (LAeq,16h)
	Living Room/ Kitchen Limit = 35 dB LAeq,16h (Measurement tolerance 1.2 dB(A))
19.02	27.5
19.05	24.2
20.03	24.3

Table 2: Measured, RT-corrected average daytime noise levels in living rooms – external road traffic noise ingress only

It can be seen that compliance with the daytime internal noise criterion for living rooms has been achieved in all of the rooms under test due solely to external noise sources (i.e. with the MVHR switched off).

For information, Table 3 shows the measured, RT-corrected average ($L_{Aeq,16h}$) daytime noise levels in living rooms with the MVHR in each apartment operating continuously. The internal noise level due solely to the operation of the MVHR alone is also shown.

Apartment Number	Corrected Average Daytime Noise Level, dB (LAeq,16h)	
	Traffic noise + MVHR noise	MVHR Only, dBA
04.02	33.5	24.0
04.03	30.6	27.6
04.08	28.0	26.4
04.10	27.6	16.0
05.01	32.3	31.6
05.03	27.7	20.8
05.05	28.6	27.5
05.09	30.4	29.6
06.04	31.7	30.4
06.08	31.4	30.6
06.10	34.9	33.9
07.01	27.5	25.4
07.02	33.6	31.0
07.03	33.7	31.8
07.05	29.6	28.5
07.07	28.2	26.9
08.02	29.0	17.4
08.04	33.0	30.9
08.08	24.9	20.0
08.10	30.7	22.9
09.01	29.5	26.6
09.03	30.3	29.5
09.05	27.5	25.5
09.09	33.8	33.2
10.02	35.2	32.6
10.04	34.1	22.5
10.06	27.6	17.6
10.10	27.5	18.2
11.01	28.9	27.9
11.02	32.4	23.6
11.05	24.7	21.3
12.02	31.7	27.2
12.04	27.8	14.3
12.08	33.4	33.1

Apartment Number	Corrected Average Daytime Noise Level, dB (LAeq,16h)	
	Traffic noise + MVHR noise	MVHR Only, dBA
13.02	30.6	26.5
13.03	26.4	18.6
13.10	31.0	28.5
14.01	31.4	30.8
14.04	30.2	26.3
14.08	30.5	29.9
15.01	31.0	30.0
15.04	33.0	31.4
15.05	29.8	28.6
16.03	32.3	30.8
16.04	32.1	30.8
16.06	31.1	29.6
17.02	31.0	25.3
17.10	29.5	19.5
18.01	27.5	26.0
18.05	29.2	27.2
19.02	33.6	32.3
19.05	29.3	27.7
20.03	33.3	32.7

Table 3: Measured, RT-corrected average daytime noise levels in living rooms – MVHR On

It can be seen that the combined noise levels in the living rooms achieve the target noise level.

A correction must be applied to the measured daytime noise levels in order to determine the expected night time internal noise levels within bedrooms. In order to determine the correction, reference has been made to external noise survey data gathered at the same time as the internal noise measurements in addition to previously measured night time noise survey data.

Table 2 shows the interpolated, RT-corrected average ($L_{Aeq,8h}$) night time noise levels in bedrooms with the MVHR switched off.

Apartment Number/ Room	Corrected Average Night time Noise Level, dB (LAeq,8h)
	Bedroom Limit = 30 dB LAeq,8h (Measurement tolerance 1.2 dB(A))
04.02 Bedroom 1	24.1
04.03 Bedroom	22.2
04.08 Bedroom	16.9
04.10 Bedroom 1	21.0
05.01 Bedroom 1	19.3
05.03 Bedroom	21.4
05.05 Bedroom 1	19.5
05.09 Bedroom	17.0
06.04 Bedroom 1	22.9
06.08 Bedroom	19.9
06.10 Bedroom 1	20.0
07.01 Bedroom 1	18.7
07.02 Bedroom 1	25.0
07.03 Bedroom	22.8
07.05 Bedroom 1	20.0
07.07 Bedroom	16.8
08.02 Bedroom 1	23.3
08.04 Bedroom 1	24.1
08.08 Bedroom	19.1
08.10 Bedroom 1	21.1
09.01 Bedroom 1	19.7
09.03 Bedroom	17.8
09.05 Bedroom 1	15.7
09.09 Bedroom	18.4
10.02 Bedroom 1	23.0
10.04 Bedroom 1	24.5
10.06 Bedroom 1	22.3
10.10 Bedroom 1	19.7
11.01 Bedroom 1	18.2
11.02 Bedroom 1	28.1
11.05 Bedroom 1	14.6
12.02 Bedroom 1	26.1
12.04 Bedroom 1	20.7
12.08 Bedroom	19.3
13.02 Bedroom 1	25.9
13.03 Bedroom	22.7
13.10 Bedroom 1	18.8
14.01 Bedroom 1	18.0
14.04 Bedroom 1	23.8
14.08 Bedroom	19.3
15.01 Bedroom 1	17.8
15.04 Bedroom 1	22.4

