CIS Tower Manchester

Environmental Noise Survey and Noise Impact Assessment Report

31536/NIA

11 April 2025

For:

Devonshire (CIS Tower) Limited
c/o Lenrose Investments Limited
67 Grosvenor Street
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Document Control

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1.0 Introduction

Proposals seek to refurbish the existing Grade II CIS Tower on Miller Street in Manchester by replacing the existing single glazed façade system, refurbishing existing office floors and creating retail/leisure units in the basement and on ground floor level, as well as a restaurant on the upper most floor. A new build extension to the podium is also proposed to incorporate additional office space, external terraces and a plant deck.

Hann Tucker Associates has therefore been commissioned to assess the potential noise impact the operation of the development may have on nearby existing noise sensitive receptors.

This report presents the noise impact assessment and our advice on further mitigation measures, where necessary.

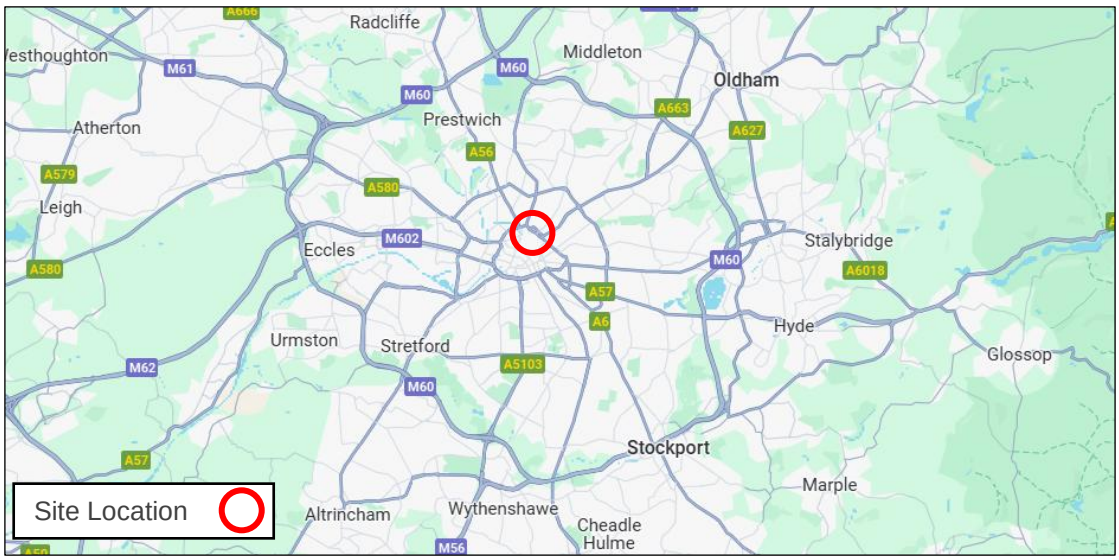
2.0 Acoustic Terminology

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

3.0 Site Description

3.1 Location

The proposed development is located on Miller Street in Manchester city centre and falls under the jurisdiction of Manchester City Council. See site location below.

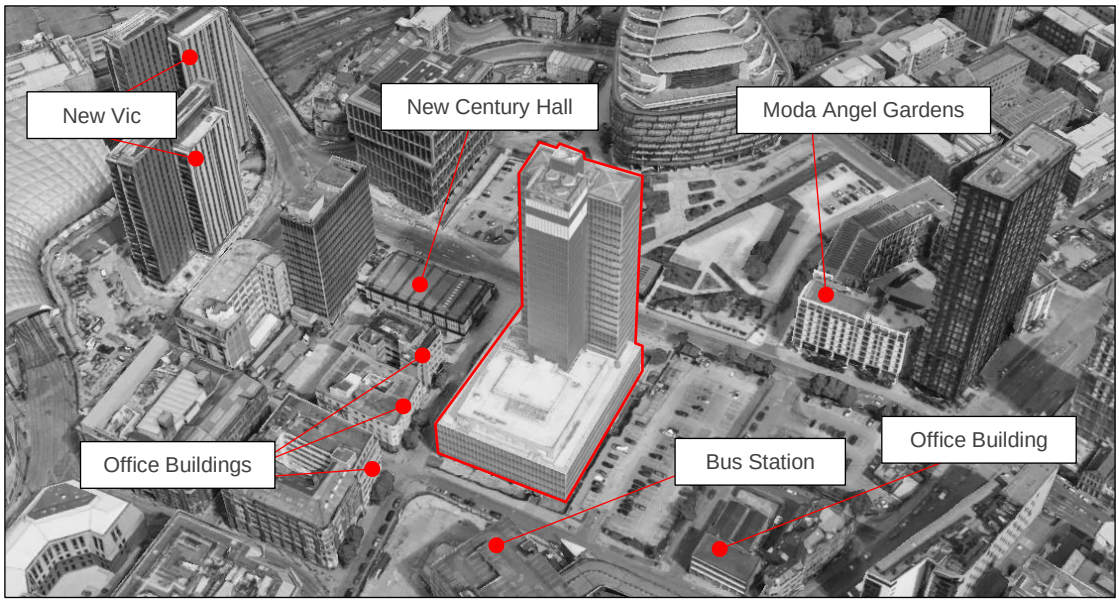


Site Location (Map data ©2025 Google)

3.2 Description

The CIS Tower is located on Miller Street with an external carpark to the east, Dantzic Street to the west and Hanover Street and Shudehill Bus Station to the south. The surrounding area is predominantly commercial (offices) and the nearest residential receptors are approximately 60m away from the proposed development across Miller Street. See site plan below.

The site is shown in the Site Plan below.



Site Plan (Satellite Image ©2025 Google)

4.0 Project Proposals

4.1 Overview

The description of development broadly comprises:

- **Basement Level 1 Lower**
  - Wellness area providing a yoga room and a gym
  - Showers/WCs provided in addition to ground floor cyclist shower provision
- **Basement Level 1/Level 1 Upper**
  - 2No Leisure units (shell and core)
  - Function Suite (shell and core)

- **Ground Floor**
    - 2No Retail units with potential for Food and Beverage use
    - 2No Leisure unit entrances
    - Dedicated restaurant and bar entrance
    - Office shower and cycle store provisions with dedicated access route
    - BOH management space provisions. including parcel stores
- **Levels 1 to Level 23**
    - CAT A Office Space
    - Level 07 External Terrace
- **Level 24 and Level 25**
    - Restaurant and Bar.

