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# Planning Condition 6 Discharge Report

**117-119 Portland Street Planning – Condition 6 Discharge Report**

## 1 Introduction

1.1 This Planning Condition Discharge Report provides a summary of the findings of the on-site plant noise commissioning measurements, as conducted by Sol Acoustics at 117-119 Portland St, Manchester M1 6ED

1.2 Planning permission has been granted subject to conditions. Condition 6 pertains to plant items and states the following:

> *"...6)a) Prior to any implementation of any plant associated with (a) the office accommodation and (b) the gym a scheme for the acoustic insulation of any plant including externally mounted ancillary equipment, lift equipment and substation associated with the development to ensure that it achieves a background noise level of 5dB below the existing background (La90) at the nearest noise sensitive location 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 equipment. The approved scheme(s) shall be completed before the (a) office accommodation and (b) the Gym are occupied.*
>
> *b) Prior to occupation a verification report(s)shall be submitted for approval by the City Council as local planning authority for each of (a) and (b) and any non compliance suitably mitigated in accordance with an agreed scheme prior to occupation. The approved details shall be implemented and remain in place for as long as the above uses are operational*
>
> *The approved details shall be implemented and remain in place for as long as the above uses are operational"*

1.3 Measurements of the installed plant within the courtyard and rooftop plant areas were undertaken on 25th April, 13th June 2025 and 7th July 2025.

# 2 Plant Noise Emission Limits

2.1 Plant noise emission limits have been calculated based upon a baseline noise survey undertaken by Sol Acoustics in January 2024, the full details of which are set out in the Sol Acoustics Environmental and Intrusive Noise Assessment (ref P2285-REP01-JLS P02).

2.2 On the basis of the results of the baseline noise survey and the requirements of Manchester City Council as set out in Condition 6, Table 1 below sets out the maximum permissible Rating Level to be achieved by the proposed M&E plant associated with the development at the nearest noise sensitive premises.

| Location | Maximum Permissible Rating Level, dB $L_{A,Tr}$ | |
|---|---|---|
| | Daytime (07:00 – 23:00) | Night-time (23:00 – 07:00) |
| Any noise sensitive façade | 47 | 43 |

**Table 1: Plant Rating Limits**

# 3 Proposed Plant Items

3.1 Table 2 details the plant items that were observed to have been installed or relocated within the rear courtyard and rooftop plant areas. The relocated items do not serve the development in question, but have been assessed regardless, in order to ensure no adverse effects result from the relocation of the equipment:

| Plant Reference | Manufacturer | Model | Status |
|---|---|---|---|
| EC01 | Mitsubishi Electric | PURY EP500YNW-A2 | New |
| EC02 | Mitsubishi Electric | PURY EP350YNW-A2 | New |
| EC03 | Mitsubishi Electric | PUZ-ZM140YDA | New |
| EC04 | Mitsubishi Electric | PUZ-ZM35VKA2 | New |
| EC05 | Mitsubishi Electric | PURY EP400YNW-A2 | New |
| EC06 | Mitsubishi Electric | PURY EP350YNW-A2 | New |
| EC07 | Mitsubishi Electric | PURY EP500YNW-A2 | New |
| EC08 | Mitsubishi Electric | PURY EP300YNW-A2 | New |
| EC09 | Mitsubishi Electric | PURY EP550YNW-A2 | New |
| EC12 | Mitsubishi Electric | PUZ-ZM100YDA | New |
| EC14 | Mitsubishi Electric | PUZ-ZM50VKA2 | New |
| AC1 | Midea | MDV-V100W/ON1(C) | Relocated |
| AC2 | Midea | MOE-30U-55HFN8-R | Relocated |
| AC3 | Midea | MOD-30U-42HFN8-R | Relocated |
| AC4 | Midea | MOX330U-18HFN8 | Relocated |
| AC5 | Midea | MOE-30U-55HFN8-R | Relocated |
| AC6 | Midea | MDV-V100W/ON1(C) | Relocated |

