

SANDY BROWN

Consultants in Acoustics, Noise & Vibration

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Eliza Yard, Poland St Zone

Planning Condition 16a discharge report

London, Manchester, Edinburgh, Birmingham, Leeds, Bristol

Sandy Brown Ltd

Registered in England & Wales

No. 13227735

post@sandybrown.com

www.sandybrown.com

Registered Office: 55 Charterhouse Street, London EC1M 6HA

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Summary

Sandy Brown has been appointed by John Sisk & Son Ltd to provide acoustic advice on the proposed new build Manchester Life Development Company 3 Ltd scheme at Eliza Yard, at the corner of Jersey Street and Poland Street in Manchester.

The proposal comprises an 8-storey building forming 126 residential apartments and ground floor commercial and amenity spaces.

Planning Permission has been granted under application number 139288/JO/2024. Plant noise egress limits are set out in 023295-R01-C *Planning noise report (Eliza Yard)* dated 14 February 2024, in line with the MCC criteria and Planning Condition 16a.

This report sets out relevant information to discharge Planning Condition 16a.

The plant noise egress limits for normally operating plant are expected to be achieved. This is on the basis that installed and operational plant contains no attenuation catching features (as per Section 3.3.3).

The plant noise egress limits for emergency plant are expected to be achieved during the day, though a 2 dB exceedance is predicted at night. Given that a low noise generator has been selected and significant attenuation measures have been adopted, it is proposed that a 2 dB exceedance to the emergency plant noise limits at night may be acceptable. This is on the basis that all practical mitigation measures have been included, routine testing is only carried out during the day and emergency plant operation at night would be during an actual life safety emergency only. This is subject to agreement with MCC.

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1 Introduction

Sandy Brown has been appointed by John Sisk & Son Ltd to provide acoustic advice on the proposed new build Manchester Life Development Company 3 Ltd scheme at Eliza Yard, at the corner of Jersey Street and Poland Street in Manchester.

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Planning Permission has been granted under application number 139288/JO/2024. Plant noise egress limits are set out in 023295-R01-C *Planning noise report (Eliza Yard)* dated 14 February 2024, in line with the MCC criteria and Planning Condition 16a.

This report sets out relevant information to discharge Planning Condition 16a which relates to plant noise egress.

A plant noise egress assessment has been carried out via 3D environmental noise modelling.

2 Site description

2.1 The site and its surroundings

The site location in relation to its surroundings is shown in Figure 1, highlighted in red. The proposal comprises an 8-storey building forming 126 residential apartments and ground floor commercial and amenity spaces.

Externally mounted noise generating plant is proposed as part of the development which is detailed within this report.

The Site is bounded by Poland Street to the west, Jersey Street to the south, the City Court Trading Estate to the north, and a surface car park to the east.

The Site can be accessed by pedestrians via Jersey Street.



Figure 1 Aerial view of the proposed sites (courtesy of Google Earth Pro)

2.2 Adjacent premises

A summary of the nearby noise sensitive premises is set out below in reference to Figure 1:

- Residential premises on Jersey St, Rodney St and Mozart Close to the north east (highlighted in yellow)
- Residential premises at Flint Glass Wharf to the south west (highlighted in light blue)
- Residential premises at Canal Point, Navigation Street, Burgess House, Avro House and 3 New Union St to the south (highlighted in navy blue)
- Trading estate at City Court to the north (highlighted in orange)
- Flint Glass Works, 62-64 Jersey St understood to be commercial to the south west (highlighted in green)
- Pheonix Ironworks (137346/FO/2023) is a proposed development to the north west of the site, to the current warehouse spaces highlighted in pink
- Factories on George Leigh St and Naval St to the north west (highlighted in purple).

In addition to the above existing receptors, there is another Manchester Life Development Company 3 Ltd scheme, Jersey Wharf (133769/FO/2022), proposed to the south of the site, across Jersey Street (outlined in yellow).

3 Plant noise egress criteria

3.1 Planning Condition 16a

The wording of Planning Condition 16a as per application number 139288/JO/2024 is as follows:

“(a) Prior to the first occupation of the development, details of any externally mounted ancillary plant, equipment and servicing shall be submitted for approval in writing by the City Council, as Local Planning Authority. For the avoidance of doubt, externally mounted plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating of 5 dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location.”

3.2 Standard guidance

BS 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound* (BS 4142) provides a method for assessing noise from items such as building services plant against the existing background sound levels at nearby noise sensitive premises.