Apartment Number/ Room	Corrected Average Night time Noise Level, dB (LAeq,8h)
	Bedroom Limit = 30 dB LAeq,8h (Measurement tolerance 1.2 dB(A))
15.05 Bedroom 1	17.8
16.03 Bedroom	20.0
16.04 Bedroom 1	21.5
16.06 Bedroom 1	20.7
17.02 Bedroom 1	23.4
17.10 Bedroom 1	22.4
18.01 Bedroom 1	18.4
18.05 Bedroom 1	21.2
19.02 Bedroom 1	22.8
19.05 Bedroom 1	19.6
20.03 Bedroom	19.7

Table 4: Measured, RT-corrected average night time noise levels in bedrooms – external road traffic noise ingress only

It can be seen that compliance with the night time internal noise criterion for bedrooms has been achieved in all of the rooms under test due solely to external noise sources (i.e. with the MVHR switched off).

For information, Table 3 shows the measured, RT-corrected average ($L_{Aeq,8h}$) night time noise levels in bedrooms with the MVHR in each apartment operating continuously. The internal noise level due solely to the operation of the MVHR alone is also shown.

Apartment Number/ Room	Interpolated Average Night Time Noise Level, dB ($L_{Aeq,8h}$)	
	Traffic noise + MVHR noise	MVHR Only, dBA
04.02 Bedroom 1	29.9	28.6
04.03 Bedroom	26.1	25.5
04.08 Bedroom	30.9	30.4
04.10 Bedroom 1	28.6	27.5
05.01 Bedroom 1	22.4	15.9
05.03 Bedroom	26.6	25.7
05.05 Bedroom 1	26.3	25.7
05.09 Bedroom	25.7	24.6
06.04 Bedroom 1	29.0	27.8
06.08 Bedroom	22.6	19.2
06.10 Bedroom 1	27.7	27.0
07.01 Bedroom 1	24.5	23.2
07.02 Bedroom 1	35.1	34.6
07.03 Bedroom	25.5	22.2
07.05 Bedroom 1	24.0	21.7
07.07 Bedroom	24.6	23.8
08.02 Bedroom 1	24.8	19.5
08.04 Bedroom 1	25.5	19.8
08.08 Bedroom	22.8	20.3
08.10 Bedroom 1	26.3	24.8
09.01 Bedroom 1	22.7	19.7
09.03 Bedroom	27.7	27.3
09.05 Bedroom 1	25.9	25.4
09.09 Bedroom	28.7	28.2

Apartment Number/ Room	Interpolated Average Night Time Noise Level, dB ($L_{Aeq,8h}$)	
	Traffic noise + MVHR noise	MVHR Only, dBA
10.02 Bedroom 1	29.3	28.2
10.04 Bedroom 1	25.7	19.4
10.06 Bedroom 1	27.7	26.2
10.10 Bedroom 1	23.9	21.8
11.01 Bedroom 1	26.5	25.9
11.02 Bedroom 1	30.3	26.3
11.05 Bedroom 1	23.9	23.3
12.02 Bedroom 1	29.1	26.1
12.04 Bedroom 1	29.2	28.6
12.08 Bedroom	31.4	31.2
13.02 Bedroom 1	25.1	24.0
13.03 Bedroom	24.3	19.0
13.10 Bedroom 1	25.1	24.0
14.01 Bedroom 1	29.2	28.9
14.04 Bedroom 1	26.7	23.5
14.08 Bedroom	30.9	30.6
15.01 Bedroom 1	27.6	27.1
15.04 Bedroom 1	26.8	24.8
15.05 Bedroom 1	26.1	25.4
16.03 Bedroom	27.5	26.6
16.04 Bedroom 1	23.2	18.4
16.06 Bedroom 1	33.0	32.7
17.02 Bedroom 1	31.4	30.7
17.10 Bedroom 1	28.2	26.8
18.01 Bedroom 1	26.5	25.0
18.05 Bedroom 1	25.3	24.3
19.02 Bedroom 1	25.7	22.5
19.05 Bedroom 1	28.3	27.7
20.03 Bedroom	26.5	25.6

Table 5: Measured, RT-corrected average noise levels in bedrooms

It can be seen that the combined noise levels in the bedroom of apartment 7.02 exceeds the target noise level by just over 5 dB. This was due to a faulty MVHR unit. Following the measurements, the MVHR unit has been attended to in order to reduce the noise level in the room. The noise levels in the bedrooms of apartment 16.06 and 17.02 were also slightly greater than the target noise level due to excess noise from the MVHRs. The MVHRs have subsequently been adjusted to reduce noise levels.

