

NOISE ASSESSMENT

on behalf of

RAPLEYS LLP

for the site at

**FORMER RUSHOLME BUS DEPOT, 263 WILMSLOW
RD, MANCHESTER M14 5LN**

REPORT DATE: 13 DECEMBER 2024

REPORT NUMBER: 103218

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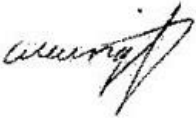
Summary

A noise impact assessment has been undertaken to predict the potential impact of a proposed new Lidl store at the Former Rusholme Bus Depot, 263 Wilmslow Rd, Manchester M14 5LN.

Measurements were made at locations representative of the nearest noise sensitive receptors to the proposed site to identify the pre-development noise levels. This data was subsequently used to set plant noise limits and to predict the potential impact of noise from delivery activities associated with the proposed development when in use.

A noise model has been assembled for the proposed development site, the results from which are provided within this report.

The assessment indicates that so long as recommended mitigation measures are implemented, noise is not a reason to refuse planning permission.

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Signed:		Signed:	
Date:	13 December 2024	Date:	13 December 2024

Record of changes

Version	Date	Change	Initials
1	13 December 2024	First issue	WW
2	27 February 2025	Significant enhancement to recommended mitigation	WW
3	20 March 2025	Updated site layout. Minor change	WW

1 Advisories

It is recommended that you confirm the suitability of all recommended noise mitigation measures with your architects, structural engineers, building contractors, fire consultants and material manufacturers prior to procurement and field application so 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.

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1 Introduction

- 1.1 Miller Goodall Ltd has undertaken a noise assessment in respect of the impact of noise from a proposed new retail unit at the Former Rusholme Bus Depot, 263 Wilmslow Rd, Manchester M14 5LN.
- 1.2 This noise assessment assesses the potential noise impact of operations associated with the new store during worst-case periods with respect to noise, covering both vehicle movements and mechanical services plant.

2 Site Description

- 2.1 The site is located at Former Rusholme Bus Depot, 263 Wilmslow Rd, Manchester M14 5LN.
- 2.2 The surrounding site area is predominantly residential, with some commercial units nearby. The nearest residences are on Marcus Grove to the east of the site which are adjacent to the site boundary. To the south of the site is Farnworth Drive and a residential tower, while the northern boundary adjoins what appears to be offices mixed with residential apartments. To the west the site is bounded by Wilmslow Road (A6010) with commercial units to the north west and Platt Fields Park to the South West.

3 Proposed Development

- 3.1 The proposal is to build a new Lidl store at the site to with parking for 89 cars, plus a single HGV delivery bay. The new building will include mechanical services plant serving the bakery, welfare areas, main shopping areas and other ancillary spaces.
- 3.2 Parking spaces are located primarily to the north of the proposed building, with limited parking at the west of the building adjacent to Wilmslow Road. An external plant deck is located at the north east corner of the building at first floor level, and the loading dock for deliveries is at the east side of the building with vehicular access via the main car park.
- 3.3 It is understood that opening hours for the store are likely to be as follows:
 - 08:00 – 22:00, Monday to Saturday
 - 10:00 – 16:00, Sunday

- 3.4 The client has requested as much flexibility with delivery hours as possible, depending on the results of the noise impact assessment. Given the proximity of the nearest dwellings to the proposed delivery bay, deliveries are expected to be feasible only during daytime hours, i.e. 07:00 – 23:00.
- 3.5 Condenser and dry cooler mechanical plant is proposed to operate 24/7 for refrigerators and freezers, however, air handling units and mechanical extract ventilation plant are not expected to operate outside of store opening hours. Condenser and dry cooler plant are also expected to operate at a lower capacity over the night-time period.

4 Policy, Guidance and Assessment Methodology

- 4.1 National planning policy is outlined in **Appendix 1: Planning Policy**. The acoustic standards and assessment techniques referred to in this assessment are outlined in **Appendix 2: Acoustic Standards and Guidance**.

5 Local Authority Consultation

- 5.1 Karen Williamson at MCC was consulted in respect of the methodology used in this assessment¹. It was agreed that an unattended noise survey encompassing a weekend period would be undertaken to quantify the quietest part of the operational period of the proposed store, when it is likely to have the highest impact.
- 5.2 Noise from mechanical services plant, deliveries and HGV movements would be modelled based on manufacturer's noise data where possible, and from Miller Goodall's extensive library of noise measurement data where appropriate. This would then be assessed against BS 4142 using the measured background noise levels at the site, and mitigation proposed as required to achieve a low impact at the worst affected receptors.

6 Measurements of Existing Noise Sources

- 6.1 Noise measurements were undertaken at locations representative of the closest noise-sensitive receptors to quantify the noise climate at the nearby noise-sensitive receptors in accordance with BS 7445-1: 2003² by Lesley Goodall of Miller Goodall Ltd. The calibration of the sound level meter was

¹ Email to laura.miller@manchester.gov.uk dated 11/10/2024. Response from karen.williamson@manchester.gov.uk dated 21/10/2024

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

checked before and after measurements with negligible deviation (≤ 0.1 dB). Details of the equipment used are shown in **Table 1**.

Table 1: Noise monitoring equipment

Equipment Description	Type Number	Manufacturer	Serial No.	Date Calibrated	Calibration Certification Number
Class 1 ^{3,4} Integrating Real Time 1/3 Octave Sound Analyser	NTi XL2-TA	NTi Audio	A2A-15860-E0	27/02/2023	06143/1
Pre-amplifier	NTi MA220	NTi Audio	8102	27/02/2023	06143/1
Microphone	NTi MC230A	NTi Audio	A16445	27/02/2023	06143/1
Class 1 Calibrator ⁵	NOR 1251	Norsonic	32798	29/05/2024	U47928
Outdoor microphone housing	NTi WP30	NTi Audio	NA	NA	NA

6.2 Background and ambient noise monitoring was undertaken at the times specified in Table 2, below. Weather conditions were determined both at the start and on completion of the survey. It is considered that meteorological conditions were appropriate for environmental noise measurements. Measurement locations are shown in **Appendix 3: Monitoring Position**.

³ IEC 61672-1 (2002) Electroacoustics – Sound level meters Part 1: Specifications

⁴ IEC 61260 (1995) Electroacoustics – Octave-band and fractional-octave-band filters

⁵ IEC 60942 (2003) Electroacoustics – Sound calibrators

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

Measurement Locations	Date/Time	Weather conditions		
		Description	At Start of Survey	On Completion
MP1	12/10/2024, 14:45 to 14/10/2024, 13:45	Temperature:	10 °C	13 °C
		Precipitation:	Dry	Dry
		Cloud cover (oktas – see opposite):	8	6
		Any fog/snow/ice?	No	No
		Any damp roads/wet ground?	No	No
		Wind speed:	< 5 m/s	< 5 m/s
		Wind direction:	Not obvious	
		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

6.3 Measurements were taken at times considered to be representative of the periods during which the proposed residential accommodation would be subject to the lowest levels of background noise. Measurements were made under free-field conditions at a height of 1.5 m above local ground level.

6.4 The measurement locations are described below:

- MP1 approximately 10 m from the end of Marcus Grove, in line with middle of road.