5.0 Planning Policies, Standards & Guidance

5.1 Policies & Guides

In order to provide a suitable assessment a number of national planning policies have been considered, including:

- The National Planning Policy Framework (NPPF), 2024
- The Noise Policy Statement for England (NPSE), 2010
- Planning Practice Guidance – Noise (PPGN), 2019

All guidance used to form a noise impact assessment is taken from various other standards, guidance, and Local Authority requirements as summarised below:

- British Standard 4142:2014 + A1:2019
- Manchester City Council Requirements

Detailed information for relevant planning policies and guidance can be found within Appendix B.

5.2 Specific Local Authority Criteria

Manchester City Council requirements are outlined in Section 3.0 of Manchester City Council Planning and Noise Technical Guidance document (Oct 2022).

Section 3.7.1.5 outlines the noise assessment for commercial developments should be based on BS4142:2014 and the assessment must demonstrate that:

'The development should be 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.'

Section 3.7.1.5 also outlines the noise assessment for fixed plant should be based on BS4142:2014 and the assessment 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'.

6.0 Environmental Noise Survey

6.1 Procedure

An environmental noise survey was undertaken from approximately 10:00 hours on Tuesday 21 May 2024 to 17:00 hours on Tuesday 28 May 2024 in order to establish representative noise readings around the site during typical weekday and weekend periods.

A series of internal noise measurements were also undertaken with a view to establishing the levels of noise break-in via the existing façade. These measurements were time synchronised with the relevant external measurements to establish the noise level difference across the façade.

Measurements were taken of the A-weighted (dBA) L_{90}, L_{eq} and L_{Fmax} sound pressure levels over discrete periods. Measurements were undertaken in accordance with BS 7445-1:2003 Description and Measurement of Environmental Noise.

6.2 Weather Conditions

Due to nature of survey, i.e. unmanned, not possible to comment on conditions throughout the survey. However, based on weather reports and conditions experienced during set-out and collection, the weather conditions were calm and the sky was generally overcast.

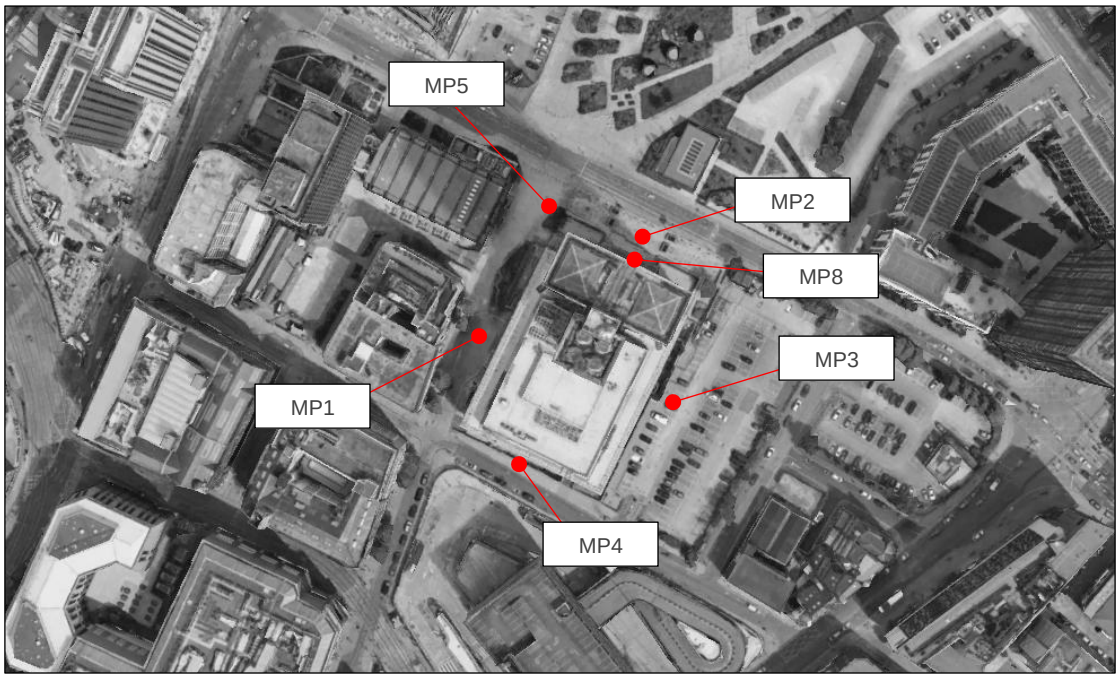
These conditions are considered suitable for obtaining representative measurement results.

6.3 Measurement Positions

Free-field noise level measurements were undertaken at 6No. external positions around the development site and 2No internal locations, as described below.

