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Convene, 11 Portland Street

Acoustic planning report

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Version	Date	Comments	Author	Reviewer
A	20 Feb 26		SC	AF

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Summary

Sandy Brown has been commissioned to provide acoustic advice in relation to the proposed development at Etc Venues, 11 Portland Street, Manchester, M1 3HU. As part of the works, new building services plant is to be installed on the roof.

An environmental noise survey has been carried out to determine the existing sound levels in the area. The noise survey was carried out between 12:20 on 21 January 2026 and 13:35 on 26 January 2026.

The representative background sound levels from the noise survey were $L_{A90,15min}$ 57 dB during the day, and $L_{A90,15min}$ 53 dB during the night.

Based on the requirements of the Manchester City Council and on the results of the noise survey, all plant must be designed such that the cumulative noise level at 1 m from the worst affected windows of the nearby noise sensitive premises does not exceed L_{Aeq} 55 dB during the day, and L_{Aeq} 51 dB during the night. These limits have been corrected relative to the measured free-field background sound levels by the addition of 3 dB (as per the guidance provided in BS 8233:2014 Section G.2.1).

These limits are cumulative, and apply with all plant operating under normal conditions. If plant items contain tonal or attention catching features, a penalty based on the type and impact of those features will be applied, and the limits will be more stringent than those set.

An initial assessment of the proposed plant items associated with the development has been carried out. The proposed plant items are expected to comply with the relevant noise limits.

The assessment results do not account for attention catching features, and it should be ensured that these are accounted for in the design and commissioning of the plant items.

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1 Introduction

Sandy Brown has been commissioned to provide acoustic advice in relation to the proposed development at Etc Venues, 11 Portland Street, Manchester, M1 3HU. The works include the proposed installation of new building services plant on the roof.

As part of this, an environmental noise survey is required, the purpose of which is to establish the existing background sound levels in the vicinity of nearby noise sensitive premises and to set appropriate limits for noise egress from building services plant.

This report presents the survey method and results, and a discussion of acceptable limits for noise emissions from building services plant. A plant noise egress assessment has been carried out based on the provided information.

2 Site description

2.1 The site and its surrounding

The site location in relation to its surroundings is shown in Figure 1.



Figure 1 Aerial view of site (courtesy of Google Earth Pro)

The site is bound by Portland Street to the north west, Minshull Street to the south west, and Ayton Street to the north east.

2.2 Adjacent premises

The site is close to the following premises:

- Britannia Hotel, highlighted in blue in Figure 1
- Mercure Hotel, highlighted in yellow in Figure 1
- One Picadilly Gardens (offices), highlighted in pink in Figure 1
- Portland Hotel, highlighted in green in Figure 1

3 Development proposals

The proposed development comprises installation of 2 x external condensers mounted at roof level.

The plant is proposed to operate between 06:30 and 18:30 with occasional operation until 21:00.

4 Building services noise egress criteria

4.1 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.

4.2 Local Authority criteria

Manchester City Council (MCC) provides guidance in relation to plant noise emissions in *Planning & Noise Technical Guidance* document dated May 2022 states the following in relation to plant noise egress:

> *'The development should be designed so as to achieve a rating level of 5 dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location.'*

Corrections for tonal or attention catching characteristics would need to be applied to the rating level in accordance with BS4142: 2014

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5 Noise survey method

The survey included unattended and attended noise measurements.

The measurements and information described in this report are provided in accordance with requirements of BS 7445, as referenced in Appendix A.

5.1 Unattended measurements

Unattended noise monitoring was undertaken at the site over 5 days.

The measurements were taken over 15 minute periods between 12:20 on 21 January 2026 and 13:35 on 26 January 2026.

The microphone for the sound level meter was installed on a tri-pod which was installed approximately 1.5 m above the roof. The measurement position is indicated in Figure 1, denoted by the letter 'L', and a photograph showing the measurement position is provided in Figure 2. This location was chosen to be reasonably representative of noise levels at the site and outside the nearest noise sensitive premises.

The location chosen was approximately 0.5 m from the building parapet, but significant reflections would not be expected. This position is considered free field.



Figure 2 Photograph of unattended noise monitoring location

Details of the equipment used and the noise indices measured are provided in Appendix A.

5.2 Weather conditions

Weather conditions during the survey are described in Appendix A.