BS 4142 suggests that if the noise level is 10 dB or more higher than the existing background sound level, it is likely to be an indication of a significant adverse impact. If the level is 5 dB above the existing background sound level, it is likely to be an indication of an adverse impact. If the level does not exceed the background sound level, it is an indication of having a low impact.

If the noise contains ‘attention catching features’ such as tones, bangs etc, a penalty, based on the type and impact of those features, is applied.

3.3 Plant noise egress limits

The following plant noise egress limits were established following a baseline noise survey at the site between 25 February 2021 and 5 March 2021 and between 25 August 2021 and 7 September 2021, as detailed in 023295-R01-C *Planning noise report (Eliza Yard)* dated 14 February 2024.

3.3.1 Normally operating plant items

The cumulative noise levels from the operation of all new plant at 1 m from the worst affected window of the nearest noise sensitive premises shall not exceed the limits set out in Table 1, in line with the MCC criteria and Planning Condition 16a.

These limits do not include any attention catching features. Penalty corrections for attention catching features may be significant and will need to be considered in line with BS4142.

Plant noise egress to external publicly accessible locations shall be limited to be no higher than L_{Aeq} 55 dB.

Table 1 Plant noise limits at 1 m from the nearest noise sensitive premises

Location	Maximum sound pressure level at 1 m from noise sensitive premises, $L_{Aeq,15min}$ (dB)	
	Day (07:00-23:00)	Night (23:00-07:00)
NSPs to the east and south	40	34
NSPs to the north and west	39	34

3.3.2 Emergency plant items

Relaxations of 15 dB over the limits given above have been agreed with MCC for emergency plant items operating for a short period. The limits for emergency plant are provided in Table 2. All routine testing of emergency plant shall be during the day for brief periods.

Table 2 Emergency plant noise limits at 1 m from the nearest noise sensitive premises (Block C)

Location	Maximum sound pressure level at 1 m from noise sensitive premises, $L_{Aeq,15min}$ (dB)	
	Day (07:00-23:00)	Night (23:00-07:00)
NSPs to the east and south	55	49
NSPs to the north and west	54	49

3.3.3 Attention catching features

The noise from building services plant and systems shall not contain any distinguishable, discrete, continuous notes (whine, hiss, screech, hum, etc) or distinct impulses (bangs, clicks, clatters or thumps) and shall not be irregular enough to attract attention.

Further guidance on attention catching features is provided in Appendix A.

4 Normally operating plant assessment

4.1 Proposed items of plant

The planning condition specifically relates to externally mounted plant. All normally operating plant units are internally mounted but have atmospheric terminations and so have been considered within the assessment.

The following items of normally operating plant are proposed, based on information received from Ameen (the building services engineer).

- 1 x Ground floor HRU

- 1 x ENERGISAVA 250CA MVHR unit per apartment

The location of the ground floor HRU is shown in red in Figure 2.