6.5 The noise sources within the vicinity of the measurement location are summarised in **Table 3**, below:

Table 3: Description of noise sources affecting the site

Measurement Locations	Noise Sources
MPI	Local and distant road noise,
	An event with amplified music on Platt Fields during Saturday afternoon
	Children playing in Marcus Grove on Sunday afternoon

7 Monitoring Results

7.1 A summary of the broadband measurement data is provided in **Table 4** below with a time history graph of 15-minute data in shown in **Appendix 4: Measurement Data**. All data are sound pressure levels in dB re 20 µPa.

Table 4: Summary of noise measurements at MPI

Period	Start Time (hh:mm)	Elapsed Time (hh:mm)	L _{Aeq,T} (dB)	Overall L _{AF,max} (dB)	L _{A90,T} (dB)
Saturday Day	14:45	08:15	60.1	80.2	51
Saturday Night	23:00	08:00	50.3	91.9	43
Sunday Day	07:00	16:00	47.2	82.9	41
Sunday Night	23:00	08:00	44.3	76.2	37
Monday Day	07:00	07:00	48.1	76.6	42

7.2 Each measurement period consisted of sequential 100 ms samples which therefore allowed the variation in noise level over time to be assessed. The 100 ms noise levels have not been presented in this report but are kept on file for future reference.

8 Noise Modelling

- 8.1 Prediction of noise levels at sensitive receptors from proposed mechanical plant and HGV deliveries was carried out using CadnaA software package. The data from measurements taken was used to populate an environmental noise model.
- 8.2 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 %. Building height information was based on site observations.

8.3 The following parameters were assigned to the model:

- Propagation of noise using algorithms within ISO 9613-2:2024 *Acoustics – Attenuation of sound during propagation outdoors*.
- HGV movements were modelled as line sources at a height of 1.5 m above ground level and calibrated using spectral data previously recorded by Miller Goodall Ltd.
- HGV refrigeration units were modelled as line sources (when moving) and point sources (during loading / unloading operations) at a height of 3 m above ground level and calibrated using spectral data previously recorded by Miller Goodall Ltd.
- Mechanical services plant at approximate height of terminations, dependent on item
- Default ground absorption $G = 0.2$
- Ground attenuation: spectral all sources
- No adverse meteorological effects
- Three orders of reflection
- Topographical data was obtained using DEFRA LIDAR contours for the site and surrounding assessment area.

8.4 The octave band L_{eq} source data shown in **Table 5** were imported directly into the model. This data was taken from Miller Goodall's library of recorded data for such sources. Sound power level data shown in **Table 6** was taken directly from manufacturer's documentation and imported directly into the model.

Table 5: Sound Pressure Level source data used within CadnaA

Description	Distance (m)	Sphere Part (50%)	Sound Pressure Level, dB at Octave Band Centre Frequency, Hz								Sound Power Level dB(A)
			63	125	250	500	1k	2k	4k	8k	
HGV Passby	10	50	60.0	65.0	64.0	68.0	70.0	67.0	63.0	62.0	101.7
HGV Refrigeration Unit	11.5	50	82.0	69.0	63.0	62.2	59.9	53.2	47.1	39.8	93.9
Indicative Dry Cooler ¹	5	50	70.2	60.1	52.6	47.2	44	42.8	43.0	45.1	75.0

¹ A single figure indicative level was provided for the dry cooler. As a worst case assumption, a flat A-weighted spectrum has been assumed for the purposes of assessment.

Table 6: Sound Power Level source data used within CadnaA

Description	Sound Power Level, dB								dB(A)
	at Octave Band Centre Frequency, Hz								
	63	125	250	500	1k	2k	4k	8k	
Daikin RXYSQ8TY1	82.0	82.0	72.0	71.0	67.5	64.0	58.0	54.0	73.5
Daikin RXYSQ4TV9	68.0	68.0	68.0	65.5	64.0	59.0	54.0	43.0	68.2
2 x Daikin RXYSQ12 TY1	79.0	79.0	73.5	75.0	72.0	65.5	62.0	55.5	76.4
AHU01 Intake	60.9	67.3	64.6	60.1	58.2	58.2	60.5	51.8	66.1
AHU01 Intake Fan Breakout	59.1	59.1	56.1	56.6	51.5	45.2	39.5	23.2	56.9
AHU01 Exhaust	68.1	73.0	71.9	74.0	75.3	72.9	72.2	63.5	79.9
AHU01 Exhaust Fan Breakout	58.6	58.6	55.5	56.3	51.1	44.9	39.5	22.8	56.6
EF01 Customer WC	65.8	63.2	52.0	51.0	43.0	45.2	30.8	25.0	53.2
EF02 Bakery	60.8	67.2	65.0	67.0	67.0	66.2	59.8	51.0	71.7
EF03 Staff WC	77.8	65.2	55.0	52.0	47.0	40.2	29.8	27.0	56.1
SF01 & SF02 Cold Room	73.8	69.2	66.0	57.0	53.0	55.2	53.8	36.0	63.0
Welfare MVHR	74.0	66.0	62.5	59.0	55.0	52.0	46.0	39.0	61.4
DRS MVHR	70.5	62.5	60.0	57.0	51.0	48.0	44.0	39.0	58.4
HGV Delivery	97.0	90.5	85.1	83.9	87.0	85.4	80.5	74.3	91.2

8.5 AHU, EF, SF and MVHR plant is not proposed to operate outside of opening hours and will only operate during daytime hours.

8.6 The sound levels presented in **Table 6** represent 100% capacity operation. Miller Goodall Ltd. Are informed by the M&E consultant of the following expected night-time operating capacities for the above plant:

- CU01 Warehouse – 1No RXYSQ8Y1
(60%) = 44.0 dBA

- CU02 Back of House - 1No RXYSQ4TV9
(60%) = 46.0 dBA
- CU04 AHU DX Coil Circuit 1-2 - 1No RXYSQ12TY1
(60%) = 45.0 dBA
- CU05 AHU DX Coil Circuit 1-2 - 1No RXYSQ12TY1
(60%) = 45.0 dBA

- 8.7 The reduction in overall sound level has been applied to the relevant sound sources in the noise model for night-time operations.
- 8.8 Graphic reports from the noise model indicating the noise contours and the highest predicted broadband L_{Aeq} noise levels at the nearest noise sensitive receivers are shown in **Appendix 5: Noise Grid Maps**.

9 BS 4142:2014+A1:2019 Assessment

9.1 Introduction

- 9.1.1 A BS 4142 noise impact assessment has been undertaken in order to assess the potential noise impact at the most affected location of the proposed development site and is detailed in this section of the report.

9.2 Night time assessment – mechanical services plant and HGV delivery noise

- 9.2.1 The following BS 4142 assessment considers the worst-case night-time impact (i.e. 23:00 – 07:00) with mechanical services plant and HGV delivery without mitigation.
- 9.2.2 Based on the above assumptions, the BS 4142 assessment of noise impact at the most affected location of the proposed development site is shown in **Table 7**

Table 7: BS 4142:2014 Cumulative Noise Impact Assessment: Night Time

Results		Relevant Clauses of BS 4142:2014	Commentary
Background Sound Level	$L_{A90,15mins} = 35\text{ dB}$	8.1.2 8.3	Determined using the Little Red Book of Acoustics statistical analysis method for determining the representative background sound level.

