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Latos, Bower Street, Manchester

ENVIRONMENTAL NOISE IMPACT ASSESSMENT

P2805-RP-01-JLS P04

21 April 2026

PROJECT

Latos, Bower Street, Manchester
ENVIRONMENTAL NOISE IMPACT ASSESSMENT

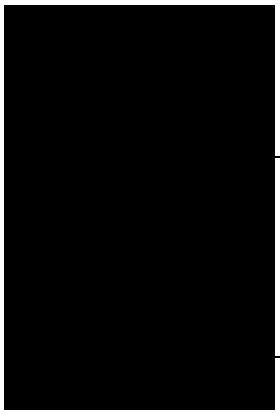
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REVISIONS

Reviewer	Date	Description
MH	19/03/2026	Minor revisions
MH	31/03/2026	Updated site plan imagery
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Company Registration Number 4218702

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1 Executive Summary

1.1 Sol Acoustics Ltd ("Sol") has been appointed to provide an environmental noise impact assessment to support a Planning Application for a new data centre comprising of 2no commercial units for use as a data centre (Sui Generis), external plant, substations, boundary fencing, landscaping, highways access work and associated infrastructure works on Bower Street in Manchester (the "Facility").

1.2 An unattended environmental noise survey was conducted at two measurement positions from Thursday 20th to Monday 24th November 2025 (inclusive). The purpose of the survey was to determine the existing "Background Sound Level" at locations representative of the nearest noise sensitive receptors and characterise the prevailing ambient environmental noise climate at the site through direct, environmental noise measurement.

1.3 Based on the results of the environmental noise survey the following acoustic assessments have been carried out:

- Assessment of normally operating and emergency only plant noise in line with British Standard 4142:2014+A1:2019 '*Methods for rating and assessing industrial and commercial sound*' and the requirements of Manchester City Council.
- Assessment of occasional HGV movements associated with site maintenance activities in line with British Standard 4142:2014+A1:2019 '*Methods for rating and assessing industrial and commercial sound*'.
- Assessment of environmental noise ingress to proposed office areas based on achieving suitable internal noise level targets in line with BS 8233:2014 *'Guidance on sound insulation and noise reduction for buildings'*.

1.4 The environmental noise emissions that shall be arising from the operation of the plant and infrequent HGV movements have been quantified, modelled, and assessed using proprietary "CadnaA" 3D acoustic software.

1.5 The acoustic assessment is based on architectural drawings provided by CreateArchitecture, plant specifications provided by LATOS, and swept path analysis provided by SKTransport.

1.6 ***It is demonstrated that the total, aggregate environmental noise impact arising from the proposed operation of the normally operation plant, meets the maximum permissible noise impact requirements of Manchester City Council, providing that the plant items are attenuated to achieve the acoustic specification as presented in Section 8.1.***

1.7 ***Similarly, it is demonstrated that the total, aggregate environmental noise impact arising from the proposed operation of emergency plant, meets the maximum permissible noise impact proposed herein, providing that the plant items are attenuated to achieve the acoustic specifications as presented in Section 8.1.***

1.8 ***An assessment of occasional HGV movements associated with site maintenance activities has been undertaken in line with British Standard BS41412:2014+A1:2019 and the resultant impact can, with consideration of context, be considered sub-adverse.***

1.9 ***A preliminary specification for the acoustic performance of the building envelopes to control environmental noise ingress in line with the recommended design targets set out in BS 8233:2014 has been provided.***

1.10 Please refer to the main report and appendices for further information.

2 Introduction

2.1 Sol Acoustics Ltd ("Sol") has been appointed to provide an environmental noise impact assessment to support a Planning Application for a new data centre comparison of 2no commercial units for use as a data centre (Sui Generis), external plant, substations, boundary fencing, landscaping, highways access work and associated infrastructure works on Bower Street in Manchester (the "Facility").

2.2 The purpose of this acoustic assessment is as follows:

- Identify the nearest pre-existing noise sensitive receptors ("NSRs") which are most likely to be affected by environmental noise arising from the fixed plant and occasional HGV movements.
- Determine the prevailing daytime and night-time "Background Sound Levels" at the nearest NSRs through direct, environmental noise measurement.
- Calculate the resultant environmental noise level contribution and impact at the nearest NSRs to the site, as occurring during the daytime and night-time periods.
- Carry out an environmental noise assessment of the proposed plant and occasional HGV movements in accordance with the methodology prescribed in relevant standards and guidance (i.e. British Standard 4142:2014+A1:2019 '*Methods for rating and assessing industrial and commercial sound*') in order to determine the significance of the potential noise impact specifically generated.
- Carry out an assessment of environmental noise ingress to proposed office areas and provide a preliminary specification for critical external building fabric elements.

2.3 This acoustic report is structured as follows:

- Section 3 provides a basic description of the Facility and key surrounding NSRs.
- Section 4 provides summary details of the benchmark environmental noise survey undertaken in order to determine the pre-existing environmental noise climate at the identified NSRs.
- Section 5 provides the results of the benchmark environmental noise survey.
- Section 6 provides a summary of the pertinent acoustic Standards which has been used to assess the magnitude of the noise impact likely to be generated.
- Section 7 provides a summary of the proprietary 3D acoustic models constructed and acoustic calculations undertaken.
- Section 8 provides a BS4142: 2014+A1: 2019 acoustic assessment of plant, and sets out the requirements for plant noise mitigation.
- Section 9 provides a BS4142: 2014+A1: 2019 acoustic assessment of occasional HGV movements.
- Section 10 provides an assessment of environmental noise ingress and preliminary specification for critical external building fabric elements.
- Section 11 provides a conclusion statement.

- *Appendix A provides a glossary of acoustic terminology.*
- *Appendix B provides details of the noise surveys undertaken and a summary of the data obtained from these.*
- *Appendix C provides details of the 3D computer noise model as constructed for this project.*

3 Description of Site

3.1 General Overview and Noise Sensitive Receptors (NSRs)

3.1.1 The existing site is an area of brownfield land accessed from Bower Street in Manchester within a residential and industrial area. The site is bordered by Bower Street to the north, industrial premises to the west, a row of residential dwellings and Ten Acres Lane to the east, and the Rochdale Canal to the south.

3.1.2 The nearest residential housing premises are as follows:

A. Two storey housing on Bower Street, located c.15 metres to the north of the Facility.
B. Two storey housing on Ten Acres Lane, located c.10 metres to the northeast of the Facility.
C. Two storey housing on Makkah Close, located c.140 metres to the southeast of the Facility.

3.1.3 Figure 1 indicates the location of the Facility in relation to the identified NSRs, and also the corresponding location of the noise monitoring position used in order to inform this acoustic assessment.

3.2 Characteristics of the Facility

3.2.1 The proposed development comprises two (twin) buildings with internal office space, and the following externally sited plant items:

- 10no Carrier 30XF-Z 1250A Air Cooled Chillers, externally sited: sound power level of 97dB L_{wA} during the daytime (07:00 – 23:00 hours) and 92dB L_{wA} during the night-time (23:00 – 07:00 hours)
- 10no Containerised Modular Power Units, externally sited: enclosure and ventilation to be designed to suit limiting sound power levels set herein
- 10no. Cummins QSK60G23 PowerBox Emergency Generator Sets, externally sited: sound pressure level of 83dB L_{Aeq} at one metre distance over a reflecting plane
- 1no Substation, internally sited within purpose built outbuilding: outbuilding and ventilation to be designed to suit limiting sound power levels set herein

3.2.2 Figure 2 shows proposed development and the location of the proposed plant items.

3.2.3 The proposed operation of the site and the non-emergency plant will be continuous (24/7) with a night set-back duty for the proposed air cooled chillers.

3.2.4 The proposed Emergency Generator Sets will only run for short period of testing (during normal working hours Mon-Fri and limited to less than 18no hours per annum) and under emergency conditions.

3.2.5 Occasional HGV movements will occur at the proposed site however this is expected only to occur for the purposes of site maintenance (e.g. replacement of plant). Figure 3 shows the swept path analysis for HGV access to the proposed site.