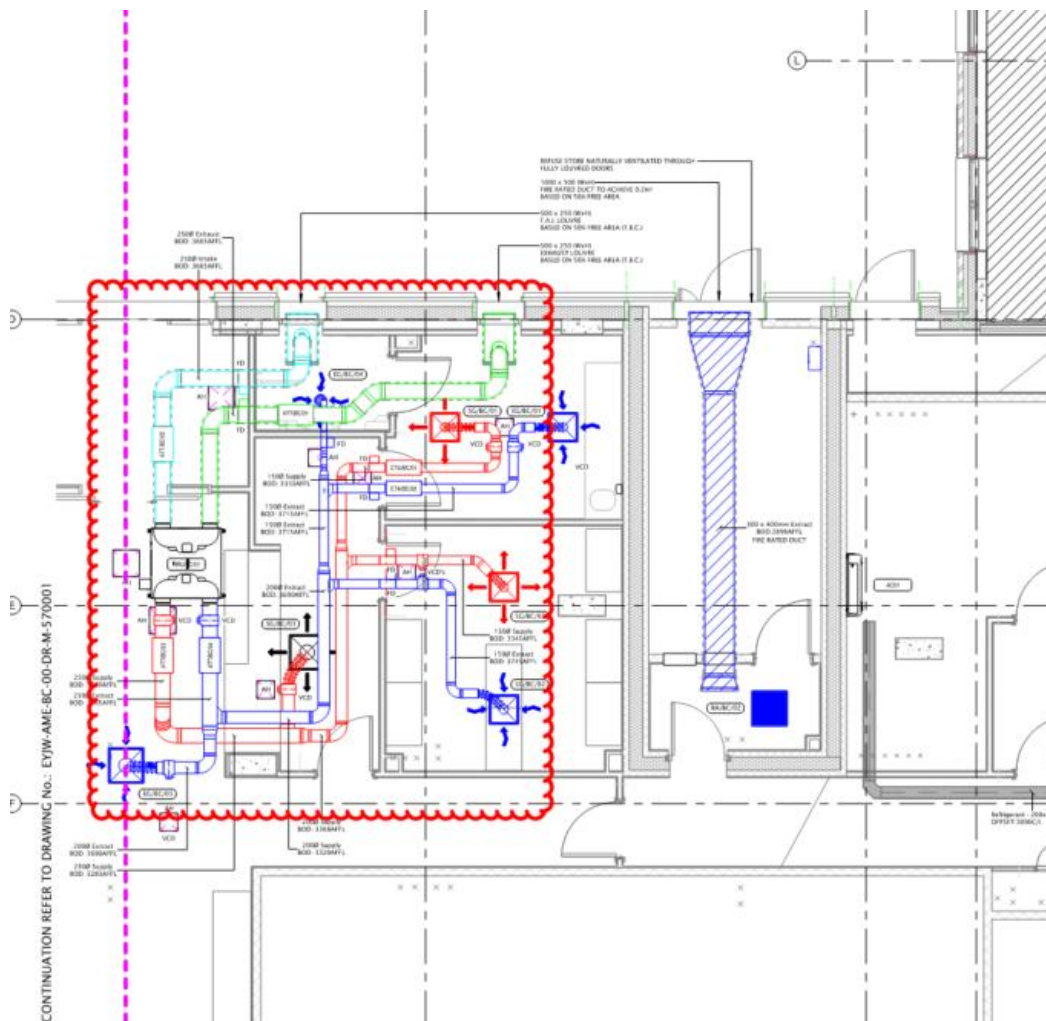


Figure 2 Proposed HRU location (EYJW-AME-BC-00-DR-M-570002)

The received sound pressure levels measured at 1.5 m for the proposed HRU are presented in Table 3.

Table 3 Received HRU sound pressure levels at 1.5 m

Item	Sound pressure level L_{eq} (dB) at 1.5 m ^[1]							
	Octave-band centre frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
HRU Block C	45	48	41	35	33	27	23	21

^[1] Sound pressure data from the HRU Technical submittal (EYJW-AME-ZZ-XX-TQ-M-000012-P01)

Attenuators are proposed to the HRU, the received insertion losses of the proposed attenuator are shown in Table 4.

Table 4 Proposed HRU attenuator insertion losses

Item	Insertion loss L_i (dB) ^[1]							
	Octave-band centre frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
HRU Block C	1	2	6	15	20	15	14	10

^[1] Insertion loss data from the HRU Technical submittal (EYJW-AME-ZZ-XX-TQ-M-000012-P01)

The received sound power levels for proposed MVHRs are shown in Table 5.

Table 5 Proposed MVHR sound power levels

Item	Sound power level L_w (dB) ^[1]							
	Octave-band centre frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
1 Bedroom Inlet	46	45	45	33	25	23	19	20
1 Bedroom Outlet	54	54	46	39	28	29	26	21
2 Bedroom Inlet	48	47	49	37	28	26	21	21
2 Bedroom Outlet	56	57	50	43	32	33	30	23

^[1] Sound power data from the MVHR Technical submittal (EYJW-AME-ZZ-XX-TQ-M-000014-P04)

4.2 Assessment

An assessment of plant noise egress from the proposed items of plant to the surrounding noise sensitive receptors has been carried out. A 3D environmental noise model of the site has been generated using CadnaA software by Datakustic.

The software carries out calculations using a ray tracing technique. This takes into account the effects of topography, reflections, screening and distance attenuation for noise sources to predict noise levels in three dimensions. Calculations are carried out in accordance with ISO 9613 *Attenuation of sound during propagation outdoors*.

A screenshot from the model is provided in Figure 3.