**Table 2: Proposed rear courtyard plant items**

3.2 Table 3 details the plant items that were observed to have been installed within the rooftop plant area:

| Plant Reference | Manufacturer | Model | Status |
|---|---|---|---|
| EC10A | Mitsubishi Electric | FDC100CSX | New |
| EC10B | Mitsubishi Electric | FDC125VSX | New |
| EC10C | Mitsubishi Electric | FDC125VSX | New |
| EC10D | Mitsubishi Electric | FDC100CSX | New |
| EC10E | Mitsubishi Electric | FDC100CSX | New |
| EC10F | Mitsubishi Electric | FDC125VSX | New |
| EC11-1 | Mitsubishi Electric | PURY EP450YNW-A2 | New |
| EC11-2 | Mitsubishi Electric | PURY EP400YNW-A2 | New |
| EC13 | Mitsubishi Electric | PUZ-ZM35VKA2 | New |
| EC14 | Mitsubishi Electric | PUZ-ZM50VKA2 | New |
| EC15 | Mitsubishi Electric | PUZ-ZM71VHA2 | New |
| EC16 | Mitsubishi Electric | PUZ-ZM50VKA2 | New |
| EC17 | Mitsubishi Electric | PUZ-ZM50VKA2 | New |

**Table 3: Proposed rooftop plant items**

# 4 Proposed Plant Locations

4.1 The rear courtyard condensers have been installed and the existing plant relocated within the courtyard.

4.2 Details of the rooftop plant locations is set out in the Kaizen Consulting Engineer drawings 1168-KCE-ZZ-XX-DR-M-5800 and 1168-KCE-ZZ-XX-DR-M-5801.

4.3 Internal heat recovery is ducted to external louvres along the eastern façade of the building, to the west of the courtyard plant area. Noise from these ducted units has been controlled by means of in-line attenuators installed in the ductwork between the unit and the louvres such that contribution form the internal plant cannot give rise to an exceedance of the external plant noise limits when considered in tandem with the external plant.

# 5 External Plant Operational Hours

5.1 It is understood that the proposed plant could operate at all hours during both the daytime (07:00-23:00) and the night-time (23:00-07:00).

# 6 Plant Noise Data

6.1.1 Sol personnel attended site to measure the noise level emissions of the installed rear courtyard and rooftop plant during 25th April, 13th June 2025 and 7th July 2025.

6.1.2 Sound pressure level measurements were conducted using an omnidirectional microphone. The sound pressure level measurements comprised of full broadband A-weighted, $L_{Aeq,T}$, and third-octave unweighted, $L_{eq,T}$ sound pressure level measurements.

6.1.3 All noise measurements were carried out using Type 1 Precision Grade noise monitoring equipment. The complete noise measuring systems were field calibrated immediately prior to and following the noise survey periods. *Appendix B provides additional survey information.*

## 6.2 Rear Courtyard

6.2.1 Table 4 below shows the results of the plant noise measurements:

| Plant Reference | Model | Measured Sound Pressure Level @ 1m, dB per Octave Band Centre Frequency (Hz) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | dBA |
| EC01[1] | PURY EP500YNW-A2 | 74 | 69 | 62 | 55 | 50 | 48 | 43 | 59 |
| EC02[1] | PURY EP350YNW-A2 | 64 | 57 | 52 | 46 | 45 | 43 | 44 | 53 |
| EC03 | PUZ-ZM140YDA | 60 | 61 | 57 | 48 | 44 | 44 | 40 | 53 |
| EC04 | PUZ-ZM35VKA2 | 61 | 66 | 59 | 52 | 49 | 50 | 46 | 57 |
| EC05[1] | PURY EP400YNW-A2 | 67 | 61 | 59 | 50 | 48 | 48 | 48 | 58 |
| EC06[1] | PURY EP350YNW-A2 | 63 | 58 | 52 | 47 | 45 | 43 | 44 | 53 |
| EC07[1] | PURY EP500YNW-A2 | 71 | 65 | 62 | 53 | 49 | 47 | 47 | 59 |
| EC08[1] | PURY EP300YNW-A2 | 70 | 62 | 58 | 54 | 50 | 45 | 43 | 57 |
| EC09[1] | PURY EP550YNW-A2 | 70 | 62 | 61 | 50 | 48 | 45 | 39 | 56 |
| EC12 | PUZ-ZM100YDA | 57 | 57 | 51 | 47 | 43 | 39 | 39 | 50 |
| EC14 | PUZ-ZM50VKA2 | 56 | 51 | 51 | 50 | 46 | 41 | 42 | 52 |
| [1]These plant items have been fitted with acoustic jackets | | | | | | | | | |

**Table 4: Rear courtyard measured plant noise data**

6.2.2 Table 5 below details the relocated plant items. These third-party, pre-existing items were not able to be controlled by the project engineers and as a result were not measurable. Therefore, the same noise levels as stated in the previous plant noise assessment (P2285-PTM-1-JLS P01) have been used. Items marked with an asterisk denote units for which no suitable octave band source noise data has been identified and an assumed spectrum shape has been used based on the closest available unit data and the quoted single figure broadband noise level available from the manufacturer.