6 Noise survey results

6.1 Observations

The dominant noise sources observed at the site during the survey were from road/bus traffic on Portland Street and trams from Picadilly Gardens.

Less significant noise sources included plant noise from other rooftop plant items.

6.2 Noise measurement results

6.2.1 Unattended measurement results

A graph showing the results of the unattended measurements is provided in Appendix B.

Ambient noise levels measured during the unattended survey are presented in Table 1.

Table 1 Ambient noise levels measured during the unattended survey

Date	Day (07:00 – 23:00) $L_{Aeq,16h}$ (dB)	Night (23:00 – 07:00) $L_{Aeq,8h}$ (dB)
Wednesday 21 January 2026	63[1]	59
Thursday 22 January 2026	62	59
Friday 23 January 2026	63	59
Saturday 24 January 2026	61	62
Sunday 25 January 2026	62	58
Monday 26 January 2026	62[1]	-
Average	62	59

[1] Measurement not made over full period due to monitoring start and end time (the measurement on 21 January 26 was over 11 hours, and on 26 January 26 over 6 hours); not included in the average.

In line with BS 4142:2014+A1:2019, representative background sound levels have been determined using statistical analysis of the continuous measurements.

Day and night statistical analysis of representative values for the site are given in Figure 3.

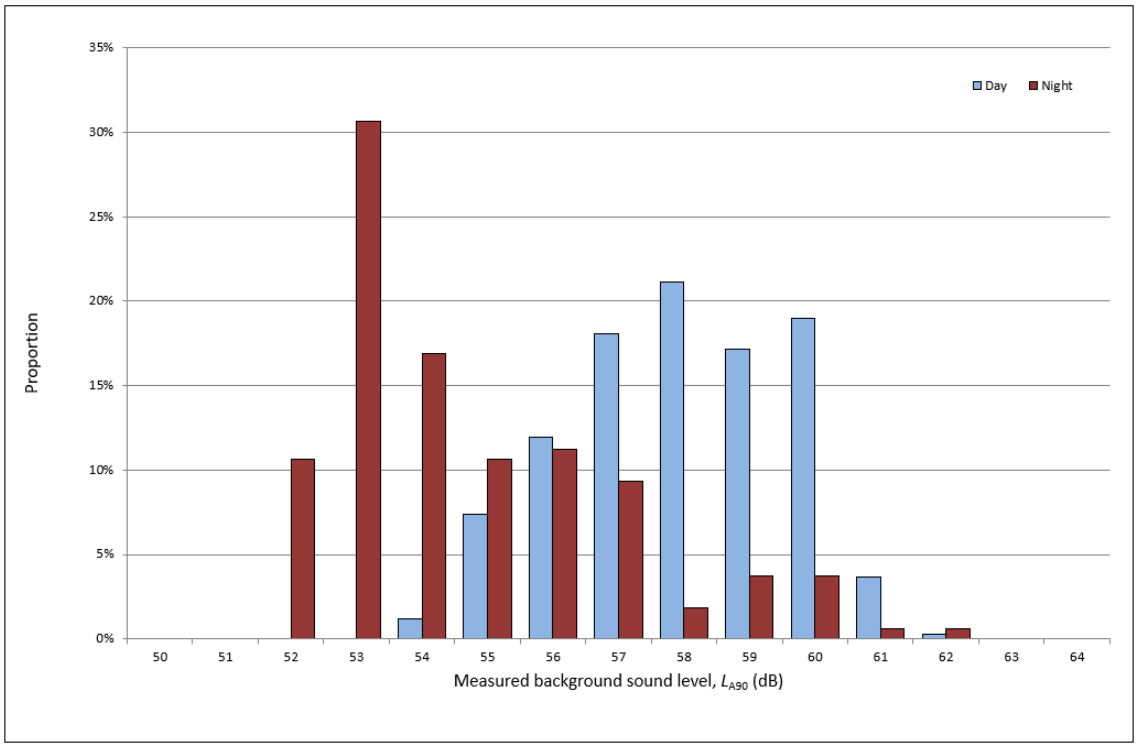


Figure 3 Day and night-time statistical analysis (position 'L')

From this analysis, the representative background sound levels measured during the survey were $L_{A90,15min}$ 56 dB during the day and $L_{A90,15min}$ 53 dB at night.

6.3 Basic limits

Based on the above criteria and the measurement results, the cumulative noise level from the operation of all new plant should not exceed the limits set out in Table 2.