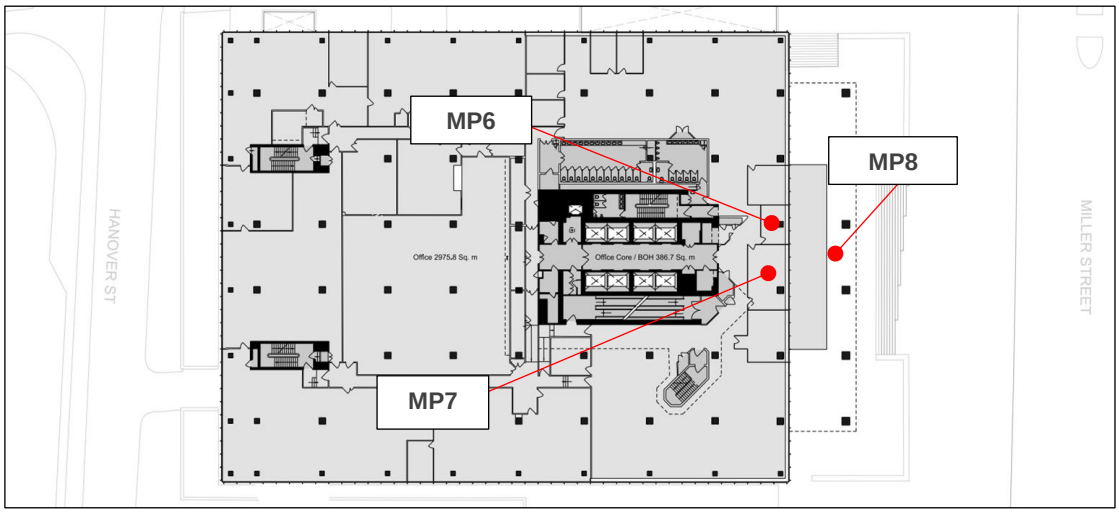
Position	Type	Description
1	Attended	Sound Level Meter attached to a tripod long Dantzic Street approximately 1.5m above local ground level. Microphone in free-field conditions
2	Attended	Sound Level Meter attached to a tripod long Miller Street approximately 1.5m above local ground level. Microphone in free-field conditions.
3	Attended	Sound Level Meter attached to a tripod long within carpark to the east of the CIS Tower approximately 1.5m above local ground level. Microphone in free-field conditions
4	Attended	Sound Level Meter attached to a tripod long Hanover Street approximately 1.5m above local ground level. Microphone in free-field conditions
5	Unattended	Microphone protruding out of a security box fixed to a lamppost directly adjacent to the CIS Tower. The microphone has located approximately 2.5m above local ground level in free-field conditions.
6	Attended	Sound Level Meter located within Level 1 cellular office spaces. Microphone in reverberant conditions. Measurement used as the receive noise level measurement for the assessment of the existing façade sound insulation.
7	Attended	Sound Level Meter located within Level 1 cellular office spaces. Microphone in reverberant conditions. Measurement used as the receive noise level measurement for the assessment of the existing façade sound insulation.
8	Attended	Sound Level Meter attached to a tripod long Miller Street approximately 1.5m above local ground level. Microphone located 2m from the existing façade at ground level. Measurement used as the source noise level measurement for the assessment of the existing façade sound insulation.

The locations of the external noise level measurements are shown below:



Measurement Locations (Imagery ©2025 Airbus, Maxar Technologies, Map data ©2025)

The locations of the internal noise level measurements are shown below with MP8 also indicated as this measurement position was time synchronised with MP6 and MP7.



Mark-Up of Existing Building, Showing Location Of Synchronised Internal Measurement Positions

6.4 Instrumentation

The instrumentation used during the survey is presented in the table below:

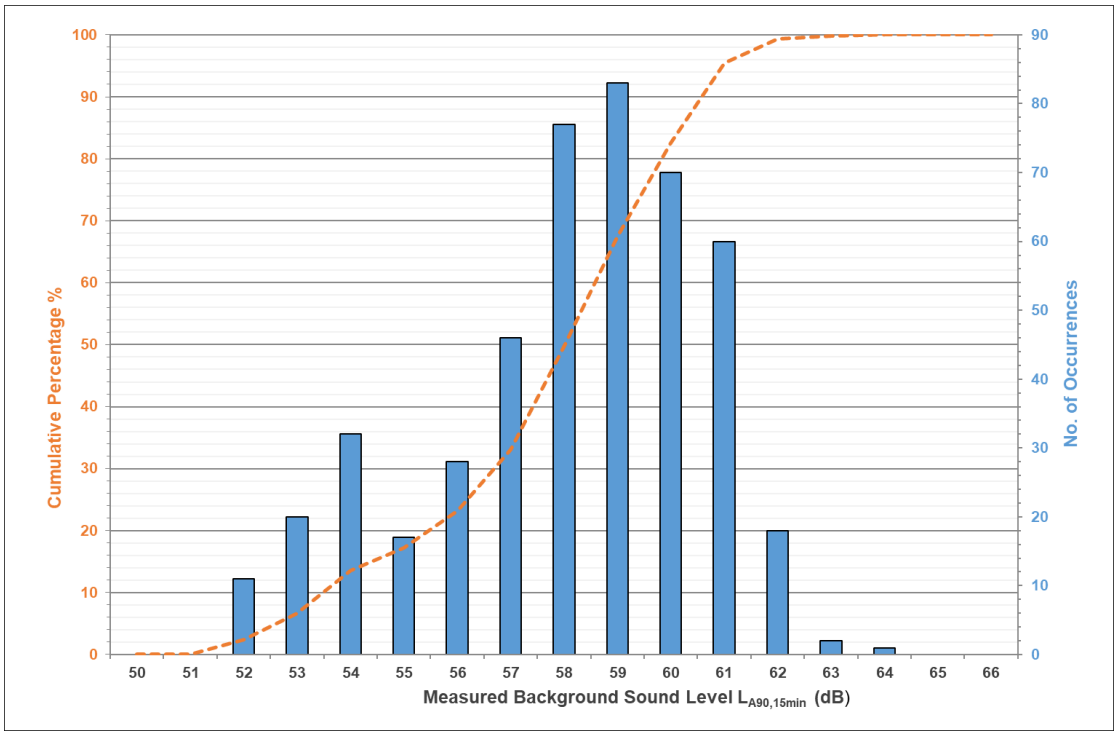
Position	Description	Manufacturer	Type	Serial Number	Calibration
1,2,3, 4 & 8	Type 1 Data Logging Sound Level Meter	Larson Davis	LxT	4568	Calibration on 30/05/2024
	Pre Amp	PCB	PRML x TL1	070074	
	Type 1 ½" Condenser Microphone	PCB	377B02	247931	
	Type 1 Calibrator	Bruel & Kjaer	4226	3070450	Calibration on 06/03/2024
1,2,3,4 6 & 7	Type 1 Data Logging Sound Level Meter	Bruel & Kjaer	2250	3025254	Calibration on 21/02/2024
	Type 1 ½" Condenser Microphone	Bruel & Kjaer	4189	3004879	
	Preamp	Bruel & Kjaer	ZC0032	28066	
	Type 1 Calibrator	Bruel & Kjaer	4231	2308993	Calibration on 20/02/2024
5	Type 1 Data Logging Sound Level Meter	Larson Davis	LxT	6490	Calibration on 12/09/2024
	Type 1 ½" Condenser Microphone	PCB	PRML x TL1	070074	Calibration on 13/09/2024
	Preamp	PCB	377B02	347391	Calibration on 14/09/2024
	Type 1 Calibrator	Larson Davis	Cal200	3083	Calibration on 28/02/2025

