2 Swallow Street
Manchester

Acoustic Planning Report
1415/APR1

11 August 2025

For:

Ideal Homes MCR

LIGHTHOUSE ACOUSTICS

2nd Floor 3 Hardman Square
Spinningfields Manchester M3 3EB

☏ 0161 457 0515 ▪ 07415 151 901
✉ Enquiry@LighthouseAcoustics.co.uk
🌍 www.LighthouseAcoustics.co.uk

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Registered Office: 2nd Floor 3 Hardman Square Spinningfields Manchester M3 3EB
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1.0 Introduction

Lighthouse Acoustics has been appointed by Ideal Homes MCR to undertake an environmental sound survey at 2 Swallow Street, Manchester and to undertake a detailed sound assessment for the proposed development.

The proposed development comprises the change of use of the existing vacant building to form office accommodation at lower ground floor and 14No. flats at lower ground, upper ground, 1st, 2nd and 3rd floors.

The survey methodology, results and assessment for the proposed development are presented in this report.

2.0 Objectives

To establish the Local Authority's acoustic requirements for the proposed development.

To visit site to undertake a detailed environmental sound survey in order to establish existing environmental sound levels at the proposed development.

To undertake a detailed sound assessment for the proposed residential element of the development to establish the acoustic specification for glazing/ventilation elements in order to achieve the acoustic requirements of the Local Authority.

To propose representative background sound levels at the nearest noise sensitive receptors for subsequent use in assessing operational sound from the proposed commercial units in order to comply with the acoustic requirements of the Local Authority.

3.0 Site Description

The proposed residential development is at 2 Swallow Street, Manchester. The site comprises an existing vacant 3 storey detached building.

The site is bound by an access road to the north east, Swallow Street to the south east, Siddall Street to the south west and an access road to the north west.

Existing residential properties are situated to the south west of the site opposite Siddal Street and to the north west of the site opposite the access road.

Stockport Road (A6) is situated approximately 30m to the north east of the site whilst a train line is situated approximately 90m to the south west of the site.

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 Local Authority Requirements

4.1 Residential Developments

With regard to residential developments, Section 3.7.1.1 of the Planning & Noise Technical Guidance document (dated October 2022) produced by Manchester City Council states the following:

> *"The Council has adopted the following noise limits for residential properties:*
>
> - ***Bedrooms (night time - 23.00 - 07.00) 30dB L_{Aeq} (individual noise events should not normally exceed 45dB $L_{Amax,F}$ by more than 10 times)***
> - ***Living Rooms (daytime - 07.00 - 23.00) 35dB L_{Aeq}***
> - ***Gardens and terraces (daytime) 55dB L_{Aeq}"***

4.2 Building Services

With regard to building services, Section 3.7.1.5 of the Planning & Noise Technical Guidance document (dated October 2022) produced by Manchester City Council states the following:

> *"The noise assessment should be based on BS 4142:2014 and any application for fixed plant, equipment or machinery must demonstrate that:*

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."

5.0 Environmental Sound Survey

5.1 Measurements

Automated environmental sound measurements were undertaken from 11:00 hours on Thursday 24 July 2025 to 11:00 hours on Friday 25 July 2025. During this period the L_{Amax}, L_{Aeq} and L_{A90} sound pressure levels were measured continuously over 15 minute periods along with the corresponding octave band sound pressure levels.

5.2 Weather Conditions

At the start of the survey period there was a light north westerly breeze (<3m/s) and the sky was overcast. There was no rainfall and road surfaces were dry. The temperature was approximately 19°C.

At the end of the survey period there was a light westerly breeze (<3m/s) and the sky was scattered cloud. There was no rainfall and road surfaces were dry. The temperature was approximately 20°C.

