

Charlotte House Manchester

Condition 5 Discharge Report

31310/RP-1

1 March 2024

For:
Charlotte House Limited
c/o LDM Group
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London
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Hann Tucker Associates

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Internal Noise Level Test Report 31310/RP-1

Document Control

Rev	Date	Comment	Prepared by	Checked by	Authorised by
0	01/03/2024	-			
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1.0 Introduction

A change of use residential development has been constructed at Charlotte House, Manchester. The development is subject to various conditions of planning and Condition 5 requires the contractor to demonstrate that internal noise levels within apartments are compliant with Manchester City Council (MMC) internal noise limits.

Hann Tucker Associates has therefore been commissioned to carry out internal noise measurements within a selection of apartments to assist in the discharge of Condition 5.

Our findings are presented herein.

2.0 Objectives

To undertake an automated noise level survey within 2No available apartments and attended sample measurements in available apartments to ascertain L_{Aeq} and L_{Amax} internal noise levels.

To compare the results against the requirements of Planning Condition 5 and comment upon the acceptability.

3.0 Planning Condition 5

Planning Condition 5 states:

“5) The residential units within the developmeny shall meet the following internal noise criteria:

- *Bedrooms (night time – 23.00 – 07.00) 30 dB L_{Aeq} (individual noise events shall not exceed 45 dB $L_{Amax,F}$ by more than 15 times)*
- *Living Rooms (daytime – 07.00 – 23.00) 35 dB L_{Aeq}*

In order to achieve this, the development hereby approved shall be carried out in accordance with the recommendations within the submitted Acoustic Assessment Report by Hann Tucker Associates, dated 24 November 2015, ref. 21284/AAR/Rev2

Upon completion of the development and before any of the apartments are first occupied, a verification report will be required to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic consultant's report and confirms that the internal noise levels as above are being achieved with the mechanical ventilation running and the windows closed.



Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the noise criteria. These measures shall be approved in writing the City Council as Local Planning Authority and the development shall be implemented in full accordance with the approved details before the development is first occupied.

Reason – To ensure an acceptable development in the interests of residential amenity, pursuant to policy DM1 of the Core Strategy.

As such, internal ambient noise levels must adhere to the criteria stipulated in BS 8233:2014, as shown in the table below.

Activity	Location	Desirable Ambient Criteria	
		07:00 – 23:00	23:00 – 07:00
Resting	Living Rooms	35 dB $L_{Aeq,16hour}$	-
Sleeping (Daytime Resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$ 45 dB $L_{AFmax,2min}$

*Exceeded no more than 15No times during the night

4.0 Internal Ambient Noise Level Commissioning

4.1 Automated Measurement Locations

Automated sound level loggers were installed within 5No apartment bedroom, as described below. The logger was set up to continuously record L_{Aeq} and L_{Amax} noise levels over 15-minute periods over a period of not less than 24 hours.

Test Ref.	Apartment	Room	Test Dates
IANL1	Third Floor	Bedroom	20 February 2024 – 21 February 2024
IANL2	Penthouse	Bedroom	20 February 2024 – 21 February 2024

4.2 Equipment

The equipment used, as detailed below, was calibrated prior to and on completion of the survey. No significant calibration drift occurred (not more than 0.1 dB).

Location	Description	Manufacturer	Type	Serial Number	Calibration
IANL1	Type 1 Precision Sound Level Meter	Larson Davis	LxT	5104	Calibration on 30/05/2023
IANL2	Type 1 Precision Sound Level Meter	Larson Davis	LxT	4569	Calibration on 30/05/2023



Location	Description	Manufacturer	Type	Serial Number	Calibration
IANL1-2	Calibrator	Larson Davis	Cal200	3083	Calibration on 27/03/2023

4.3 Site Conditions

4.3.1 Automated Survey

The following pre-requisites were requests from site in order to obtain representative measurements results:-

- Test rooms to be locked off for the duration of the measurement (no access for trades).
- Windows to be closed.
- Mechanical ventilation systems (understood to be) balanced and operating at design duty.