6.5 Results

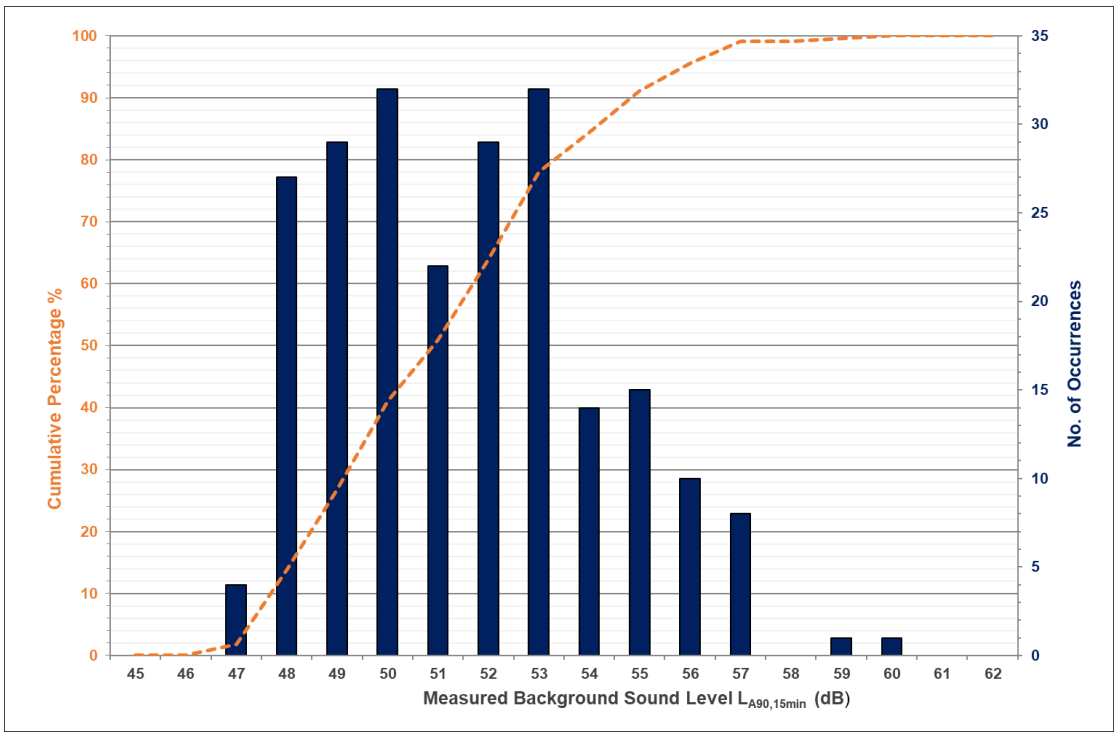
6.5.1 Environmental Noise

The results have been plotted on Time History Graph 31536/TH1 enclosed presenting the 15 minute A-weighted (dBA) L_{90}, L_{eq} and L_{max} levels at each measurement position throughout the duration of the survey.

A summary of the results measured in the unattended position, as used to inform subsequent assessments against current guidelines, is presented in the table below. The L_{A90} values presented are the 'representative' levels determined through statistical analysis of the 15-minute readings in line with BS 4142. L_{Afmax} values are the '10th highest' 2-minute value.



Histogram Plot of Measured Day-time Background Noise Levels – Position 5



Histogram Plot of Measured Night-time Background Noise Levels – Position 5

Position	Daytime (07:00 – 23:00 hrs)			Night-time (23:00 – 07:00 hrs)			
	$L_{Aeq,16hr}$	$L_{A10,1h}$	Typical $L_{A90,15min}$	$L_{Aeq,8hr}$	$L_{A10,1h}$	Typical $L_{A90,15min}$	$L_{Amax,2min}$
5	69	73	54	65	69	48	84

The results of the attended noise survey are presented below:

Position	Date	Time	Measured Sound Pressure Level (dB)			
			$L_{A90,15min}$	$L_{Aeq,15min}$	$L_{A10,15min}$	$L_{AFmax,15min}$
1	21/05/2024	10:18	53	57	59	75
	21/05/2024	10:50	52	56	58	71
2	21/05/2024	10:36	52	65	69	87
	21/05/2024	10:00	52	65	69	84
	24/05/2024	20:44	54	65	69	80
3	21/05/2024	10:52	50	54	57	68
	21/05/2024	10:16	50	55	57	70
4	21/05/2024	10:01	55	66	68	90
	21/05/2024	10:34	53	62	66	78

6.5.2 Noise Break-in

The time synchronised results at Positions 6, 7 and 8 are provided below. These will be used to establish the existing levels of sound insulation provided by the façade.

Pos	Time	Measured Sound Pressure Level, L_{eq} (dB) at each Octave Band Centre Frequency (Hz)						
		63	125	250	500	1000	2000	4000
MP8	12:16	69	65	63	63	65	59	49
MP6		47	38	36	29	29	29	16
MP8	12:17	63	62	60	57	57	52	41
MP6		42	36	33	25	21	21	15
MP8	12:18	70	65	62	61	63	56	46
MP6		48	38	34	27	27	25	14
MP8	12:20	61	61	56	54	56	51	42
MP7		44	33	30	23	22	21	13
MP8	12:21	70	66	61	60	63	56	45
MP7		52	39	36	28	28	27	15
MP8	12:22	66	62	57	55	57	52	44
MP7		48	35	32	24	23	22	14
MP8	12:24	71	68	68	63	64	60	52
MP7		55	41	40	31	30	31	23

Pos	Time	Measured Sound Pressure Level, L_{eq} (dB) at each Octave Band Centre Frequency (Hz)						
		63	125	250	500	1000	2000	4000
MP8	12:26	66	64	59	58	60	54	43
MP6		44	37	32	25	23	23	14

6.6 Discussion of Noise Climate

The predominant noise sources noted during the survey was road traffic noise from Miller Street, car park activity to the East and occasional traffic noise on all other adjacent roads. Building services noise was audible from existing roof top plant serving the adjacent office buildings.

Noise from busses entering, exiting and idling in the adjacent bus station was also audible to the rear of the tower, in Position 4.

7.0 Existing Façade Acoustic Performance

To establish the existing performance of the façade a series of synchronised measurements were carried out both externally and internally with a view to establishing the level difference across the façade and provide an estimation of the in-situ weighted sound reduction index (R'_W).