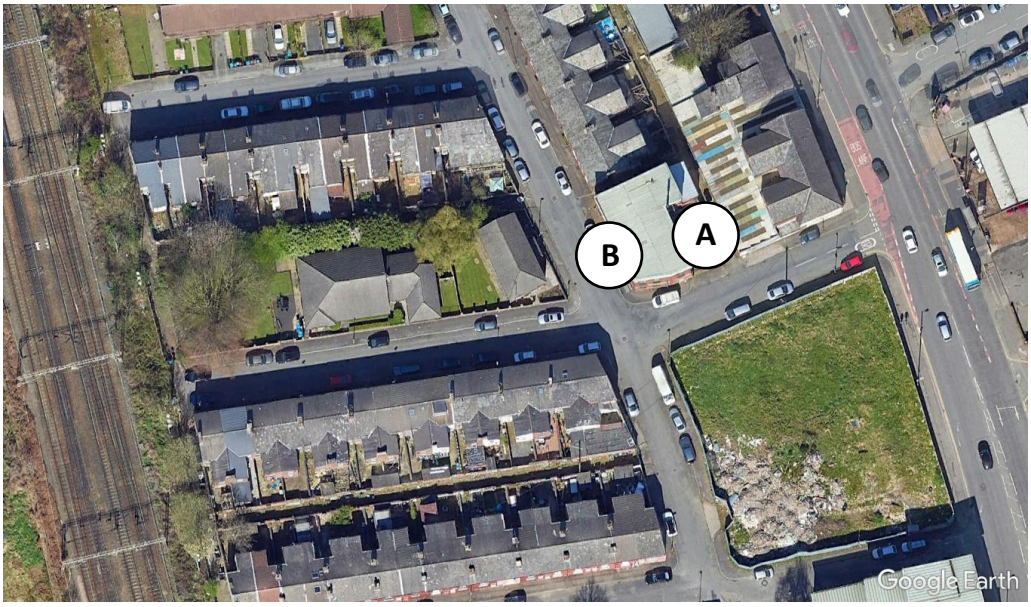
Based on publicly available weather data for the survey period we understand that weather conditions remained similar for the duration of the survey with no significant periods of rainfall or strong breezes. The weather conditions during the survey period are therefore considered to be suitable for undertaking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

5.3 Measurement Positions

Environmental sound levels were measured at 2No. positions on-site as described in the table below.

Position	Description
A	Microphone at 2nd floor level at 1m from the north east façade of the existing building looking towards Stockport Road.
B	Microphone at 2nd floor level at 1m from the south west façade of the existing building overlooking Swallow Street.

The measurement positions are shown on the site plan below.



Site plan showing measurement positions

The measurement positions were selected in order to assess typical environmental sound levels incident upon the front and rear facades of the proposed development.

5.4 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	07/11/2023
Preamplifier	Casella	495	001414	07/11/2023
Microphone	Casella	251	1025	07/11/2023
Class 1 Sound Level Meter	Casella	633C	0721319	07/11/2023
Preamplifier	Casella	495	001446	07/11/2023
Microphone	Casella	251	1996	07/11/2023
Class 1 Sound Calibrator	Casella	120/1	3864878	31/10/2024
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.

5.5 Results

5.5.1 Time History Graphs

The results of the environmental sound survey are presented on Time History Graphs 1415/THG1 and 1415/THG2 enclosed at the rear of the report. The presented results for Positions A and B have been corrected for reflections from the façade by subtracting 3dB from the measured sound levels in order to obtain free field sound levels.

5.5.2 $L_{Aeq,T}$ Ambient Sound Levels

In order to compare the results of the environmental sound survey with the internal BS 8233: 2014 levels it is necessary to convert the $L_{Aeq,15min}$ sound levels into single figure daytime $L_{Aeq,16hour}$ and night-time $L_{Aeq,8hour}$ sound levels. This has been calculated using the following formula:

$$L_{Aeq,T} = 10\,log_{10}\left(\frac{1}{N}\sum_{i}^{N} 10^{L_{Aeq,15min}{}^{i}/10}\right)$$

The calculated daytime $L_{Aeq,16hour}$ and night-time $L_{Aeq,8hour}$ sound levels at each measurement position are presented in the table below.

Position	Daytime $L_{Aeq,16hour}$ (dB)	Night-time $L_{Aeq,8hour}$ (dB)
A	60	55
B	56	48

The presented results for Positions A and B have been corrected for reflections from the façade by subtracting 3dB from the measured sound levels in order to obtain free field sound levels.