The limits apply at 1 m from the worst affected windows of the nearest noise sensitive premises and are presented as facade levels. These have been corrected relative to the measured free-field background sound levels by the addition of 3 dB (as per the guidance provided in BS 8233:2014 Section G.2.1). In this case these limits would apply at all locations identified in Figure 3.

Table 2 Plant noise limits at 1 m from the nearest noise sensitive premises

Time of day	Maximum sound pressure level at 1 m from noise sensitive premises, $L_{Aeq,15min}$ (dB)
Day (07:00-23:00)	54
Night (23:00-07:00)	51

[1] The limits set out in Table 2 do not include any attention catching features. Penalty corrections for attention catching features may be significant and will need to be considered as the building services design progresses. This is discussed in Appendix C.

Compliance with limits shall be determined with reference to BS 7445: Part 3: 1991 *Description and measurement of environmental noise, Part 3. Guide to application to noise limits*.

6.4 Plant noise assessment

6.4.1 Plant layouts and data

Layouts indicating the location of the plant items and relevant noise data on 12 February 2026.

The following plant items are proposed:

1 x Midea CB1-24HFNX-O condenser

1 x Midea MOX23OU-12HFN8-Q(GA) condenser

The location of the proposed plant in context to the overall roof layout is shown in Figure 4.

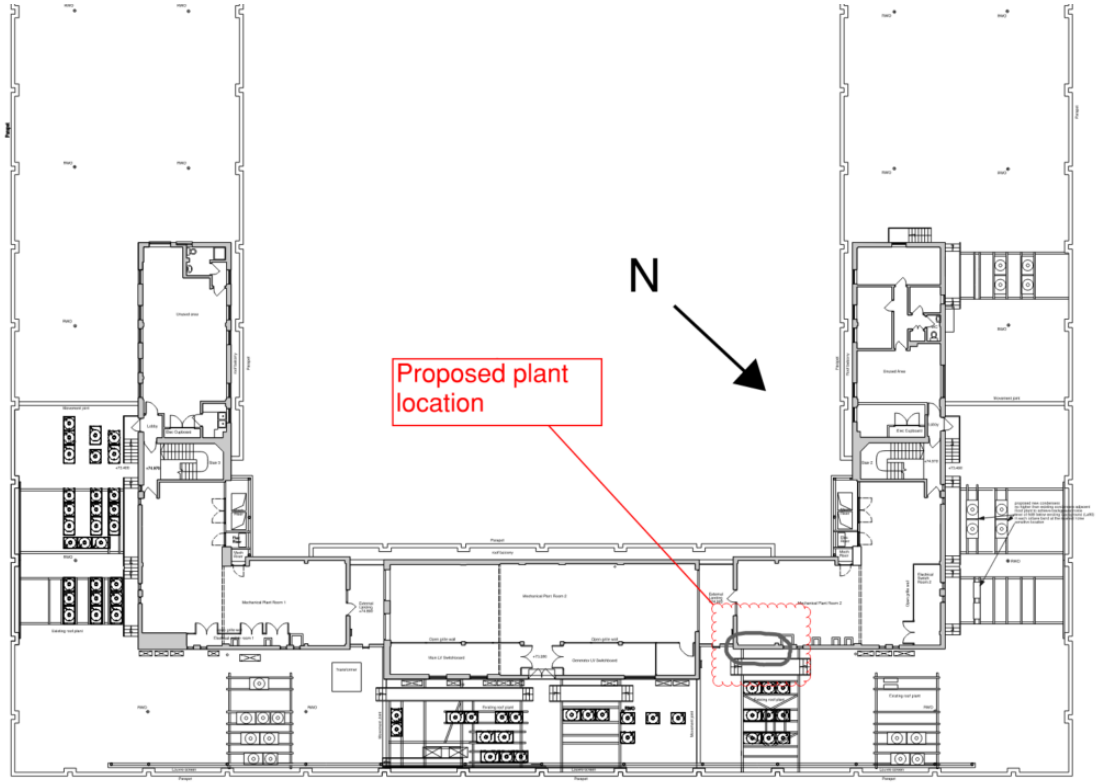


Figure 4 Location of proposed condenser units

Datasheets for the plant items indicating broadband sound pressure levels have been provided. These are presented in Table 3.