Figure 1: **Aerial photo overlaid with noise sensitive receptors and monitoring locations in relation to the Facility (Google 2026)**

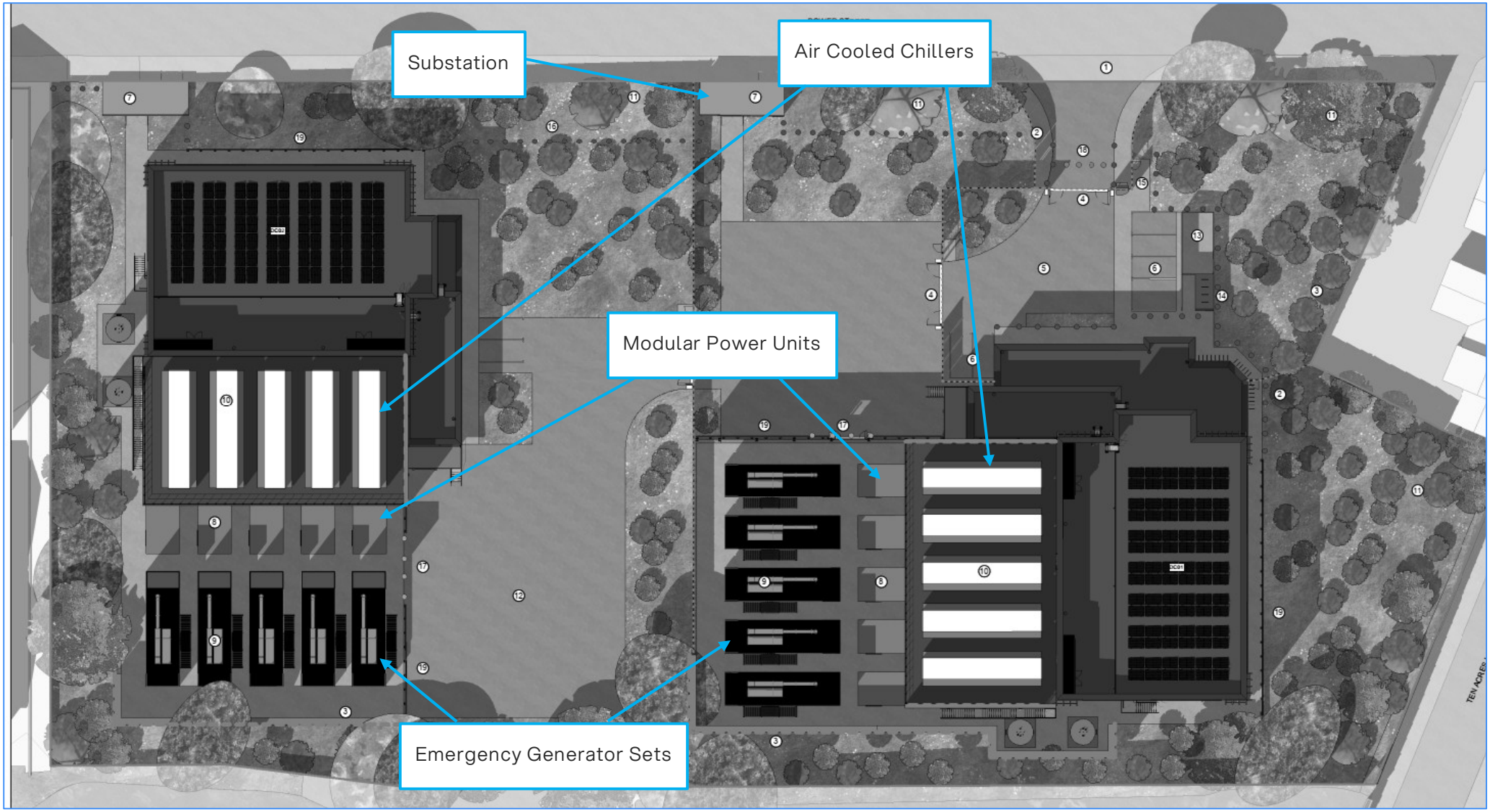


Figure 2: **Site plan showing proposed plant locations (c/o Create Architecture)**



Figure 3: **Plan showing swept path analysis of HGV access (c/o SKTransport)**

4 Details of Investigation

4.1 Pre-Existing Environmental Noise Climate

4.1.1 In order to inform this environmental noise benchmarking assessment, an environmental noise survey has been conducted by Sol between c.15:00 hours during Thursday 20th November and c.15:00 hours during Monday 24th November 2025. The purpose of the survey was to determine the prevailing pre-existing Background Sound Levels at the nearest noise sensitive premises to the Facility, as during typical weekday and weekend, daytime and nighttime periods for environmental noise benchmarking and subsequent acoustic impact assessment purposes.

4.1.2 The environmental noise survey consisted of two environmental noise measurement positions, as follows:

- **Noise Monitoring Position 1**: Tripod mounted microphone at c.1.5 metres above local ground level to the north of site. The microphone was mounted in "free field" acoustic conditions. Key noise sources included distant road traffic noise from the A62, and local road traffic movements along Bower Street.
- **Noise Monitoring Position 2**: Tripod mounted microphone at c.1.5 metres above local ground level to the east of site. The microphone was mounted in "free field" acoustic conditions. Key noise sources included distant road traffic noise from the A62, and local road traffic movements along Bower Street and Ten Acres Lane.

4.1.3 The location of the noise monitoring positions in relation to key existing environmental noise sources is shown in Figure 1.

4.1.4 *The full measurement results are as presented in Appendix B.*

4.1.5 The noise survey was conducted using Type 1 Precision Grade noise monitoring equipment. The complete sound measuring systems were field calibrated immediately prior to and following the noise survey period. (Full details of all the instrumentation used are retained on file by Sol, including traceable calibration records; these are available for review if needed).

4.1.6 Meteorological data was recorded at Noise Monitoring Position 1 for the duration of the noise survey, as using a Professional Grade Vaisala "WXT530" weather station. Wind speeds exceeded 5m/s during a brief period on Sunday 23rd November 2025. Brief periods of significant rainfall were also recorded. Noise data as recorded during these periods have been omitted from the assessment.

4.1.7 Notwithstanding the weather conditions recorded, the microphone system was entirely weatherproofed and fitted with all-weather environmental windshield, with bird spike also.

5 Environmental Noise Survey Results

5.1 Pre-Existing Environmental Noise Climate

5.1.1 *Appendix B provides fully detailed time history information for the environmental noise levels as recorded for the duration of the environmental noise survey.*

5.1.2 Table 1 provides a basic summary of the typical overall, A-weighted noise levels measured at the various noise measurement positions, in $L_{Aeq,T}$ and $L_{A90,15min}$ terms.

Position	Date	Daytime (07:00 – 23:00 Hours)		Nighttime (23:00 – 07:00 Hours)	
		dB $L_{Aeq,T}$	dB $L_{A90,15min}$ (Typical)	dB $L_{Aeq,T}$	dB $L_{A90,15min}$ (Typical)
1	Thursday 20th November 2025	58[1]	45	53	40
	Friday 21st November 2025	59	45	53	41
	Saturday 22nd November 2025	57	43	52	43
	Sunday 23rd November 2025	58	45	54	40
	Monday 24th November 2025	62[1]	48	-	
2	Thursday 20th November 2025	56[1]	47	51	43
	Friday 21st November 2025	56	48	52	44
	Saturday 22nd November 2025	56	48	53	45
	Sunday 23rd November 2025	57	48	51	43
	Monday 24th November 2025	59[1]	50	-	
Note 1: Incomplete measurement period					

Table 1: Summary of typical, measured broadband environmental noise levels

6 Environmental Noise Performance Specification Requirements

6.1 Local Planning Policy

6.1.1 Manchester City Council's *'Planning and Noise Technical Guidance'* document published in October 2022 provides guidance on the assessment of noise and vibration impacts associated with various type of development within Manchester.

6.1.2 With regards to noise from fixed building services plant it states:

> *"...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..."*

6.1.3 The document does not provide any specific guidance on noise limits for emergency plant, however emergency plant design in line with the following is typically accepted by many Local Authorities:

> *"...Emergency plant and generators shall achieve a rating level of no more than 10dB (L_{Aeq}) above the typical background (L_{A90}) level at the nearest noise sensitive location..."*

6.2 BS4142: 2014+A1: 2019 *'Method for rating and assessing industrial and commercial sound'*

6.2.1 BS 4142: 2014+A1: 2019: *'Method for rating and assessing industrial and commercial sound'* is intended to be used to assess noise of an industrial nature, which includes sound from fixed installations comprising of mechanical and/or electrical plant and equipment. The methods prescribed in this British Standard use outdoor sound levels in order to assess the likely effects of sound on people who might be inside or outside a dwelling or premises that is used for residential purposes upon which sound is incident.

6.2.2 The procedure contained in BS 4142: 2014+A1: 2019 for assessing environmental noise impact is to compare the measured or predicted noise level from the source in question - the "Specific Sound Level" immediately outside the noise sensitive premises - with the corresponding "Background Sound Level". Where the noise contains attention attracting characteristics such as tonal, impulsive and/or intermittent elements, it may be appropriate to apply a correction to the Specific Sound Level in order to obtain the "Rating Level."

6.2.3 BS 4142: 2014+A1: 2019 states that the significance of sound arising from 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 also the context in which the sound occurs:

a) Typically, the greater this difference, the greater the magnitude of the impact;

b) A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context;

c) A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context;

d) 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.