| Plant Reference | Model | Sound Pressure Level @ 1m, dB per Octave Band Centre Frequency (Hz) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | dBA |
| AC1, AC6 | MDV-V100W/ON1(C) | 67 | 62 | 55 | 55 | 51 | 46 | 42 | 57 |
| AC2, AC5 | MOE-30U-55HFN8-R* | 71 | 55 | 54 | 52 | 45 | 42 | 40 | 53 |
| AC3 | MOD-30U042HFN8-R* | 70 | 54 | 53 | 51 | 44 | 41 | 39 | 52 |
| AC4 | MOX330U-18HFN8* | 71 | 55 | 54 | 52 | 45 | 42 | 40 | 53 |

**Table 5: Rear Courtyard Manufacturers Plant Noise Data**

## 6.3 Rooftop

6.3.1 Table 6 below se shows the results of the plant noise measurements at 1 metre from each of the proposed rooftop units gathered by Sol Acoustics to enable an assessment. Both EC11-1 and EC11-2 could only be operated concurrently, as such the measured noise data presented below has been taken as an average of 5no. measurements taken around both units whilst operating at design duty.

| Plant Reference | Model | Sound Pressure Level @ 1m, dB per Octave Band Centre Frequency (Hz) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | dBA |
| EC10A | FDC125VSX | 69 | 66 | 65 | 61 | 59 | 53 | 51 | 69 |
| EC10B | FDC100CSX | 70 | 71 | 69 | 64 | 60 | 54 | 49 | 70 |
| EC10C | FDC125VSX | 67 | 68 | 64 | 60 | 56 | 50 | 45 | 67 |
| EC10D | FDC100CSX | 72 | 69 | 67 | 63 | 60 | 54 | 48 | 72 |
| EC10E | FDC100CSX | 72 | 71 | 70 | 67 | 62 | 56 | 51 | 72 |
| EC10F | FDC125VSX | 69 | 68 | 66 | 63 | 58 | 53 | 48 | 69 |
| EC13 | PUZ-ZM35VKA2 | 70 | 66 | 62 | 60 | 56 | 53 | 49 | 70 |
| EC14 | PUZ-ZM50VKA2 | 69 | 66 | 61 | 58 | 54 | 49 | 43 | 69 |
| EC15 | PUZ-ZM71VKA2 | 71 | 67 | 63 | 59 | 55 | 49 | 45 | 71 |
| EC16 | ZM50VKA2 | 69 | 66 | 59 | 57 | 53 | 46 | 40 | 69 |
| EC-7 | ZM50VKA2 | 68 | 65 | 59 | 56 | 52 | 46 | 40 | 68 |
| EC11-1 | PURY EP450YNW-A2 | 73 | 74 | 73 | 68 | 65 | 63 | 58 | 73 |
| EC11-2 | PURY EP400YNW-A2 | | | | | | | | |

**Table 6: Rooftop measured plant noise data**

# 7 Plant Noise Assessment

7.1 In order to predict the likely resultant plant noise levels at the identified noise sensitive receptors, a 3D computer based environmental noise model has been created using the proprietary DataKustik "CadnaA" Noise Mapping software. The following assumptions have been made in the generation of the noise model:

- The noise model was set up to apply the noise prediction methodology set out in ISO 9613-2:'*Acoustics – Attenuation of Sound propagation outdoors – Part 2: General Method of Calculation';*
- The model was set up to include up to second-order reflected noise from solid structures;
- Acoustic screening and reflections afforded by nearby buildings and solid structures.

7.2 The model predicts the resultant plant noise Specific Level at the noise sensitive receptors with all plant running simultaneously.