Table 3 Received noise data for proposed plant items

Item	Sound pressure level, L_{Aeq} (dB)[2]
Midea CB1-24HFNX-O	59.5
MOX23OU-12HFN8-Q(GA)	51

[2] Assumed that sound pressure level is measured at 1 m

Octave-band data is not available for these specific units, however Midea do provide octave-band data for other units in the same family. The typical spectrum shown in Table 4 is for the Midea Breezeless MOX104-09HFN8-QRD1GW outdoor unit and has been used in the assessment and adjusted to the values presented in Table 3.

Table 4 Typical spectrum used for condensers (MOX104-09HFN8-QRD1GW)

	Sound pressure level, L_{Aeq} (dB) Octave-band centre frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
Indicative sound pressure level spectrum	62	60	51	50	48	41	35	31

6.4.2 Results

Calculations have been undertaken which take into account attenuation for distance, and reflections from the facade at nearby noise sensitive receptors.

The predicted plant noise egress level from the proposed plant items at the nearby noise sensitive receptors are summarised in Table 5.

Table 5 Predicted plant noise egress level at nearby noise sensitive receptors

Receptor	Predicted sound pressure level, L_{Aeq} (dB)
Britannia Hotel	34
Mercure Hotel	32
Portland Hotel	26
One Picadilly Gardens	24

The results of the assessment indicate that the plant noise egress levels from the propose plant are expected to achieve both the day and night time criteria at all nearby noise sensitive receptors.

The assessment results do not account for attention catching features, and it should be ensured that these are accounted for in the design and commissioning of the plant items.

This is discussed in Appendix C.

7 Conclusion

The representative background sound levels from the noise survey were $L_{A90,15min}$ 56 dB during the day, and $L_{A90,15min}$ 53 dB during the night.

Based on the requirements of the Local Authority, the relevant plant noise limits at the worst affected existing noise sensitive premises are L_{Aeq} 54dB during the day, and L_{Aeq} 51 dB during the night. These have been corrected relative to the measured free-field background sound levels by the addition of 3 dB (as per the guidance provided in BS 8233:2014 Section G.2.1).

These limits are cumulative, and apply with all plant operating under normal conditions. If plant items contain tonal or attention catching features, the limits will be more stringent than those set out above. If plant items contain tonal or attention catching features, a penalty based on the type and impact of those features will be applied.

An initial assessment of the proposed plant items associated with the development has been carried out. The proposed plant items are expected to comply with the relevant noise limits.

The assessment results do not account for attention catching features, and it should be ensured that these are accounted for in the design and commissioning of the plant items.

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Appendix A

Survey details

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Reference standards

- BS 7445 Part 1: 2003 *Description and measurement of environmental noise, Part 1. Guide to quantities and procedures*
- BS 7445: Part 2: 1991 *Description and measurement of environmental noise, Part 2. Guide to the acquisition of data pertinent to land use*.

Equipment

The unattended measurements were taken using a Rion NL-52 sound level meter, respectively.

Calibration details for the equipment used during the survey are provided in Table A1.

Table A1 Equipment calibration data

Equipment description	Type/serial number	Manufacturer	Calibration expiry	Calibration certification number
Sound level meter	NL-52/00932326	Rion	24 Apr 26	TCRT23/1806
Microphone	UC-59/09251	Rion	24 Apr 26	TCRT23/1806
Pre-amp	NH-25/32354	Rion	24 Apr 26	TCRT23/1806
Calibrator	NC-74/34536129	Rion	24 Apr 26	TCRT23/1576

[1] Calibration of the meters used for the measurements is traceable to national standards. Calibration certificates for the sound level meter used in this survey are available upon request.

Calibration checks were carried out on the meters and their measurement chains at the beginning and end of the survey. No significant calibration deviation occurred.

Noise indices

Noise indices recorded included the following:

- $L_{Aeq,T}$ The A-weighted equivalent continuous sound pressure level over a period of time, T.
- $L_{AFmax,T}$ The A-weighted maximum sound pressure level that occurred during a given period, T, with a fast time weighting.
- $L_{A90,T}$ The A-weighted sound pressure level exceeded for 90% of the measurement period. Indicative of the background sound level.

Sound pressure level measurements are normally taken with an A-weighting (denoted by a subscript 'A', eg, L_{A90}) to approximate the frequency response of the human ear.

A more detailed explanation of these quantities can be found in BS 7445: Part 1: 2003 *Description and measurement of environmental noise, Part 1. Guide to quantities and procedures*.

