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15 July 2026

Rutherford Building, University of Manchester

Planning Condition 3(b) discharge report

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ACOUSTICS

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Version	Date	Comments	Author	Reviewer
A	15 Jul 26		JP	JA

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Summary

Sandy Brown has been appointed by IBI Group (UK) Ltd to provide acoustic advice in relation to the refurbishment works at the Rutherford Building, Manchester, M13 9GP.

As part of the works, a rooftop condenser unit has been installed. An environmental noise survey has been carried out, the purpose of which has been to establish the existing background sound levels in the vicinity of nearby noise sensitive premises and to set appropriate limits for noise egress from the condenser unit. The representative background sound levels measured during the survey were $L_{A90,15min}$ 43 dB during the day and $L_{A90,15min}$ 41 dB at night.

Plant noise verification measurements have been carried out following installation of the condenser units in accordance with Planning Condition 3(b), planning application reference 144968/FO/2026. The plant noise egress levels comply with the noise criteria, and no additional mitigation measures are required. Planning Condition 3(b) can be discharged based on the measurement results.

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Contents

1 Introduction 5

2 Site description 5

3 Building services noise egress criteria 6

4 Plant equipment 7

5 Measurements 8

6 Plant noise egress assessment 9

7 Conclusion 10

Appendix A 11

Survey details 11

1 Introduction

Sandy Brown has been appointed by IBI Group (UK) Ltd to provide acoustic advice in relation to the refurbishment works at the Rutherford Building, Manchester, M13 9GP.

As part of the works, a rooftop condenser unit has been installed. This report sets out relevant information to discharge Planning Condition 3(b) which relates to plant noise egress.

2 Site description

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

The site is bounded by Bridgeford Street to the north and Coupland Street to the south which are understood to be service roads used mainly for deliveries.

Oxford Road is located approximately 40 m east of the site and includes heavy bus traffic.

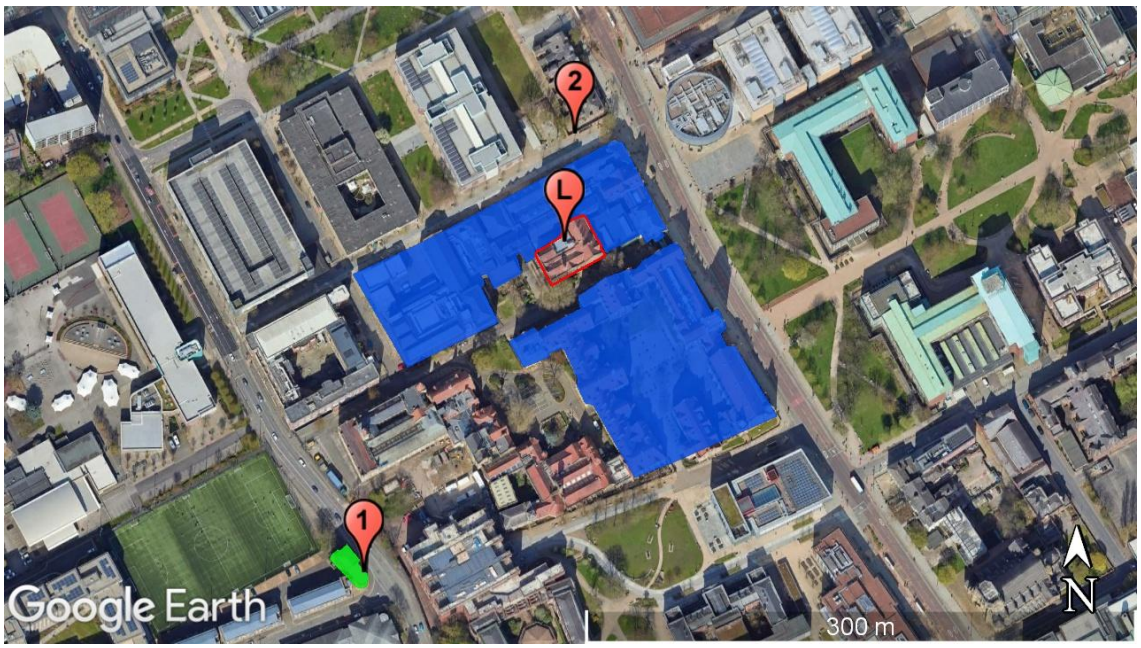


Figure 1 Aerial view of site (courtesy of Google Earth Pro)

2.1 Adjacent premises

The nearest noise sensitive premises are summarised below with respect to mark-ups shown in Figure 1 and site boundary outlined in red.