Results	Relevant Clauses of BS 4142:2014	Commentary
Assessment made during the night-time, so the reference interval is 15 min	7.2	
Specific Sound Level	$L_{Aeq,15mins} =$ 58 dB	Results of CadnaA 3D noise model
Acoustic character correction	+ 6 dB	9.2 Impulsiveness (banging sounds from loading) perceptible at receptor
Rating Level	$(58 + 6) =$ 64 dB	
Excess of Rating Level over Background Sound Level	$(64 - 35) =$ 29 dB	
Assessment indicates likelihood of significant adverse impact	11	Initial estimate only
Context	11 8.5	The assessment relates to a new receptor in an area where noise from vehicle movements is an established part of the existing acoustic environment.
Uncertainty of the assessment	10	There is an inherent margin of error within the CadnaA noise modelling software however this is considered to be negligible in relation to the assessment

9.3 It can be seen from the above table that the initial estimate of noise impact of the Lidl store operations, based on the BS 4142 methodology, indicated a likelihood of significant adverse impact at the closest area of the proposed development site.

9.4 Noise mitigation measures are required to reduce the noise impact to low. It is recommended that;

- HGV deliveries be restricted to daytime only;
- acoustically absorbent noise barriers around the site be constructed;
- an acoustically absorbent “pod” around the delivery bay be constructed;
- Delivery bays should also be docked by HGVs such that noise is contained within the trailer and delivery warehouse; and
- A barrier around the plant area is provided.
- HGVs should not leave the site until at least 1 hour after they arrive.

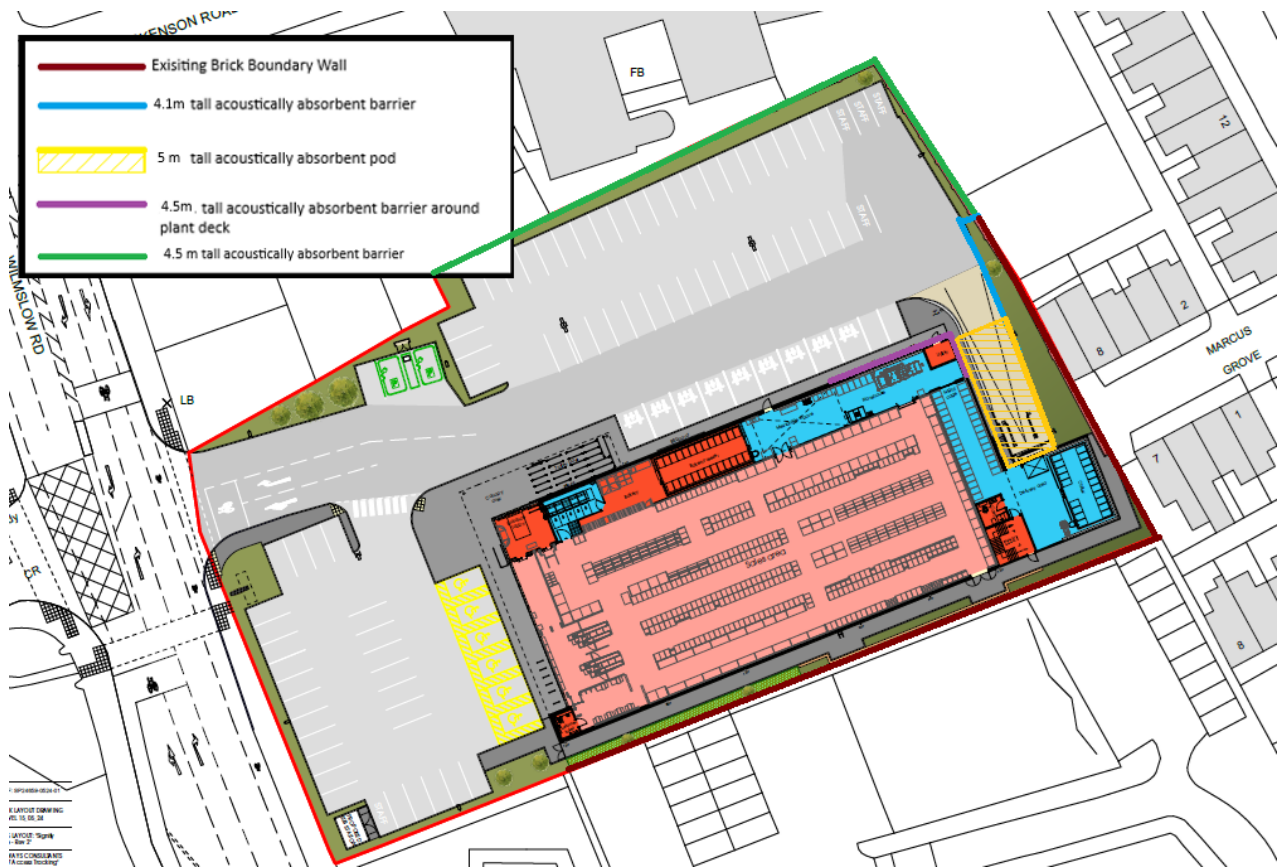
- The plant deck louvre should be a 300 mm deep double back acoustic louvre.

9.4.1 Further detail on these recommended mitigation measures are provided in section **10 Mitigation Measures**.

10 Mitigation Measures

10.1 Acoustic Barriers

- 10.1.1 It is recommended that an acoustically absorbent noise barrier is erected around the proposed plant area. The barrier is to be constructed from continuous, imperforate material and is to extend from the plant deck roof to a minimum height of 4.5 m above the plant deck level. The acoustic barrier should have an absorption coefficient of 0.6.
- 10.1.2 It is recommended that an acoustically absorbent noise barrier is erected along the northern boundary and section of the eastern boundary of the site to replace or extend the height of the existing brick boundary wall. The barrier is to be constructed from continuous, imperforate material and is to extend from the ground to a minimum height of 4.5 m above the site level. The acoustic barrier should have an absorption coefficient of 0.6.
- 10.1.3 It is recommended that an acoustically absorbent 'pod' is erected to enclose the delivery area. The pod shall comprise a 5 m tall barrier along the east of the delivery bay with a canopy overhead which joins to the store building to be constructed from continuous, imperforate material and is to extend from the ground to a minimum height of 5 m above the site level. The acoustic barrier should have an absorption coefficient of 0.6. The pod shall be near completely enclosed except for an open entrance facing north-northwest.
- 10.1.4 It is recommended that an acoustically absorbent noise barrier to extend from the eastern wall of the recommended pod construction be installed to meet the recommended barrier to the north and northeast. The barrier is to be constructed from continuous, imperforate material and is to extend from the ground to a minimum height of 4.1 m above the site level. The acoustic barrier should have an absorption coefficient of 0.6.
- 10.1.5 The locations of the proposed barriers and pod are indicated in **Figure 1**, below:

Figure 1: Locations of proposed barriers and pod

10.2 Delivery Hours Restrictions

10.2.1 In order to further reduce the noise impacts from delivery noise, it is recommended that deliveries are restricted at the site to daytime only between 07:00 – 23:00hrs.

10.3 Acoustic Louvre on Plant Deck barrier

10.3.1 A louvre is required for air flow to the plant deck. In order to reduce the impact of mechanical plant noise, we recommend that this louvre be a double banked acoustic louvre at least 300 mm deep. In order for this to accommodate the required airflow, the mechanical services consultant has determined that the size of the louvre must be 2 m high by 14 m long.