6.2.4 For the daytime, the assessment is conducted over a one-hour period, and over a 15-minute period at night. The daytime and nighttime periods are defined as occurring between 07:00 hours to 23:00 hours, and 23:00 hours to 07:00 hours, respectively.

6.2.5 For BS 4142:2014+A1:2019 assessment purposes, it is necessary to determine the typical Background Sound Level as occurring during each assessment period. Section 8.1 of BS 4142:2014+A1:2019 states the following:

'... In using the background sound level in the method for rating and assessing industrial and commercial sound it is important to ensure that values are reliable and suitably represent both the particular circumstances and periods of interest. For this purpose, the objective is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods ...'

6.2.6 The typical Background Sound Level has been determined based upon statistical analysis of the full, measured dataset (in histogram form, and considering the modes and median of the data sets).

6.2.7 Table 2 specifies the *typical* Background Sound Levels at each of the identified NSRs:

Noise Sensitive Receptors	Representative Noise Measurement Position	*Typical* Background Sound Level at Each Assessed NSR, dB $L_{A90,15min}$	
		Daytime (07:00 – 23:00 hours)	**Nighttime (23:00 – 07:00 hours)**
A. Housing on Bower Street (c.15 metres to the north)	1	44	40
B. Housing on Ten Acres Lane (c.10 metres to the northeast)	2	47	43
C. Housing on Makkah Close (c.140 metres to the southeast)	2	47	43

Table 2: *Typical* Background Sound Level at each assessed NSR

6.3 BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings'

6.3.1 British Standard BS 8233:2014 'Guidance on sound insulation and noise reduction in buildings' provides guidance for indoor ambient noise levels in unoccupied shared spaces, as a combination of external noise ingress and buildings services noise. Table 3 summarises the relevant design ranges presented in BS 8233:2014:

Space	Design Range dB $L_{Aeq,T}$
Executive Office	35 – 40
Staff/meeting room, training room	35 - 45
Open-plan Office	45 - 50

Table 3: BS 8233:2014 internal ambient noise level design ranges

7 Environmental Noise Model

7.1 Methodology and Basis of 3D Environmental Noise Models

7.1.1 In order to predict the likely noise levels impinging on the surrounding noise sensitive receptors, proprietary 3D computer noise models were created using the DataKustik "CadnaA" noise mapping software. The following assumptions have been made when generating the noise model:

- The noise model was set up to apply the noise prediction methodology set out in BS ISO 9613-2:2024: *'Acoustics — Attenuation of sound during propagation outdoors, Part 2: Engineering method for the prediction of sound pressure levels outdoors'*.
- The model was set to include third order reflected noise from solid structures.
- Ground absorption, as defined in ISO 9613-2, has been taken into consideration. The base ground absorption for the model has been set to G=0.0 (hard ground). The ground absorption for large areas of soft ground has been set to G=1.0.
- The predicted Specific Sound Level at the surrounding residential receptors has been modelled at the following height above local ground level:
  - A) Two storey housing on Bower Street: 4 metres.
  - B) Two storey housing on Ten Acres Lane: 4 metres.
  - C) Two storey housing on Makkah Close: 4 metres.
- All externally sited plant noise sources have been modelled as point sources.
- HGV movements have been modelled as a moving point source located along the proposed access route within the site boundary at an average speed of 5mph.
- Source noise levels for HGV movements have been taken from Reference number 19 from Table C.6 of BS 5228-1:2009 *'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise*; Road lorry (empty).
- It is assumed that HGVs will utilise non-intrusive broadband type reversing signals.

7.1.2 Figure 4 provides a three-dimensional visualisation of the noise model used to inform the noise impact assessment.

7.1.3 *Appendix C provides further information in respect of the 3D computer environmental noise model.*

