New Cathedral Street Manchester

Plant Sound
Assessment Report
1565/PSA1

15 May 2026

For:

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1.0 Introduction

Lighthouse Acoustics has been appointed by Jones Lang LaSalle Limited to undertake a detailed sound survey at New Cathedral Street, Manchester and to review the impact of the proposed rooftop enclosure works on the rooftop atmospheric plant noise emission levels.

The survey methodology, results and assessment are presented in this report.

2.0 Objectives

To visit site to undertake a detailed sound survey in order to establish existing rooftop atmospheric plant noise emission levels at the nearest noise sensitive receptor.

Whilst on-site, to undertake a visual inspection of the existing rooftop plant items.

To review the impact of the proposed rooftop enclosure works on the rooftop atmospheric plant noise emission levels.

To provide comments on the findings and propose mitigation measures where required in order to minimise any potential increases at the nearest noise sensitive receptor.

3.0 Site Description

New Cathedral Street comprises a 4 storey detached building containing retail units, storage, loading bay and rooftop plant areas. The site is bound by Cateaton Street to the north, New Cathedral Street to the east, St Mary's Gate to the south with Deansgate (A56) and No.1 Deansgate to the west.

The nearest noise sensitive receptor is understood to be residential properties at No. 1 Deansgate which is situated to the west of the site.

The existing roof plant items comprise numerous condenser units, chiller units, extract fans and AHUs.

The site plan below indicates the extent of the site and the surrounding environment.



Site plan indicating the extent of the site and the surrounding environment

4.0 Environmental Sound Survey

4.1 Measurements

Automated environmental sound measurements were undertaken from 12:00 hours on Tuesday 3 March 2026 to 11:00 hours on Thursday 5 March 2026. During this period the L_{Amax}, L_{Aeq} and L_{A90} sound pressure levels were measured continuously over 15 minute periods.

4.2 Weather Conditions

At the start of the survey period the wind conditions were calm (<1m/s) and the sky was scattered cloud. There was no rainfall and road surfaces were dry. The temperature was approximately 9°C.

At the end of the survey period the wind conditions were calm (<1m/s) and the sky was broken cloud. There was no rainfall and road surfaces were dry. The temperature was approximately 11°C.

Based on publicly available weather data for the survey period it is understood that weather conditions remained similar for the duration of the survey with no periods of significant rainfall or strong breezes. The weather conditions during the survey period are therefore considered to be suitable for undertaking measurements of sound levels.

4.3 Measurement Position

Environmental sound levels were measured at a single position on-site as described in the table below.

Position	Description
A	Microphone situated at roof level along the west roof edge at 1.5m above roof level looking toward No.1 Deansgate.

The measurement position is shown on the site plan below.



Site plan showing measurement positions

Measurement Position A was selected in order to assess typical environmental sound levels incident upon the facades of the nearest noise sensitive receptor to the west (No. 1 Deansgate).

4.4 Equipment

The following equipment was used to undertake the environmental sound survey.

Equipment	Manufacturer	Model	Serial No.	Calibration Date
Class 1 Sound Level Meter	Casella	633C	0721320	06/11/2025
Preamplifier	Casella	495	001414	06/11/2025
Microphone	Casella	251	1025	06/11/2025
Class 1 Sound Calibrator	Casella	120/1	3864878	05/11/2025
Environmental Noise Kit	Casella	6847	-	-
Microphone Extension Cable	Casella	C6717/5	-	-
Weather Protection System	Casella	6737	-	-

Field calibration checks were performed on the sound level meters prior to and on completion of the survey and were found to be within acceptable tolerance limits.

4.5 Results

4.5.1 Time History Graph

The results of the environmental sound survey are presented on Time History Graph 1565/THG1 enclosed at the rear of the report.

4.5.2 L_{Aeq} Ambient Sound Levels

The typical representative daytime and night-time $L_{Aeq,15min}$ ambient sound levels measured at each position during the survey period are detailed in the table below.

Position	Typical Representative $L_{Aeq,15min}$ Ambient Sound Levels (dB)	
	Daytime (07:00–23:00)	Night-time (23:00–07:00)
A	59	54

4.5.3 Discussion of Sound Climate

At the start and end of the survey period the dominant sound sources were noted to be existing building services plant from the rooftop. Passing pedestrians and road traffic along the surrounding road network also contributed towards the measured sound climate.