A single external position was selected to measure the external noise levels and 2No internal positions were selected to measure the internal noise levels. The details of the rooms in which Position 6 and 7 were located are as follows:

Internal Location	Room Volume (m^3)	Façade Area (m^2)
6	47	12.5
7	113	22

Based on the measured noise levels (See Section 6.5.2) and the room parameters noted above, the existing in-situ level difference and sound reduction indices have been calculated. These are presented in the table below.

Location	Measured In-situ weighted level difference D_w ($+C_{tr}$) dB	Calculated R'_w ($+C_{tr}$) dB
6	32(-1)	32(-2)
7	33(-1)	34(-1)

Based on the above, the existing performance of the façade is expected to be in the region of 30 to 33 dB $R'_w + C_{tr}$.

8.0 Operational Noise Impact Limits

8.1 Plant Noise Emission Criteria

8.1.1 Normally Operating Plant

Based on the results of the noise survey and the requirements of the Local Authority, we propose that the following plant noise emission criteria be achieved incident at the nearest noise sensitive windows, in free-field conditions, with all plant operating simultaneously.

Period	Plant Noise Rating Level Limit, $L_{Ar,Tr}$ (dB)
Daytime *07:00 – 23:00 hours*	49
Night-time *23:00 – 07:00 hours*	43

For design purposes, any plant which could emit noise of a tonal, irregular or intermittent nature should be subject to an “acoustic feature” penalty in accordance with BS 4142:2014. The above limits shall be subject to the final approval of Manchester City Council.

8.1.2 Emergency Plant

MCC do not stipulate specific noise egress requirements for emergency plant. However, it is understood that MCC typically accept 10 dBA above the existing background as the criteria. If limits were to be set at 10 dBA above the measured background noise, it may be that the limits are unduly lax. As such, based on the results of the survey, the following limits are suggested for emergency plant noise egress:

Period	Plant Noise Rating Level Limit, $L_{Ar,Tr}$ (dB)
Daytime *07:00 – 23:00 hours*	60
Night-time *23:00 – 07:00 hours*	55

8.2 Commercial Unit Operations

8.2.1 Off-site Receptors

Considering the prevailing environmental noise climate at the site, we would expect that noise egress via the unit frontage from most general commercial uses (e.g. restaurant, café, shop) should be readily controllable. However, in-line with MCC requirements operational noise break-out from any proposed use is controlled to no more than 5 dB below the existing background noise level as follows:

Period	Commercial Noise Egress Limit, L_{Aeq} (dB)
Daytime and Evening *07:00 – 23:00 hours*	49
Night-time *23:00 – 07:00 hours*	43

8.2.2 On-site Receptors

In the absence of specific MCC criteria for noise transfer from commercial spaces to office spaces, it is recommended that to prevent loss of amenity to the offices/meeting rooms directly above the ground floor units, the aim should be to achieve maintain an internal noise level 10 dB below the standard BS 8233:2014 internal ambient noise level criteria.

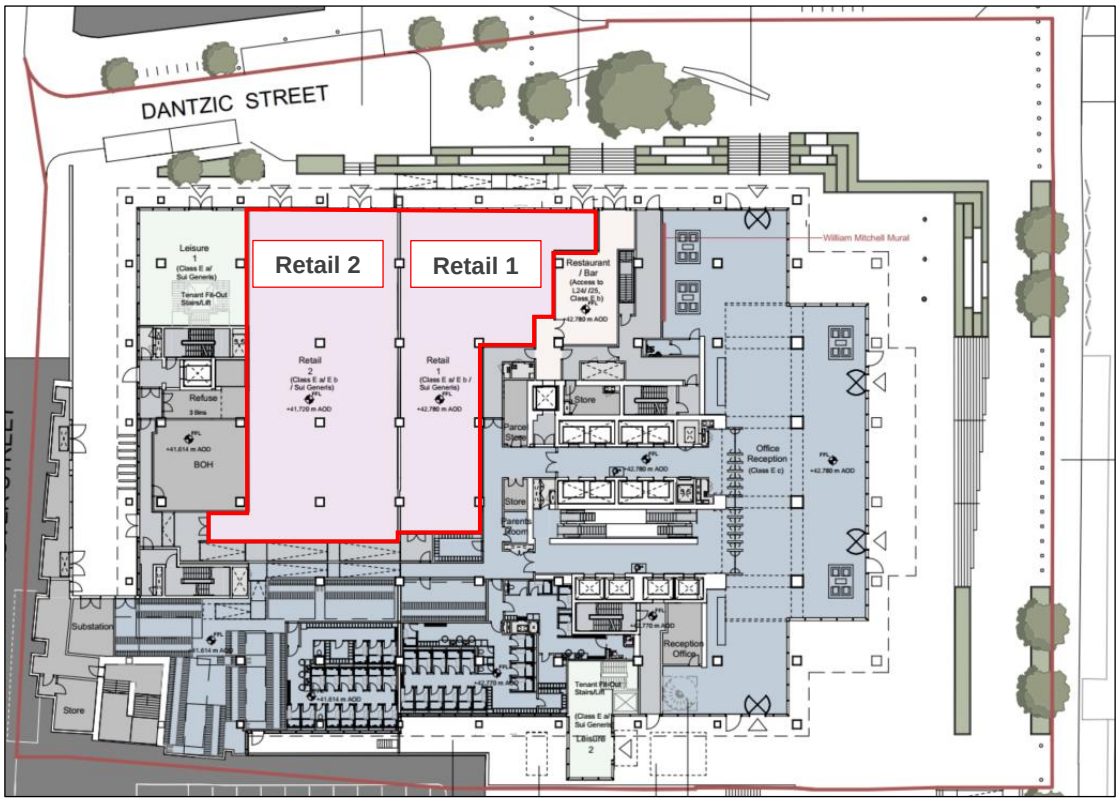
Based on the above, and with consideration to (a) the need for spectral noise control in octave bands between 63 Hz and 4 kHz, and (b) the fact that the offices will generally not be occupied when the commercial units are in full operation, we would propose that reverberant noise levels from the commercial units within the office/meeting room spaces directly above should be controlled so as to not exceed NR 30 (~35 dB L_{Aeq}).