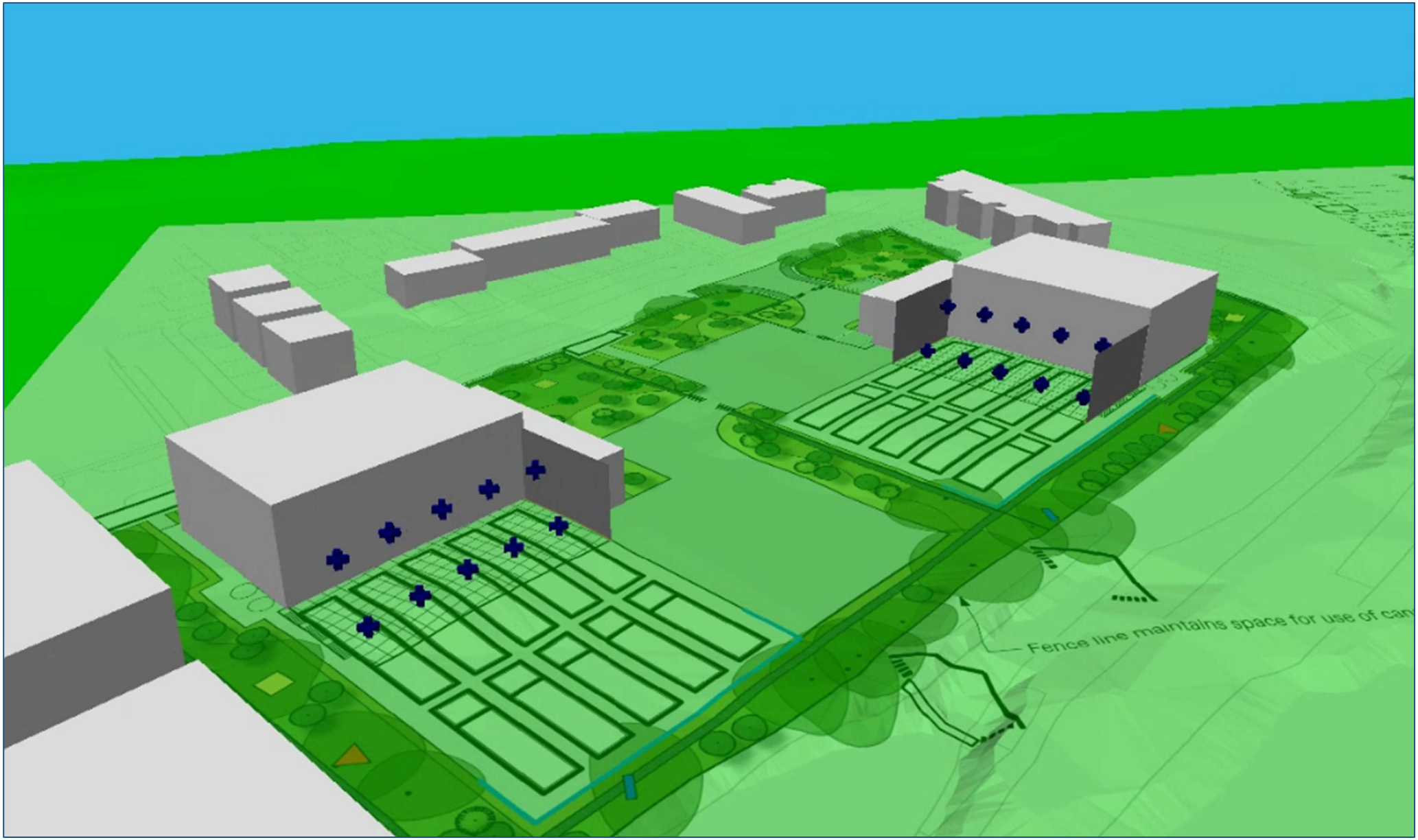


Figure 4: 3D view of the noise model of the Facility

8 Plant Noise Impact Assessment

8.1 Plant Screens

8.1.1 The design proposals include for acoustic screen to be installed as per the locations indicated in Figure 5 below:

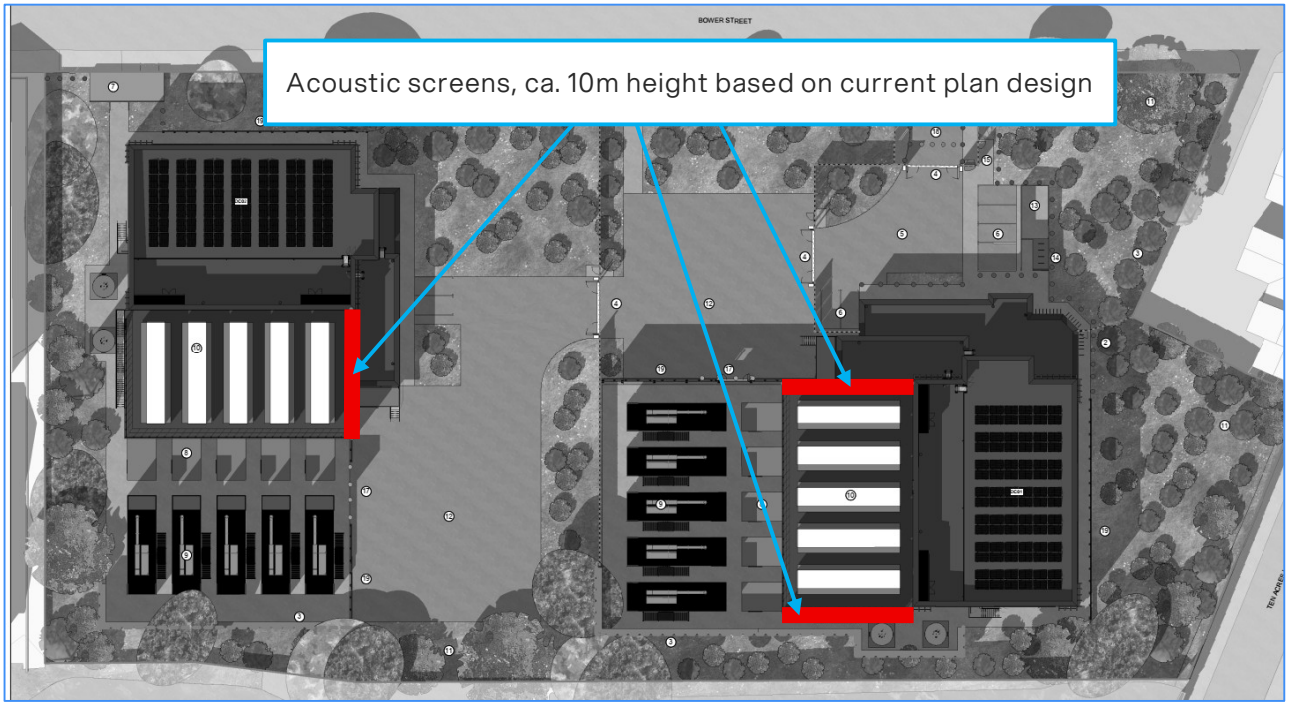


Figure 5: Plan showing proposed locations of plant screens

8.1.2 In order to provide an acoustic function the screens must be imperforate, have minimum mass per unit area of 10kg/m^2 and extend from the ground up to the height of the highest point of the air cooled chillers (including enclosure).

8.1.3 Based on the currently proposed plant and enclosures this is expected to be approximately 10m above local ground level; the acoustic requirement is that the screen meets or exceeds the height of the plant (including enclosure).

8.2 Plant Attenuation

Air Cooled Chillers

8.2.1 Each of the air cooled chillers are proposed to be encapsulated in an individual AA303S acoustic enclosure by Allaway Acoustics. Table 4 below shows the manufacturer's stated insertion losses for the proposed enclosure:

Type	Insertion Loss (IL, dB) @ Octave Band Centre Frequency (Hz)							
	63	125	250	500	1k	2k	4k	8k
AA303S	4	8	13	22	24	21	18	14

Table 4: Insertion loss performance of proposed air cooled chiller enclosures

Modular Power Units

8.2.2 The proposed modular power units are bespoke and house within custom-built containers similar in from to a shipping container. The exact configuration of the modular power units for this site is still being developed; however it is understood that it will be feasible to incorporate sufficient attenuation within the container design and any ventilation openings to control noise emissions in line with the requirements of the site.

8.2.3 Therefore, at this stage, based on the 3D noise modelling, a limiting sound power level of 72dB L_w has been used for the purposes of assessment. The design of the modular power units must therefore comply with this specification and any deviation from this limiting sound power level should be reviewed by Sol Acoustics.

Substation

8.2.4 The proposed substation will be housed within an outbuilding. The exact configuration of the outbuilding is still being developed; however it is understood that it will be feasible to incorporate sufficient attenuation within the outbuilding design and any ventilation openings to control noise emissions in line with the requirements of the site.

8.2.5 Therefore, at this stage, based on the 3D noise modelling, a limiting sound power level of 70dB L_w has been used for the purposes of assessment. The design of the substation must therefore comply with this specification and any deviation from this limiting sound power level should be reviewed by Sol Acoustics.

Emergency Generator Sets

8.2.6 The acoustic assessment has indicated that based upon the current emergency generator set selections, as presented in Section 3.2, noise mitigation shall be required. Table 5 provides a summary of the required attenuation needed for the currently proposed emergency generator sets. Please note that if alternative generator sets are subsequently proposed, the requirements of Table 5 will need to be reviewed and updated accordingly:

Plant Unit		Attenuation Required, dB	Maximum Sound Power Level, dB L_{WA}
Ref	Model		
Emergency Generator Sets	Cummins QSK60G23 PowerBox	17	89

Table 5: Required attenuation for the emergency generator sets

8.3 Plant Noise Assessment

8.3.1 The 3D noise model has been used to predict the Specific Sound Level at each identified NSR as during daytime and night time periods. *Appendix C provides full details of CadnaA noise maps which present the Specific Sound Levels predicted.*

8.3.2 The acoustic character correction has been determined in full accordance with the BS4142: 2014 +A1:2019 "subjective method" for assessing the acoustic character of a noise source. Whilst noise from the air cooled chillers may generate noise with a tonal acoustic character, this is unlikely to be readily discernible if the Specific Sound Level is 5dB below the Background Sound Level. Therefore, no acoustic character correction has been applied to the Specific Sound Level in order to determine the Rating Level for normally operating plant.

8.3.3 A 3dB penalty for intermittency for the emergency generator sets has been applied.

8.3.4 Table 6 presents the predicted overall A-weighted, BS4142: 2014 +A1:2019-defined Rating Level at the identified NSRs for normally operating plant:

Noise Sensitive Receptor	Assessment Period	Predicted Specific Level, dB $L_{Aeq,T}$	Acoustic Character Correction, dB	Predicted Rating Level, dB $L_{Ar,Tr}$	MCC Planning Requirement, dB L_{ArTr}	Rating Level sub. MCC Planning Requirement ±dB*
A. Housing on Bower Street (c.15 metres to the north)	Daytime (07:00hrs – 23:00hrs) T = 1 hour	36	+0	36	39	-3
	Night Time (23:00hrs – 07:00hrs) T = 15 minutes	34	+0	34	35	-1
B. Housing on Ten Acres Lane (c.10 metres to the northeast)	Daytime (07:00hrs – 23:00hrs) T = 1 hour	29	+0	29	42	-13
	Night Time (23:00hrs – 07:00hrs) T = 15 minutes	27	+0	27	38	-11
C. Housing on Makkah Close (c.140 metres to the southeast)	Daytime (07:00hrs – 23:00hrs) T = 1 hour	27	+0	27	42	-15
	Night Time (23:00hrs – 07:00hrs) T = 15 minutes	25	+0	25	38	-13

Table 6: BS4142 summary assessment: normally operating plant

8.3.5 The total, aggregate environmental noise impact arising from the proposed operation of the normally operating plant is not expected to exceed the MCC planning requirement not to exceed 5dB below the typical Background Sound Level at the nearest noise sensitive receptors.

8.3.6 Table 7 presents the predicted overall A-weighted, BS4142-defined Rating Level at the identified NSRs for emergency operating plant:

Noise Sensitive Receptor	Assessment Period	Predicted Specific Level, dB $L_{Aeq,T}$	Acoustic Character Correction, dB	Predicted Rating Level, dB $L_{Ar,Tr}$	Proposed Planning Requirement, dB L_{ArTr}	Rating Level sub. proposed Planning Requirement ±dB*
A. Housing on Bower Street (c.15 metres to the north)	Daytime (07:00hrs – 23:00hrs) T = 1 hour	47	+3	50	54	**-4**
	Night Time (23:00hrs – 07:00hrs) T = 15 minutes	47	+3	50	50	**-0**
B. Housing on Ten Acres Lane (c.10 metres to the northeast)	Daytime (07:00hrs – 23:00hrs) T = 1 hour	44	+3	47	57	**-10**
	Night Time (23:00hrs – 07:00hrs) T = 15 minutes	44	+3	47	53	**-6**
C. Housing on Makkah Close (c.140 metres to the southeast)	Daytime (07:00hrs – 23:00hrs) T = 1 hour	40	+3	43	57	**-4**
	Night Time (23:00hrs – 07:00hrs) T = 15 minutes	40	+3	43	53	**-10**

Table 7: BS4142 summary assessment: emergency plant

8.3.7 The total, aggregate environmental noise impact arising from the proposed operation of the emergency operating plant is not expected to exceed the proposed planning requirement not to exceed 10dB above the typical Background Sound Level at the nearest noise sensitive receptors.

