25 Rochdale Road
Manchester

Condition 15(a) Discharge
Noise Impact Assessment Report

31197/CDR1

9 December 2025

For:
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Document Control

Rev	Date	Comment	Prepared by	Reviewed by	Approved by
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1.0 Introduction

Hann Tucker Associates Limited (Hann Tucker) has been commissioned by GMi Construction Group Plc to undertake noise assessments and prepare supplementary evidence to assist with the discharge of Planning Condition 15(a) for the development at 25 Rochdale Road, Manchester.

Planning consent was granted for the above scheme in 2020 (Planning Reference 127537/FO/2020) for erection of an 11 storey 229-bedroom hotel (Use Class C1) with ancillary ground floor bar/restaurant together associated public realm and other associated works.

Planning Condition 15a relates to the residential and commercial aspects of the proposed development in regard to externally mounted ancillary, equipment and servicing plant items.

The assessment draws upon the results of a baseline noise survey previously undertaken by Hann Tucker in 2020 (document reference: 2020_0707 – 27629 – NIA1 (Rev02))

2.0 Planning Condition

The Planning Condition (15a) wording associated with external plant items is set out below:

Planning Condition 15(a)

> *"Prior to the first use of the development hereby approved, details of any externally mounted ancillary plant, equipment and servicing shall be submitted for approval. 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 level of 5 dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location."*

This technical report outlines the selected building services plant, their locations, and any potential adverse impacts, along with any necessary design mitigation measures. The purpose is to demonstrate that noise emissions will remain within acceptable levels in accordance with relevant standards, guidance, and the condition set by Manchester City Council (MCC).

3.0 Acoustic Terminology

For an explanation of the acoustic terminology used in this report please refer to Appendix A enclosed.

4.0 Site Description

4.1 Location

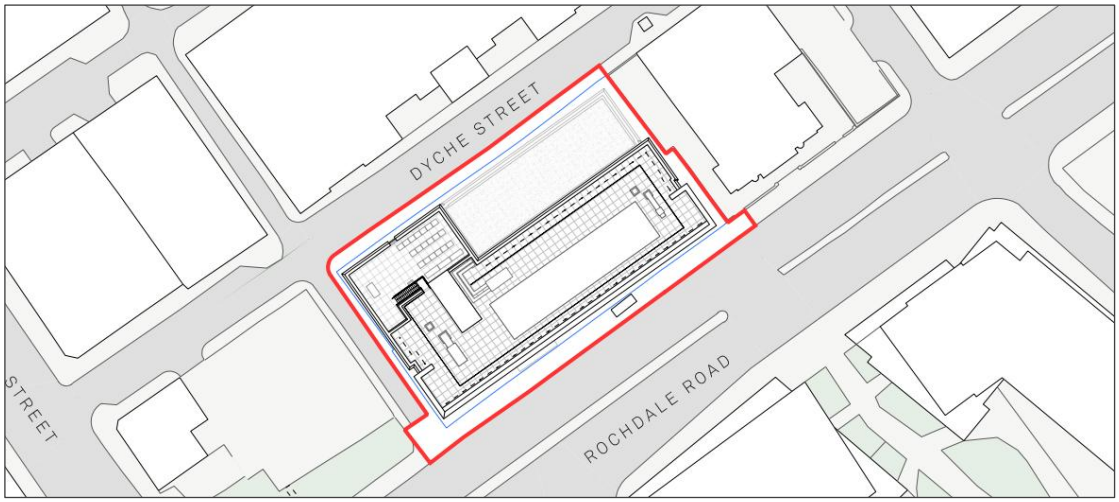
The proposed development is located at 25 Rochdale Road in Manchester and falls under the jurisdiction of Manchester City Council. The site is bounded by Rochdale Road (A664) to the southeast, Dyche Street to the northwest, Ludgate Street to the southwest and Particular Baptist Church to the northeast. The surrounding area is predominantly residential and hotel accommodation. See site plan below.



Site Plan (Google, Maxar Technologies © Copyright 2025)

4.2 Proposed Development

The figure below shows the proposed block plan site layout. This assessment looks at aspects of the proposed development in regard to external plant noise emissions.



Drawing Reference: Proposed Block Plan_MP_00_1211, dated 03/07/20 c/o John Matthews Architects

5.0 Condition 15(a) Assessment

5.1 Introduction

Condition 15(a) relates to noise from externally mounted ancillary building services plant, and this section of the report sets out the desktop study regarding the noise egress from the proposed plant to the nearest or worst-affected noise sensitive receptors.