8.3 Commercial Noise Impact Assessment

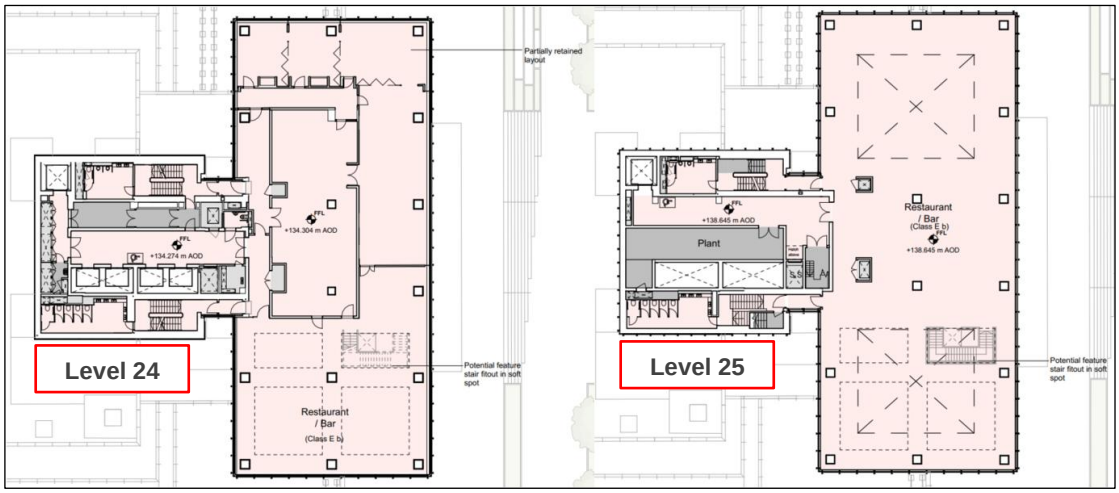
8.3.1 Overview

The following section outlines an assessment of the various potential noise impacts associated with the commercial units and provides outline specifications to control noise egress in line with the criteria proposed above.

The units that have potential to generate noise impacts are Retail 1 and Retail 2 on the ground floor and the Restaurant on Level 24 and Level 25. The location of these units are shown below:



Location of Ground Floor Retail Units (0518-SHA-Z1-A-B5D8-G200-PL-00-001 (P01)) c/o Simpson Haugh



Location of Level 24 and Level 25 Restaurant/Bar (0518-SHA-Z1-A-B5D8-G200-PL-24-001 P01 left, 10518-SHA-Z1-A-B5D8-G200-PL-25-001 P01 right) c/o Simpson Haugh

8.3.2 Noise Sensitive Receptors

The table below sets out the nearest noise sensitive premises to each of the proposed retail units.

Unit	Noise Sensitive Receptor	
	Daytime (07:00 to 23:00)	Night-time (23:00 to 07:00)
Retail 1	Offices along Dantzic Street (20m) and office within CIS Tower	Moda Angel Gardens (140m)*
Retail 2	Offices along Dantzic Street (20m) and office within CIS Tower	Moda Angel Gardens (140m)*
Restaurant	Offices along Dantzic Street (92m), Moda Angel Gardens (100m) and office within CIS Tower	Moda Angel Gardens (100m)*

*Assuming the Office provision in the CIS Tower is not 24 hours.

8.3.3 Proposed Facade

It is understood that the façade to the development will be replaced.

Typical commercial unit façades should achieve a performance of around $R_w + C_{tr}$ 29 dB. This performance has been used to assess various uses.

8.3.4 Sound Insulation between Ground and First Floor

Baseline acoustic testing was carried out on site on 15 August 2019 to establish the levels of sound insulation provided between the proposed retail/commercial spaces on the ground floor and the office spaces above. The measured levels of sound insulation are provided below for use in the assessment of noise transfer.

Source Room	Receive Room	Measured Level Difference, D (dB) at Octave Band Centre Frequency (Hz)						
		63	125	250	500	1000	2000	4000
GF Open Plan Office	L1 Open Plan Office	33	48	52	54	55	58	60
GF Post Room	L1 Cellular Office	45	51	55	62	67	71	75
Mezzanine Carpark	L1 Open Plan Office	30	40	46	50	54	60	66
L16 Meeting Room	L17 Meeting Room	26	28	38	49	54	55	63

The measured of the level difference between the Mezzanine Carpark and the L1 open plan office are considered representative of the future separating floor construction should an additional suspended ceiling **not** be installed: This is considered representative of the ground floor unit ‘shell’. As such, the sound insulation performances measured between these areas have been used to information the assessment.

For Restaurant, the sound insulation measured between L16 and L17 will be used to inform the limits. However, it should be noted that the measured performance were limited by flanking via the exiting façade. This will likely be upgraded as part of the works.

8.3.5 Operational Limits

The maximum operational internal noise levels have been calculated based on the assumptions set out in Section 0 and 8.3.4 with a view to complying with the criteria set out in Section 8.2. These are presented below:

Unit	Period	Maximum Internal Noise Level (dB) at Octave Band Centre Frequency (Hz)						
		63	125	250	500	1000	2000	4000
Retail 1	Daytime (07:00 – 23:00)	83	82	80	80	80	81	85
	Night (23:00 – 07:00)	111	108	103	106	106	111	109
Retail 2	Daytime (07:00 – 23:00)	83	82	80	80	80	81	85
	Night (23:00 – 07:00)	111	108	103	106	106	111	109
Restaurant	Daytime (07:00 – 23:00)	85	76	78	83	84	82	88
	Night (23:00 – 07:00)	104	100	95	98	99	103	101

The above limits are calculated based on noise egress through the façade and the floor slabs. As a result, the night-time limits are less stringent than the daytime limits as the daytime limits are limited by the sound insulation performance of the floors within the CIS Tower.

To provide context to the above limits the following table highlights the typical operational noise levels for several potential use types.

Use Type	Typical Operational Noise Level, L_{eq}, (dB) at each Octave Band Centre Frequency (Hz)						
	63	125	250	500	1000	2000	4000
Typical Retail Store	67	70	66	63	63	62	54
Chain Restaurant	64	65	69	74	73	69	63
Bar with Low Level Music	76	74	74	77	74	71	69
Typical Office Use	67	70	66	63	63	62	54
Retail Gym Specification	75	80	80	80	80	80	80

Comparing the above levels with the calculated limiting noise levels it can be seen that the units could operate as the following and comply with the noise egress criteria:

Use Type	Use Type Feasible with Typical Glazing					
	Unit 1		Unit 2		Restaurant	
	Day	Night	Day	Night	Day	Night
Typical Retail Store	Yes	Yes	Yes	Yes	Yes	Yes
Chain Restaurant	Yes	Yes	Yes	Yes	Yes	Yes
Bar with Low Level Music	Yes	Yes	Yes	Yes	Yes	Yes
Typical Office Use	Yes	Yes	Yes	Yes	Yes	Yes
Retail Gym Specification	Yes	Yes	Yes	Yes	Yes	Yes

Based on the above most typical uses should be feasible.

