



ENVIRONMENTAL NOISE ASSESSMENT

on behalf of

Beaconsfield Commercial Limited

for development at

One North Parade, Manchester, M3

2NH

Report Number NA103206

Date of Report 21 May 2025

**Miller Goodall Ltd
Ashworth House
Deakins Business Park
Egerton
Bolton
Lancashire BL7 9RP
Tel: 01204 596166**

www.millergoodall.co.uk

Company registration number 5201673

Summary

A noise assessment has been undertaken to predict the potential impact of noise from the fixed plant associated with an office and café development at One North Parade, Manchester, M3 2NH.

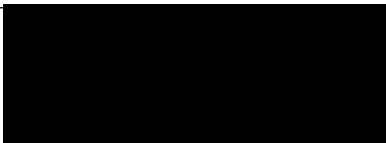
An environmental sound survey has been undertaken to establish the existing sound climate at nearby noise sensitive receptors (NSRs) during periods when the plant will operate. Plant noise limits have been derived from this data to safeguard compliance with the requirements of both Manchester City Council and BREEAM POL 05.

A baseline computer noise model of the proposed development and the surrounding site has been assembled based on the proposed site layout and plant specifications. The likely unmitigated noise levels at the nearest NSRs due to noise from the site have been predicted and are presented within this report.

The predicted noise levels and data from the environmental sound survey have been used to assess the potential impact at the most affected NSRs during the night-time period when existing background sound levels are at their lowest, whilst the plant may be operational.

Based on the results of the computer modelling and the proposed site layout, indicative mitigation has been proposed in terms of the provision of a noise barrier.

The assessment indicates that, provided appropriate mitigation is undertaken as recommended, the impact of noise associated with the proposed development will be low and that the criteria set by Manchester City Council will be met. Additionally, with the proposed mitigation measures in place, the plant installation is likely to be compliant with the requirements for achieving POL 05. This will require a verification survey before the credit may be awarded.

Original Author:	Jo Lacy MIOA	Reviewed By:	Lesley Goodall MIOA
Signed:		Signed:	
Date:	21 May 2025	Date:	21 May 2025
Revision			
Number	Date	Updated by	Checked by
Changes made			

Advisory Note

The suitability of any recommended noise mitigation measures within this report should be approved by the relevant architects, structural engineers, building contractors, fire consultants and material manufacturers constituting the wider design team, prior to procurement and field application. This should ensure that when the recommended noise control measures are implemented on site, they will satisfy the requirements of all disciplines, therefore should not cause any health and safety issues.

Contents

Summary	2
1 Introduction	6
2 Suitably Qualified Acoustician	6
3 Policy, Standards and Guidance	7
4 Assessment Criteria	7
4.1 Manchester City Council Planning Noise Criteria	7
4.2 Acoustic Credits: BREEAM UK New Construction 2018 POL 05: Pollution – Reduction of noise pollution	7
4.3 Summary	8
5 Assessment Methodology	9
6 Site Description	9
7 Proposed Development	9
8 Environmental Sound Survey	10
8.1 Measurements Procedure	10
8.2 Environmental Sound Climate	11
8.3 Weather Conditions	11
9 Monitoring Results	13
10 Noise Modelling Methodology	15
11 Baseline BS 4142:2014+A1:2019 Assessment	17
12 Mitigation	20
13 Summary and Conclusion	20
APPENDICES	21
Appendix 1: Policy, Standards and Guidance	22
Appendix 2: Site Location, Monitoring and NSR Locations	26
Appendix 3: Environmental Sound Survey Results	27
Appendix 4: Noise Model Output – Baseline Model	29
Appendix 5: Noise Model Output – With Mitigation	30

Glossary of Terms 31

1 Introduction

- 1.1 Miller Goodall Ltd has undertaken a noise assessment to accompany a planning application and to inform a BREEAM assessment in relation to the demolition of an existing building and the construction of a new building at One North Parade, Manchester, M3 2NH. The scope of this assessment is to evaluate the potential impact of operational noise from the fixed plant associated with the development on nearby noise sensitive receptors (NSRs).

2 Suitably Qualified Acoustician

- 2.1 BREEAM UK New Construction 2018 requires that acoustic assessments under the scheme be carried out by a "suitably qualified" person, which is defined for the purposes of BREEAM as a person who:

"Has a minimum of three years relevant experience (within the last five years). Such experience must clearly demonstrate a practical understanding of factors affecting acoustics in relation to construction and the built environment, including, acting in an advisory capacity to provide recommendations for suitable acoustic performance levels and mitigation measures.

An individual who holds a recognised acoustic qualification and membership of an appropriate professional body. The primary professional body for acoustics in the UK is the Institute of Acoustics."

- 2.2 Where a suitably qualified person is verifying the acoustic measurements, calculations and reports, they must, as a minimum, have read and reviewed the report and confirmed in writing that they have found it to:

"Represent sound industry practice

Be appropriate given the building being assessed and scope of works proposed

Avoid invalid, biased and exaggerated recommendations."

- 2.3 Jo Lacy is the primary author of this report and has undertaken all calculations and assessment work, has worked in acoustic consultancy for the last seven years, is a Member of the Institute of Acoustics (MIOA) and an ANC registered Sound Insulation Tester. Jo is therefore considered a Suitably Qualified Acoustician by the definition provided by BREEAM.

- 2.4 Calculations, assessment conclusions and this report have been reviewed by Lesley Goodall a Member of the Institute of Acoustics with more than 20 years' experience in acoustic consultancy, including the last five years, and would also be considered a Suitably Qualified Acoustician by BREEAM.

3 Policy, Standards and Guidance

- 3.1 The following planning policy, acoustics standards and guidance have been considered in this assessment.

- Noise Policy Statement for England (NPSE).
- National Planning Policy Framework (NPPF).
- BS 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound'.

- 3.2 Further detail is provided in **Appendix 1: Policy, Standards and Guidance**.

4 Assessment Criteria

4.1 Manchester City Council Planning Noise Criteria

- 4.1.1 Manchester City Council (MCC) has issued Planning and Noise Technical Guidance¹ which details the general approach to noise in relation to planning applications. Specifically with regard to noise from fixed plant/equipment, the document states in Section 3.7.1.5 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 5 dB (L_{Aeq}) below the typical background (L_{A90}) level at the nearest noise sensitive location."

