

**53-55 Mosley Street
Manchester**

**Plant Noise Commissioning
Report**

26520/PNC

17 January 2022

For:
Bluefig Investments (UK) Limited
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Document Control

Rev	Date	Comment	Prepared by	Authorised by
0	17/01/2022			
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1.0 Introduction

This memo provides an assessment of fixed building services plant associated with the office redevelopment at 53-55 Mosley Street, Manchester, with reference to Planning Condition 8 imposed by Manchester City Council as part of the planning consent for the scheme. Reference has also been made to the previous baseline noise survey conducted by Hann Tucker Associates as part of the original planning application.

This report presents the results of measurements made of the installed plant, with the aim assisting in the discharge of Planning Condition 8b.

Hann Tucker previously carried out an assessment of the proposed building services plant items as part of the planning application for the installation. Reference should be made to our report referenced '*26520-PTM1-PNA-REV1-CDM Plant Noise Assessment*' which presented the findings of the planning assessment.

Following planning approval for the plant installation Manchester City C stipulated a planning condition to be discharged: Planning Condition 8 requires post completion testing of the plant installation to be undertaken. Hann Tucker Associates have therefore been commissioned to attend site to measure the operational noise levels of the building services plant and in-turn determine whether the installation is in line with the approved scheme.

This report presents the findings of our assessment.

2.0 Objectives

To visit site to carry out noise measurements of the operational plant installation.

Based on the measured noise levels of the operational plant items, determine whether the installation is in-line with the approved scheme.

To comment on the acceptability of the proposed plant installation with respect to the planning condition.

3.0 Acoustic Terminology

Please refer to Appendix A for an explanation of acoustic terminology used herein.



4.0 Site Description

The site is a ground plus 5No. storey building (with basement) situated in a row of commercial and office properties.

To the west the site is bound by Mosley Street. To the east the site is bound by Back George Street. The site is adjoined by The Bank pub to the south and Barclays Bank to the north with associated offices.

The nearest noise sensitive receptors are understood to be the residential windows of the Manhattan, Manchester located to the east of the site, approximately 10 metres from the edge of the site building rooftop to the façade of Manhattan residential building. The adjoining buildings have office spaces but these receptors were deemed less sensitive than the Manhattan for this assessment.

The site is shown in the Site Plan below.

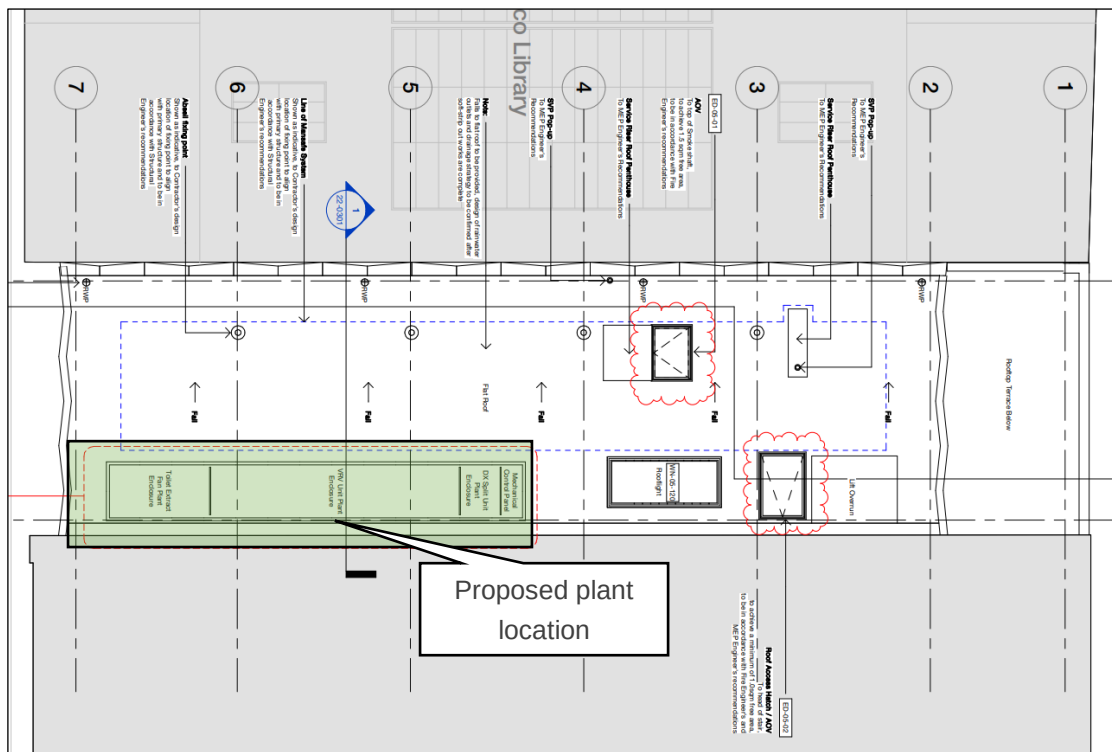


Site Description (Map Data © 2021)