Whilst we are unable to comment on dominant sound sources or individual sound events during the survey period, based on the surrounding environment it is likely that existing building services plant remained the dominant sound source.

5.0 Atmospheric Plant Sound Emissions

The existing roof plant items comprise numerous condenser units, chiller units, extract fans and AHUs as detailed in the Plant Schedule 1565/PS1 enclosed at the rear of the report.

The locations of the various plant items are indicated on the following drawing.

Author	Drawing No.	Revision	Date
JLL	653-001	-	08/12/2025

A visual inspection of the existing rooftop plant items confirmed that the above Plant Schedule and drawing are accurate.

All existing roof plant items are currently enclosed by architectural louvred walls and roof which provide visual screening but no acoustic attenuation.

The proposed rooftop enclosure works will result in all roof plant items being covered with a solid pitched roof as indicated on the following drawings.

Author	Drawing No.	Revision	Date
JLL	653-003	-	08/12/2025
	653-010	-	11/12/2025

Whilst the solid pitched roof will reduce atmospheric plant noise emissions vertically, it will result in higher noise levels being emitted horizontally from the architectural louvred walls (up to +6dB).

6.0 Mitigation Measures

In order to mitigate against this increase upon the nearest noise sensitive receptor, any existing architectural louvred walls facing No.1 Deansgate should be replaced with acoustic louvred walls.

The acoustic louvred walls shall provide the following minimum sound transmission loss performance when tested in accordance with BS EN ISO 10140-2:2010.

Sound Transmission Loss (dB) at Octave Band Centre Frequency (Hz)							
63	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
5	4	5	6	9	13	14	13

The acoustic louvres shall typically have a depth of 100mm and be constructed from galvanised/plastic coated steel or aluminium with perforated galvanised/plastic coated steel or aluminium to the lower blade face.

The sound absorbent infill shall have a density of at least 45kg/m^3. It should be non-hygroscopic, incombustible, chemically inert and be faced with a protective membrane to prevent fibre migration.

All joints between the panels of the acoustic louvres and at junctions between the acoustic louvred walls and adjacent structures shall be made good and sealed with non-setting mastic.

The acoustic louvred walls shall be designed and constructed to withstand appropriate wind and snow loads and shall be suitably weatherproofed.

Proposals should be forwarded for review prior to installation.

7.0 Conclusion

A detailed sound survey has been undertaken in order to establish existing rooftop atmospheric plant noise emission levels at the nearest noise sensitive receptor.

A visual inspection of the existing rooftop plant items has been undertaken.

The impact of the proposed rooftop enclosure works on the rooftop atmospheric plant noise emission levels has been reviewed.

Mitigation measures have been proposed where required in order to minimise any potential increases at the nearest noise sensitive receptor.