The highest daytime $L_{Aeq,16hour}$ and night-time $L_{Aeq,8hour}$ sound levels at each measurement position are presented in the table below along with the corresponding octave band sound pressure levels.

Position	Period	L_{eq} Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)								dBA
		63	125	250	500	1k	2k	4k	8k	
A	Daytime (16 hour)	64	56	57	56	57	53	47	42	60
	Night-time (8 hour)	57	50	52	51	53	48	38	29	55
B	Daytime (16 hour)	61	58	54	51	50	47	41	34	56
	Night-time (8 hour)	55	52	49	45	43	40	34	25	48

The presented results for Positions A and B have been corrected for reflections from the façade by subtracting 3dB from the measured sound levels in order to obtain free field sound levels.

5.5.3 $L_{Amax,F}$ Sound Level Events

The highest 15No. individual $L_{Amax,F}$ sound level events measured during the night-time period (23:00 to 07:00 hours) over the survey period at each measurement position are detailed in the table below along with the corresponding octave band sound pressure levels.

Position	$L_{max,F}$ Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
A	77	75	80	83	73	68	61	53	80
	74	68	70	66	75	77	75	68	80
	77	64	63	64	74	75	75	66	79
	70	64	62	64	76	74	72	67	77
	80	82	72	75	73	68	63	51	76
	80	74	84	72	69	66	57	59	76
	81	76	72	73	74	66	65	54	76
	79	76	76	73	71	64	58	49	74
	84	77	76	75	71	61	53	46	73
	75	68	66	66	66	68	63	60	71
	73	62	63	63	69	64	50	41	71
	79	68	70	69	67	67	58	54	70
	76	69	69	69	67	68	56	50	69
	80	69	68	67	66	64	57	50	68
	74	64	67	68	66	60	54	46	68

The presented results for Position A have been corrected for reflections from the façade by subtracting 3dB from the measured sound levels in order to obtain free field sound levels.

Position	$L_{max,F}$ Sound Pressure Level (dB) at Octave Band Centre Frequency (Hz)								dBA
	63	125	250	500	1k	2k	4k	8k	
B	90	88	86	71	68	69	62	52	78
	77	71	70	77	76	72	61	48	75
	77	75	74	67	64	62	72	52	73
	77	71	68	64	66	66	60	57	70
	88	86	73	64	65	63	57	52	70
	80	76	71	67	65	61	62	57	68
	68	68	71	65	65	60	52	38	68
	74	76	71	64	64	61	53	46	67
	88	80	71	61	62	58	58	51	67
	74	76	72	62	66	59	52	43	67
	77	81	71	65	64	58	53	44	66
	78	64	60	58	60	63	62	53	66
	74	68	70	65	62	59	53	47	66
	78	72	70	64	62	58	53	45	65
	74	67	70	64	60	60	53	41	65

The presented results for Position B have been corrected for reflections from the façade by subtracting 3dB from the measured sound levels in order to obtain free field sound levels.

5.5.4 $L_{A90,T}$ Background Sound Levels

The lowest representative daytime and night-time $L_{A90,15min}$ background sound levels measured at each position during the survey period are detailed in the table below.

Position	Lowest Representative $L_{A90,15min}$ Background Sound Levels (dB)	
	Daytime	Night-time
A	51	38
B	42	36

The presented results for Positions A and B have been corrected for reflections from the façade by subtracting 3dB from the measured sound levels in order to obtain free field sound levels.

5.6 Discussion of Sound Climate

At the start and end of the survey period the dominant sound source at Position A was noted to be frequent road traffic along Stockport Road (A6).

At the start and end of the survey period the dominant sound sources at Position B were noted to be road traffic from the surrounding road network and occasional train passby's from the trainline to the west.

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 road traffic remained the dominant sound source.

6.0 Detailed Sound Assessment

6.1 Assessment Method

In order to establish the acoustic specification for glazing/ventilation elements required to achieve the internal daytime $L_{Aeq,16hour}$, night-time $L_{Aeq,8hour}$ and night-time $L_{Amax,F}$ requirements an assessment has been undertaken in accordance with the more rigorous calculation method detailed in BS 8233:2014, "Guidance on sound insulation and noise reduction for buildings".