Weather conditions

During the unattended noise measurements, weather reports for the area indicated that temperatures varied between 3°C at night and 10°C during the day, and the wind speed was less than 5 m/s.

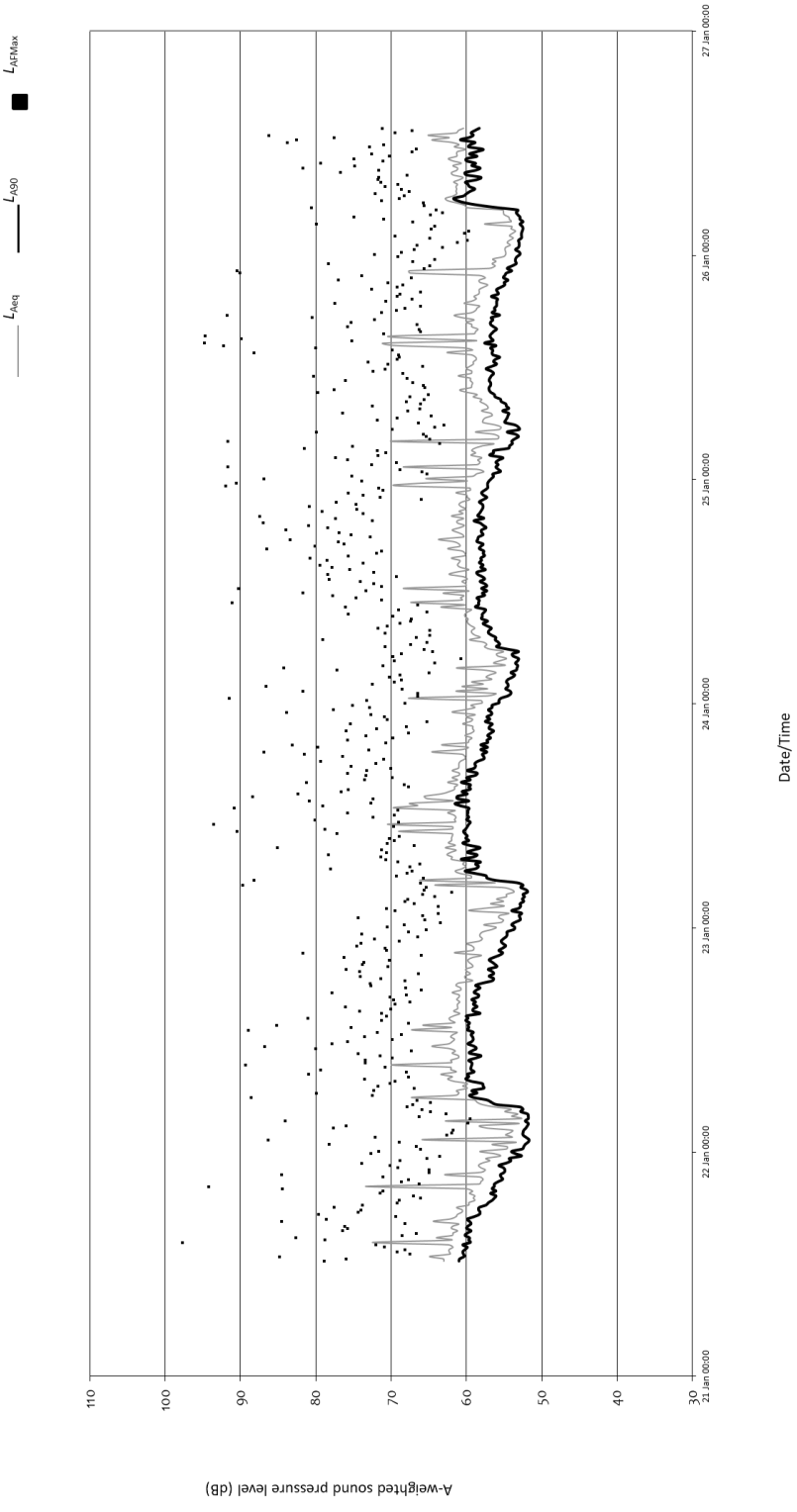
These weather conditions are considered suitable for obtaining representative measurements.

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Appendix B

Results of unattended measurements at Position L

Convene, 11 Portland Street
Results of noise logging survey at Position 'L'
21 January 2026 to 26 January 2026



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Appendix C

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.

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