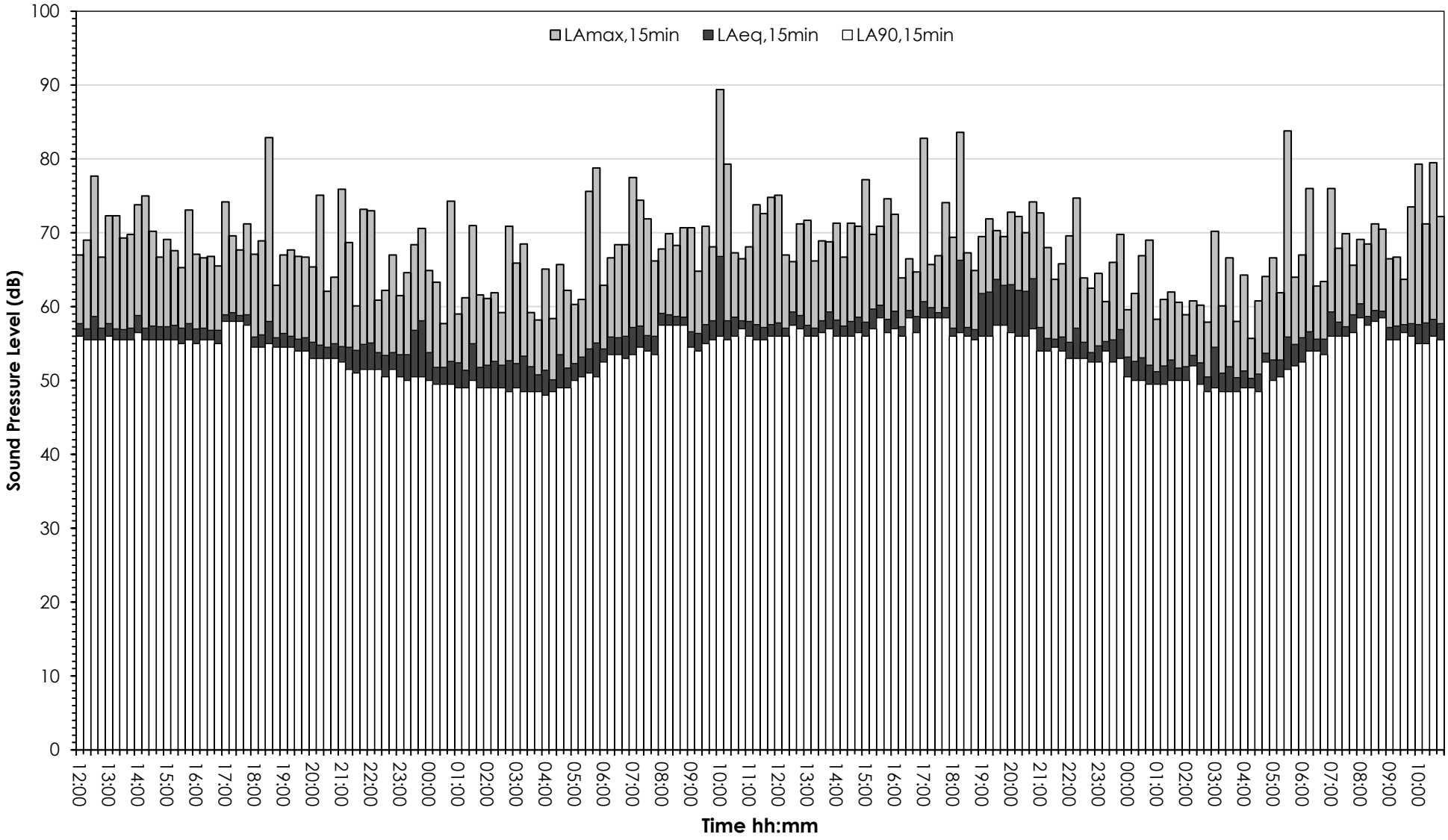
Robin Wood
LIGHTHOUSE ACOUSTICS

1565/THG1

New Cathedral Street, Manchester

Time History Graph - Tuesday 3 March 2026 to Thursday 5 March 2026

$L_{Amax,15min}$, $L_{Aeq,15min}$ & $L_{A90,15min}$ Noise Levels at Position A



Plant description	Location	Manufacturer/model	Plant Ref	Quantity
Landlord Roof plant				
Loading bay extract fans	Plant deck	Woods	CEF P01 - P04	4
Service corridor extract fan	Plant deck	Woods	EF P03	1
Lift motor room extract fans	Outside of plant screen	Nuaire	EF P01 & P02	2
Fire stair smoke vent	Exhaust outside of plant area	Woods	EP 05 & 06	2
Fire stair smoke vent	Exhaust outside of plant area	Woods	EP 07 & 08	2
Harvey Nichols Roof Plant				
Comms room ac	Plant deck	Panasonic CU-P112C1XP	CD-P-52	1
Chillers	Plant deck	Climaveneta FOCS2/K 2652	CH 01 & 02	2
Heating and hot water plant	Plant deck	Boilers were: 3No Wellman Robey Optimagas 465 DHW were: 2No Andrews 32/143	B01,02,03	
Back of store ahu	Plant deck	McQuay	AHU-P-53 supply fan (AHU 3)	1
			AHU-P-53 extract fan (AHU 3)	1
Retail sales floor ahu's	Plant deck	McQuay	AHU-P-51 supply fan (AHU 1)	1
			AHU-P-51 extract fan (AHU 1)	1
			AHU-P-52 supply fan (AHU 2)	1
			AHU-P-52 extract fan (AHU 2)	1
WC extract twinfan	Plant deck	Nuaire	EF-P-51	1
Kitchen supply ahu	Plant deck	McQuay	AHU-P-54 (AHU 4)	1
Restaurant Extract Fan	Plant deck	Woods	EF-P-52	1
Kitchen extract fans	Plant deck	Woods	EF-P-53	1
Lift motor room extract fans	Plant deck	Nuaire	EF-01 & 02	2
			EF-03 & 04	2
			EF-R-51	1
			EF-P-57	1
Retail tenants roof plant				
U1 Paul Smith condenser	Plant deck	Daikin RXM42M2V1B		1
U1 Paul Smith condenser	Plant deck	Daikin RZQG71L8Y1B		1
U1 Paul Smith condenser	Plant deck	Daikin RZQG125L8Y1B		1
U2 Represent condenser	Plant deck	Toshiba RAV-GM901ATP-E		1
U2 Represent condenser	Plant deck	Toshiba RAVGM1601ATP-E		1
U2 Represent condenser	Plant deck	Mitsubishi PUZ-ZM71VHA		1
U2 Represent condenser	Plant deck	Toshiba GM2241AT8-E1		1
U2 Represent AHU	Plant deck			2 (S+E)