10.4 Delivery HGV refrigeration plant Electrical Standby

10.4.1 The refrigeration plant on HGVs must be set to electrical standby settings whilst within the delivery pod bay. Based on the manufacturer's data sheet, this provides a 3 dB reduction in idle refrigeration noise.

10.5 Night Time assessment – Mitigated Mechanical Service Plant Noise Only

10.5.1 The following BS 4142 assessment considers the worst-case night-time impact (i.e. 23:00 – 07:00) with the mechanical services plant operating and the recommended mitigation measures in place.

10.5.2 Based on the above assumptions, the BS 4142 assessment of noise impact at the most affected location of the proposed development site is shown in **Table 8** below:

Table 8: BS 4142:2014 Cumulative Mitigated Noise Impact Assessment: Night Time

Results		Relevant Clauses of BS 4142:2014	Commentary
Background Sound Level	$L_{A90,15\text{mins}} = 35 \text{ dB}$	8.1.2 8.3	Determined using the Little Red Book of Acoustics statistical analysis method for determining the representative background sound level.
Assessment made during the night-time, so the reference interval is 15 min		7.2	
Specific Sound Level	$L_{Aeq,15\text{mins}} = 33 \text{ dB}$		Results of CadnaA 3D noise model
Acoustic character correction	+ 0 dB	9.2	
Rating Level	$(33 + 0) = 33 \text{ dB}$		
Excess of Rating Level over Background Sound Level	$(33 - 35) = -2 \text{ dB}$		
Assessment indicates likelihood of low impact		11	Initial estimate only
Context		11 8.5	Mechanical plant is expected to operate continuously with resultant rating level below the representative background sound level in the worst-case during the night time.
Uncertainty of the assessment		10	There is an inherent margin of error within the CadnaA noise modelling software however this is considered to be negligible in relation to the assessment

10.5.3 It can be seen from the above table that the initial estimate of noise impact of the Lidl store operations during the night-time with mitigation recommendations in place, based on the BS 4142 methodology, indicates a likelihood of low impact at the closest area of the proposed development site.

10.6 Daytime assessment – Mitigated Mechanical Services Plant and HGV Delivery Noise

10.6.1 The following BS 4142 assessment considers the worst-case daytime impact (i.e. 07:00 – 23:00) with recommended mitigation in place, all mechanical services plant operating at maximum capacity and one HGV delivery per hour.

10.6.2 Based on the above assumptions, the BS 4142 assessment of noise impact at the most affected location of the proposed development site is shown in **Table 9** below:

Table 9: BS 4142:2014 Cumulative Mitigated Noise Impact Assessment: Daytime

Results		Relevant Clauses of BS 4142:2014	Commentary
Background Sound Level	$L_{A90,1\text{-hour}} = 41 \text{ dB}$	8.1.2 8.3	Determined using the Little Red Book of Acoustics statistical analysis method for determining the representative background sound level.
Assessment made during the daytime, so the reference interval is 1 hour		7.2	
Specific Sound Level	$L_{Aeq,15\text{mins}} = 44 \text{ dB}$		Results of CadnaA 3D noise model
Acoustic character correction	+ 0 dB	9.2	Podded delivery bay with sealed docking removes the impulsive noise from delivery activities
Rating Level	$(44 + 0) = 44 \text{ dB}$		
Excess of Rating Level over Background Sound Level		$(44 - 41) = 3 \text{ dB}$	
Assessment indicates likelihood of low impact		11	Initial estimate only
Context		11 8.5	The assessment relates to a new receptor in an area where noise from vehicle movements is an established part of the existing acoustic environment.

Results	Relevant Clauses of BS 4142:2014	Commentary
		Mechanical plant is expected to operate continuously with resultant rating level below the representative background sound level in the worst-case during the night time.
Uncertainty of the assessment	10	There is an inherent margin of error within the CadnaA noise modelling software however this is considered to be negligible in relation to the assessment

10.6.3 It can be seen from the above table that the initial estimate of noise impact of the Lidl store operations during the daytime with mitigation recommendations in place, based on the BS 4142 methodology, indicates a likelihood of low impact at the closest area of the proposed development site.

It should be noted that the site was previously a bus depot, which saw the coming and going of multiple large diesel-engine vehicles (buses). In this context, a single delivery per day to the proposed retail store would likely represent a fraction of the heavy vehicle noise previously produced on the site.

11 Summary and Conclusions

- 11.1 A noise assessment has been undertaken at Former Rusholme Bus Depot, 263 Wilmslow Rd, Manchester M14 5LN in respect of the impact of noise from a proposed Lidl Store onto the closest noise sensitive receptors (NSRs).
- 11.2 Unattended noise monitoring was carried out from Saturday 12th October 2024 to Monday 14th October 2024 to determine existing background noise levels.
- 11.3 CadnaA noise modelling was utilised to predict the impact of plant noise and HGV movements from the site at the closest NSRs. The noise impact was assessed against BS 4142:2014+A1:2019.
- 11.4 The BS 4142:2014+A1:2019 assessment concluded that, with the proposed mitigation included and taking into account context of the site and the measurement location, the cumulative impact of noise from the proposed development would result in a low impact for the daytime and night-time so long as all recommended mitigation is installed and deliveries are restricted to daytime hours only.

- 11.5 It is considered that a suitable and commensurate level of protection against noise will be provided to the occupants of nearby residences after mitigation measures are put in place. Therefore, the site is suitable for development on noise grounds.

APPENDICES

Appendix 1: Planning Policy

Noise Policy Statement for England

The Noise Policy Statement for England (NPSE⁶), 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."*

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.

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".

Importantly, the NPSE goes on to state:

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

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:

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

⁶ Noise Policy Statement for England, Defra, March 2010

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.

National Planning Policy Framework

The National Planning Policy Framework (NPPF⁷) initially published in March 2012, was updated most recently in December 2023. One of the documents that the NPPF replaces is Planning Policy Guidance Note 24 (PPG 24) "Planning and Noise"⁸.

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."

At par. 180 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..."

Par. 191 goes on to state:

"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

⁷ National Planning Policy Framework, Ministry of Housing, Communities and Local Government, December 2023

⁸ Planning Policy Guidance 24: Planning and Noise, DCLG, September 1994

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; ...”

Par. 193 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.”

Planning Practice Guidance – Noise

As of March 2014, a Planning Practice Guidance⁹ for noise was issued which provides additional guidance and elaboration on the NPPF, the guidance was updated in July 2019. It advises that when plan-making and decision-taking, the Local Planning Authority should consider the acoustic environment in relation to:

- Whether or not a significant adverse effect is occurring or likely to occur;
- Whether or not an adverse effect is occurring or likely to occur; and
- Whether or not a good standard of amenity can be achieved.

In line with the Explanatory Note of the NPSE, the PPG goes on to reference the LOAEL and SOAEL in relation to noise impact. It also provides examples of outcomes that could be expected for a given perception level

⁹ Planning Practice Guidance – Noise, <https://www.gov.uk/guidance/noise--2> 22nd July 2019.

of noise, plus actions that may be required to bring about a desired outcome. However, in line with the NPSE, no objective noise levels are provided for LOAEL or SOAEL although the PPG acknowledges that:

“...the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any particular situation”.