4.2 Acoustic Credits: BREEAM UK New Construction 2018 POL 05: Pollution – Reduction of noise pollution

- 4.2.1 One credit is available under POL 05, assessed against the following criteria:

¹ Manchester City Council, *Planning and Noise Technical Guidance* October 2022
[Noise_and_planning_guidance_Oct_22.pdf](#)

- 1) There are no noise-sensitive areas within the assessed building or within an 800 m radius of the assessed site

OR

- 2) Where there are noise-sensitive areas within the assessed building or noise-sensitive areas within an 800 m radius of the assessed site, a noise impact assessment compliant with BS 4241:2014 is commissioned. Noise levels must be measured or determined for:

- (1) Existing background noise levels:

- (a) At the nearest or most exposed noise-sensitive development to the proposed assessed site

- (b) Including existing plant on a building, where the assessed development is an extension to the building

- (2) Noise rating level from the assessed building

- 3) The noise impact assessment must be carried out by a suitably qualified acoustic consultant.
- 4) The noise level from the assessed building, as measured in the locality of the nearest or most exposed noise-sensitive development, must be at least 5 dB lower than the background noise throughout the day and night.
- 5) If the noise sources from the assessed building are greater than the levels described in criterion 4, measures have been installed to attenuate the noise at its source to a level where it will comply with the criterion.

4.3 **Summary**

- 4.3.1 In order to comply with both MCC and BREEAM criteria, the noise from externally mounted plant associated with the development must be designed to achieve a rating level of 5 dB below the representative background sound level.

5 Assessment Methodology

- 5.1 Environmental sound monitoring was undertaken to establish background noise levels at noise sensitive receptors (NSRs) close to the development. Noise associated with the development has been modelled using CadnaA software. A BS 4142 assessment has been undertaken in relation to noise from the development and a rating level has been established following the methodology within BS 4142.
- 5.2 The assessment has been completed for the night-time period when the background sound level is usually lowest to present a worst-case assessment. The assessment has considered the worst-case incident noise level at the façades of nearby buildings.

6 Site Description

- 6.1 The site is located at One North Parade, Manchester, M3 2NH. The site location is indicated in the figure presented in **Appendix 2: Site Location, Monitoring and NSR Locations**. The site is in central Manchester with Parsonage Gardens to the front (south) of the building. The site is surrounded by a mix of office and residential buildings.

7 Proposed Development

- 7.1 The proposed development is a 12-storey building with a ground floor restaurant, and offices on the upper floors. Plant will be accommodated on the roof of the development, so there is potential for noise to impact NSRs. The proposed plant includes:
- 60 condenser units,
 - One space heating pump,
 - One Air Handling Unit, and
 - Two diesel generators.
- 7.2 It is expected that some of this plant will operate 24 hours a day, 7 days a week. The plant will likely have the greatest impact on NSRs during night-time periods when background noise is at its lowest and thus this assessment focuses on this time period.

8 Environmental Sound Survey

8.1 Measurements Procedure

- 8.1.1 Unattended environmental sound monitoring was undertaken at two positions within the existing building located on the site from 14:15 hrs on Friday, 13th December 2024 to 09:15 hrs on Monday, 16 May 2024. The unattended monitoring positions, MP1 and MP2, are indicated in the figure presented in **Appendix 2: Site Location, Monitoring and NSR Locations**. The microphones were mounted on a pole and positioned approximately 1.5 meters outside of east (MP2) and west (MP1) facing windows within the existing building at a height of approximately 10 m above local ground level.
- 8.1.2 Measurements were undertaken in accordance with BS 7445-1: 2003².
- 8.1.3 The calibration of the sound level meter was checked before and after the measurements, with negligible deviation (≤ 0.1 dB) recorded.
- 8.1.4 Details of the equipment used are set out in **Table 1**.

Table 1: Noise monitoring equipment

Monitoring Location	Equipment Description	Type Number	Manufacturer	Serial No.	Date Calibrated	Calibration Certification Number
MP1	Class 1 ^[4] , ^[5] Integrating Real Time 1/3 Octave Sound Analyser	NTi XL2-TA	NTi Audio	A2A-11111-E0	16/10/2023	05451/1
	Microphone	NTi MA220	NTi Audio	6908	16/10/2023	05451/1
	Pre-amplifier	NTi MC230A	NTi Audio	A14423	16/10/2023	05451/1
	Class 1 Field Calibrator	CAL 200	Larson Davies	14154	22/08/2024	06881/2
	Outdoor Microphone Housing	NTi WP30	NTi Audio	N/A	N/A	N/A
MP2	Class 1 ^[4] , ^[5] Integrating Real Time 1/3 Octave Sound Analyser	NTi XL2-TA	NTi Audio	A2A-15860-E0	27/02/2023	06143/1

² BS 7445-1: 2003 Description and measurement of environmental noise – Part 1: Guide to quantities and procedures

Monitoring Location	Equipment Description	Type Number	Manufacturer	Serial No.	Date Calibrated	Calibration Certification Number
	Microphone	NTi MA220	NTi Audio	8102	27/02/2023	06143/1
	Pre-amplifier	NTi MC230A	NTi Audio	A16445	27/02/2023	06143/1
	Class 1 Field Calibrator	NOR 1251	Norsonic	32798	29/05/2024	U47928
	Outdoor Microphone Housing	NTi WP30	NTi Audio	N/A	N/A	N/A

8.1.5 Each measurement period consisted of sequential 100 ms samples. The data has been extracted using NTi Data Explorer software and analysed using an in-house Excel processing sheet to analytically determine representative L_{Aeq} , L_{A90} and $L_{AF,max}$ sound levels. The 100 ms sound levels have not been presented in this report but are kept on file for future reference.

8.2 Environmental Sound Climate

8.2.1 During the installation and collection of the equipment at MP1 and MP2, the ambient sound climate was observed to consist of nearby road noise, and infrequent noise events such as large amounts of items being dumped into bins in nearby alleyways from nearby businesses.