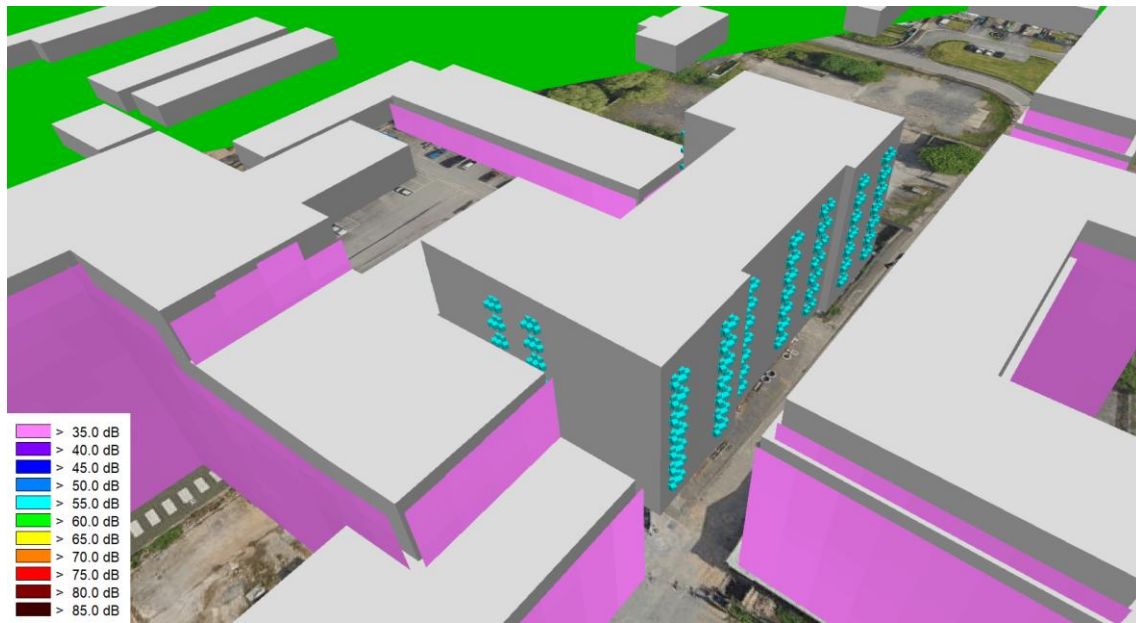


Figure 3 Screenshot of CadnaA acoustic model

Additionally, based on typical apartment ventilation layouts provided by Ameen, this assessment considers worst case losses of 2 bends, and a 3 m duct length applied to the MVHR units. An end reflection loss has also been applied. A summary of predicted normally operating plant noise egress levels is presented in Table 6.

Table 6 Normally operating plant noise egress predicted levels and criteria

Receptor	Predicted normally operating noise egress level, L_{Aeq} (dB)	Normally operating plant noise criteria, L_{Aeq} (dB)
Pheonix Ironworks	22	39 (day), 34 (night)
Jersey Wharf	25	40 (day), 34 (night)
Flint Glass Wharf	19	40 (day), 34 (night)

The results of this assessment indicate that plant noise egress due to normally operating plant is predicted to comply with the acoustic criteria for both day and night periods at all nearby noise sensitive receptors. This is on the basis that installed and operational plant contains no attenuation catching features (as per Section 3.3.3).

Any future tenant plant would need to be controlled to at least 10 dB below the overall plant noise egress limits.

5 Emergency plant assessment

5.1 Proposed items of plant

The following items of emergency plant are proposed:

- Emergency generator.

The location of the emergency generator is shown in Figure 4.

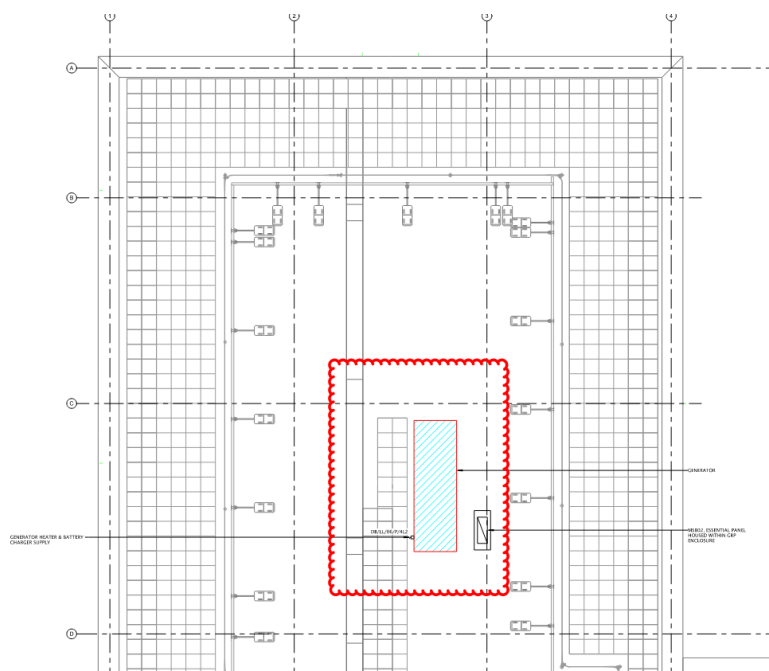


Figure 4 Generator location (EYJW-AME-BC-RF-DR-E-620009)