Communications with the Client and review of the Architect drawings detail a variety of fixed plant items in differing locations, including roof mounted plant, a dedicated plant room and mechanical extract ventilation ducted to the façade.

5.2 Project Criteria

5.2.1 External Plant Noise Emissions

The plant noise emission limits set out below follow the requirements of Condition 15a, set by Manchester City Council, and based on achieving a rating level of 5 dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location. These are based on the measured background sound levels undertaken at the outset of the development and documented within report reference *"27629/NIA1/Rev2 Noise Impact Assessment Report".* The measured levels for daytime and night-time were recorded at 49 dB L_{A90} and 45 dB $L_{A90,}$ respectively.

Period	BS 4142 Cumulative Plant Noise Rating Limit, $L_{Ar,\,Tr}$
Daytime (07:00-23:00)	44 dBA
Night-time (23:00-07:00)	40 dBA

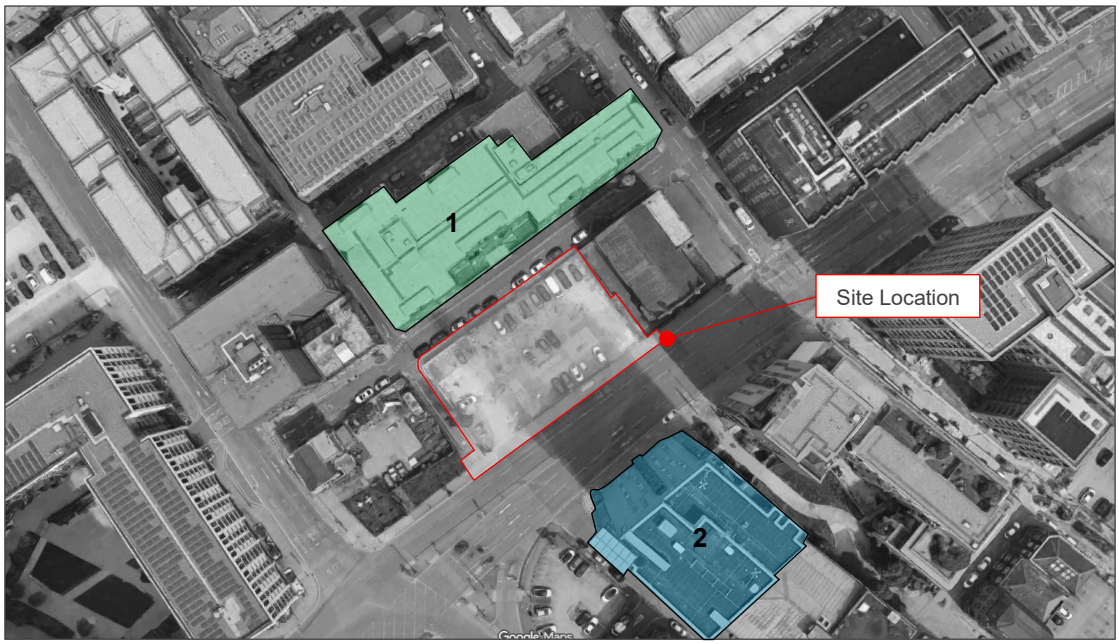
Noise shall be assessed in accordance with BS 4142:2014 with corrections applied for any plant emitting noise of a tonal or irregular quality. Emergency plant items (e.g. standby generators, smoke extract equipment) should be subject to more relaxed criteria.

5.3 Noise Sensitive Receptors

The nearest residential receptors to the development site are detailed below.

Noise Sensitive Receptor (NSR)	Description
1 – Green	Northern Angel – 6-storey Residential Apartment Building
2 – Blue	The Skyline II – 20-stroey Residential Apartment Building

A map of the receptor locations as described above is detailed in the following figure.



Noise Sensitive Receptor Map (Google, Maxar Technologies © Copyright 2025)

5.4 Proposed Plant Items and Locations

The following assessments will be split up into separate plant items and concluded with an assessment of cumulative noise impact assessment. The plant item categories are as follows:

- **Internally Mounted Plant (Ducted to Atmosphere)**
  - Ground Floor Heat Recovery Units
    - HRU001 – ducted to west façade
    - HRU002 – ducted to rear façade
    - HRU003 – wall mounted to rear façade
  - Level 01 – 10 Bedroom HRU Units (both Supply/Extract ducted to all façades)
  - Ground Floor Extract Units
    - EF001 – ducted to rear façade
    - EF002 – wall mounted to rear façade
    - EF003 – ducted to rear façade
    - EF004 – ducted to east façade
    - EF005 – ducted to rear façade

- **Externally Mounted Plant**
    - Air Source Heat Pumps (QT001, QT002, QT003, QT004, QT005) – Level 10 Roof.
    - Air Conditioning Condenser Units (SYS 1 – 20) – Level 10 Roof.
    - EF006 Linen Extract – Level 11 Roof.
    - Air Handling Unit Supply – Level 11 Roof.
    - Kitchen Extract – Level 11 Roof

The unit make/model references are provided below.