8.4 Uncertainty

8.4.1 Section 10 of BS 4142:2014+A1:2019 states the following with regards to uncertainty:

> *'... Consider the level of uncertainty in the data and associated calculations. Where the level of uncertainty could affect the conclusion, take reasonably practicable steps to reduce the level of uncertainty. Report the level and potential effects of uncertainty...'*

8.4.2 In accordance with the requirements of BS 4142:2014+A1:2019, Sol has undertaken the following steps to limit the level of uncertainty in the acoustic assessment:

1. All noise measurements have been carried out using Type 1 Precision Grade noise mounting equipment. All noise measuring instruments have traceable laboratory calibration certification.
2. All noise measurements were accompanied by continuous meteorological measurements as conducted at, or close to, the measurement position in order to ensure that the measurement data was not adversely affected by unfavourable weather conditions.

3. Calculations have been conducted in line with appropriate and nationally recognised acoustic standards (BS ISO 9613-2:2024, BS12354: 2000), and using proprietary 3D noise modelling software, CadnaA.
4. The assessment assumes downwind propagation in all cases as this represents the worst case.

9 HGV Noise Impact Assessment

9.1 Proposed HGV Movements

9.1.1 It is understood that HGV access to the site will only be required occasionally for maintenance, would only occur during daytime hours (07:00 – 23:00 hours), and would be highly unlikely to occur more than once within a 24-hour period.

9.2 BS 4142 Assessment

9.2.1 The BS4142: 2014 +A1:2019 assessment of HGV movements presented herein considers a worst case 1-hour daytime period (07:00 – 23:00 hours) during which a single HGV may enter and exit the site.

9.2.2 The 3D acoustic model has been used to predict the Specific Sound Level at each identified residential receptor during the operating scenario described above. Appendix C provides full details of CadnaA noise maps which present the Specific Sound Levels predicted.

9.2.3 A 3dB penalty has been applied for the intermittent character likely associated with the HGV movements.

Noise Sensitive Receptor	Assessment Period	Predicted Specific Level dB $L_{Aeq,T}$	Predicted Rating Level dB $L_{Ar,Tr}$	Typical Background Sound Level dB L_{A90}	Rating Level sub Background ±dB
A: Housing on Bower Street	Daytime (07:00 – 23:00)	43	46	44	+2
	Night-time (23:00 – 07:00)	-	-	40	-
B: Housing on Ten Acres Lane	Daytime (07:00 – 23:00)	42	45	47	-2
	Night-time (23:00 – 07:00)	-	-	43	-
C: Housing on Makkah Close	Daytime (07:00 – 23:00)	25	28	47	-19
	Night-time (23:00 – 07:00)	-	-	43	-

Table 8: BS4142 summary assessment: HGV movement

9.2.4 Table 8 shows that the calculated and assessed Rating Level at the worst affected receptor (Receptor A) exceeds the typical Background Sound Level by up to 2dB which, in BS 41412 terms, would be considered an initial indication of an adverse impact. However, it must be noted that the predicted noise level impact is due to HGV movements that are only expected to occur occasionally for site maintenance, and only during the daytime (07:00-23:00 hours).

9.2.5 The predicted magnitude of the impact is subject to the consideration of context. BS4142: 2014 +A1:2019 states the following with regards to context:

> *'…Where the initial estimate of the impact needs to be modified due to the context, take all pertinent factors into consideration, including the following:…*
>
> *1) The absolute level of sound. For a given difference between the rating level and the background sound level, the magnitude of the overall impact might be greater for an acoustic environmental where the residual sound level is high than for an acoustic environment where the residual level is low….'*
>
> *'…2) The character and level of the residual sound compared to the character and level of the specific sound …'*

9.2.6 Given that the residual noise climate at the site comprises predominantly road traffic including HGV movements along Bower Street and Ten Acres Lane, and HGV movements associated with the proposed site are expected to be very infrequent, it is anticipated that the specific noise level generated will not be readily distinct in nature when compared to the residual noise climate and as such the risk of adverse impact is reduced and can ultimately be considered sub-adverse.

10 Internal Ambient Noise Level Assessment

10.1 To control environmental noise intrusion to the proposed office spaces in line with the criteria set out in Table 3, calculations indicate that the external façade should achieve a minimum weighted sound reduction as outlined in Table 9 below:

Façade Zone	Example Glazing Configuration	Minimum Weighted Sound Reduction Index dB (R'_w+C_{tr})
All	4mm / 12mm / 6mm Double Glazing	29[1]
Note 1: Performance given in terms of on-site requirement, a suitable correction should be included and allowed for from standard laboratory test data, which will be derived from idealised laboratory conditions.		

Table 9: Recommended minimum glazing system acoustic specification

10.1.1 Example glazing configurations are provided for guidance only.

10.1.2 All glazing and glazed doors, inclusive of framing systems, seals, and hardware must achieve the minimum acoustic performance specifications as indicated.

10.1.3 With respect to glazed/curtain walling elements this would typically be achieved by lightweight/standard cladding systems with glazed elements formed of standard thermal double glazing as outline above. It is likely that sustainability, thermal, and security requirements as advised by others will result in higher specification glazing, however it must be ensured that the stated minimum acoustic performance is achieved in all instances

11 Conclusion

11.1 Sol Acoustics Ltd ("Sol") has been appointed to provide an environmental noise impact assessment to support a Planning Application for a new data centre comparison of 2no commercial units for use as a data centre (Sui Generis), external plant, substations, boundary fencing, landscaping, highways access work and associated infrastructure works on Bower Street in Manchester (the "Facility").

11.2 An unattended environmental noise survey was conducted at two measurement positions from Thursday 20th and Monday 24th November 2025 (inclusive). The purpose of the survey was to determine the existing "Background Sound Level" at locations representative of the nearest noise sensitive receptors through direct, environmental noise measurement.

11.3 Based on the results of the environmental noise survey the following acoustic assessments have been carried out

- Assessment of normally operation and emergency only plant noise in line with British Standard 4142:2014+A1:2019 '*Methods for rating and assessing industrial and commercial sound*' and the requirements of Manchester City Council.
- Assessment of occasional HGV movements associated with site maintenance activities.
- Assessment of environmental noise ingress to proposed office areas.

11.4 The environmental noise emissions that shall be arising from the operation of the plant and HGV movements have been quantified, modelled, and assessed using proprietary "CadnaA" 3D acoustic software.

11.5 The acoustic assessment is based on the plant specifications provided by LATOS and swept path analysis provided by SKTransport.

11.6 ***It is demonstrated that the total, aggregate environmental noise impact arising from the proposed operation of the normally operation plant, meets the maximum permissible noise impact requirements of Manchester City Council, providing that the plant items are attenuated to achieve the acoustic specification as presented in Section 8.1***

11.7 ***Similarly, it is demonstrated that the total, aggregate environmental noise impact arising from the proposed operation of emergency plant, meets the maximum permissible noise impact proposed herein, providing that the plant items are attenuated to achieve the acoustic specifications as presented in Section 8.1.***

11.8 ***An assessment of occasional HGV movements associated with site maintenance activities has been undertaken in line with British Standard BS41412:2014+A1:2019 and the resultant impact can, with consideration of context, be considered sub-adverse.***

11.9 ***A preliminary specification for the acoustic performance of the building envelopes to control environmental noise ingress in line with the recommended design targets set out in BS 8233:2014 has been provided.***

APPENDIX A
Glossary of Acoustic Terms

Term	Abbreviation	Description
Decibel	dB	A scale for comparing the ratios of two quantities, including sound pressure and sound power.
A-weighting	dB(A)	The unit of sound level, weighted according to the A-scale, which takes into account the change in sensitivity of the human ear at varying frequencies.
Sound Pressure Level	L_{pA}	A measure of the sound pressure at a particular location. Typically expressed in dB(A) referenced to $2x10^{-5}$ Pascals.
Equivalent Continuous Sound Level	$L_{Aeq,T}$	The steady level of sound over a prescribed period of time which would contain the same total sound energy as the actual fluctuating noise under consideration in the same period of time.
Statistical Sound Levels	L_{A10} and L_{A90}	The level of noise exceeded for a percentage of the time period being sampled, namely 10% or 90% respectively.
Background Sound Level	$L_{A90,T}$	The A-weighted sound pressure level of the residual noise at the assessment position that is exceeded for 90% of the time period being sampled.
Maximum Sound Level	L_{Amax}	The maximum sound or noise level determined with instrumentation set to either a fast time weighting, L_{AFmax}, or a slow time weighting, L_{Asmax}, as occurring during the time period being sampled.
Sound Power Level	L_{wA}	A measure of the total sound energy radiated from a source. Like sound pressure levels, this is also expressed in dB(A) terms, but it is referenced to 1×10^{-12} W.
Broadband		Sound sampled over a wide range of frequencies.
Narrow band		Sound sampled over a specific, restricted frequency range. Used to ascertain the amplitude and significant of individual, audible tones, and to assist in identifying particular sources of noise within a complex, multi-source soundscape environment.
Ambient Sound	$L_{eq,T}$	Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources, both near and far.
Specific Sound Level	$L_{eq,T}$	The Equivalent Continuous A-Weighted Sound Level at an assessment position produced by a specific sound over a given reference time interval, *Tr*
Rating Level	$L_{Ar,Tr}$	The Specific Sound Level plus any adjustment for the acoustic characteristic features of the noise (e.g. intermittency, tones etc.).
Residual Noise	$L_{Aeq,T}$	The ambient sound remaining at given position in a given situation, when the specific sound source is suppressed to such an extent that it no longer contributes to the ambient sound.
Sound Reduction Index	*SRI*	The reduction in sound energy when transmitted through a panel or similar planar element, typically used in relation to single octave or one-third octave frequency band values.
Weighted Sound Reduction Index	R_w	The Sound Reduction Index expressed as a single figure, as expressed against a reference curve.
Dynamic Insertion Loss	*DIL*	Reduction in acoustic energy resulting from the insertion of a noise control element (e.g. an attenuator, acoustic enclosure etc.).
Free Field		Noise measuring location that is free from the presence of sound reflecting objects (except the ground), usually taken to mean being at least 3.5 metres distance from reflective surface(s) or greater.