This calculation method takes into account the external sound pressure level, the sound reduction indicies of the façade elements, the area of the facade and the absorption within the room at octave band centre frequencies.

Detailed calculation sheets for living rooms, dining rooms and bedrooms are enclosed at the rear of the report.

6.2 Proposed Development

The assessment has been based on the following drawings.

Author	Drawing No.	Revision	Date
Ollier Smurthwaite Architects	A619_P100C	-	March 2022
	A619_P101	-	March 2022
	A619_P102	-	March 2022
	A619_P103	-	March 2022
	A619_P104	-	March 2022
	A619_P_016	-	March 2022
	A619_P_017	-	March 2022
	A619_P_018	-	March 2022
	A619_P_019	-	March 2022

The proposals include the change of use of the existing vacant building to form office accommodation at lower ground floor and 14No. flats at lower ground, upper ground, 1st, 2nd and 3rd floors.

6.3 Acoustic Requirements

The proposed residential apartments comprise living room/kitchen and bedroom spaces. Based on the requirements of the Local Authority detailed in Section 4.1, the following internal sound limits have been assessed to.

Room Type	07:00 to 23:00	23:00 to 07:00
Living Room/Kitchen	35dB $L_{Aeq,16hour}$	-
Bedroom	35dB $L_{Aeq,16hour}$	30dB $L_{Aeq,8hour}$ 45dB L_{Amax}*

* should not be exceeded more than 15 times per night.

6.4 Room Assumptions

The following typical dimensions and finishes/furnishings have been assumed for the purpose of the assessment.

Room Type	Typical Room Dimensions	Typical Window Area	Typical Room Finishes / Furnishings
Living Room/ Kitchen	6m x 3m x 2.4m	$6m^2$	Wood/vinyl floor, curtains, sofa, table. chairs
Bedroom	4m x 3m x 2.4m	$3m^2$	Carpet & underlay, curtains, bed

Should the proposed dimensions/finishes/furnishings differ from those detailed above a re-assessment may be required.

6.5 Construction Proposals

It is understood that the external walls and roof of the dwellings will comprise the following typical constructions.

Element	Typical Construction
External Walls	Brickwork with cavity, insulation and internal plasterboard lining
Roof	Tiles with insulation in void and plasterboard ceiling

The following typical Sound Reduction Indicies have been assumed for the various elements.

Element	Sound Reduction Index (dB) at Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
External Walls	32	40	44	45	51	56	56	56
Roof	20	28	34	40	45	49	49	49

6.6 Glazing Specifications

In order to achieve the internal daytime and night-time requirements the glazing system as a whole including glass, frame, seals and openings shall provide the following minimum sound insulation performance when tested in accordance with BS EN ISO 10140-2: 2010.

Facade	Room Type	Sound Reduction Index (dB) at Octave Band Centre Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
East & South	Living Room/ Kitchen	21	25	22	33	40	43	44	48
	Bedroom	21	25	22	33	40	43	44	48
North & West	Living Room/ Kitchen	20	24	20	25	34	37	35	39
	Bedroom	21	25	22	33	40	43	44	48

The table below presents typical configurations and R_w sound insulation values which may be expected to achieve the sound insulation performance specified above.

Facade	Room Type	Typical R_w Sound Insulation Value (dB)	Typical Configuration
East & South	Living Room/ Kitchen	35	10mm/16mm/4mm
	Bedroom	35	10mm/16mm/4mm
North & West	Living Room/ Kitchen	30	6mm/16mm/4mm
	Bedroom	35	10mm/16mm/4mm

Acoustic test data for the proposed glazing systems should be forwarded for review.

6.7 Ventilation Provision

6.7.1 Background Ventilation

In order to achieve the internal daytime and night-time requirements openable windows must remain closed. Background ventilation shall therefore be provided by ventilators in the building façade and shall provide the following minimum

element normalised level differences in the open position when tested in accordance with BS EN ISO 10140-2: 2010.