5.0 Building Services Plant Installation

The new items of plant have been installed on the roof of the building

An image showing the location of the plant items to the west of the store is presented below:



6.0 Acoustic Standards & Guidelines

6.1 Planning Condition 8

Planning permission has been granted for the redevelopment subject to a number of Planning Conditions. Condition 8 is noted to relate to noise from building services plant, and states the following:

8) a) Any externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location. Before the installation of any external plant or equipment commences, the scheme shall be submitted to and approved in writing by the City Council as local planning authority in order to secure a reduction in the level of noise emanating from the site.

b) Upon completion of the development and before any of the external plant is first operational, a verification report will be required to validate that the work undertaken confirms to the above noise criteria. The report shall give the results of post-completion testing to confirm that the proposed noise limits are being achieved once the plant and any mitigation measures have been installed. Any instances of non-conformity with the above criteria shall be detailed along with any measures required to ensure compliance. The report and any necessary measures shall be approved in writing by the City Council as Local Planning Authority and the development shall be implemented in full in accordance with the approved details before the plant is first brought into use.



With respect to the conditions above and the noise data acquired in our survey the following plant noise emission limits were determined. For more details of how these figures were determined, please refer to our previously issued report '26520-PTM1-PNA-REV1-CDM Plant Noise Assessment'.

Plant Noise Emission Criteria	
Daytime (07:00 – 23:00 hours)	Night-time (23:00 – 07:00 hours)
50 dBA	48 dBA

7.0 Commissioning Overview

7.1 Overview

Post completion testing was undertaken by Cameron Maskew BEng(Hons) from approximately 10:00 to 11:30 on Wednesday 13 January 2022.

During measurements of external plant noise levels, we were informed that mechanical services were balanced and operating at normal design duty.

Weather conditions were dry with a temperature of approximately 4°C, cloud cover was approximately 10% and wind speeds varied between 1-4ms⁻¹ for the duration of our time on site. These weather conditions are considered suitable for obtaining representative readings of plant noise.

7.2 Instrumentation

During the testing, the following equipment was used.

Equipment	Model	Type	Serial Number	Calibration
Sound Level Meter	Brüel and Kjær	2250	2600445	14/12/2020
Calibrator	Brüel and Kjær	42310	2115545	13/12/2021

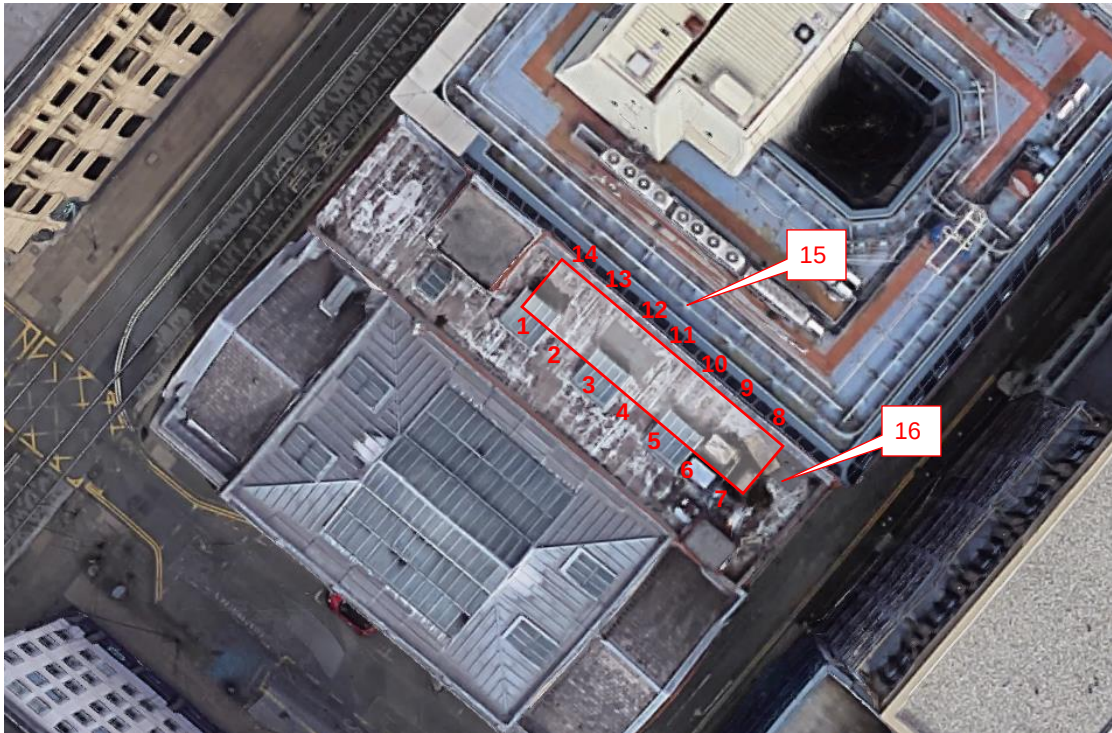
7.3 Measurement Method

Noise measurements were obtained 1 meter from each unit of plant on the roof with the aim of establishing the reverberant sound pressure level in multiple locations around the compound.