8.2.2 Additionally, from satellite imagery, it appears there are significant quantities of mechanical services plant on the roofs of other nearby buildings. While this wasn't audible at ground level, it would be expected to be a noticeable part of the noise climate at higher storeys of nearby buildings.

8.3 Weather Conditions

8.3.1 Weather conditions were observed when the equipment was installed and collected. A summary of the conditions at the beginning and end of the surveys are provided in **Table 2**.

Table 2: Dates, times and weather conditions during noise measurements

Measurement Locations	Date/Time	Weather conditions		
		Description	At Start of Survey	On Completion
MP1 + MP2	13/12/2024, 14:15 to 16/12/2024, 09:15	Temperature:	7 °C	11 °C
		Precipitation:	None	None
		Cloud cover (oktas – see opposite):	4	8
		Any fog/snow/ice?	No	No
		Any damp roads/wet ground?	No	Slightly damp roads
		Wind speed:	4mph	9mph
		Wind direction:	NW	
		Any conditions that may cause temp. inversion (e.g. calm nights with no cloud):	No	No

Cloud Cover	
Symbol	Scale in oktas (eighths)
	0 Sky completely clear
	1
	2
	3
	4 Sky half cloudy
	5
	6
	7
	8 Sky completely cloudy
	(9) Sky obstructed from view

8.3.2 With respect to the unattended survey, weather forecasts provided by the Met Office ([Weather and climate change - Met Office](#)) and WUnderground ([Local Weather Forecast, News and Conditions | Weather Underground](#)) were reviewed before attending the site to confirm the weather forecast was appropriate for noise monitoring (i.e. dry, windspeed $\leq$ 5 m/s and no extreme temperatures) over the proposed monitoring period.

8.3.3 Weather history data has been reviewed for the period over which the monitoring was unattended. In general, the recorded weather conditions were considered to be suitable for environmental sound monitoring, with wind speeds not exceeding 5 m/s throughout the survey period. There is nothing in the data to suggest a change in weather (e.g. rain or winds

> 5 m/s) which could have impacted the measurement results. Therefore, no data has been excluded from the monitoring data.

9 Monitoring Results

9.1 Time history graphs for the full unattended monitoring period at MPI and MP2, plotted in 15-minute time intervals, are presented in **Appendix 3: Environmental Sound Survey Results**. All data are sound pressure levels in dB re 20 μ Pa. Incident noise levels have been adjusted to account for façade reflections i.e. 3 dB has been subtracted from incident noise levels.

9.2 A summary of the broadband measurement data for the unattended monitoring at MPI is provided in **Table 3**.

Table 3: Summary of unattended monitoring results at MPI

Date	Day	Period	Start Time hh:mm	Elapsed Time, T hh:mm	$L_{Aeq,T}^{*1}$ dB	Highest $L_{AF,max}^{*2}$ dB	$L_{A90,T}^{*3}$ dB
13/12/2024	Friday	Daytime	14:15	8:45	59.4	90.3	53
13/12/2024 to 14/12/2024	Friday to Saturday	Night-time	23:00	08:00	61.1	101.3	48
14/12/2024	Saturday	Daytime	07:00	16:00	62.7	110.3	52
14/12/2024 to 15/12/2024	Saturday to Sunday	Night-time	23:00	08:00	60.3	84.9	49
15/12/2024	Sunday	Daytime	07:00	16:00	59.5	97.5	52
15/12/2024 to 16/12/2024	Sunday to Monday	Night-time	23:00	08:00	59.3	93.3	47
16/12/2024	Monday	Daytime	07:00	02:15	68.2	93.6	53
13/12/2024 to 18/12/2024	Combined Daytime				64.1	110.3	52
13/12/2024 to 18/12/2024	Combined Night-time				60.3	101.3	47

*1. The values presented for the $L_{Aeq,T}$ are the log average of the $L_{Aeq,15min}$ values recorded within the corresponding period, of length T.

*2. The values presented for the $L_{AF,max}$ are the highest $L_{AF,max,2min}$ values recorded within the period.

*3. The values presented for the $L_{A90,T}$ have been calculated using the LRB Method from the Little Red Book of

Acoustics³, from the $L_{A90,15min}$ values recorded within the corresponding period, of length T. The value presented is the most commonly occurring $L_{A90,15min}$ value during the period, for which no less than 45% of the total histogram data occurs below.

9.3 A summary of the broadband measurement data for the unattended monitoring at MP2 is provided in **Table 4**.

Table 4: Summary of adjusted unattended monitoring results at MP2

Date	Day	Period	Start Time hh:mm	Elapsed Time, T hh:mm	$L_{Aeq,T}^{*1}$ dB	Highest $L_{AF,max}^{*2}$ dB	$L_{A90,T}^{*3}$ dB
13/12/2024	Friday	Daytime	14:15	8:45	74.2	110.3	58
13/12/2024 to 14/12/2024	Friday to Saturday	Night-time	23:00	08:00	64.5	108.6	55
14/12/2024	Saturday	Daytime	07:00	16:00	75.1	109.4	57
14/12/2024 to 15/12/2024	Saturday to Sunday	Night-time	23:00	08:00	70.0	107.8	54
15/12/2024	Sunday	Daytime	07:00	16:00	70.1	111.1	57
15/12/2024 to 16/12/2024	Sunday to Monday	Night-time	23:00	08:00	65.1	107.2	53
16/12/2024	Monday	Daytime	07:00	02:15	61.3	89.4	56
13/12/2024 to 18/12/2024	Combined Daytime				72.4	111.1	57
13/12/2024 to 18/12/2024	Combined Night-time				67.3	108.6	54

*1. The values presented for the $L_{Aeq,T}$ are the log average of the $L_{Aeq,15min}$ values recorded within the corresponding period, of length T.

*2. The values presented for the $L_{AF,max}$ are the highest $L_{AF,max,2min}$ values recorded within the period.

*3. The values presented for the $L_{A90,T}$ have been calculated using the LRB Method from the Little Red Book of Acoustics⁴, from the $L_{A90,15min}$ values recorded within the corresponding period, of length T. The value presented is the most commonly occurring $L_{A90,15min}$ value during the period, for which no less than 45% of the total histogram data occurs below.