Facade	Room Type	Element Normalised Level Difference, $D_{n,e}$ (dB) in Open Position at Octave Band Centre Frequency (Hz)							
		63	125	250	500	1k	2k	4k	8k
East & South	Living Room/ Kitchen	27	33	39	39	43	50	50	50
	Bedroom	27	33	39	39	43	50	50	50
North & West	Living Room/ Kitchen	27	33	39	39	43	50	50	50
	Bedroom	27	33	39	39	43	50	50	50

Should more than one ventilator be required per room the above element normalised level differences shall be increased by the following values:

Number of Ventilators Required Per Room	Additional Performance Required Per Ventilator (dB)
1	0
2	+3
3	+5
4	+6

The table below presents typical configurations and $D_{n,e,w}$ sound insulation values which may be expected to achieve the sound insulation performance specified above.

Facade	Room Type	Typical Open $D_{n,e,w}$ Sound Insulation Value (dB)	Typical Configuration
East & South	Living Room/ Kitchen	40	Acoustic Window Ventilators (e.g. Greenwood EAR42W
	Bedroom	40	Acoustic Window Ventilators (e.g. Greenwood EAR42W
North & West	Living Room/ Kitchen	40	Acoustic Window Ventilators (e.g. Greenwood EAR42W
	Bedroom	40	Acoustic Window Ventilators (e.g. Greenwood EAR42W

Acoustic test data for the proposed ventilators should be forwarded for review.

Should acoustically treated forced mechanical ventilation be considered to provide continuous background ventilation, this may be in the form of separate fans serving individual rooms or a larger system which provides whole house ventilation.

The system should achieve noise levels of L_{Aeq} 30dB in living rooms and bedrooms and L_{Aeq} 35dB in kitchens and bathrooms where providing continuous background ventilation.

A mechanical services engineer should be consulted to ensure that a suitable system is proposed. Detailed proposals should be forwarded for review acoustically.

6.7.2 Rapid/Summer Cooling Ventilation

In addition to background ventilation Manchester City Council require rapid/summer cooling ventilation in order to minimize the need for occupants to open windows during hot summer days.

In order to provide this, the acoustically treated forced mechanical ventilation should feature a user controllable 'boost' function which delivers increased air flow at the occupants discretion.

A mechanical services engineer should be consulted to ensure that a suitable system is proposed. Detailed proposals should be forwarded for review acoustically.

6.7.3 Purge Ventilation

Purge ventilation will be provided via openable windows at the occupants discretion. As such, the internal daytime and night-time requirements may potentially be exceeded during purge ventilation conditions. It is understood that this method of providing purge ventilation is deemed acceptable by Manchester City Council.

7.0 Mechanical Ventilation

Proposals for the mechanical ventilation systems are not known at this stage of the development. As such, it is not possible to assess atmospheric sound emissions from the proposed mechanical ventilation systems to the nearest noise sensitive receptors.

Once details for the proposed mechanical ventilation systems are known, an assessment of atmospheric sound emissions from the proposed mechanical ventilation systems to the nearest noise sensitive receptors should be undertaken. This will determine whether any attenuation measures are required in order to achieve the acoustic requirements of the Local Authority.

The assessment should be undertaken in accordance with BS 4142:2014 and be assessed against the lowest representative daytime and night-time $L_{A90,15min}$ background sound levels measured at each position during the survey period as detailed in the table below.

Nearest Noise Sensitive Receptor	Lowest Representative $L_{A90,15min}$ Background Sound Levels (dB)	
	Daytime	Night-time
East & South	51	38
North & West	42	36

8.0 Conclusions

The Local Authority's acoustic requirements for the proposed development have been established.

A detailed environmental sound survey has been undertaken in order to establish existing environmental sound levels at the proposed development.

A detailed environmental sound assessment for the proposed residential element of the development has been undertaken and acoustic specifications for glazing/ventilation elements have been provided in order to achieve the requirements of the Local Authority.

Representative background sound levels have been proposed at the nearest noise sensitive receptors for subsequent use in assessing atmospheric sound emissions from mechanical ventilation systems in order to comply with the acoustic requirements of the Local Authority.