APPENDIX B
Noise Survey Details and Summary Results

Location

Bower Street, Manchester.

Dates, Times and Weather Conditions

Date	Daytime (07:00 hours – 23:00 Hours)				Nighttime (23:00 hours – 07:00 hours)			
	Temp, °C	Rain, mm/h	Wind Direction	Mean Wind Speed, ms^{-1}	Temp, °C	Rain, mm/h	Wind Direction	Mean Wind Speed, ms^{-1}
20/11/25	1	0	NW	0.6	-3	0	E	0.3
21/11/25	1	0	SE	0.3	4	0.5	S	0.9
22/11/25	6	0	SE	0.4	4	0.3	E	0.6
23/11/25	6	0.2	S	1.1	4	0	E	0.3
24/11/25	5	0.1	NW	0.7	-	-	-	-

Personnel

Max Davison – Sol Acoustics

Instrumentation

Measurement Position 1

01dB Cube Sound level meter (serial no. 11348)

01dB Pre22 Microphone preamplifier (serial no. 1805362)

GRAS 40CD Microphone capsule (serial no. 260642)

01dB Cal21 acoustic calibrator (serial no. 34675320)

Vaisala WXT520 Weather Station

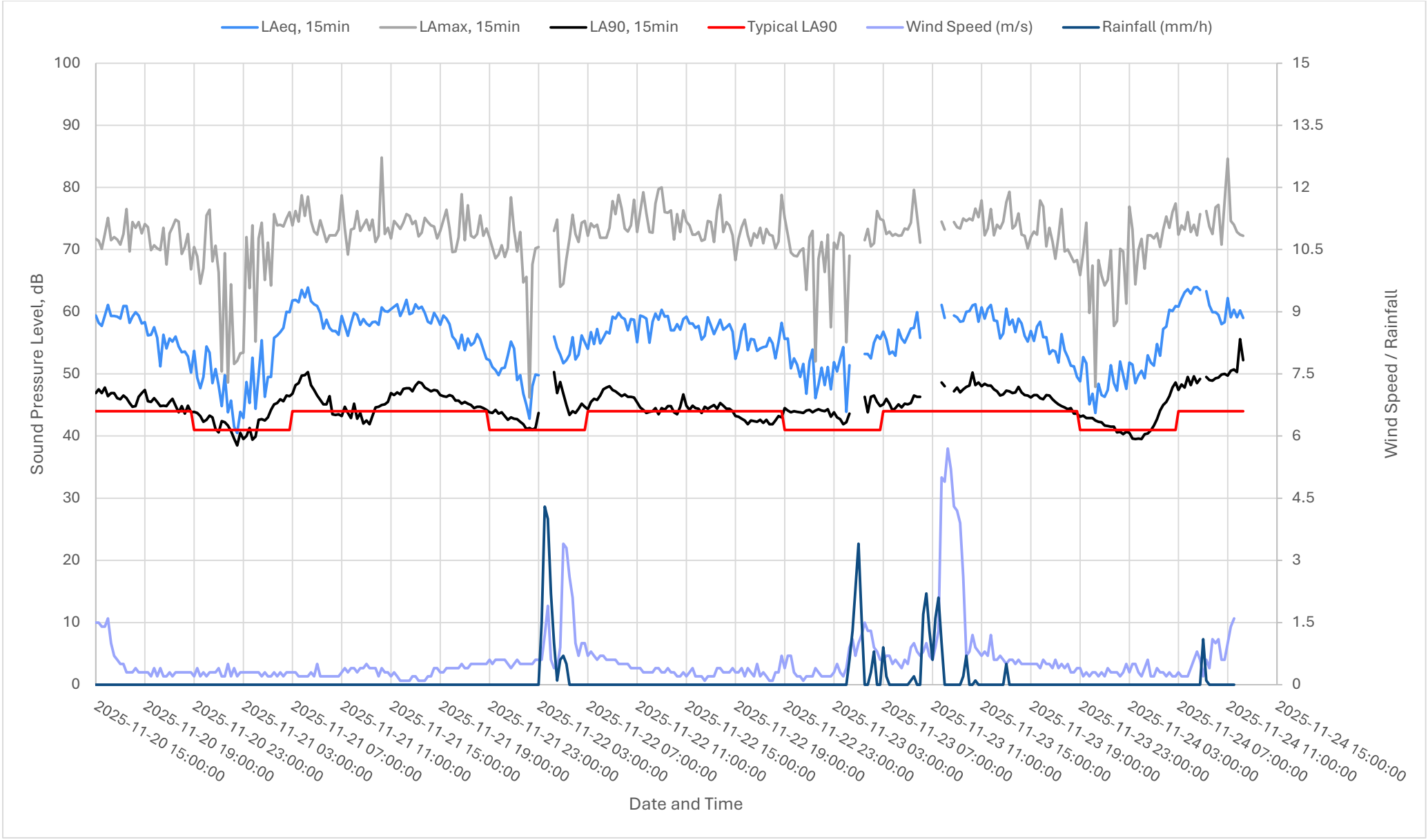
Measurement Position 2

01dB Cube Sound level meter (serial no. 12070)

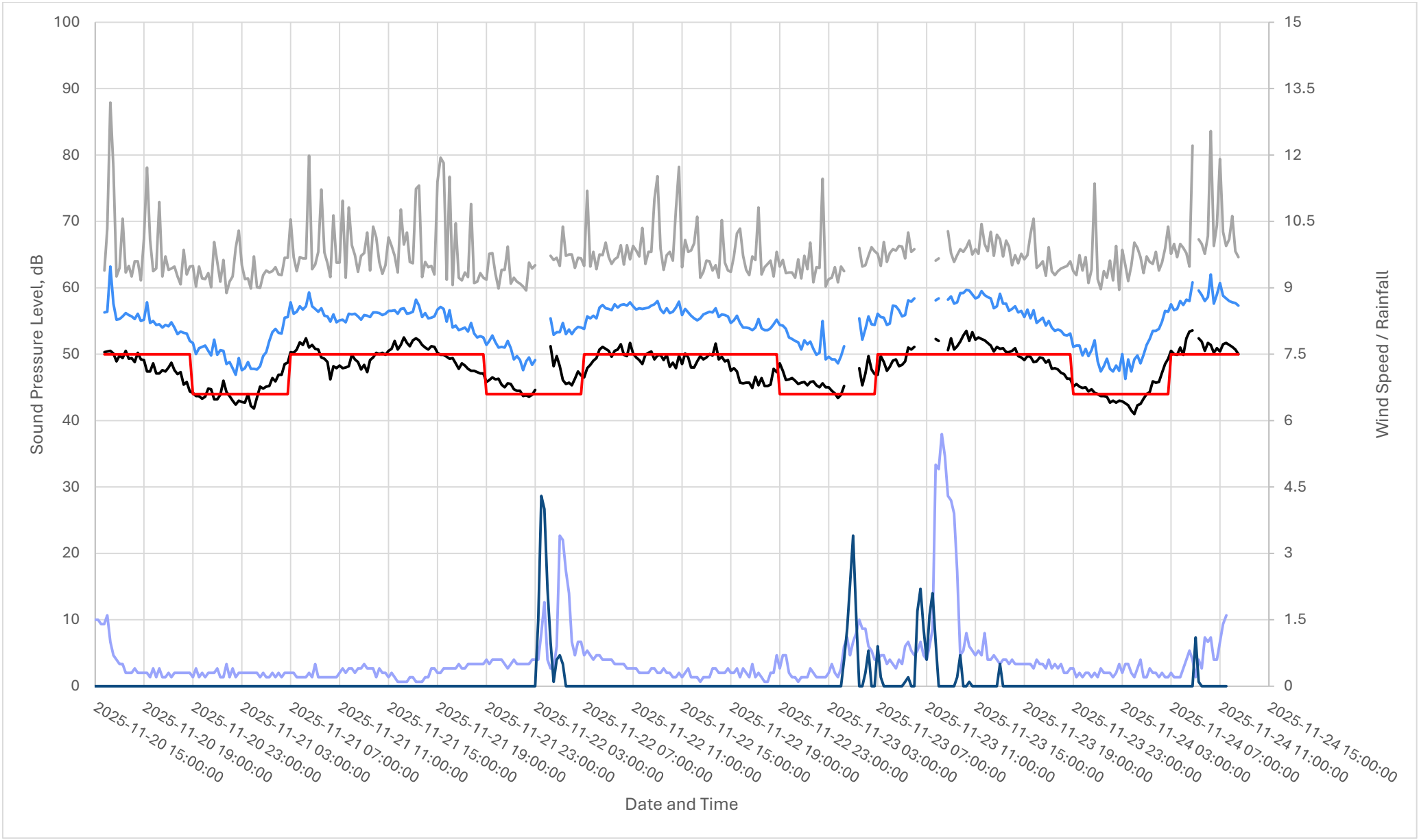
01dB Pre22 Microphone preamplifier (serial no. 2426115)