³ The Little Red Book of Acoustics: A Practical Guide, Fourth Edition (2024) published by Blue Tree Acoustics

⁴ The Little Red Book of Acoustics: A Practical Guide, Fourth Edition (2024) published by Blue Tree Acoustics

10 Noise Modelling Methodology

- 10.1 A baseline noise model of noise from the proposed development has been assembled using CadnaA noise modelling software.
- 10.2 The general horizontal plan information of the area surrounding and including the proposed development site was imported from Google Earth. This was used to determine road positions, building footprint areas and relative locations and is considered accurate to within 5%.
- 10.3 Topography was imported from the DEFRA LIDAR dataset, and existing building height information was input based on site observations.
- 10.4 The following parameters were assigned to the model:
- Propagation of noise using algorithms within ISO 9613:2024 *Acoustics – Attenuation of sound during propagation outdoors*.
 - Default ground absorption $G = 0.5$. Representing mixed ground surrounding the site.
 - No adverse meteorological effects.
 - Two orders of reflection.
 - Buildings are reflecting with smooth non-structured facades.
 - Receiver heights of 1.5 m ground floor and every 3 m above this
- 10.5 Details of the proposed site layout and associated plant have been obtained from drawings, CAD files and data sheets provided by the client.
- 10.6 Octave band L_{eq} source data used within modelling is shown in shown in **Table 5**. This data was imported directly into the model. This data was provided by John Barnett of *Crookes Walker Consulting*.

Table 5: Sound Pressure Level source data used within CadnaA

Description	Distance (m)	Sphere Part (%)	Sound Pressure Level, dB at Octave Band Centre Frequency, Hz								Sound Power Level dB(A)
			63	125	250	500	1k	2k	4k	8k	
VRF Plant	1	50	81.0	69.5	69.5	68.0	62.0	59.0	54.0	48.5	76.9
Comms Kit Condenser Plant	1	50	53.5	52.0	52.5	44.0	43.0	39.0	33.5	27.0	56.7
Indicative Generator	1	50	77.0	67.0	61.0	55.0	53.0	51.0	43.0	39.0	67.8
Space Heating Heat Pump (average)	1	100	76.2	70.6	67.7	63.6	62.7	57.3	53.0	39.5	78.1
AHU Intake	1	100	71.0	87.0	77.0	74.0	71.0	67.0	66.0	64.0	88.6
AHU Exhaust	1	100	74.0	85.0	77.0	79.0	76.0	72.0	68.0	63.0	91.9

10.7 Sound power level data shown in **Table 6** was taken directly from the manufacturer's documentation and imported directly into the model.

Table 6: Sound Power Level source data used within CadnaA

Description	Sound Power Level, dB at Octave Band Centre Frequency, Hz								dB(A)
	63	125	250	500	1k	2k	4k	8k	
QTON Hot Water Heat Pump	86.0	76.0	72.0	69.5	71.0	64.5	64.0	58.0	74.5

10.8 The sound levels presented in **Table 5** and **Table 6** represent 100% capacity operation. To ensure a worst-case assessment, all plant is assumed to operate in a steady state with a one hundred per cent on-time. This is unlikely to occur and so this approach provides a conservative assessment. Additionally, the specific $L_{Aeq,Tr}$ cumulative noise level from the proposed development would be equal for the daytime or night-time period at a given receptor location, irrespective of the chosen reference period, Tr .

10.9 The baseline noise modelling includes a solid 1.0 m parapet surrounding the rooftop plant area. Noise sources have been modelled as shown in **Table 7**.

Table 7: Modelled source heights and dimensions

Plant Item	Modelled As (height above roof level)
VRF Plant	Point Source @ 1.8 m
Comms Kit Condenser Plant	Point Source @ 1.0 m
Indicative Generator	8.7 m ² Area Source @ 1.5 m
Space Heating Heat Pump (average)	Vertical area sources with dimensions from plant datasheet, plus log-average of all levels used as area source on top of the unit
AHU Intake	Vertical area source, 1.3 x 1.6 m
AHU Exhaust	Vertical area source, 1.3 x 1.6 m
QTON Hot Water Heat Pump	Point Source @ 1.8 m

11 Baseline BS 4142:2014+A1:2019 Assessment

- 11.1 Two noise sensitive receptors have been included in the model, being Cardinal House to the west, and The Edge, to the north west of the development. The output from the baseline noise model showing the highest noise level at the façade of each nearby building is presented in **Appendix 4: Noise Model Output – Baseline Model**. The figure shows the predicted noise levels at receiver locations and corresponding noise contours for the baseline modelling.
- 11.2 The BS 4142 assessment of noise impact at the most affected NSR during the night-time period is presented in **Table 8**.

Table 8: BS 4142:2014 numerical night-time assessment at NSR1 – Baseline

Parameter	Results	Commentary
Measured Residual Sound Level	$L_{Aeq,15min} = 64$ dB	Typical $L_{Aeq,15min}$ sound level measured during night-time periods.
Measured Background Sound Level	$L_{A90,15min} = 47$ dB	Representative background sound level during night-time periods.
Noise Limit	$47 - 5 = 42$ dB $L_{Ar,15min}$	Both BREEAM POL 05 and MCC criteria require noise from plant to be designed so as to achieve a rating level of 5 dB below the typical background (L_{A90}) level at the nearest noise sensitive location.” .
Modelled Specific Noise Level	$L_{Aeq,15min} = 48$ dB	Modelled noise level at NSR1.

Parameter	Results	Commentary
Acoustic Feature Correction	+ 0 dB	Potential high perceptibility of inverter tonality and potentially distinctive intermittency at NSR1 during the quietest night-time periods. Worst-case conservative estimate.
Rating Level	$L_{Ar,15min} = 48$ dB	Sum of Modelled Specific Noise Level and Acoustic Feature Correction
Excess of Rating Level over Background Sound Level	+ 1 dB	The rating level is 23 dB greater than the background sound level.
Excess of Rating Level over Noise Limit	+ 6 dB	The rating level is 6 dB above the mechanical services noise limit
Outcome	Indication of adverse impact, depending on the context	
Uncertainty of the assessment		There is uncertainty in the determination of noise levels using any prediction/modelling method, but these have been reduced where possible by using datasheets to model each source as accurately as possible.