Table 6 shows the maximum (L_{Amax}) noise levels in bedrooms measured during the daytime noise measurement.

Apartment Number/ Room	**Measured Maximum Daytime Noise Level, dB (L_{Amax})** **(Limit = 45 dB L_{Amax})**
04.02 Bedroom 1	40.9
04.03 Bedroom	38.0
04.08 Bedroom	33.6
04.10 Bedroom 1	33.6
05.01 Bedroom 1	33.4
05.03 Bedroom	36.0
05.05 Bedroom 1	29.7
05.09 Bedroom	29.0
06.04 Bedroom 1	36.7
06.08 Bedroom	33.0
06.10 Bedroom 1	32.6
07.01 Bedroom 1	33.0
07.02 Bedroom 1	37.8
07.03 Bedroom	42.8
07.05 Bedroom 1	38.2
07.07 Bedroom	29.7
08.02 Bedroom 1	39.9
08.04 Bedroom 1	41.6
08.08 Bedroom	30.4
08.10 Bedroom 1	34.8
09.01 Bedroom 1	34.7
09.03 Bedroom	33.9
09.05 Bedroom 1	33.9
09.09 Bedroom	31.5
10.02 Bedroom 1	36.8
10.04 Bedroom 1	40.6
10.06 Bedroom 1	37.8
10.10 Bedroom 1	30.6
11.01 Bedroom 1	43.5
11.02 Bedroom 1	42.1
11.05 Bedroom 1	27.4
12.02 Bedroom 1	35.2
12.04 Bedroom 1	35.7
12.08 Bedroom	36.9
13.02 Bedroom 1	41.3
13.03 Bedroom	53.2
13.10 Bedroom 1	36.9
14.01 Bedroom 1	30.9
14.04 Bedroom 1	43.8
14.08 Bedroom	37.0
15.01 Bedroom 1	32.6
15.04 Bedroom 1	39.1
15.05 Bedroom 1	29.1
16.03 Bedroom	34.5
16.04 Bedroom 1	31.8
16.06 Bedroom 1	34.1
17.02 Bedroom 1	31.8
17.10 Bedroom 1	32.7

Apartment Number/ Room	Measured Maximum Daytime Noise Level, dB (L_{Amax}) (Limit = 45 dB L_{Amax})
18.01 Bedroom 1	30.7
18.05 Bedroom 1	32.0
19.02 Bedroom 1	31.4
19.05 Bedroom 1	33.4
20.03 Bedroom	31.4

Table 6: Measured, RT-corrected average ($L_{Amax,5mins}$) noise levels in bedrooms

During the daytime measurements within bedrooms there were no excesses over the night time internal noise criterion of 45 dB L_{Amax}. As road traffic during the measurements was considered to be typical of normal traffic volumes and vehicle types, it is expected that compliance with the night time maximum internal noise criterion would be achieved in the tested bedrooms due to typical external noise events.

CONCLUSION

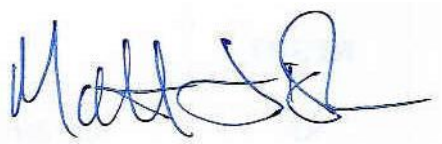
Compliance with the daytime average internal noise criterion of 35 dB $L_{Aeq,16h}$ due to road traffic noise ingress has been achieved in all of the tested living rooms.

Compliance with the night time average internal noise criterion of 30 dB $L_{Aeq,8h}$ due to road traffic noise ingress has been achieved in all of the tested bedrooms.

During the daytime measurements within bedrooms, there were no excesses over the night time internal noise criterion of 45 dB L_{Amax}. It is therefore expected that compliance with the night time maximum internal noise criterion would be achieved in the tested bedrooms due to typical external night time noise events.

The achieved noise levels are considered to be compliant with the requirements of condition 120.

Yours sincerely



MATT FISHER BEng(Hons) CEng MIOA
For and on behalf of Fisher Acoustics Limited