GRAS 40CD Microphone capsule (serial no. 625900)

01dB Cal21 acoustic calibrator (serial no. 34675320)



Graph B1: A-weighted environmental noise levels at Noise Monitoring Position 1



Graph B2: A-weighted environmental noise levels at Noise Monitoring Position 2,

APPENDIX C
Environmental Noise Modelling Results

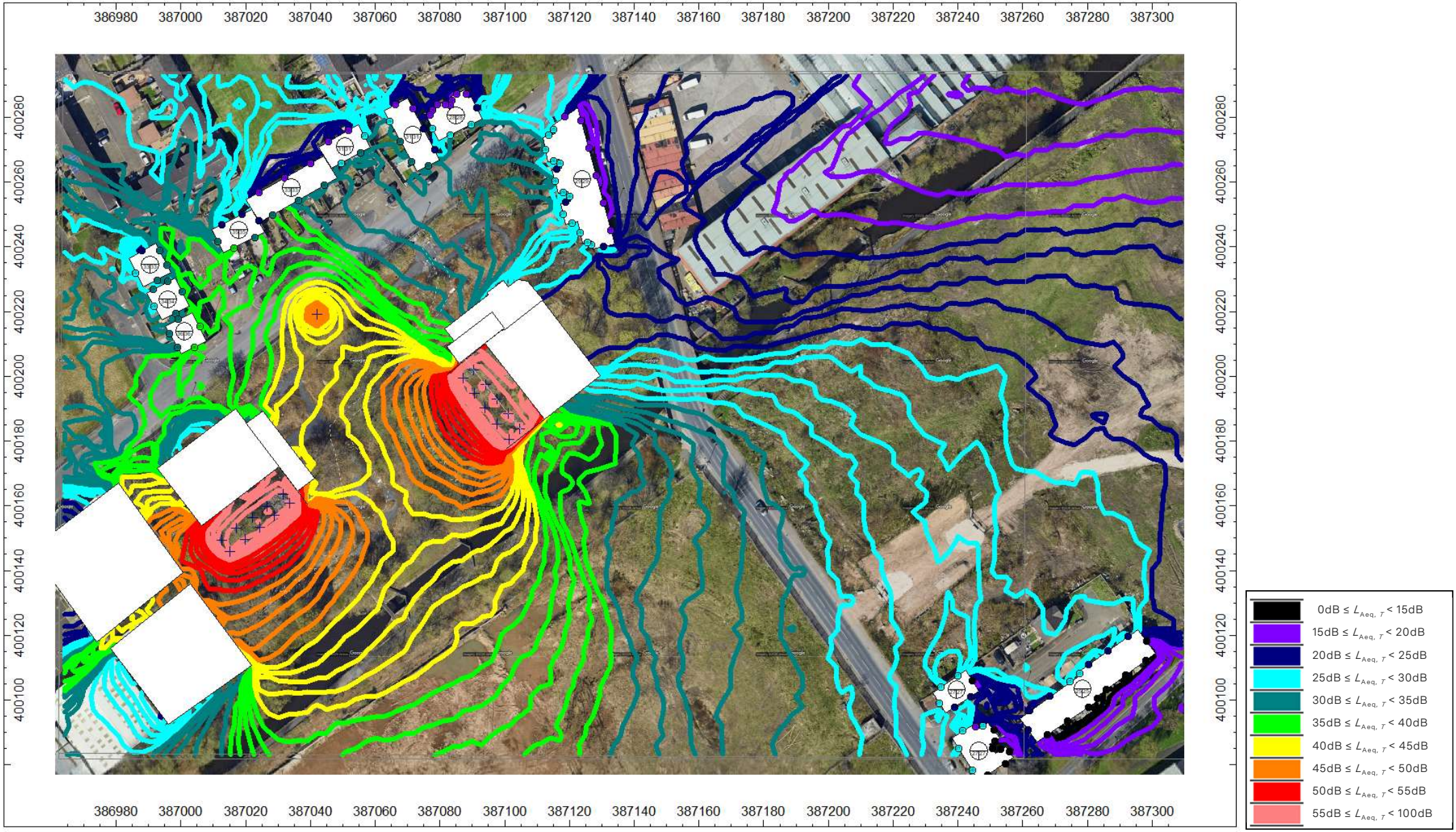


Figure D1: Predicted daytime Specific Sound Level, $L_{Aeq,1hour}$, from the normally operating plant, at 1.5 metres grid height (Google 2026)

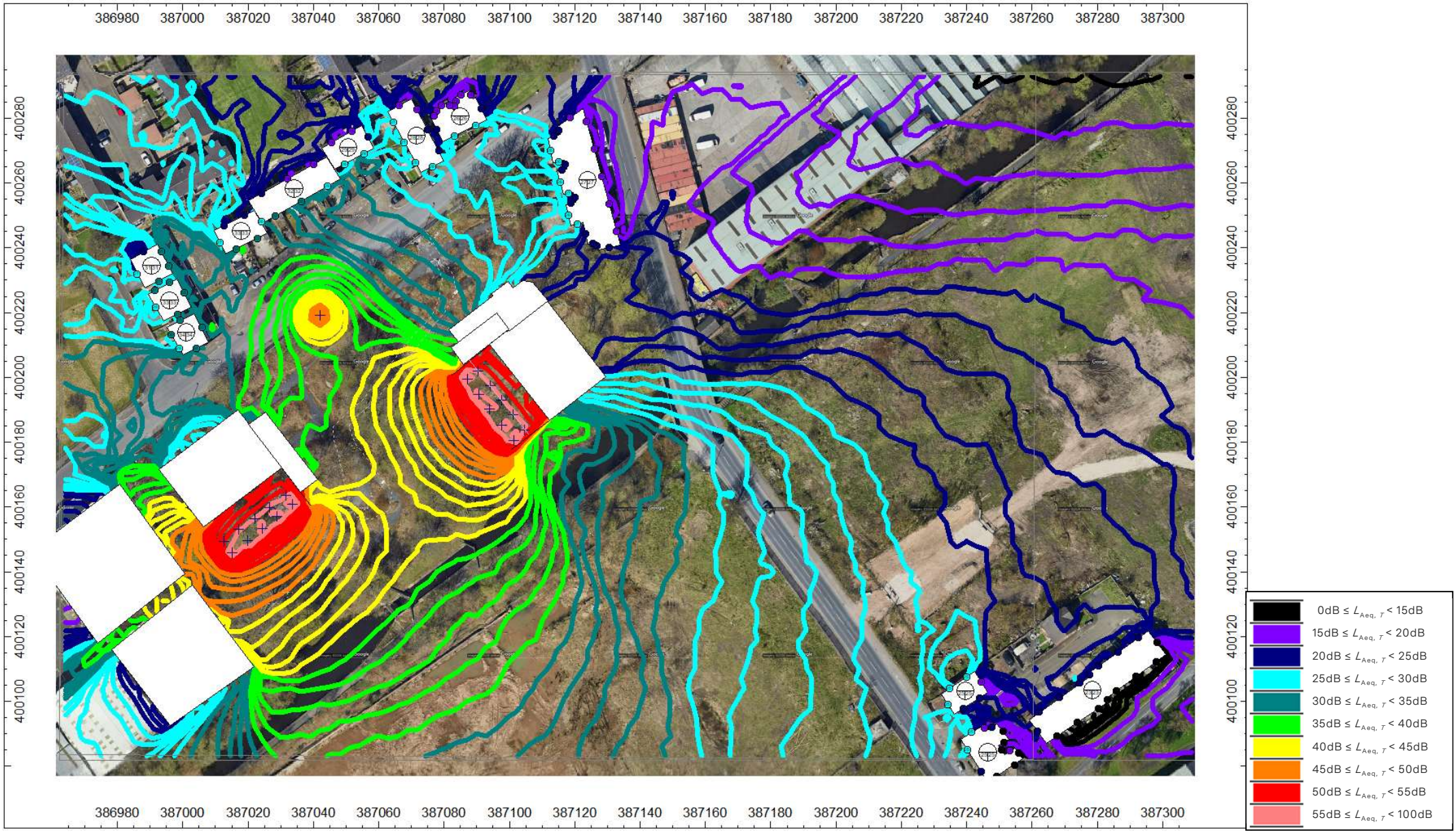


Figure D2: Predicted night-time Specific Sound Level, $L_{Aeq,15min}$, from the normally operating plant, at 4 metres grid height (Google 2026)