11.3 It can be seen from **Table 8** that the outcome of the initial numerical BS 4142 assessment indicates an adverse impact at the most affected NSR during night-time period, depending on the context.

Table 9: BS 4142:2014 numerical night-time assessment at NSR2 – Baseline

Parameter	Results	Commentary
Measured Residual Sound Level	$L_{Aeq,15min} = 64$ dB	Typical $L_{Aeq,15min}$ sound level measured during night-time periods.
Measured Background Sound Level	$L_{A90,15min} = 47$ dB	Representative background sound level during night-time periods.
Noise Limit	$47 - 5 = 42$ dB $L_{Ar,15min}$	Both BREEAM POL 05 and MCC criteria require noise from plant to be designed so as to achieve a rating level of 5 dB below the typical background (L_{A90}) level at the nearest noise sensitive location.”
Modelled Specific Noise Level	$L_{Aeq,15min} = 49$ dB	Modelled noise level at NSR1.

Parameter	Results	Commentary
Acoustic Feature Correction	+ 0 dB	Potential high perceptibility of inverter tonality and potentially distinctive intermittency at NSR1 during the quietest night-time periods. Worst-case conservative estimate.
Rating Level	$L_{Ar,15min} = 49$ dB	Sum of Modelled Specific Noise Level and Acoustic Feature Correction
Excess of Rating Level over Background Sound Level	+ 2 dB	The rating level is 2 dB greater than the background sound level.
Excess of Rating Level over Noise Limit	+ 7 dB	The rating level is 7 dB above mechanical services noise limit
Outcome	Indication of adverse impact, depending on the context	
Uncertainty of the assessment		There is uncertainty in determination of noise levels using any prediction/modelling method, but these have been reduced where possible by using datasheets to model each source as accurately as possible.

- 11.4 The noise climate in the vicinity of the development is primarily controlled by road traffic noise, but there are also large quantities of mechanical services plant in the vicinity associated with other buildings. The introduction of new mechanical services on the rooftop is unlikely, therefore, to alter the character of the noise climate around the site.
- 11.5 Modelling shows that there is no obvious tonality at the receptor positions due to the plant being installed, and based on our experience of such noise sources and our understanding of their use, there will be no impulsivity, intermittency or other acoustic characteristics requiring penalties to be applied.
- 11.6 As the noise levels exceed the noise limits, however, mitigation must be considered to reduce noise levels at nearby noise sensitive receptors.

12 Mitigation

- 12.1 Based on the current rooftop plant layout, mitigation is required to achieve the noise criteria at the nearby noise sensitive receptors. It is proposed to extend the parapet height to the south and west to a height of 3 m above the roof level, with the rest of the parapet remaining at 1 m.
- 12.2 With these barriers extended vertically, the noise rating levels at the nearby noise sensitive receptors are reduced to 42 dB $L_{A,r,15min}$ with all plant running simultaneously and at maximum operating duty. The modelled noise levels at the NSRs due to emissions from the proposed development with baseline mitigation included are presented in **Appendix 5 Noise Model Output – With Mitigation**. The design would therefore achieve the noise limits set using BREEAM POL 05 and MCC guidance, and following a verification survey, it is likely that the credit may be awarded.

13 Summary and Conclusion

- 13.1 A noise assessment has been undertaken, to predict the potential impact of noise from a proposed new building at One North Parade, Manchester, M3 2NH. The building will feature a ground floor café and office space above, with mechanical services plant mounted on the roof.
- 13.2 An environmental noise survey has been undertaken to quantify the noise climate at and around the site, enabling a mechanical services plant noise impact assessment to be undertaken. The assessment has shown that without mitigation, the proposed plant is likely to exceed Manchester City Council and BREEAM noise limits at nearby noise sensitive receptors.
- 13.3 Mitigation is proposed in the form of extended rooftop barriers on two sides, enabling the appropriate noise criteria to be achieved at all nearby noise sensitive receptors. It is likely that with the proposed mitigation measures in place, compliance with the requirements of POL 05 can be demonstrated and the credit awarded.

APPENDICES

Appendix 1: Policy, Standards and Guidance

1 Noise Policy Statement for England (NPSE)

- 1.1 The Noise Policy Statement for England (NPSE⁵), published in March 2010, sets out the long-term vision of Government noise policy. The Noise Policy aims, as presented in this document, are:

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

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

- 1.2 The NPSE makes reference to the concepts of NOEL (No Observed Effect Level) and LOAEL (Lowest Observed Adverse Effect Level) as used in toxicology but applied to noise impacts. It also introduces the concept of SOAEL (Significant Observed Adverse Effect Level) which is described as the level above which significant adverse effects on health and the quality of life occur.

- 1.3 The first aim of the NPSE is to avoid significant adverse effects, taking into account the guiding principles of sustainable development (as referenced in Section 1.8 of the Statement). The second aim seeks to provide guidance on the situation that exists when the potential noise impact falls between the LOAEL and the SOAEL, in which case:

"...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".

- 1.4 Importantly, the NPSE goes on to state:

"This does not mean that such adverse effects cannot occur".

- 1.5 The Statement does not provide a noise-based measure to define SOAEL, acknowledging that the SOAEL is likely to vary depending on the noise source, the receptor and the time in question. NPSE advises that:

⁵Noise Policy Statement for England, Defra, March 2010

“Not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available”

- 1.6 It is therefore likely that other guidance will need to be referenced when applying objective standards for the assessment of noise, particularly in reference to the SOAEL, whilst also taking into account the specific circumstances of a proposed development.

2 National Planning Policy Framework (NPPF)

- 2.1 The National Planning Policy Framework (NPPF⁶) initially published in March 2012, was updated most recently in December 2024. One of the documents that the NPPF replaces is Planning Policy Guidance Note 24 (PPG 24) “Planning and Noise”⁷.
- 2.2 The revised NPPF advises that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives). One of these is an environmental objective which is described in par. 8 (c):

“to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.”

- 2.3 At par. 187 we are advised that:

“Planning policies and decisions should contribute to and enhance the natural and local environment by:

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans...”