Item Ref	Make	Model
QT001, QT002, QT003, QT004, QT005	Mitsubishi	Q-Ton - ESA30EH-25
SYS1 – SYS19	Mitsubishi	PURY-EP200YNW-A2
SYS20	Mitsubishi	PURY-EP350YNW-A2
AHU Supply	VES	MAX33/D/D/S
Kitchen Extract	Systemair	MUB/T 062 630EC
EF001	Systemair	K150 M SILEO
EF002	Vent Axia	TX9WL
EF003	Systemair	K250 M SILEO
EF004	Systemair	K315 SILEO
EF005	Systemair	K150 M Circular Duct Fan
EF006	Systemair	TFC 355 P SILEO
HRU001	Mitsubishi	Lossnay LGH200RVX-E
HRU002	Mitsubishi	Lossnay LGH50RVX-E
HRU003	Mitsubishi	VL-100
Bedroom HRU's	Vectaire	Studio

5.5 Plant Noise Data

We understand the octave band sound power levels for manufacturers noise data of the above units are as follows:

Plant Description	Sound Power Level [dB re 10^{-12} W], L_w (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1000	2000	4000	8000	
QT001, QT002, QT003, QT004, QT005	See Note 1	60	60	65	66	64	62	52	70
SYS 1 - 19	77	61	61	58	51	47	44	42	59
SYS 20	69	64	64	61	56	52	48	41	62
AHU Supply (Inlet)	64	73	67	61	56	53	42	37	64
AHU Supply (Breakout)	62	69	62	46	39	38	35	31	57
Kitchen Extract (Outlet)	51	65	65	69	69	66	61	62	73
Kitchen Extract (Breakout)	32	52	50	40	41	39	33	29	47
EF001 (Outlet)	51	55	47	55	54	51	50	33	59
EF002	See Note 2								
EF003 (Outlet)	44	63	64	62	62	62	55	53	67
EF004 (Outlet)	56	53	61	58	63	63	60	51	68
EF005 (Outlet)	44	45	47	36	33	21	16	23	41
EF006 (Outlet)	38	49	56	58	56	52	43	36	60
HRU001	See Note 2								
HRU002	See Note 2								
HRU003	See Note 2								
Bedroom HRU (Supply at 30 l/sec boost mode)	58	62	60	60	55	52	46	37	-
Bedroom HRU (Extract at 30 l/sec boost mode)	53	57	55	55	50	47	41	32	-

Note 1: No spectral data is provided at 63Hz within the laboratory test sheets reviewed for QT001 to QT005 Therefore, calculations have been undertaken without this frequency band.

Note 2: No spectral or octave band sound pressure/power data is available for these units following request from the manufacturer at the time of writing. However, a single broadband sound pressure level figure has been provided at a specified distance (as presented within the manufacturer specification sheet), shown below.

- EF002: 43 dBA at 3 metres.
- HRU001: 41.5 dBA at 1.5 metres.
- HRU002: 35 dBA at 1.5 metres (with 18 dB uplift from outlet at this fan speed).
- HRU003: 38 dB (no reference of A-weighting or measurement distance).

5.6 Assessment Assumptions and Uncertainty

BS4142 provides the following guidance in relation to source noise levels:

> *"Where the sound power level is used for calculating sound pressure levels, it should be representative of the source and the conditions under which the source is expected to operate.*
>
> *Where possible, use recognised standards to establish the sound power level and the uncertainty (e.g. BS EN ISO 3740 and BS EN ISO 3747). Where it is not possible to use appropriate standards, describe the method of establishing the sound power level, report the uncertainty and state the reasons for using this method"*

In this case, broadband sound pressure levels have been provided for EF002, HRU001, HRU002 and HRU003. For calculation purposes, we have taken the documented broadband value for predicting noise incident at the nearest Noise Sensitive Receptor (NSR).