7.3 A visualisation of the noise model in presented in Figure 1 overleaf.

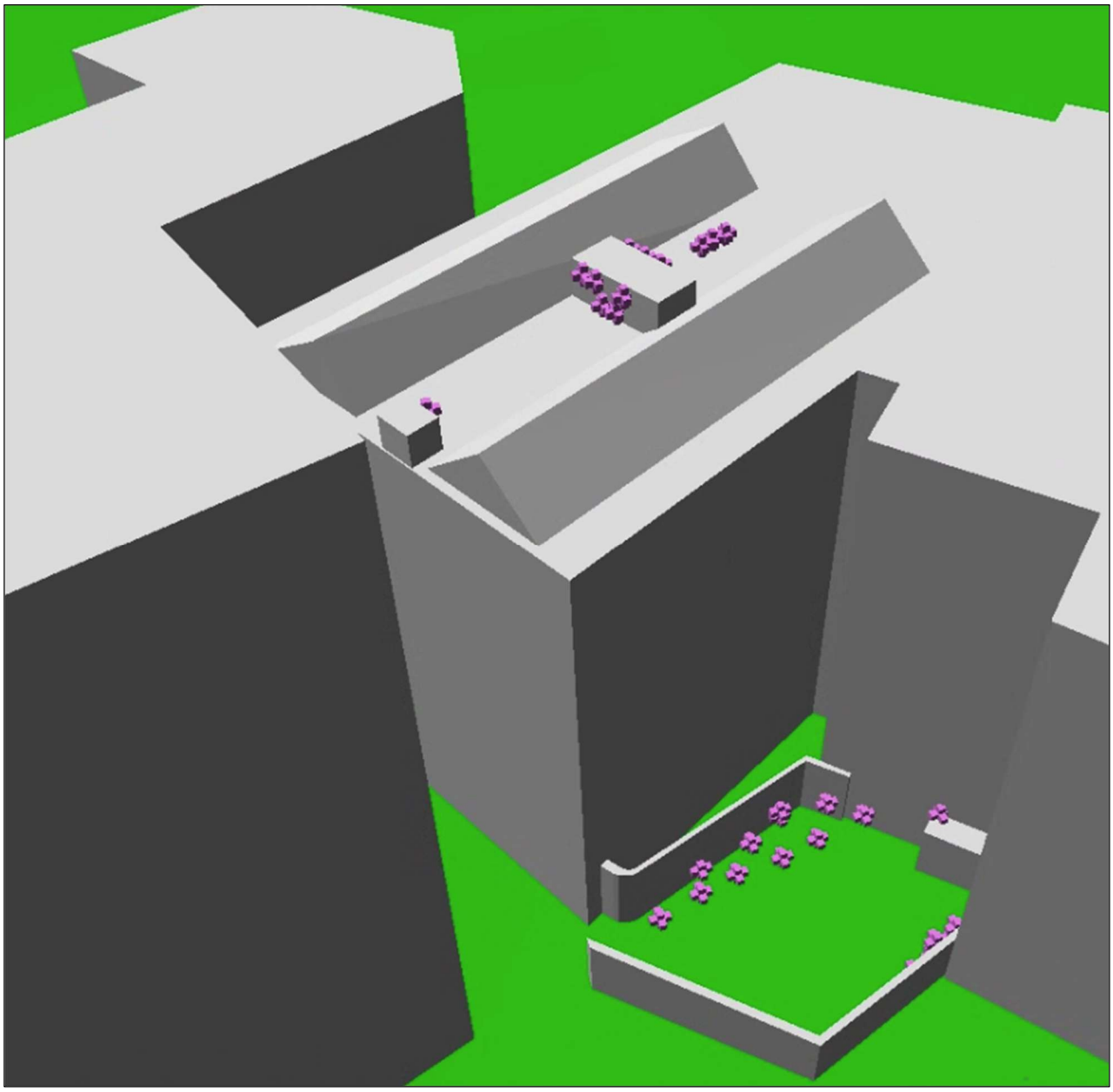


**Figure 1: Visualisation of 3D plant noise model**

## BS 4142 Rating Penalty

7.4 The installed units were observed to operate free from tonality and without any impulsive characteristics, as such no BS 41412 rating penalty is deemed necessary.

## Context

7.5 In full accordance with BS 4142 methodology, the context in which the sound occurs must be taken into consideration when demining the magnitude of the noise impact. In this case, the background noise level at site is dominated by transportation noise and other noise sources typical of an urban location. As such, the context of the site is not expected to affect the BS 4142 predicted magnitude of the noise impact generated.

## Summary of Results

7.6 Table 7 below summarises the results of the plant noise impact assessment.

| Receptor | Specific Noise Level dB, $L_{Aeq,T}$ | Rating Level dB, $L_{Ar,Tr}$ | Maximum Permissible Rating Level dB, $L_{Ar,Tr}$ | Exceedance dB |
|---|---|---|---|---|
| Linley House Offices | 45 | 45 | 47 | -2 |
| Harter Street Offices | 44 | 44 | 47 | -3 |
| Harter Street Residential | 41 | 41 | 43 | -2 |

**Table 7: Summary of results**

# 8 Conclusion

8.1 As seen from the results in Table 7, using the on-site measured noise levels, the calculated noise level at the nearest noise sensitive receptors are below the required criteria in all cases. As such it is expect the requirements of Planning Condition 6 have been met and the Planning Condition can be discharged.