- 2.4 Par. 198 goes on to state:

⁶ National Planning Policy Framework, Ministry of Housing, Communities and Local Government, December 2024

⁷ Planning Policy Guidance 24: Planning and Noise, DCLG, September 1994

“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; ...”

- 2.5 Par. 200 seeks to ensure that any development does not prejudice the legally permitted operations and activities of other, existing non-residential uses, stating:

“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.”

3 BS 4142:2014+A1:2019 ‘Methods for rating and assessing industrial and commercial sound’

- 3.1 BS 4142:2014+A1:2019⁸ provides guidance on the assessment of the likelihood of complaints relating to noise from industrial sources. The standard presents a method of assessing potential noise impact by comparing the noise level due to industrial sources (the Rating Level) with that of the existing background noise level at the nearest noise sensitive receiver in the absence of the source (the Background Sound Level).

⁸ BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound

3.2 The Specific Noise Level – the noise level produced by the source in question at the assessment location – is determined and a correction applied for certain undesirable acoustic features such as tonality, impulsivity or intermittency. The corrected Specific Noise Level is referred to as the Rating Level.

3.3 In order to assess the noise impact, the Background Sound Level is arithmetically subtracted from the Rating Level. The standard states the following:

- *Typically, the greater this difference, the greater the magnitude of the impact,*
- *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context,*
- *A difference of around +5 dB 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.*

3.4 In addition to the margin by which the Rating Level of the specific sound source exceeds the Background Sound Level, the 2014+A1:2019 edition places emphasis upon an appreciation of the context, as follows:

An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context.

Appendix 2: Site Location, Monitoring and NSR Locations



Appendix 3: Environmental Sound Survey Results

One North Parade, Manchester

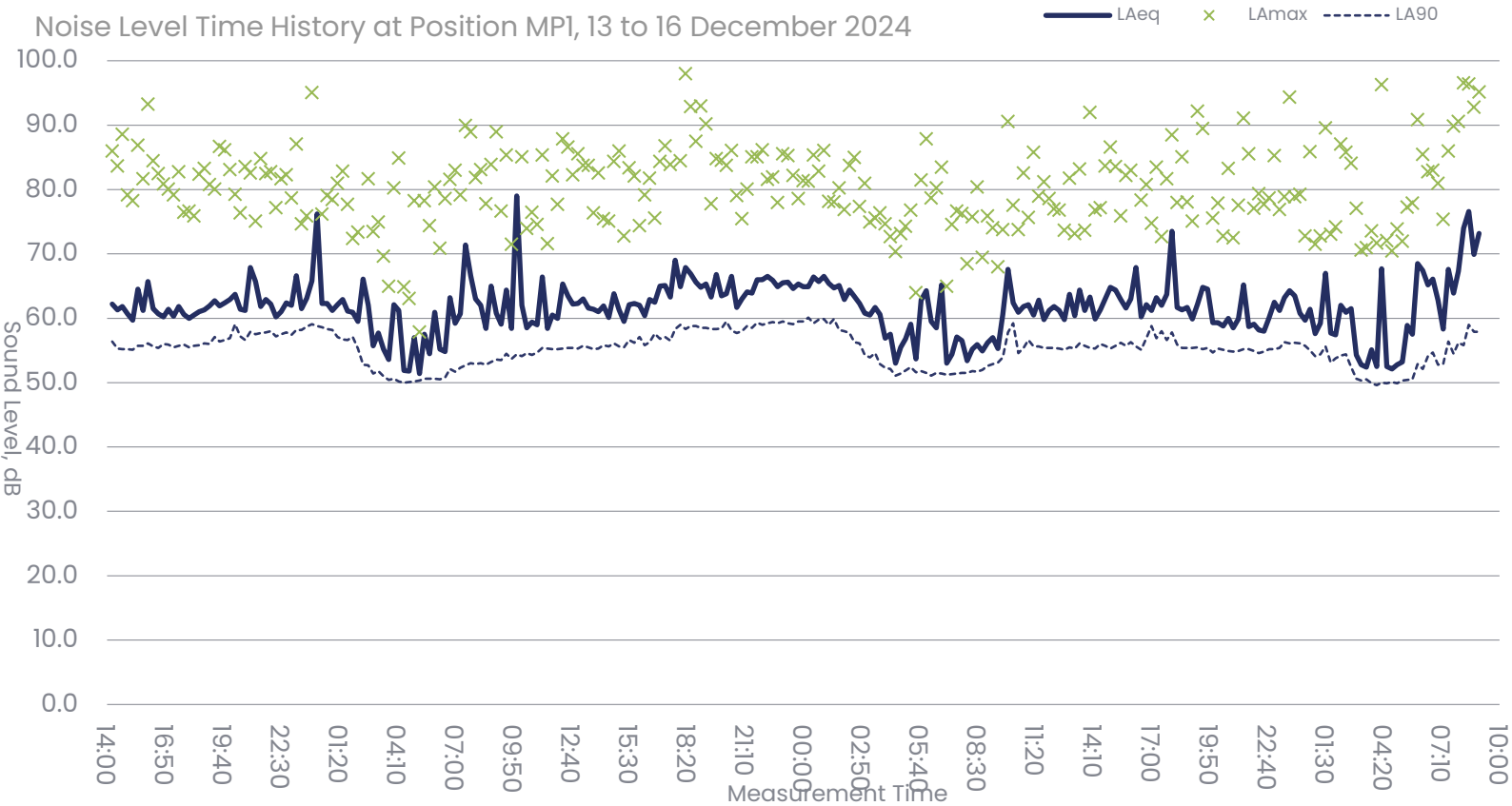
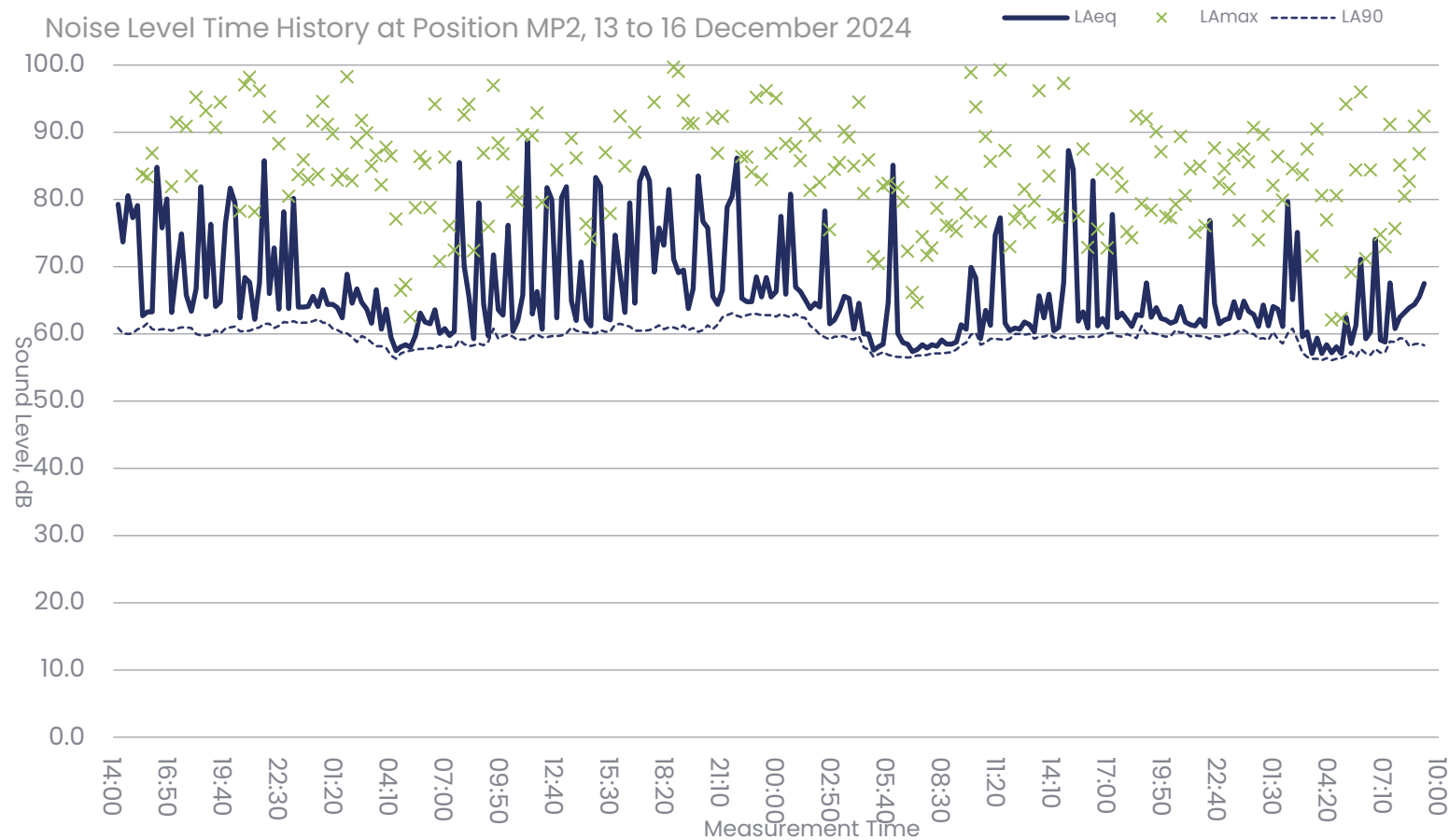