Sound pressure levels at 1 m of the generator elements (received from Ameen via email 7 May 2025 and 13 May 2025) are shown in Table 7.

Table 7 Received generator sound pressure levels - generator

Item	Sound pressure level L_{eq} (dB), at 1 m							
	Octave-band centre frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
Inlet ^[1]	88	85	73	56	47	45	49	61
Outlet ^[1]	88	84	72	52	49	47	43	54
Enclosure	74	77	67	60	50	43	36	35
Exhaust Outlet	74	65	59	55	55	57	61	71

^[1] Includes losses from all proposed attenuation

Attenuation is proposed to the generator discharge. The insertion losses of proposed attenuation are shown in Table 8.

Table 8 Proposed attenuator insertion losses

Item	Insertion loss, L_i (dB)							
	Octave-band centre frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
Inlet attenuator	8	11	17	26	33	38	36	30
Outlet attenuator	10	16	27	42	53	59	56	44

^[1] These losses have been accounted for in the discharge sound pressure levels shown in Table 7.

5.2 Assessment

A summary of predicted emergency plant noise egress levels is presented in Table 9.

Table 9 Emergency plant noise egress predicted levels and criteria

Receptor	Predicted emergency plant noise egress level, L_{Aeq} (dB)	Maximum emergency plant noise criteria, L_{Aeq} (dB)
Pheonix Ironworks	51	54 (day), 49 (night)
Jersey Wharf	43	55 (day), 49 (night)
Flint Glass Wharf	36	55 (day), 49 (night)

Emergency plant noise egress is predicted to meet the criteria at all receptors for day. However, a 2 dB exceedance is predicted at Pheonix Ironworks (proposed development to the northwest) during the night.

Given that a low noise generator has been selected and significant attenuation measures have been adopted, it is proposed that a 2 dB exceedance to the emergency plant noise limits at night may be acceptable. This is on the basis that all practical mitigation measures have been included, routine testing is only carried out during the day, and any emergency plant operation at night would be during an actual life safety emergency only. This is subject to agreement with MCC.

Appendix A

BS 4142 corrections for attention catching features

The following applies where plant noise is assessed in accordance with BS 4142:2014+A1:2019.

If the proposed plant noise contains attention catching features (such as tonal elements, whines, whistles, bangs etc), penalty corrections should be applied based on the type and impact of the features.

If appropriate, a subjective assessment of the plant features can be adopted. Where the plant noise contains tonal elements, the following corrections can be made depending on how perceptible the tone is at the noise receptor:

- 0 dB where the tone is not perceptible
- 2 dB where the tone is just perceptible
- 4 dB where the tone is clearly perceptible
- 6 dB where the tone is highly perceptible.

Where the plant noise is impulsive, the following corrections can be made depending on how perceptible the impulsivity is at the noise receptor:

- 0 dB where the impulse is not perceptible
- 3 dB where the impulse is just perceptible
- 6 dB where the impulse is clearly perceptible
- 9 dB where the impulse is highly perceptible.

For noise which is equally both impulsive and tonal, then both features can be accounted for by linearly summing the corrections for both characteristics.

If the plant has other distinctive characteristics, such as intermittency, then a 3 dB correction can be made.

If a subjective assessment of tonality is not appropriate, an objective assessment can be made by analysis of time-averaged, third-octave band sound pressure levels. A noise source is deemed to be tonal if the level in a third-octave band exceeds the level in adjacent third-octave bands by the level differences given below:

- 15 dB in the low frequency third-octave bands (25 Hz to 125 Hz)
- 8 dB in the mid frequency third-octave bands (160 Hz to 400 Hz)
- 5 dB in the high frequency third-octave bands (500 Hz to 10000 Hz).

If an objective assessment identifies the plant noise to be tonal then a 6 dB correction must be made.