8.4 Use of Lobbied Doors

Where noise generating uses are proposed a lobbied external door arrangement should be considered. If deemed necessary, the specification of the doors would need to be developed once final uses are known.

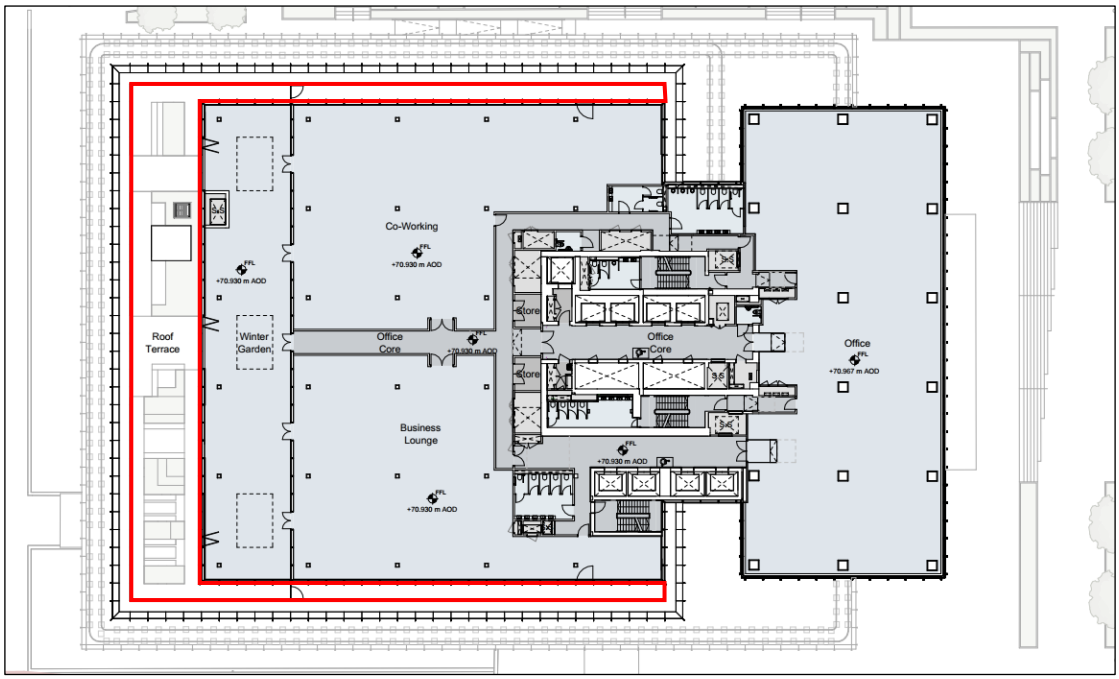
8.5 Ventilation Systems

Where noise generating uses are proposed the ventilation strategy may need to be altered to include robust attenuation at atmosphere openings to avoid activity noise levels breaking out of the ventilation systems themselves. As such, once final uses are known then ventilation strategy would need to be reviewed to ensure the above is suitably controlled.

9.0 External Terrace Area

9.1 Overview

It is understood that an external amenity area is proposed on Level 7 podium. The current layout for the external amenity space is shown overleaf.



Proposed External Terrace 10518-SHA-Z1-A-B5D8-G200-PL-07-001 P01 c/o Simpson Haugh

It is assumed that the terrace could be operational during the day and evening, so the most affected premises are considered to be:

- Daytime - The offices on Dantzic Street located approximately 40 m from the centre of the terrace area.
- Evening - Moda Angel Gardens located approximately 130 m from the centre of the terrace area.

9.2 Assessment

For the assessment of noise egress from the rooftop external areas, the following assumptions have been made:

- A 1.3-metre-high screen (balustrade) will surround the perimeter of the terrace;
- The terrace would act as one large noise source rather than a number of individual sources;
- Active management will be employed to promote a relaxed atmosphere and to prevent rowdy/loud behaviour from occupants.
- Noise egress criteria would be in-line with Section 8.2.

Based on the above, the allowable external noise level on the terrace has been calculated as follows:

Period	External Terrace Noise Level Limit, $L_{Aeq,15min}$ (dB) for Typical Use
Daytime (07:00-19:00)	79
Evening (19:00-23:00)	89*

*Limits in the evening less onerous due to increased distance between CIS Tower and Angel Gardens.

The above noise levels are not considered restrictive and would be similar to a busy city centre bar. Based on the above, the external terrace areas should be suitable for its intended use providing that the management of the building are conscious of the proximity to the neighbours and remind patrons in this area to be respectful and that antisocial behaviour will not be tolerated.

10.0 Conclusions

A detailed environmental noise survey has been undertaken in order to establish the currently prevailing environmental noise climate around the site.

Plant noise and commercial noise egress limits have been set based on the requirements of the Local Authority.

Operational internal noise limits have been developed based on achieving commercial noise break-out criteria. An assessment of potential commercial use types have been undertaken.

The assessment shows the site is suitable for commercial development in terms of noise.

Appendix A

Acoustic Terminology

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.

L_p — Sound Pressure Level (SPL) 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).

L_w — Sound Power Level (SWL) 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 Noise Policy Statement for England

The Noise Policy Statement for England (NPSE) was published in March 2010 (i.e. before the NPPF). The NPSE is the overarching statement of noise policy for England and applies to all forms of noise other than occupational noise, setting out the long term vision of Government noise policy which is to:

"Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development."

That vision is supported by the following NPSE noise policy aims which are reflected in three of the four aims of planning policies and decisions in paragraph 123 of the NPPF (see paragraph 8.2 (b) below):

"Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *avoid significant adverse impacts on health and quality of life;*
- *mitigate and minimise adverse impacts on health and quality of life; and*
- *where possible, contribute to the improvement of health and quality of life."*

The Explanatory Note to the NPSE has three concepts for the assessment of noise in this country:

NOEL – No Observed Effect Level
This is the level below which no effect can be detected and below which there is no detectable effect on health and quality of life due to noise.