Measurements were also taken at 2No locations external to the plant compound; 1m to the north of the units to measure plant on the adjacent build, 1m to the southeastern boundary of the plant near the building edge towards the nearest noise sensitive receptor, and a roof measurement approximately 4m away from the plant to capture the background noise levels.



A Mark-up showing each measurement position is provided overleaf.



Mark-up Showing Measurement Locations

7.4 Measurement Results

The noise levels measured during the plant commissioning survey are presented below for all locations and plant operations.

Position	Description	L _{Aeq}	L _{A90}
1	Plant unit 1 – Normal Operation	61*	60
2	Plant unit 2 – Normal Operation	61*	60
3	Plant unit 3 – Normal Operation	63*	60
4	Plant unit 4 – Normal Operation	61*	59
5	Plant unit 5 – Normal Operation	61*	60
6	Plant unit 6 – Normal Operation	61*	60
7	Plant unit 7 – Normal Operation	60*	59
8	Plant unit 8 – Normal Operation	68*	67
9	Plant unit 9 – Normal Operation	68*	67
10	Plant unit 10 – Normal Operation	69*	68
11	Plant unit 11 – Normal Operation	69*	68
12	Plant unit 12 – Normal Operation	70*	69
13	Plant unit 13 – Normal Operation	69*	68



Position	Description	L _{Aeq}	L _{A90}
14	Plant unit 14 – Normal Operation	67*	65
15	Measurement of Barclays plant on adjacent roof approximately 3m away	71	70
16	Measurement 1m from plant boundary towards roof edge and nearest noise sensitive receptor	64*	60

*Note- Noise levels are unduly elevated due to plant located on Barclay's rooftop and general city hum

7.5 Discussion

It was not possible to accurately measure noise emanating from the newly installed plant items due to the high background noise level and significant noise output from nearby plant located on the adjacent building which effectively masked any noise output from the new plant installation being inspected. It was also noted during the site visit, that subjectively the newly installed plant was not audible over the ambient noise climate at the site.

Due to the installed plant's noise output being significantly lower than the observable background noise on site we would suggest that the newly installed plant associated with the development at 53-55 Moseley Street does not significantly contribute to the prevailing noise climate in the vicinity of the site and the nearest noise sensitive receptors and can reasonably conclude therefore that there is no adverse impact on the nearest noise sensitive receptors when considered in the context of the prevailing noise climate in the area.

8.0 Conclusions

A site visit was conducted by Hann Tucker to assess whether the proposed plant complies with previously proposed plant noise emission limits.

Whilst on site to carry out commissioning measurements it was determined that it was not possible to measure the noise emitted by the proposed units in isolation due to other dominant noise sources in the area. These being the plant located on the adjacent building which dominated the noise climate and general city hum from plant in the surrounding area, tramlines, road traffic noise etc...

Due to the minimal contribution to the prevailing noise climate from the newly installed plant, it has been concluded that the new units should not give rise to an adverse impact at the nearest noise sensitive receptors when considered in the context of the prevailing noise climate at the site.

Appendix A – Acoustic Terminology

The acoustic terms used in this report are defined as follows:

dB	Decibel - Used as a measurement of sound level. Decibels are not an absolute unit of measurement but an expression of ratio between two quantities expressed in logarithmic form. The relationships between Decibel levels do not work in the same way that non-logarithmic (linear) numbers work (e.g. 30dB + 30dB = 33dB, not 60dB).
dBA	The human ear is more susceptible to mid-frequency noise than the high and low frequencies. The 'A'-weighting scale approximates this response and allows sound levels to be expressed as an overall single figure value in dBA. The _A subscript is applied to an acoustical parameter to indicate the stated noise level is A-weighted It should be noted that levels in dBA do not have a linear relationship to each other; for similar noises, a change in noise level of 10dBA represents a doubling or halving of subjective loudness. A change of 3dBA is just perceptible.
L _{90,T}	L ₉₀ is the noise level exceeded for 90% of the period <i>T</i> (i.e. the quietest 10% of the measurement) and is often used to describe the background noise level.
L _{eq,T}	L _{eq,T} is the equivalent continuous sound pressure level. It is an average of the total sound energy measured over a specified time period, <i>T</i> .
L _{max}	L _{max} is the maximum sound pressure level recorded over the period stated. L _{max} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the L _{eq} noise level.
L _p	Sound Pressure Level (SPL) is the sound pressure relative to a standard reference pressure of 2×10^{-5} Pa. This level varies for a given source according to a number of factors (including but not limited to: distance from the source; positioning; screening and meteorological effects).
L _w	Sound Power Level (SWL) is the total amount of sound energy inherent in a particular sound source, independent of its environment. It is a logarithmic measure of the sound power in comparison to a specified reference level (usually 10^{-12} W).