For HRU003, no reference to a measurement distance and whether the broadband figure has been A-weighted is documented. Therefore, considering the size of the unit (in-wall HRU), we have assumed that the noise data is A-weighted and measured at a distance of 1 metre from the unit.

For HRU002 and all Bedroom HRU's, proposed ventilation plans state 1 metre of Acoustic-Flex duct. The proposed specification for HRU002 is set at 127Ø and 1000mm in length, and all Bedroom HRU supply/extract ducting set at 102Ø and 1000mm in length. The proposed insertion loss specifications for these are provided below and have been included in the ventilation calculations.

Length	Insertion Loss (dB), IL @ Octave Band Centre Frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
127 Ø 1000 mm	-	19	17	18	18	19	13	12
102 Ø 1000 mm	-	16	17	18	17	17	15	14

Titon Semi-Flexi Duct

For HRU002, the manufacturer notes specify 18 dB uplift from the fan outlet. Therefore, a noise level of 35 + 18 dBA at 1.5 metres has been considered in calculations to represent worst-case noise levels.

The above approach introduces some uncertainty into the calculations. Nevertheless, in the absence of 1/1 octave band sound power data, it is considered suitably robust for assessing plant noise. Our assessment is therefore dependent on the validity of the noise data provided. As highlighted in BS4142, laboratory-measured sound power data should be determined in accordance with recognised standards in order to minimise uncertainty in this aspect of the assessment.

For EF001 to EF005, Systemair LDC silencers have been proposed within the duct routes to the atmosphere. EF002 is wall mounted and therefore no attenuation is provided to the system. The proposed insertion loss specifications for these are provided below and have been included in the ventilation calculations.

Ref.	Insertion Loss (dB), IL @ Octave Band Centre Frequency (Hz)							
	63	125	250	500	1000	2000	4000	8000
EF001	-	3	7	20	27	31	16	11
EF003	3	2	7	13	17	16	8	6
EF004	0	2	6	11	14	9	4	5
EF005	4	3	11	24	36	49	34	17

Other assessment assumptions include the following list:

- Screening effects have been applied to noise-sensitive receptor (NSR) locations, taking into account building massing.
- The directivity characteristics of supply and exhaust openings have been included in the ventilation system calculations.
- Bedroom HRUs have been assessed cumulatively, considering all nine guestroom floors discharging to a single receptor window on each façade. In the worst case, this results in 81No supply/extract termination points on the rear façade overlooking NSR 1 and 102No supply/extract termination points on the front façade overlooking NSR 2.
- Bedroom HRU's overlooking Ludgate Road have not been considered within the assessment due to the full screening provided by building massing to both receptors.
- A review of all noise data has been undertaken which has determined that the units proposed are typically broadband in nature and include no tonal or impulsive characteristics. However, it is expected that units may run intermittently and therefore a +3 dB penalty correction has been applied to rating level at the receptor locations.

Please note that not all plant items will affect every receptor and therefore a list has been formed to provide clarity on which plant equipment will affect which receptor, detailed in the following table.

Plant Item (Noise Source)	NSR
QT001, QT002, QT003, QT004, QT005	All NSRs
SYS 1 - 19	All NSRs
SYS 20	All NSRs
AHU Supply (Inlet)	All NSRs
AHU Supply (Breakout)	All NSRs
Kitchen Extract (Outlet)	All NSRs
Kitchen Extract (Breakout)	All NSRs
EF001 (Outlet)	NSR 1
EF002	NSR 1
EF003 (Outlet)	NSR 1
EF004 (Outlet)	All NSRs
EF005 (Outlet)	NSR 1
EF006 (Outlet)	All NSRs
HRU001	All NSRs
HRU002	NSR 1
HRU003	NSR 1
Bedroom HRUs (115no. Supply and 115no. Extract grilles across 10no. Floors on rear and side facing façade)	NSR 1
Bedroom HRUs (114no. Supply and 114no. Extract grilles across 10no. Floors on front facing façade)	NSR 2

5.7 Noise Incident (Plant Noise) at NSR 1

The noise levels incident on each building façade has been calculated from all noise emitting plant items and are presented in the table below.