Examples of these factors include:

- The source and absolute noise level of the source along with the time of day that it occurs;
- Where the noise is non-continuous, the number of noise events and pattern of occurrence;
- The frequency content and acoustic characteristics of the noise;
- The effect of noise on wildlife;
- The acoustic environment of external amenity areas provided as an intrinsic part of the overall design;
- The impact of noise from certain commercial developments such as night clubs and pubs where activities are often at their peak during the evening and night.

The PPG also provides general advice on the typical options available for mitigating noise. It goes on to suggest that Local Plans may include noise standards applicable to proposed developments within the Local Authority's administrative boundary, although it states that:

“Care should be taken, however, to avoid these being implemented as fixed thresholds as specific circumstances may justify some variation being allowed”.

The PPG was amended in December 2014 to clarify guidance on the potential effect of noise from existing businesses on proposed new residential accommodation. Even if existing noise levels are intermittent (for example, from a live music venue), noise will need to be carefully considered and appropriate mitigation measures employed to control noise at the proposed accommodation.

Appendix 2: Acoustic Standards and Guidance

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

BS 4142:2014+A1:2019¹⁰ provides guidance on the assessment of the likelihood of complaints relating to noise from industrial sources. It replaced the 1997 edition of the Standard in October 2014 and was amended in June 2019. The amended version corrected a number of printing errors and further clarified that the standard is used to assess external noise levels, and not internal noise levels (although this can form part of the discussion regarding context). The key aspects of the Standard are summarised below.

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).

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.

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.*

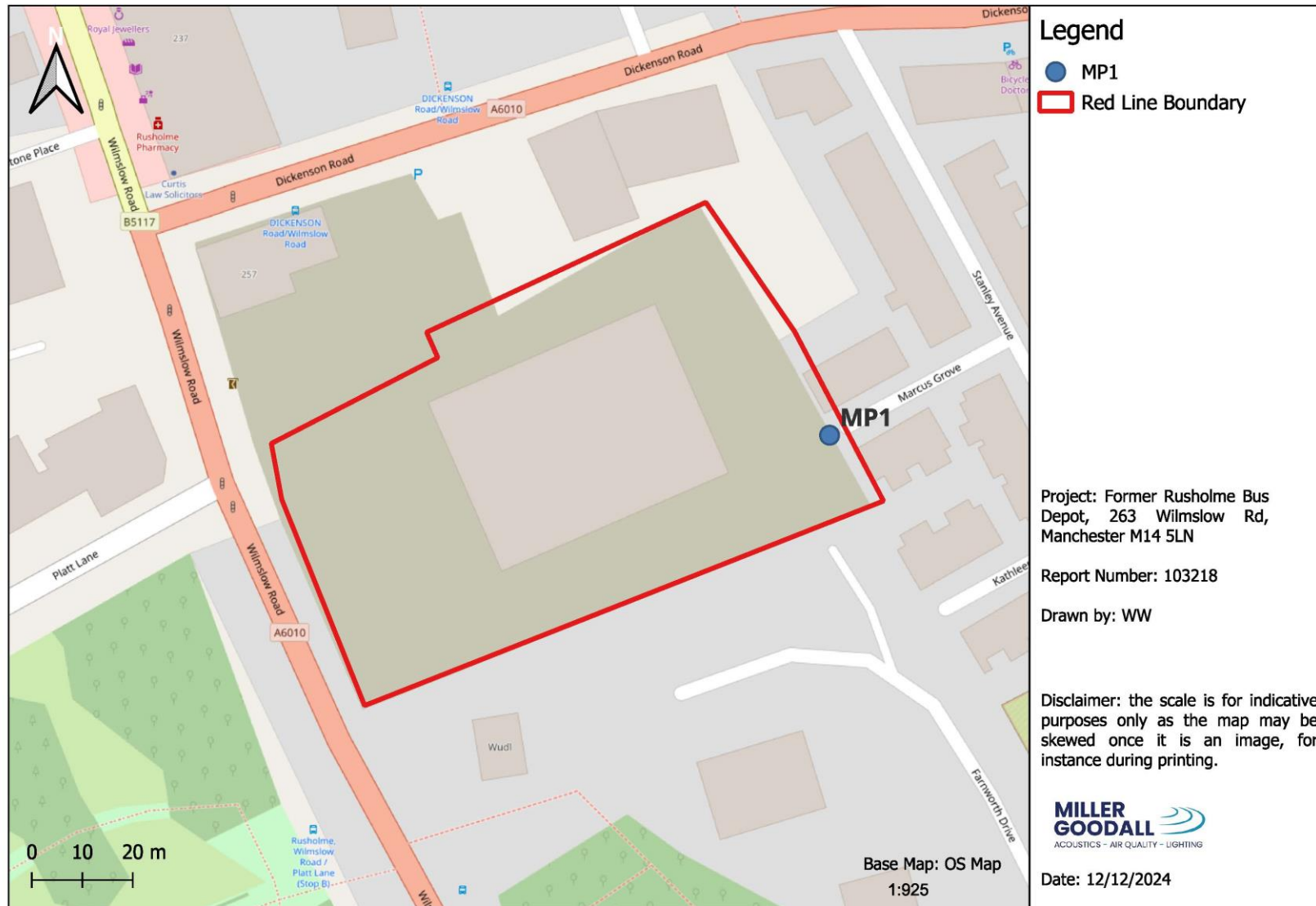
¹⁰ BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound

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:

