

ACOUSTIC TECHNICAL NOTE



Reference:	9226.ATN01.PCA.0
Revision:	0
To:	Bowmer and Kirkland
From:	James Melville
Date:	15 September 2022
Project:	UNITE, Kincardine Court
Subject:	Plant Noise Commissioning

1.0 INTRODUCTION

RBA Acoustics have been commissioned to measure noise levels from the installed plant items at UNITE, Kincardine Court, Manchester, prior to occupation in order to discharge Planning Condition 15.

In our Plant Noise Assessment Report 9226.RP02.PNA.0.28022022 limits were set for plant noise emissions in order to comply with Planning Condition 12b and Manchester City Council's Noise and Planning Guidance document.

In addition to the planning condition, 1 credit is also sought for BREEAM Pol05. The requirements of both the local authority and BREEAM criteria are the same, as such achieving the criterion required by Manchester City Council will also ensure the development is eligible for this BREEAM credit by default.

Measurements have been taken of the noise emitted from the various items of plant installed in order to determine their impact on the nearest residential receptor to each plant area and to compare against the relevant limits previously set.

2.0 PLANT NOISE LIMITS

General Criterion

In order for the plant items to be considered compliant, noise limits were set in our report reference 9226.RP02.PNA.0.28022022.

Planning Condition 12b and the corresponding Noise and Planning Guidance from Manchester City Council state that noise from installed plant should be 5dB below the background noise level at the nearest residential receptor. The plant noise limits are given in Table 1 below.

Table 1 – Plant Noise Emission Limits

Maximum noise rating limit of all plant during relevant time period (dB)	
Daytime (07:00 – 23:00 hours)	Night-time (23:00 – 07:00 hours)
41	36

3.0 MEASUREMENT PROCEDURE

Measurements were undertaken on Wednesday 14th September 2022. Weather conditions were dry with only light wind speeds. The following instrumentation was used for the surveys – see Table below.

The sound level meter was calibrated both prior to and on completion of the surveys with no calibration drifts observed.

Table 1 – Survey Instrumentation

Manufacturer	Model Type	Serial No.	Calibration	
			Certificate No.	Valid Until
Norsonic Type 1 Sound Level Meter	Nor140	1405945	U38055	2 June 2023
Norsonic Pre Amplifier	1209	15314		
Norsonic ½" Microphone	1225	208218	38054	2 June 2023
Norsonic Sound Calibrator	1251	34057	U38053	2 June 2023

A series of various measurements have been carried out in order to determine if the criteria have been met.

4.0 RESULTS

4.1 5th Floor Plantroom Louvres

The measured L_{Aeq} noise levels measured at 1m from the south-eastern and north-eastern facing louvres are given in Table 2 below. The measurements were taken with all plant within the enclosure operating at maximum duty and therefore is considered worst-case.

Table 3 – Plant Noise Levels

	Parameter	Sound Level (dB) at Octave Band Centre Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
South-Eastern Louvre	Lp @ 1m	60	53	49	46	45	39	33	26
North-Eastern Louvre	Lp @ 1m	57	51	50	49	50	44	41	29

Review of the octave band data provides no indication of any tonal characteristics associated with the proposed plant.

In order to account for background noise, the specific level for each measurement has been determined by logarithmically subtracting the background noise from the measured level. The background noise level is given in Table 4,

Table 4 – Background Noise Levels

Sound Level (dB) at Octave Band Centre Frequency (Hz)							
63	125	250	500	1k	2k	4k	8k
55	48	45	43	43	35	31	18

The specific level measured is given in Table 5 below.

Table 4 – Specific Noise Levels

	Parameter	Sound Level (dB) at Octave Band Centre Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
South-Eastern Louvre	Lp @ 1m	59	51	48	44	41	37	32	25
North-Eastern Louvre	Lp @ 1m	55	48	48	48	50	43	40	29

4.2 Other Plant Items

The condensers located within the bin store were found to be subjectively inaudible outside of the external door to the bin store. Given this, a measurement was not possible and therefore these items can be considered acceptable.

The ground floor MVHR and Fan duct terminations were found to be subjectively inaudible at the closest accessible position to the terminations (approximately 3m) and therefore can be considered acceptable.

5.0 ASSESSMENT

Based on the results outlined in Section 4, this assessment has taken in consideration distance attenuation from the unit to the façade of the nearest affected receptor to determine the rating level of the noise emissions from the plant at the receptors outlined in the plant assessment report (9226.RP02.PNA.0.28022022).

Table 7 – Predicted Noise Rating Levels

Operating Period	Noise Level (dB) at Receptor 1		Noise Level (dB) at Receptor 2	
	Prediction	Criterion	Prediction	Criterion
Night-time (23:00 – 07:00)	17	36	22	36

As can be seen noise emissions from the plant enclosure are suitably below the target criteria at the nearest noise sensitive properties and therefore can be considered acceptable.

6.0 DISCUSSION AND ANALYSIS

As can be seen from Section 4 & 5, noise emissions from the installed plant fall within the limits previously set in our design report and, as such, should therefore be considered acceptable and in line with the requirements of Planning Condition 12b and BREEAM Pol05.