U3 Canada Goose ahu	Plant deck	VES		2 (S+E)
U3 Canada Goose condenser	Plant deck	Mitsubishi PUZ-ZM125YKA2		1
U3 Canada Goose condenser	Plant deck	Mitsubishi PUZ-ZM125YKA2		1
U3 Canada Goose condenser	Plant deck	Daikin RXYSA6A7Y1B		1
U3 Canada Goose condenser	Plant deck	Daikin RZAG50A2V1B		1
U4 Ralph Lauren AHU	Internal - ducted to roof	Toshiba SM1406BTP		1
Unit U4 (Ralph Lauren) fan	Internal - ducted to roof	Vent Axia ACM250		1
U5 (Alo Yoga) AHU	Plant deck	VES		2 (S+E)
U5 condensers	Plant deck	Daikin RZASG125NV1		1
U5 condensers	Plant deck	Daikin RZASG71M2V1B		1
U5 condensers	Plant deck	Daikin RZA2250D7Y1B		1
U5 condensers	Plant deck	Daikin RZAG125N7Y1B		1
U6 Arcteryx	Internal S+E ducted to roof	Mitsubishi Lossnay		3
U6 Condensers	Plant deck	Mitsubishi PURY-P250YNW-A2		1
U6 Condensers	Plant deck	Mitsubishi PURY-P300YNW-A2		1
U6 Condensers	Plant deck	Mitsubishi PURY-P300YNW-A2		1
U7 Reiss ahu	Internal S+E - ducted to roof	Unknown		2 (S+E)
U7 Condensers	Plant deck	Daikin RZQSG140L7Y1B		1
U7 Condensers	Plant deck	Daikin RZQSG140L7Y1B		1
U7 Condensers	Plant deck	Daikin RZQSG125L7Y1B		1
U7 Condensers	Plant deck	Daikin RZQSG140L7Y1B		1
U7 Condensers	Plant deck	Daikin RZQSG140L7Y1B		1
U7 Condensers	Plant deck	Daikin RZQSG140L7Y1B		1
Store 1 Hugo Bos AHU	Plant deck	Exhausto ahu		2 (S+E)
Store 1 Condenser	Plant deck	Daikin RYMQ12T7Y1B		3
Store 1 Condenser	Plant deck	Daikin RYMQ16T7Y1B		1
Store 1 Condenser	Plant deck	Daikin RXM50M3V1B9		1
Store 1 Condenser	Plant deck	Toshiba RAV-GP561ATP-E		1
Store 1 Condenser	Plant deck	Toshiba RAV-GM1401ATP-E		1
Store 1 Condenser	Plant deck	Toshiba RAV-GM1401ATP-E		1
Zara AHU	Plant deck	ATC RC 01-04		4
Zara condensers	Plant deck	HITECSA UXCBZ - 3002		3
Zara condensers	Plant deck	HITECSA UXCBZ - 3502		2
Zara condensers	Plant deck	Mitsubishi PUHYP250YJM-A		1
Zara condensers	Plant deck	Mitsubishi PUHYP250YJM-A		1
Zara condensers	Plant deck	Mitsubishi PUHYP400YJM-A		1
Zara condensers	Plant deck	Mitsubishi PUHYP400YJM-A		1
Zara condensers	Plant deck	Mitsubishi PUHYP300YJM-A		1