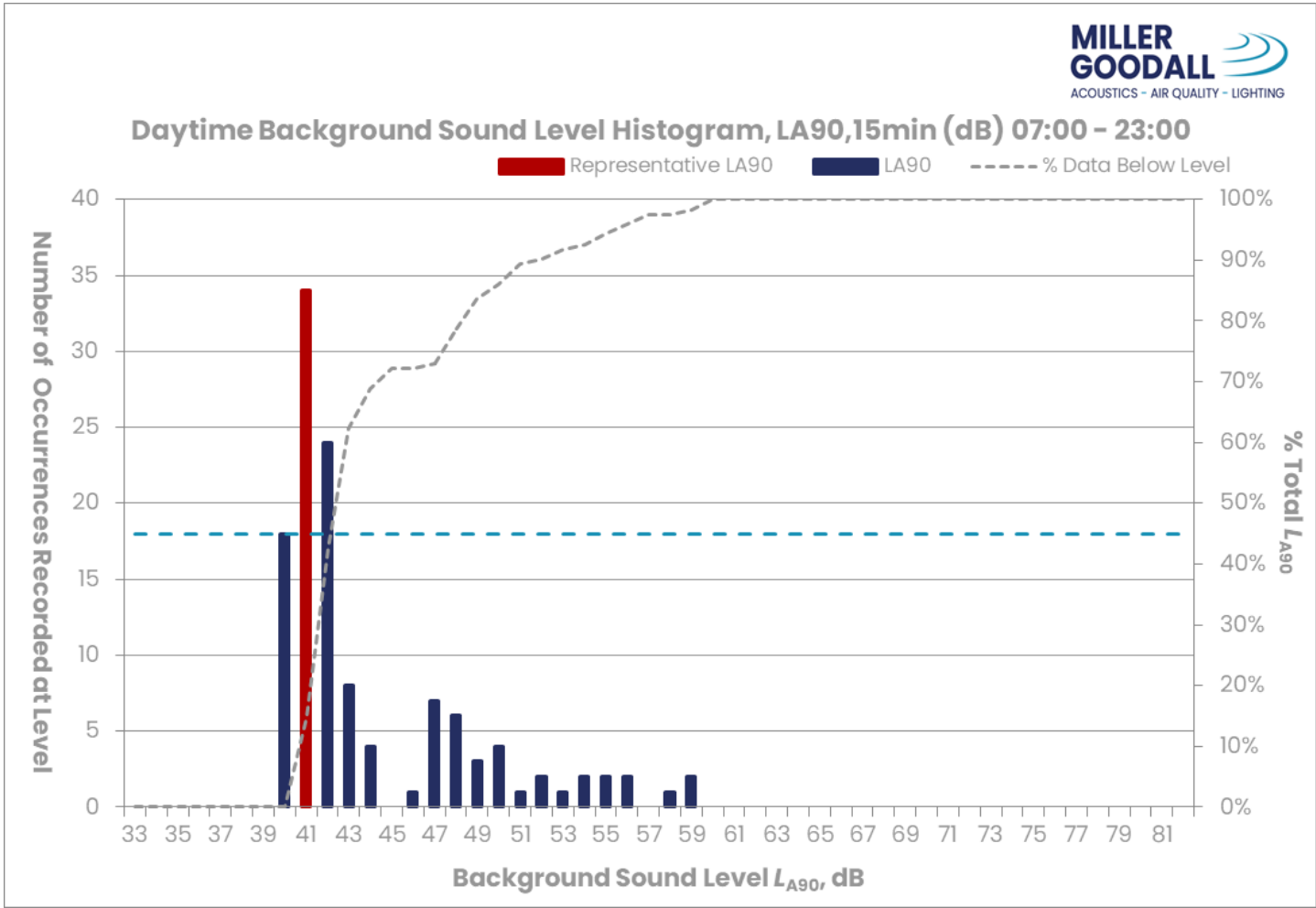
An effective assessment cannot be conducted without an understanding of the reason(s) for the assessment and the context in which the sound occurs/will occur. When making assessments and arriving at decisions, therefore, it is essential to place the sound in context.

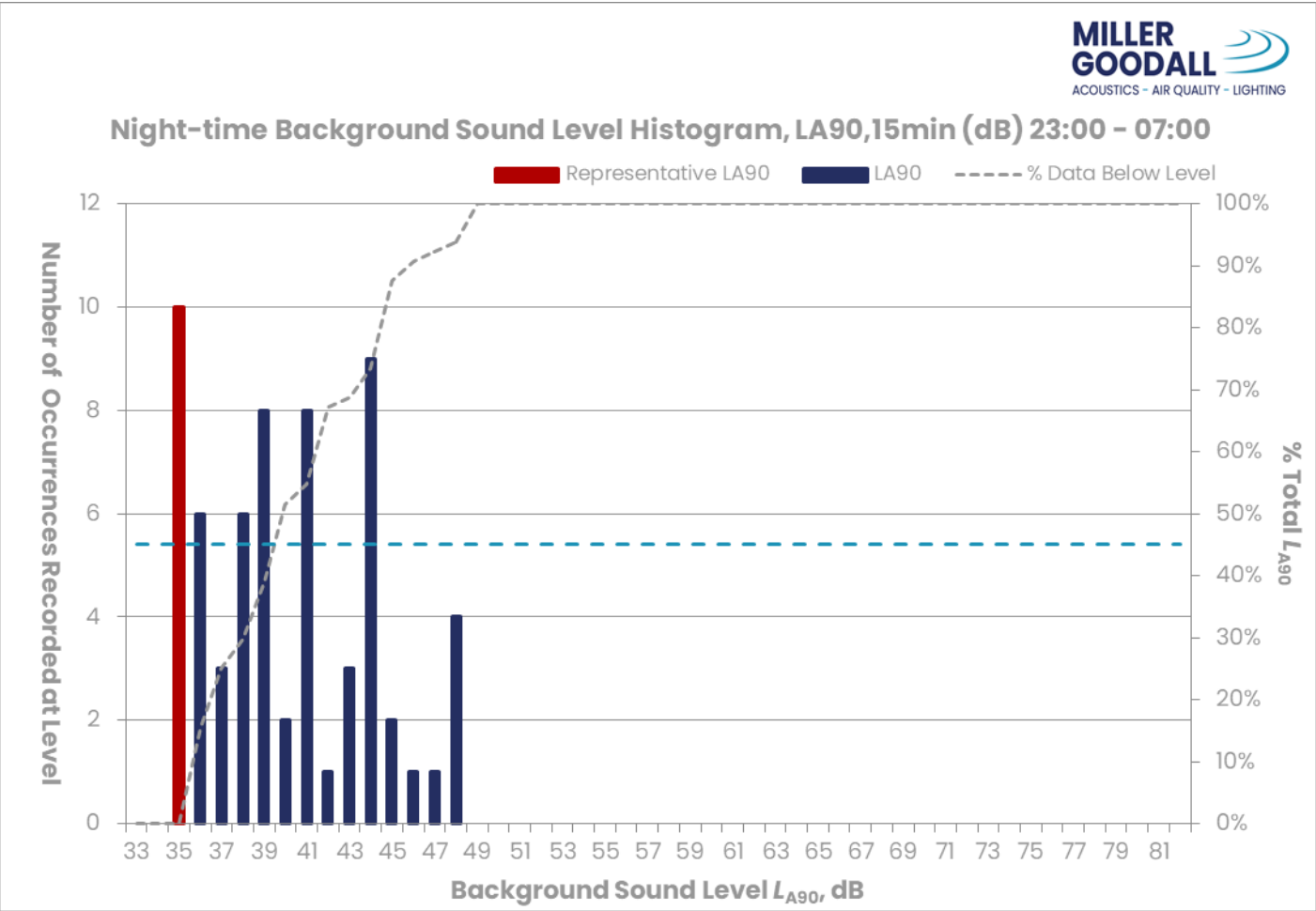
The 2014 edition of BS 4142 also introduced a requirement to consider and report the uncertainty in the data and associated calculations and to take reasonably practicable steps to reduce the level of uncertainty.