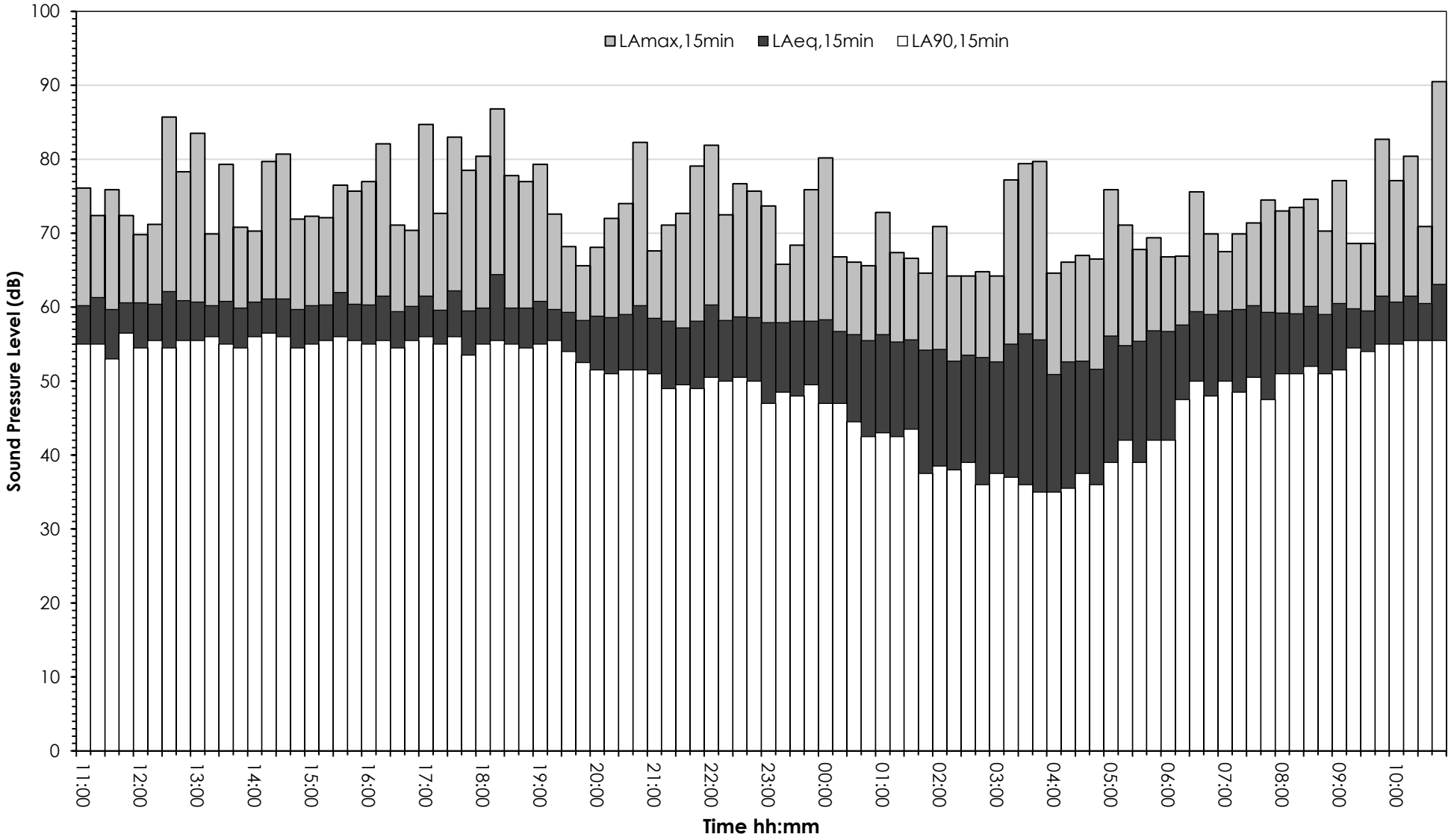


1415/THG1

2 Swallow Street, Manchester

Time History Graph - Thursday 24 July 2025 to Friday 25 July 2025

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



1415/THG2

2 Swallow Street, Manchester

Time History Graph - Thursday 24 July 2025 to Friday 25 July 2025

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