- Existing University of Manchester educational buildings directly adjacent to the site are highlighted in blue in Figure 1.

- Residential dwellings located along Higher Cambridge Street, approximately 200 m west of the site, highlighted in green in Figure 1.

3 Building services noise egress criteria

3.1 Planning Condition 3

Planning Condition 3. (144968/FO/2026) states the following requirements in order to be discharged:

> *"a) The development hereby approved shall be carried out in accordance with the measures put forward within the submitted Noise Planning Report (Prepared by Sandy Brown; Report Reference 22682-R04-A; Dated 02/02/2026; Received 06/02/2026).*
>
> *b) Prior to the first use of the approved plant, a verification report, which will include post-completion testing, shall be submitted to and approved in writing by the Local Planning Authority to validate that the plant equipment achieves a rating level of 5dB (LAeq) below the typical background (LA90) level in each octave band 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

An environmental noise survey has been undertaken previously to demonstrate compliance with Planning Condition 3(a). Based on the measurement results of the survey, the cumulative noise level resulting from the operation of all new plant at 1 m from the worst-affected windows of the nearest noise sensitive premises should not exceed the limits set out in Table 1. These limits are applicable 1 m from the facade of noise sensitive receptors and are presented as free-field levels.

Table 1 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)	38
Night (23:00-07:00)	36

The plant noise egress levels should not contain any attention catching features with reference to BS 4142:2014+A1:2019.

4 Plant equipment

A condenser unit has been installed on the rooftop of the Rutherford Building, as shown in Figure 2, outlined in yellow.

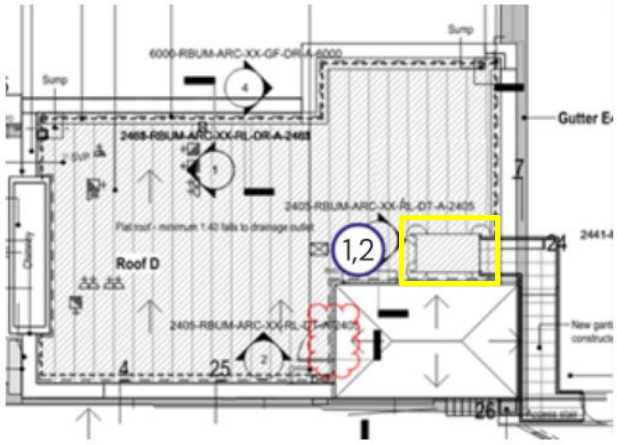


Figure 2 Installed condenser unit location and measurement positions

A photograph of the installed condenser units is provided in Figure 3.



Figure 3 Photograph of the installed condenser unit

5 Plant noise verification measurements

Sample noise measurements were carried out on 7 July 2026 to determine the noise levels produced by the installed and operational condenser unit. A background sound level measurement was also taken, over a 5-minute period. The condenser noise measurement was carried out in 1/3 octave bands over a 1-minute period.

For each measurement, the microphone was mounted on a tripod approximately 1 m from the condenser unit and approximately 1.5 m above the ground. The measurement positions in relation to the condenser unit on the rooftop are provided in Figure 2.

The noise measurement results are set out in Table 2.

Table 2 Noise measurement results

Measurement position	Time (hh:mm)	Duration (mm:ss)	Measured sound pressure levels		Notes
			L_{Aeq} (dB)	L_{A90} (dB)	
1	10:34	05:00	52	49	Condenser unit turned off.
2	10:45	01:00	51	49	Condenser unit turned on.