Yours sincerely

For and on behalf of Sol Acoustics Limited



Mike Hartley

Senior Acoustic Consultant

# APPENDIX A
# Glossary of Acoustic Terms

| Term | Abbreviation | Description |
|---|---|---|
| Decibel | dB | A scale for comparing the ratios of two quantities, including sound pressure and sound power. |
| A-weighting | dB(A) | The unit of sound level, weighted according to the A-scale, which takes into account the change in sensitivity of the human ear at varying frequencies. |
| Sound Pressure Level | $L_{pA}$ | A measure of the sound pressure at a particular location. Typically expressed in dB(A) referenced to $2x10^{-5}$ Pascals. |
| Equivalent Continuous Sound Level | $L_{Aeq,T}$ | The steady level of sound over a prescribed period of time which would contain the same total sound energy as the actual fluctuating noise under consideration in the same period of time. |
| Statistical Sound Levels | $L_{A10}$ and $L_{A90}$ | The level of noise exceeded for a percentage of the time period being sampled, namely 10% or 90% respectively. |
| Background Sound Level | $L_{A90,T}$ | The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of the time period being sampled. |
| Maximum Sound Level | $L_{Amax}$ | The maximum sound or noise level determined with instrumentation set to either a fast time weighting, $L_{AFmax}$, or a slow time weighting, $L_{Asmax}$, as occurring during the time period being sampled. |
| Sound Power Level | $L_{wA}$ | A measure of the total sound energy radiated from a source. Like sound pressure levels, this is also expressed in dB(A) terms, but it is referenced to $1 \times 10^{-12}$ W. |
| Broadband | | Sound sampled over a wide range of frequencies. |
| Narrow band | | Sound sampled over a specific, restricted frequency range. Used to ascertain the amplitude and significant of individual, audible tones, and to assist in identifying particular sources of noise within a complex, multi-source soundscape environment. |
| Ambient Sound | $L_{eq,T}$ | Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources, both near and far. |
| Specific Sound Level | $L_{eq,T}$ | The Equivalent Continuous A-Weighted Sound Level at an assessment position produced by a specific sound over a given reference time interval, *Tr* |
| Rating Level | $L_{Ar,Tr}$ | The Specific Sound Level plus any adjustment for the acoustic characteristic features of the noise (e.g. intermittency, tones etc.). |
| Residual Noise | $L_{Aeq,T}$ | The ambient sound remaining at given position in a given situation, when the specific sound source is suppressed to such an extent that it no longer contributes to the ambient sound. |
| Sound Reduction Index | *SRI* | The reduction in sound energy when transmitted through a panel or similar planar element, typically used in relation to single octave or one-third octave frequency band values. |
| Weighted Sound Reduction Index | $R_w$ | The Sound Reduction Index expressed as a single figure, as expressed against a reference curve. |
| Dynamic Insertion Loss | *DIL* | Reduction in acoustic energy resulting from the insertion of a noise control element (e.g. an attenuator, acoustic enclosure etc.). |
| Free Field | | Noise measuring location that is free from the presence of sound reflecting objects (except the ground), usually taken to mean being at least 3.5 metres distance from reflective surface(s) or greater. |

# APPENDIX B
# NOISE SURVEY DETAILS AND SUMMARY RESULTS

## Location

117-119 Portland Street, Manchester M1 6ED

## Personnel

Chris Downing MMath, AMIOA – Sol Acoustics

Ben Sun Wai MEng – Sol Acoustics

Mike Hartley MEng MIOA – Sol Acoustics

## Instrumentation

01dB Cube Sound level meter (serial no. 11348)

01dB Pre22 Microphone preamplifier (serial no. 1805362)

GRAS 40CD Microphone capsule (serial no. 260642)

01dB CAL 21 acoustic calibrator (serial no. 34675320)

## Methodology

Before and after the measurements the noise monitoring equipment was calibrated to an accuracy of ±0.4dB using the Cal 21 Calibrator. The calibrator produces a sound pressure level of 94dB re 2 x $10^{-5}$ Pa @ 1kHz.