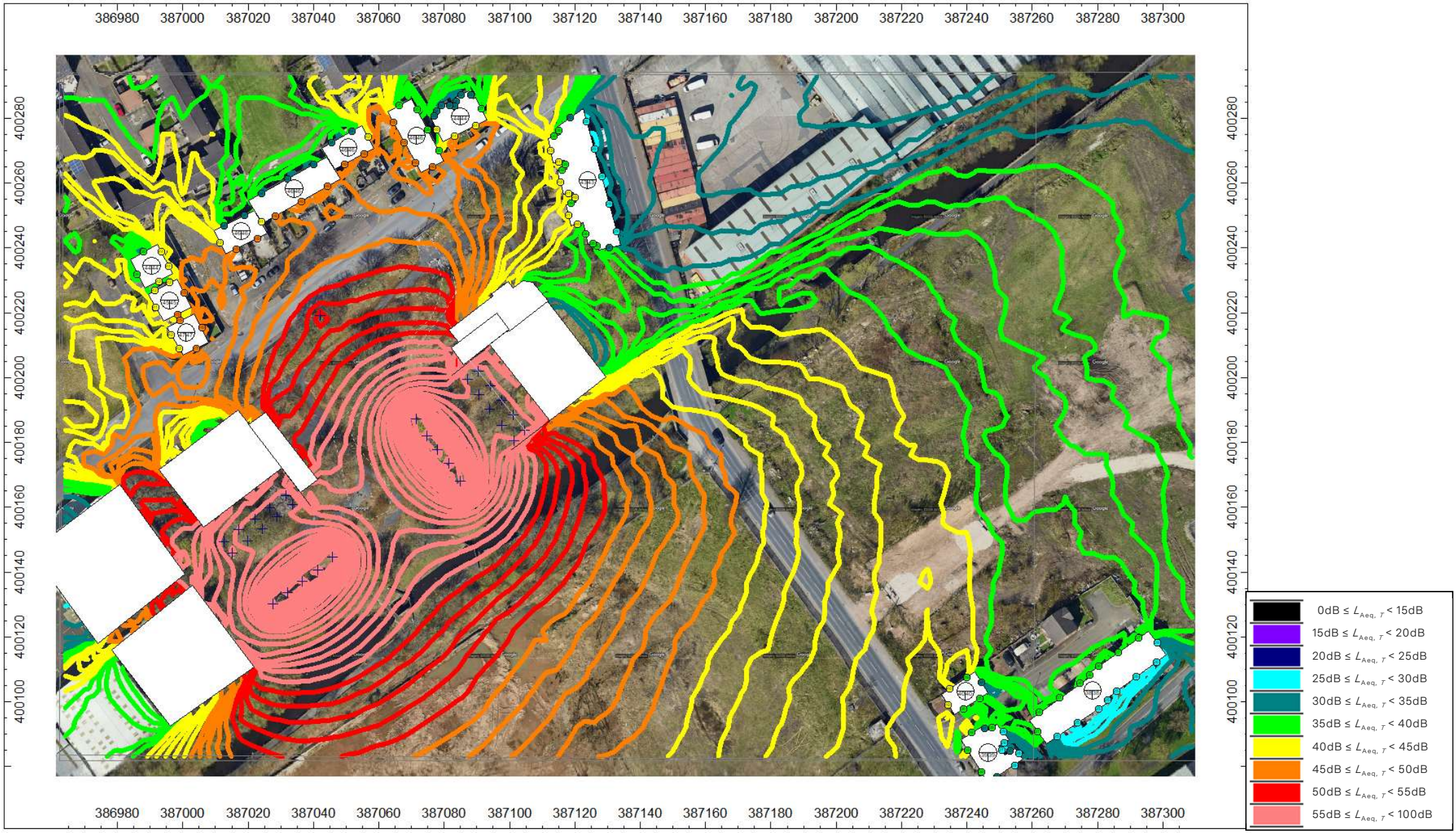


Figure D3: Predicted daytime Specific Sound Level, $L_{Aeq,1hour}$, from the emergency and normally operating plant, at 1.5 metres grid height (Google 2026)

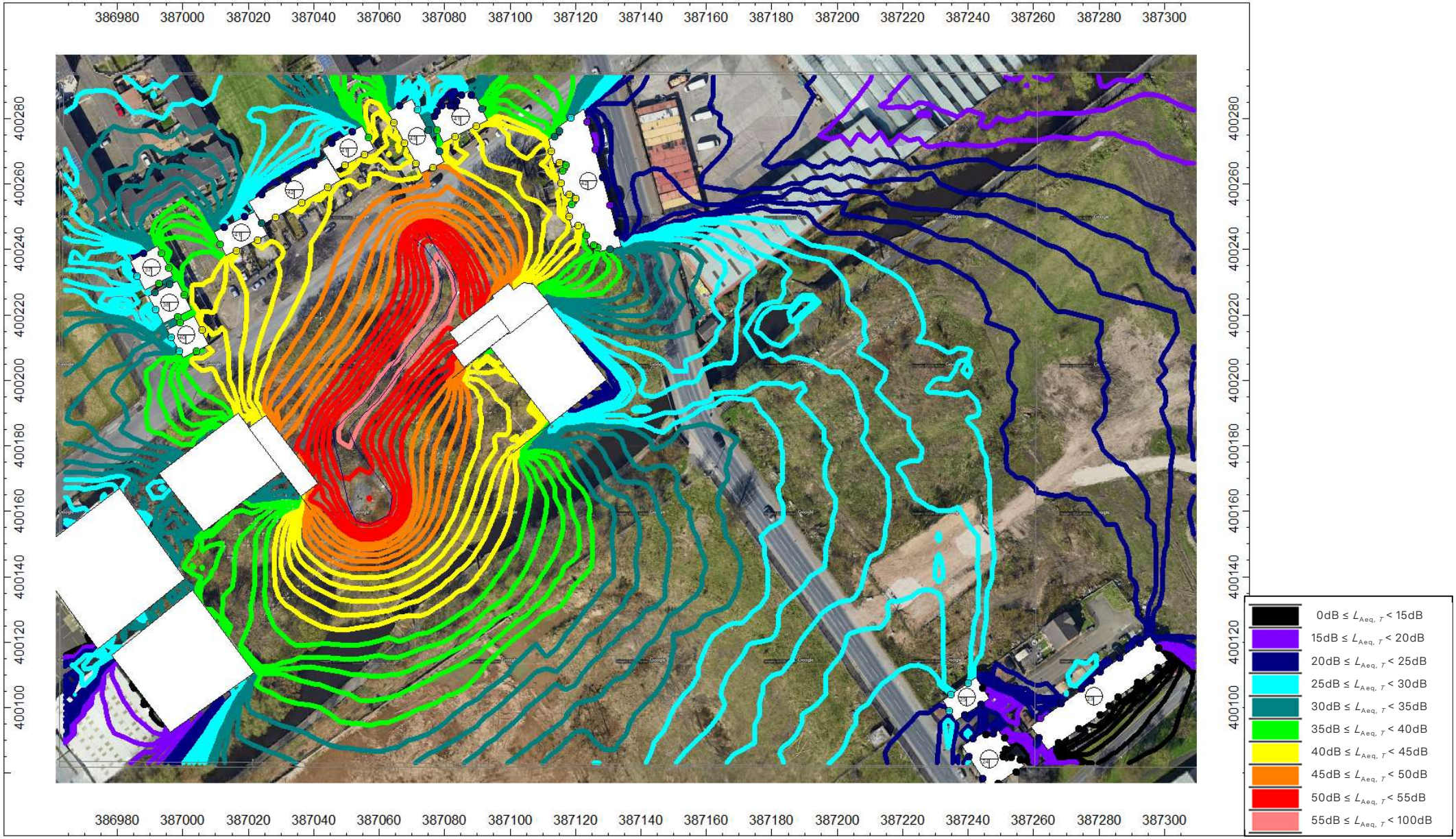


Figure D4: Predicted daytime Specific Sound Level, $L_{Aeq,1hour}$, from HGV movements, at 1.5 metres grid height (Google 2026)