The test rooms were fully finished and furnished.

4.4 Survey Results & Discussion

4.4.1 Automated

The results of the internal noise level surveys have been plotted on Time History Graphs 31310/TH1 to 31310/TH2 enclosed. These graphs presenting the 15 minute A-weighted (dBA) L_{eq} , L_{90} and L_{max} levels at each measurement position.

The table below summarises the highest $L_{Aeq,16hr}$ (daytime), $L_{Aeq,8hr}$ (night-time) measurements and the 15th highest $L_{AFmax,2min}$ (night-time) noise levels at each measurement position. The Manchester City Council (MCC) noise level limit is also presented to judge compliance.

Test Ref	Measurement Location	Parameter	Average Measured Weekend Noise Level (dB)	MCC Limit (dB)	Compliance?
IANL1	Third Floor Bedroom	Daytime $L_{Aeq,16hr}$	30	35	✓
		Night-time $L_{Aeq,8hr}$	27	30	✓
		Night-time L_{Amax}	44	45	✓
IANL2	Penthouse Bedroom	Daytime $L_{Aeq,16hr}$	35	35	✓
		Night-time $L_{Aeq,8hr}$	32	30	✗
		Night-time L_{Amax}	44	45	✓



5.0 Discussion

5.1 General Discussion

Based on the measured results, the levels of internal noise associated with environmental noise break-in and MVHR noise complied with the MCC requirements in all rooms tested with the exception of the Penthouse Bedroom which failed by 2 dB, on average. Further discussion in relation to the Penthouse Bedroom is provided in Section 5.2.

5.2 IANL 2 – Penthouse Bedroom

On the basis of the data recorded it is apparent that the Penthouse Bedroom has failed to achieve the night-time criteria by 2 dB. However, on interrogation of the data this appears to be due to elevated noise levels during the hours of 05:00 and 07:00 on Wednesday 21 February 2024. It is assumed that this is likely due to heavy rain during this period, weather reports concur with this observation, suggesting at least 5mm of rain fell between the hours of 04:00 and 07:00. The presence of roof lights was also noted in the vicinity of the bedroom space which will have likely increased the noise due to heavy rain. These can be seen in the following image taken on site.



Image showing Position IANL2 and nearby roof lights



Further interrogation of the data also reveals a cyclical increase in the noise level apparent during the night-time hours of the survey. Upon inspection of the spectra of these increases and consideration of the open plan nature of the penthouse, we suspect that these are due to the cyclical operation of the fridge or freezer.

However, removing the data unduly affected by the heavy rain, the average results are as follows:

Test Ref	Measurement Location	Parameter	Average Measured Weekend Noise Level (dB)	MCC Limit (dB)	Compliance?
IANL2	Penthouse Bedroom	Daytime $L_{Aeq,16hr}$	34	35	✓
		Night-time $L_{Aeq,8hr}$	30	30	✓
		Night-time L_{Amax}	44	45	✓

6.0 Conclusion

In conclusion, allowing for the removal of erroneous data during the unattended survey all spaces appear to achieve the criteria of Manchester City Council. As such, we feel that it is suitable to discharge Planning Condition 5.



Appendix A

(Including 2No. Graphs)