LOAEL – Lowest Observable Adverse Effect Level
This is the level above which adverse effects on health and quality of life can be detected.

SOAEL – Significant Observed Adverse Effect Level
This is the level above which significant adverse effects on health and quality of life occur.

None of these three levels are defined numerically and for the SOAEL the NPSE makes it clear that the noise level is likely to vary depending upon the noise source, the receptor and the time of day/day of the week, etc. The need for more research to investigate what may represent an SOAEL for noise is acknowledged in the NPSE and the NPSE asserts that not stating specific SOAEL levels provides policy flexibility in the period until there is further evidence and guidance.

The NPSE concludes by explaining in a little more detail how the LOAEL and SOAEL relate to the three NPSE noise policy aims listed above. It starts with the aim of avoiding significant adverse effects on health and quality of life, then addresses the situation where the noise impact falls between the LOAEL and the SOAEL when *"all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development."* The final aim envisages pro-active management of noise to improve health and quality of life, again taking into account the guiding principles of sustainable development which include the need to minimise travel distance between housing and employment uses in an area.

B.2 National Planning Policy Framework (NPPF)

The following paragraphs are from the NPPF (published December 2024):

191. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

    a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

    b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and

    c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

193. Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed."

Paragraph 185 also references the Noise Policy Statement for England (NPSE). This document does not refer to specific noise levels but instead sets out three aims:

- "Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
- Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.
- Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development."

B.3 Planning Practice Guidance on Noise

Planning Practice Guidance (PPG) under the NPPF has been published by the Government as a web based resource at http://planningguidance.planningportal.gov.uk/blog/guidance/. This includes specific guidance on Noise although, like the NPPF and NPSE the PPG does not provide any quantitative advice. It seeks to illustrate a range of effect levels in terms of examples of outcomes as set out in the following table:

Perception	Examples of Outcomes	Increasing effect level	Action
Not noticeable	No effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
		Lowest Observed Adverse Effect Level	

Perception	Examples of Outcomes	Increasing effect level	Action
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance.	Observed Adverse Effect	Mitigate and reduce to a minimum
		Significant Observed Adverse Effect Level	
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable hard, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

B.4 British Standard 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.

Appendix C

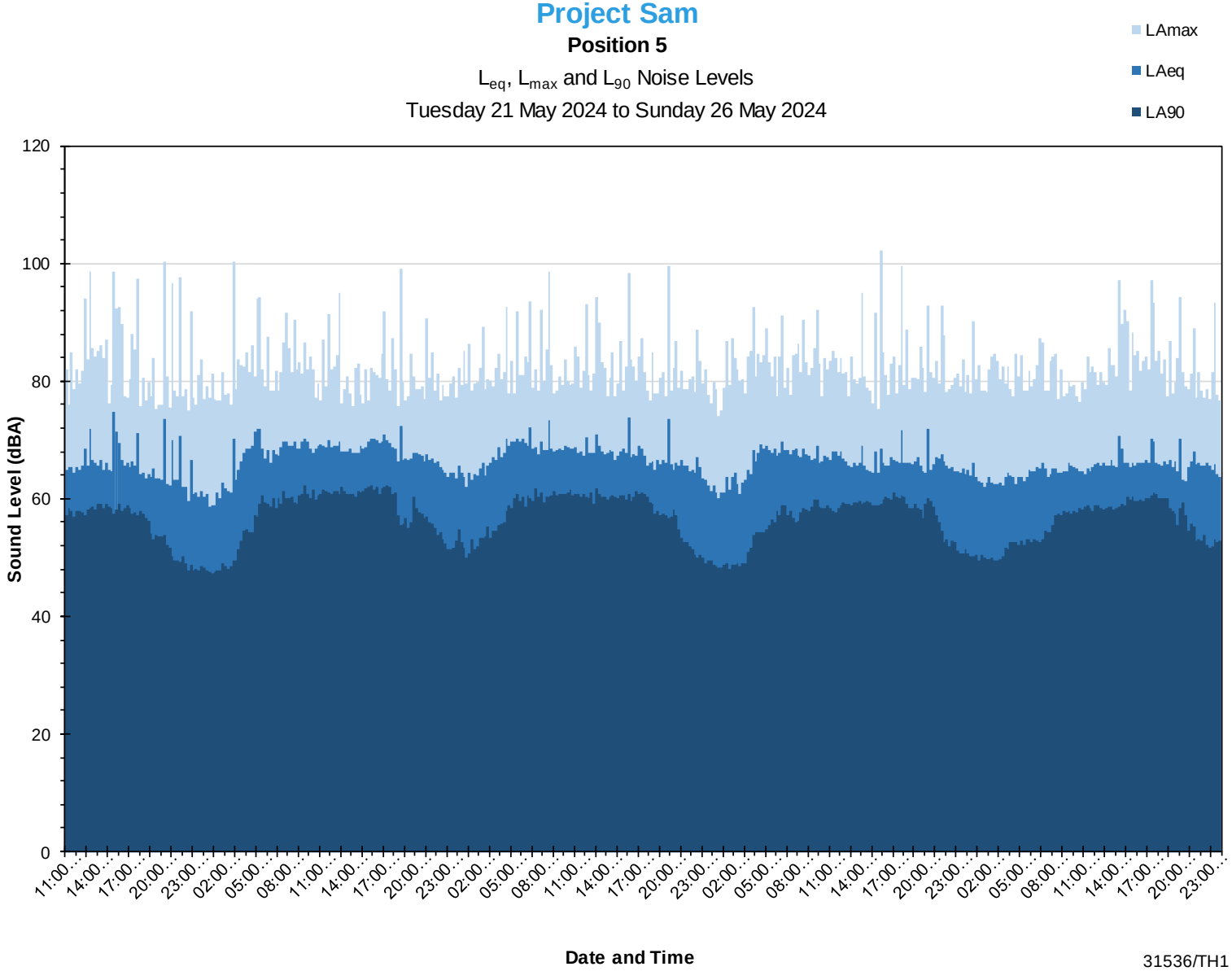
Time History Graph

Project Sam

Position 5

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

Tuesday 21 May 2024 to Sunday 26 May 2024



31536/TH1