Plant Item	Calculated Incident Noise Levels (dB) at Receptor NSR 1								dBA
	63	125	250	500	1000	2000	4000	8000	
QT001, QT002, QT003, QT004, QT005	-	23	22	26	25	21	16	4	-
SYS 1 - 19	46	29	28	23	14	7	1	-3	-
SYS 20	22	15	13	7	-1	-7	-11	-18	-
AHU Supply (Inlet)	17	24	15	7	-1	-6	-17	-22	-
AHU Supply (Breakout)	15	20	10	-8	-18	-21	-24	-18	-
Kitchen Extract (Outlet)	9	22	20	22	19	13	6	7	-
Kitchen Extract (Breakout)	-17	1	-4	-16	-17	-19	-25	-29	-
EF001 (Outlet)	10	15	7	6	2	-4	11	0	-
EF002	-	-	-	-	-	-	-	-	33
EF003 (Outlet)	3	30	29	23	19	21	22	22	-
EF004 (Outlet)	11	8	14	3	-9	-4	-2	-12	-
EF005 (Outlet)	6	11	8	-14	-28	-52	-42	-18	-
EF006 (Outlet)	-12	-5	-3	-8	-16	-13	-22	-28	
HRU001	-	-	-	-	-	-	-	-	16
HRU002	-	-	-	-	-	-	-	-	27
HRU003	-	-	-	-	-	-	-	-	18
Bedroom HRUs Supply & Extract	26	17	17	22	21	19	14	5	-
Cumulative Level of all Plant at NSR 1	-	-	-	-	-	-	-	-	37
Intermittency Correction									+3
Noise Rating Level	-	-	-	-	-	-	-	-	40

When cumulatively summing all plant items at NSR 1, predicted noise levels are equal to the night-time noise limit and 4 dB below the daytime noise limit, therefore demonstrating compliance.

5.8 Noise Incident (Plant Noise) at NSR 2

The noise levels incident on each building façade has been calculated from all noise emitting plant items and are presented in the table below.

Plant Item	Calculated Incident Noise Levels (dB) at Receptor								dBA
	63	125	250	500	1000	2000	4000	8000	
QT001, QT002, QT003, QT004, QT005	-	18	18	25	28	26	24	14	-
SYS 1 - 19	40	24	24	21	15	11	9	10	-
SYS 20	19	13	13	9	2	-4	-10	-20	-
AHU Supply (Inlet)	25	34	28	22	17	14	3	-2	-
AHU Supply (Breakout)	23	30	23	7	0	-1	-4	-8	-
Kitchen Extract (Outlet)	12	26	26	30	30	27	22	23	-
Kitchen Extract (Breakout)	-6	14	12	2	3	1	-5	-9	-
EF004 (Outlet)	6	5	11	5	4	6	8	-2	-
EF006 (Outlet)	-2	8	13	10	3	6	-3	-9	-
HRU001	-	-	-	-	-	-	-	-	15
Bedroom HRUs Supply & Extract	24	15	15	20	19	17	12	3	-
Cumulative Impact of all Plant at NSR 2	-	-	-	-	-	-	-	-	37
Intermittency Correction									+3
Noise Rating Level	-	-	-	-	-	-	-	-	40

When cumulatively summing all plant items at NSR 2, predicted noise levels are equal to the night-time noise limit and 4 dB below the daytime noise limit, therefore demonstrating compliance.

5.9 Summary of Condition 15(a) Assessment

Based on the above, it has considered to have been demonstrated that Condition 15(a) be discharged from the Planning Application Decision Notice (ref: 127537/FO/2020).

6.0 Conclusion

The assessment of plant noise impact has been undertaken.

It has been demonstrated above that the condition relating to plant noise prior to first occupation meet the requirements of the Planning Condition imposed. It is therefore recommended that this Report and Assessment included be commensurate with the discharge of Conditions 15(a).

Appendix A

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 *T* (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, *T*.

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.

Sound Pressure Level (L_p) 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).

Sound Power Level (SWL or L_w) 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).

Appendix B

Planning Policies, Standards & Guidance

B.1 BS 4142:2014 + A1:2019

When setting plant noise emission criteria reference is commonly made to BS 4142:2014 "*Methods for rating and assessing industrial and commercial sound".*

The procedure contained in BS 4142:2014 provides an assessment of the likely effects of sound on people when comparing the specific noise levels from the source with representative background noise levels. Where the noise contains "a tone, impulse or other characteristic" then various corrections can be added to the specific (source) noise level to obtain the "rating level".

BS 4142 states that: *"The significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs". An estimation of the impact of the specific noise can be obtained by the difference of the rating noise level and the background noise level and considering the following:*

• *"Typically, the greater this difference, the greater the magnitude of the impact."*

• *"A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context."*

• *"A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context."*

• *"The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context."*

The determination of the "rating level" and the "background level" are both open to interpretation, depending on the context.