31310/TH1 to 31310/TH2

Charlotte House

Position 1

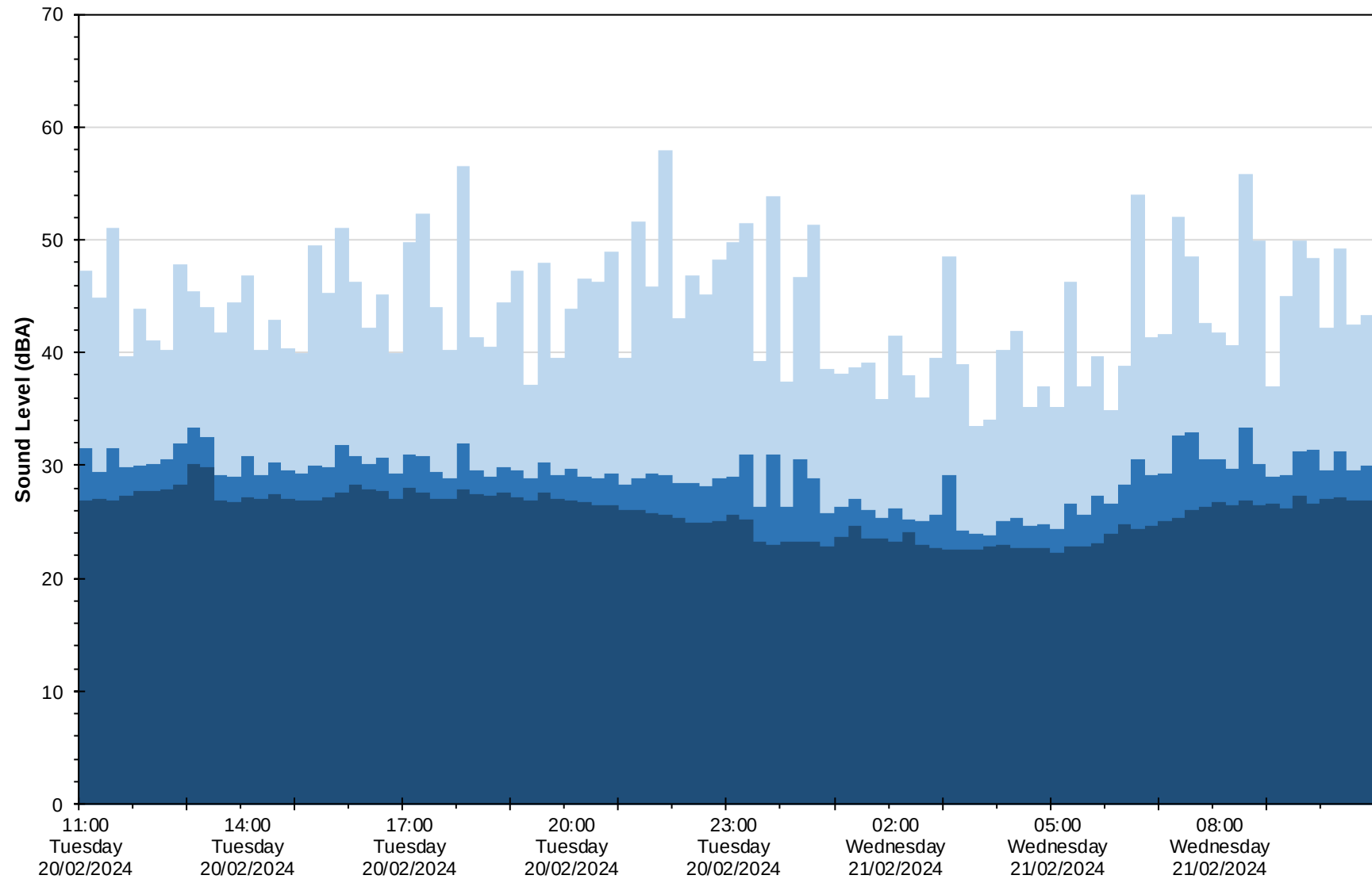
L_{eq} , L_{max} and L_{90} Noise Levels