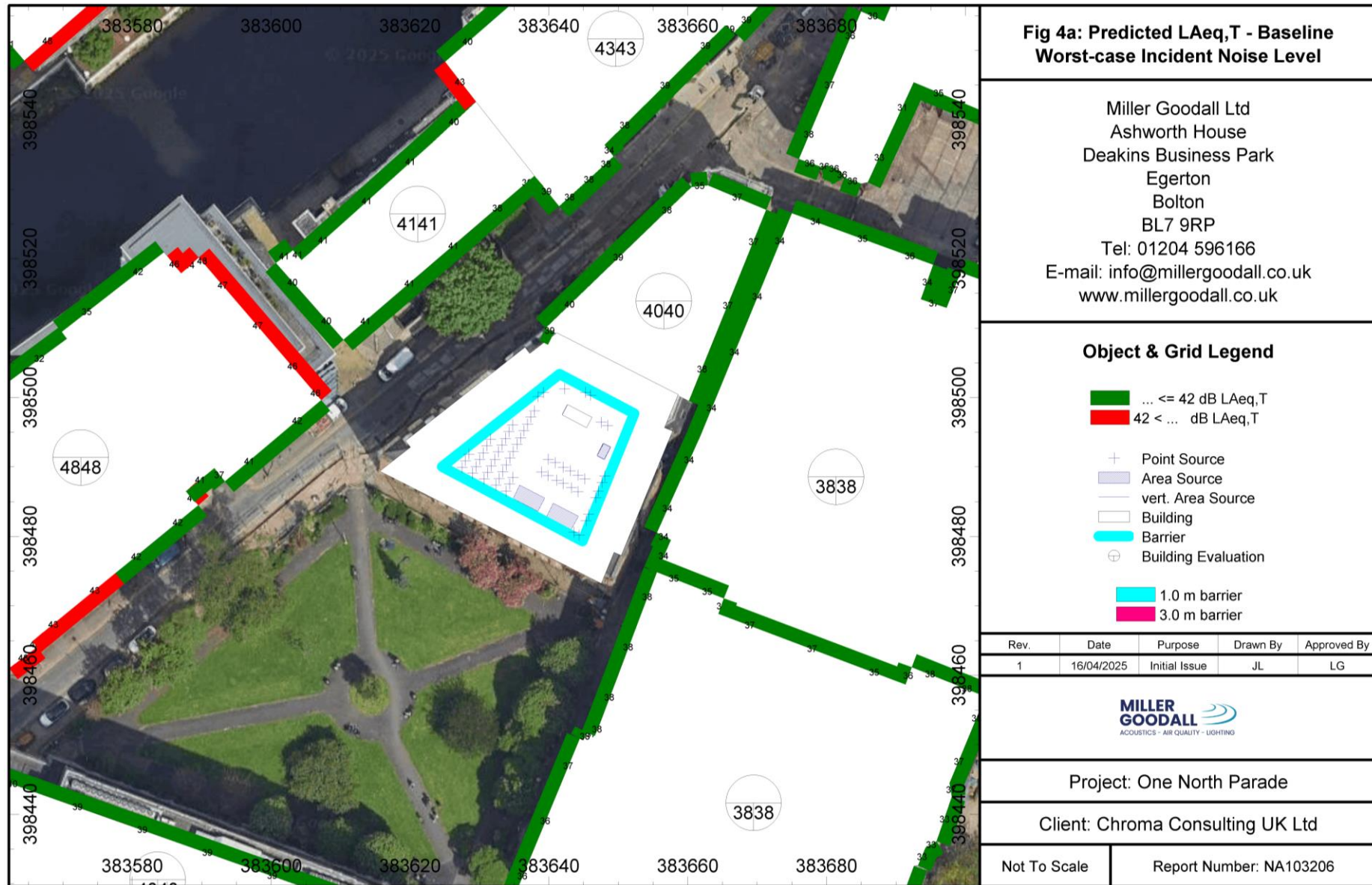
Figure 103206/TH01

Figure 10321/TH01

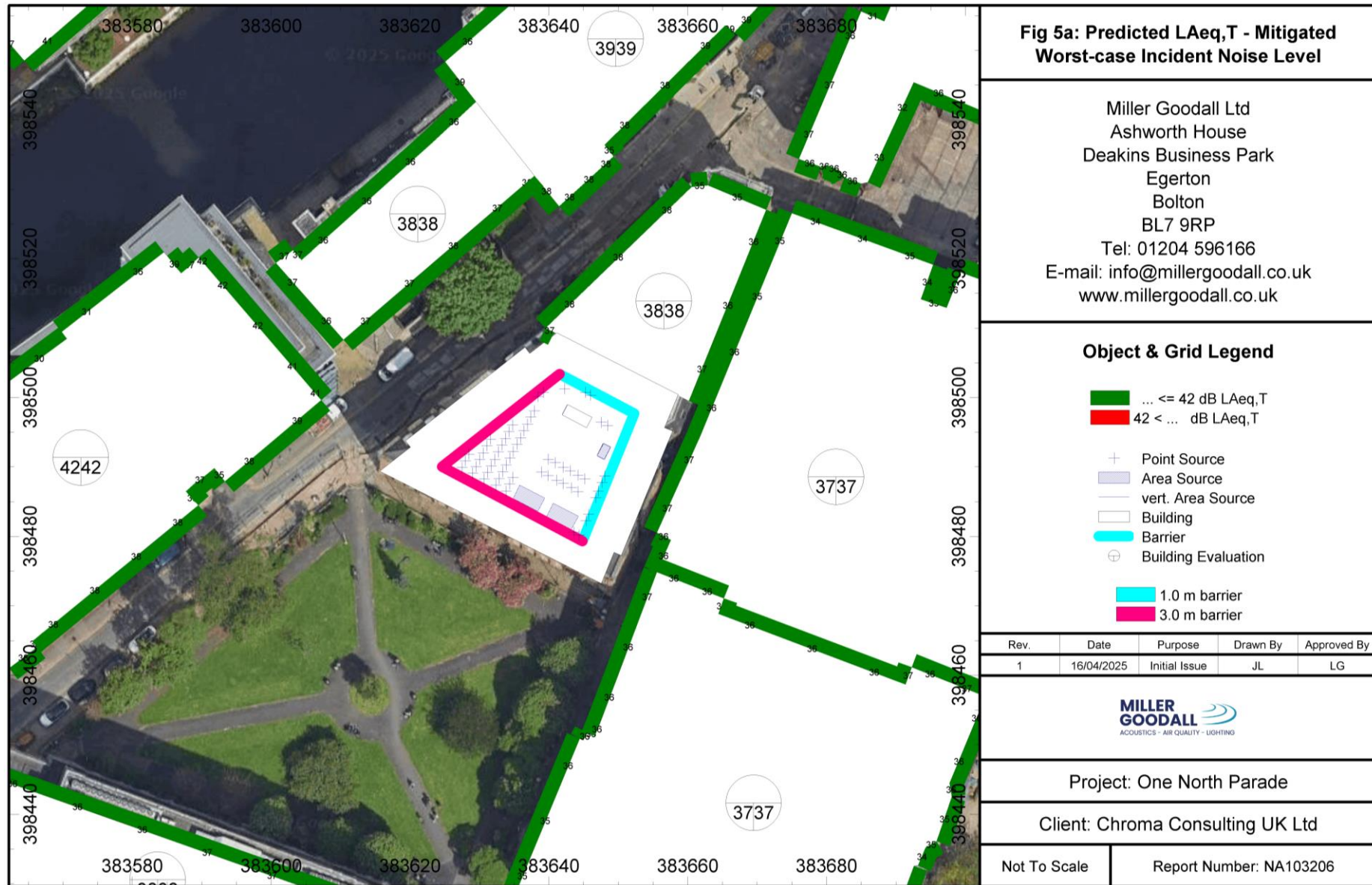
One North Parade, Manchester



Appendix 4: Noise Model Output – Baseline Model



Appendix 5: Noise Model Output – With Mitigation



Glossary of Terms

Decibel (dB) The unit used to quantify sound pressure levels; it is derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 μPa , the threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is usually only perceptible under laboratory conditions.

dB L_A Decibels measured on a sound level meter incorporating a frequency weighting (A-weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB L_A broadly agree with an individual's assessment of loudness. A change of 3 dB L_A is the minimum perceptible under normal conditions, and a change of 10 dB L_A corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB L_A ; normal conversation about 60 dB L_A at 1 meter; heavy road traffic about 80 dB L_A at 10 meters; the level near a pneumatic drill about 100 dB L_A .

$L_{A90,T}$ The A weighted noise level exceeded for 90% of the specified measurement period (T). In BS 4142: 2014+A1:2019 it is used to define background noise level.

$L_{Aeq,T}$ The equivalent continuous sound level. The sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period (T). $L_{Aeq,T}$ is used to describe many types of noise and can be measured directly with an integrating sound level meter.

$L_{AF,max}$ The highest A-weighted noise level recorded during the time period using a Fast time-weighting. It is usually used to describe the highest noise level that occurred during the event.