No attention catching features with reference to BS4142 were noted during the measurements.

6 Verification assessment

An assessment has been undertaken based on the measured noise levels for the installed condenser unit. Calculations have been carried out to predict the installed condenser noise level outside the nearby noise sensitive receptors. The calculations take into account plant noise measurement results and include losses due to geometry, distance attenuation and screening

For the purpose of this calculation, a worst-case existing university building window has been identified as the window shown in Figure 4 highlighted in red.

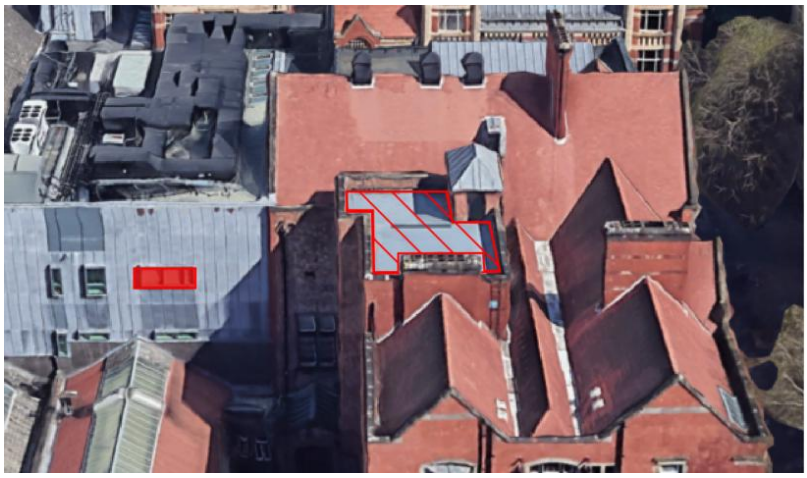


Figure 4 Mark-up of worst-affected window in relation to rooftop plant location

Compliance at this receptor is expected to result in compliance at university receptors located further away, due to distance attenuation.

Based on the information outlined above and plant noise measurement results, the predicted condenser noise egress levels are detailed in Table 3.

Table 3 Plant noise egress assessment results

NSP location	Day criterion (07:00-23:00), L_{Aeq} (dB)	Day predicted plant noise egress level (07:00-23:00), L_{Aeq} (dB)	Night criterion (23:00-07:00), L_{Aeq} (dB)	Night predicted plant noise egress level (23:00-07:00), L_{Aeq} (dB)
University of Manchester window	38	37	-	-
Residential premises on Higher Cambridge St	38	11	36	11

Based on the verification measurements and resulting calculations undertaken, the plant noise egress levels from the installed and operation plant comply with the noise criteria, and no additional mitigation measures are required.

Plant noise egress complies with the criteria and Planning Condition 3(b) can be discharged.

7 Conclusion

Sandy Brown has been appointed by IBI Group (UK) Ltd to provide acoustic advice in relation to the refurbishment works at the Rutherford Building, Manchester, M13 9GP.

As part of the works, a rooftop condenser unit has been installed.

Plant noise verification measurements have been carried out which demonstrate compliance with the requirements of Planning Condition 3(b), which can be discharged.

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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 and attended noise measurements were taken using a Brüel & Kjær 2250 sound level meter.

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	2250/3011964	Brüel & Kjær	14 April 27	UCRT25/1609 UCRT25/1610
Microphone	4189/3100176	Brüel & Kjær	14 April 27	UCRT25/1609 UCRT25/1610
Pre-amp	ZC0032/26376	Brüel & Kjær	14 April 27	UCRT25/1609 UCRT25/1610
Calibrator	4231/3019123	Brüel & Kjær	14 April 27	UCRT25/1603

Calibration of the meters used for the measurements is traceable to national standards. Calibration certificates for the sound level meters 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 attended noise measurements, weather reports for the area indicated that temperatures varied between 20°C and 23°C during the day. The weather was generally dry and clear.

Wind speeds varied between 0 m/s and 4 m/s throughout the survey. These weather conditions are considered to be suitable for obtaining representative measurements.

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