Tuesday 20 February 2024 to Wednesday 21 February 2024

LA_{max}

LA_{eq}

LA₉₀



Date and Time

31310/TH1

Charlotte House

Position 2

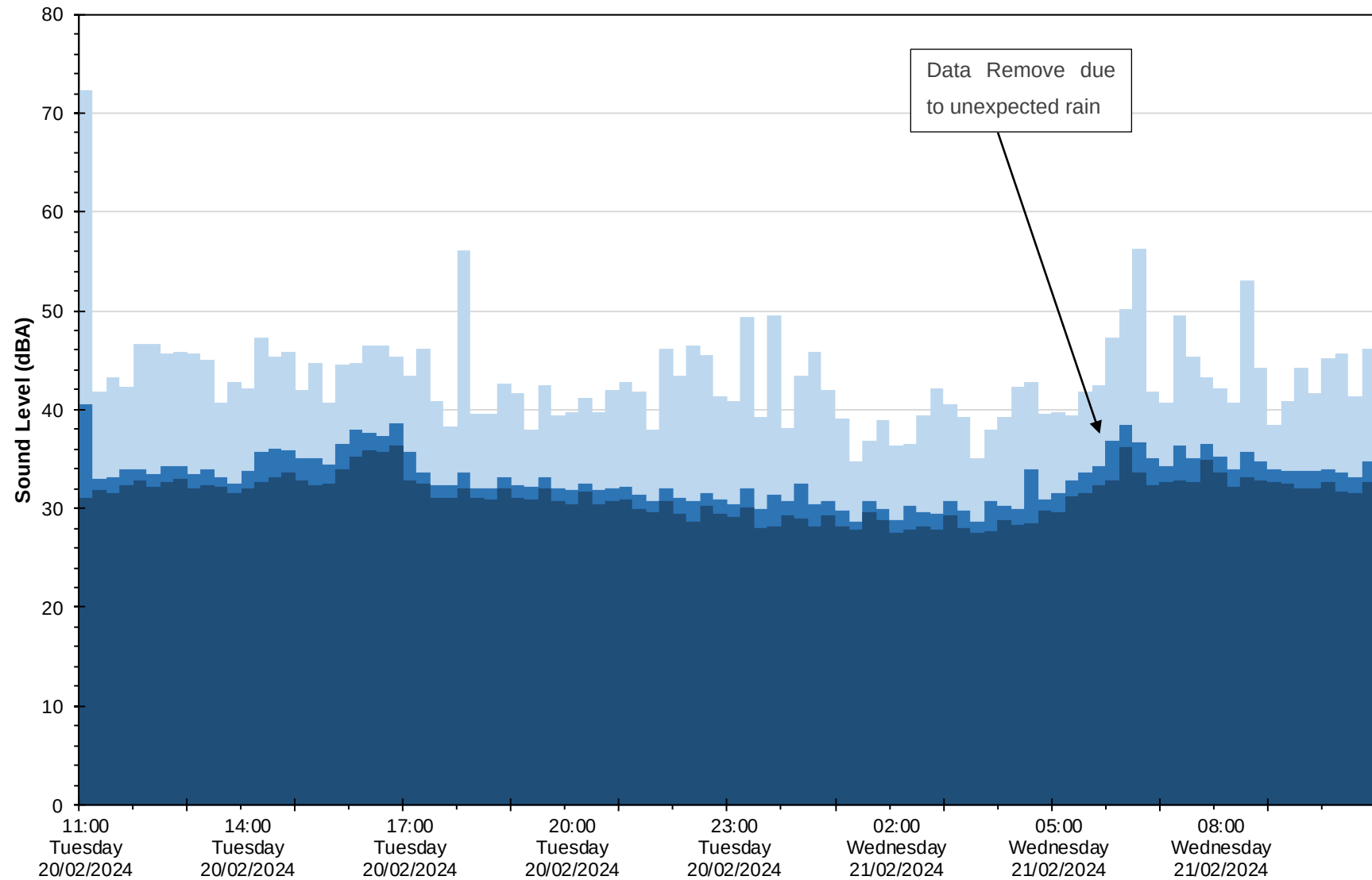
L_{eq} , L_{max} and L_{90} Noise Levels

Tuesday 20 February 2024 to Wednesday 21 February 2024

■ L_{Amax}

■ L_{Aeq}

■ L_{A90}



Date and Time

31310/TH2