Appendix 3: Monitoring Position



Appendix 4: Measurement Data





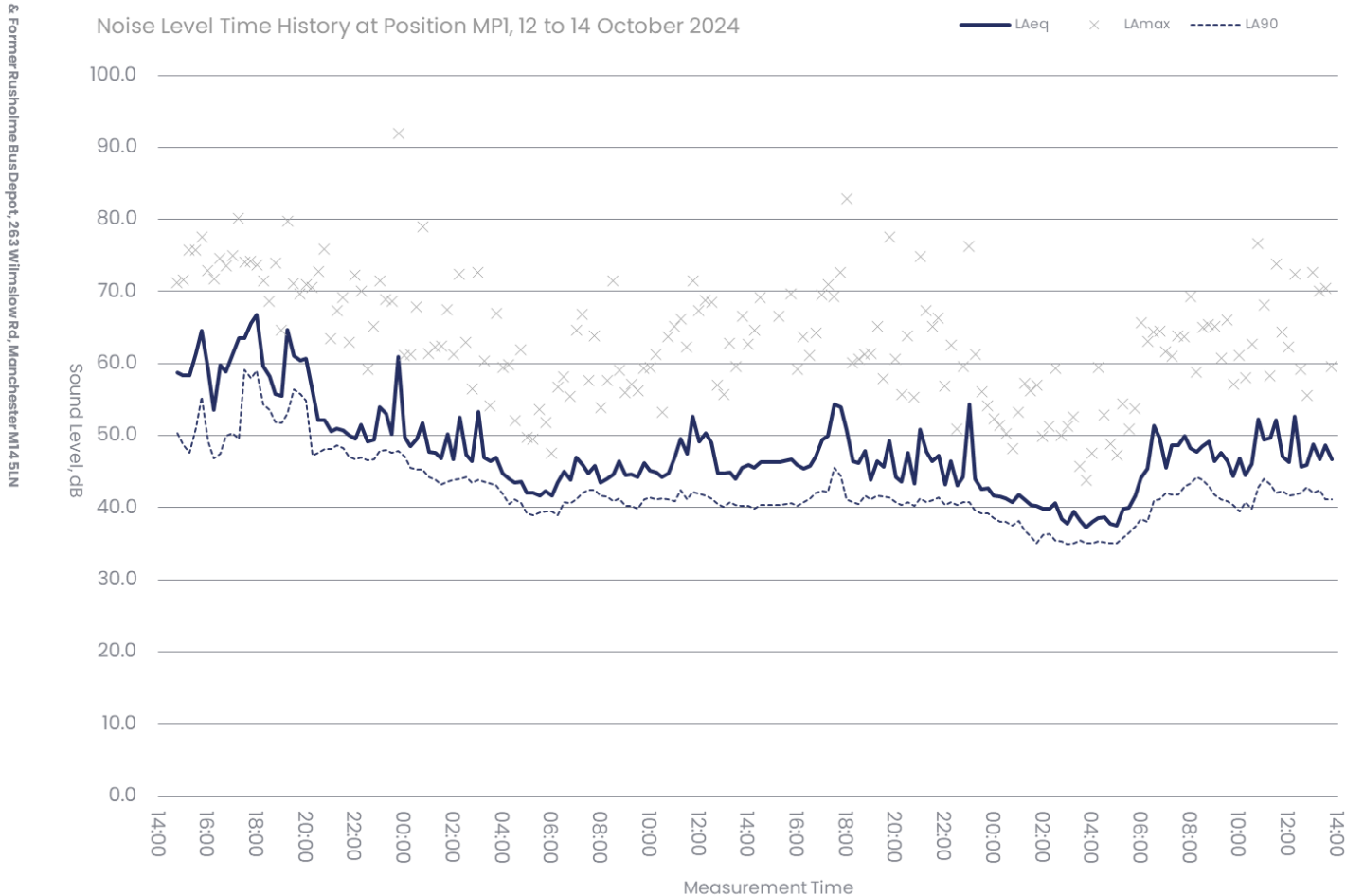
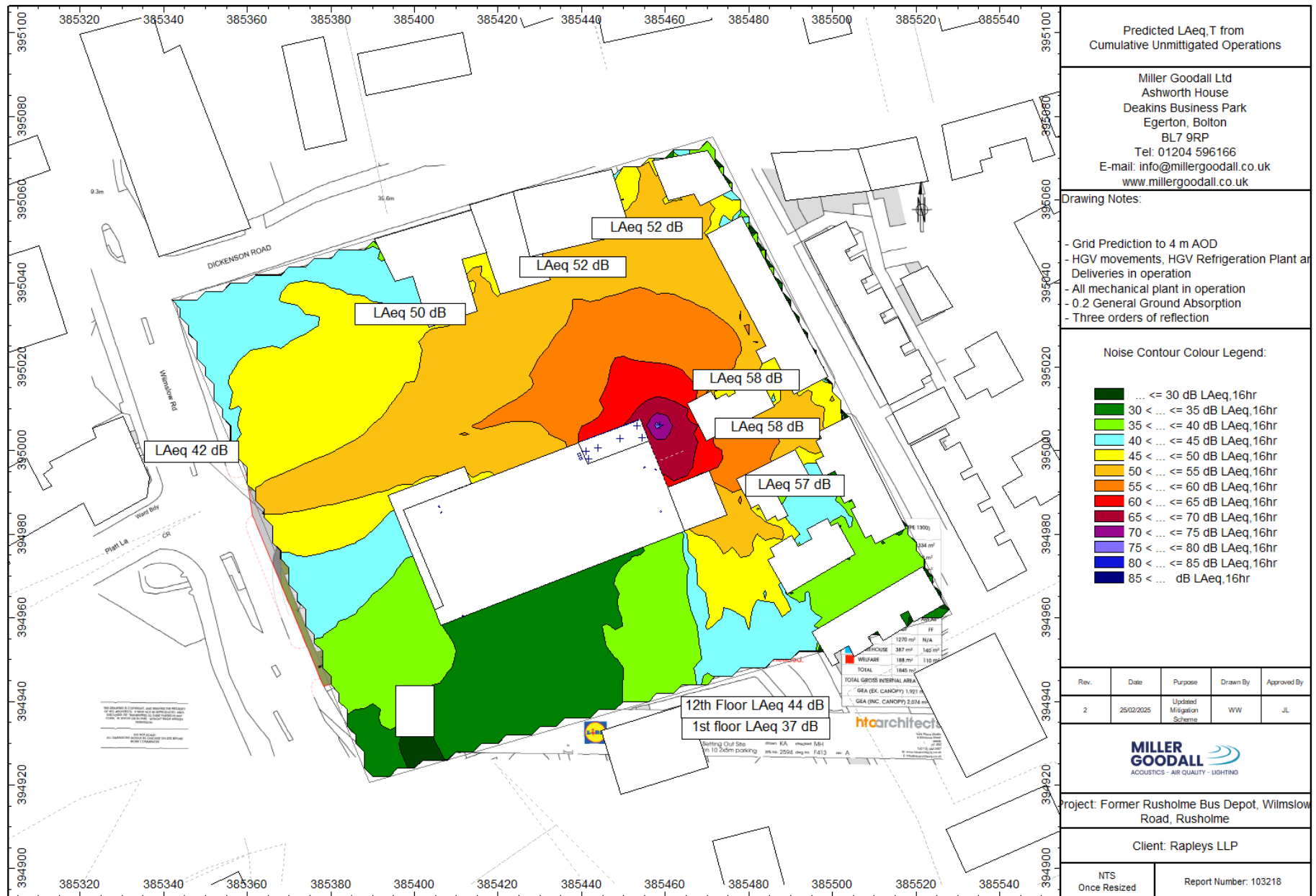
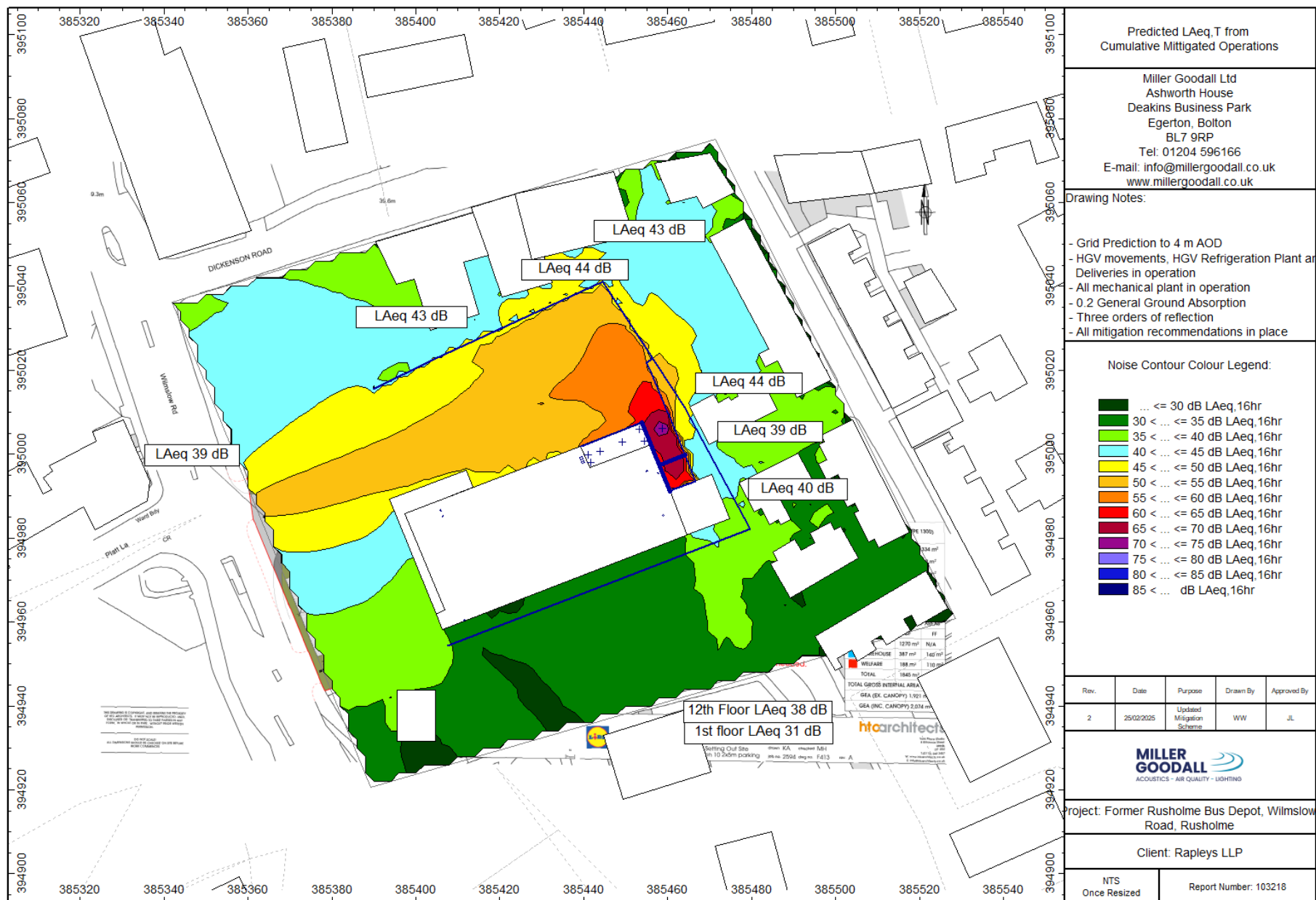
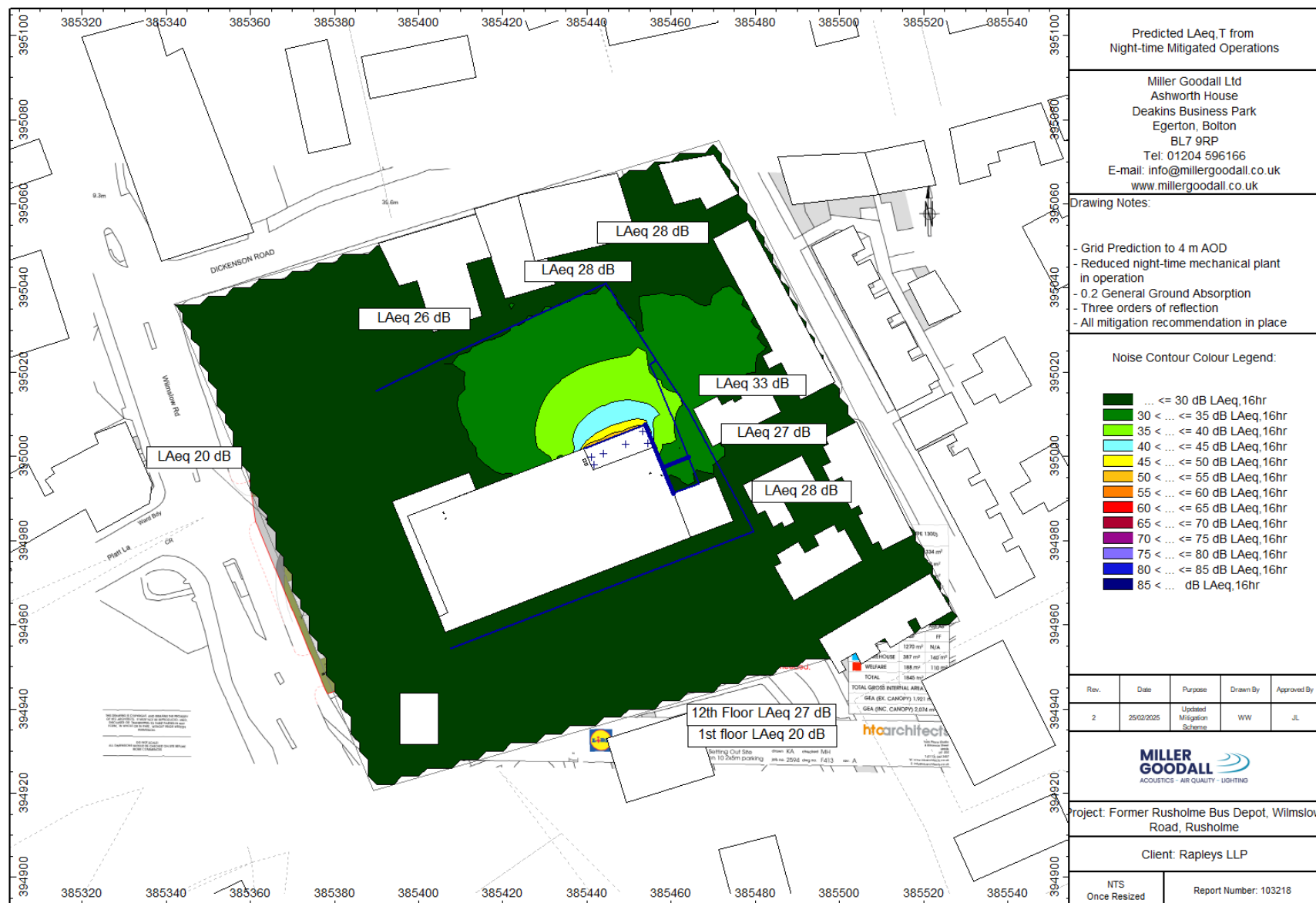


Figure 103218/TH01

Appendix 5: Noise Grid Maps







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 controlled 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_{Amax} The highest A weighted noise level recorded during the time period. It is usually used to describe the highest noise level that occurred during the event.

