



PREPARED: 20 May 2026

NETHERHAMPTON ROAD, SALISBURY

NOISE IMPACT ASSESSMENT

CONTENTS

1.0	EXECUTIVE SUMMARY	1
2.0	INTRODUCTION	1
3.0	SITE DESCRIPTION	1
4.0	LOCAL AUTHORITY REQUIREMENTS	2
5.0	RELEVANT GUIDANCE	2
6.0	COMPETENCE	3
7.0	ENVIRONMETNAL SOUND SURVEY	3
8.0	ASSESSMENT	4
9.0	UNCERTAINTY	7
10.0	CONCLUSIONS	7

LIST OF ATTACHMENTS

AS14594/SP1	Indicative Site Plan
AS14594/TH1-TH5	Environmental Noise Time Histories
AS14594/PNS	Plant Noise Schedule
APPENDIX A	Acoustic Terminology
APPENDIX B	Summary of Acoustic Calculations
APPENDIX C	BS4142 Methodology

Project Ref:	AS14594	Project Name:	Netherhampton Road, Salisbury
Report Ref:	AS14594.260515.R1	Report Title:	Noise Impact Assessment
Client Name:	Esdon Architecture		
Project Manager:	Michael Symmonds		
Report Author:	Michael Symmonds		
Clarke Saunders Acoustics Winchester SO22 5BE		This report has been prepared in response to the instructions of our client. It is not intended for and should not be relied upon by any other party or for any other purpose.	

1.0 EXECUTIVE SUMMARY

- 1.1 Clarke Saunders Acoustics (CSA) has undertaken a noise impact assessment of indicative building services installations associated with the proposed mixed-use commercial development at Armishaw Removals, Netherhampton Road, Netherhampton, Salisbury, SP2 8RA. The assessment has been undertaken in accordance with the planning requirements of Wiltshire Council (WC).
- 1.2 An environmental sound survey has been undertaken at the site between Friday 8th May and Wednesday 13th May 2026 to establish the baseline sound climate at a location representative of the nearest sensitive receptors. An assessment has been undertaken following procedures in BS4142¹.
- 1.3 The BS4142 numerical assessment levels at the most affected receptor were determined to be -7dB and -5dB for the daytime and night-time periods, respectively. Upon consideration of the numerical assessment and context, the resultant impact has been determined to be low, without further need for mitigation.
- 1.4 This report concludes that the proposed indicative building services installations associated with the development site can comply with the requirements of WC, demonstrating feasibility of the proposals.

2.0 INTRODUCTION

- 2.1 CSA has been commissioned to undertake a noise impact assessment of indicative building services installations associated with the proposed mixed-use commercial development at Armishaw Removals, Netherhampton Road, Netherhampton, Salisbury, SP2 8RA.
- 2.2 An environmental sound survey has been conducted, the data from which has been used alongside the planning requirements of WC to set plant sound emissions criteria.
- 2.3 Manufacturer's acoustic data for the proposed units has been used to calculate the likely sound levels at the identified noise sensitive receptors, which have been compared to the criteria.
- 2.4 A summary of acoustic terminology used throughout this report is provided at Appendix A.

3.0 SITE DESCRIPTION

- 3.1 Armishaw International Removals seek full planning permission for development of dis-used land off Netherhampton Road, Salisbury to provide a mixed-use commercial scheme.
- 3.2 The proposals comprise a convenience store (Class E(a)), a drive-through coffee unit (Class E(b)), two Class B8 trade counter units with ancillary office use, and retention of an existing B8 warehouse, along with associated parking, access, and servicing arrangements.
- 3.3 The proposals involve the installation of associated mechanical plant to service the four new units, for which a noise impact assessment is required.

¹ BS4142:2014+A.1:2019 *Methods for rating and assessing industrial and commercial sound*

3.4 From on-site inspections and satellite imagery, the nearest noise sensitive receptors have been identified as dwellings off Riddell Way along the eastern site boundary and dwellings off Bodenham Lane to the north of site adjacent to Netherhampton Road.

3.5 The site surroundings, approximate plant locations and identified receptors are shown in the appended site plan AS14594/SP1.

4.0 LOCAL AUTHORITY REQUIREMENTS

4.1 For building services plant installations, it is understood that WC typically require an assessment following procedures in BS4142 targeting a Rating Level at least 5dB below the representative Background Sound Level at the nearest noise sensitive receptors.

4.2 This approach and criteria have been confirmed in correspondence to the application from WC Environmental Control & Protection.

5.0 RELEVANT GUIDANCE

5.1 NATIONAL PLANNING POLICY FRAMEWORK

5.1.1 In March 2012 the 'National Planning Policy Framework' (NPPF) was introduced as the current planning policy guidance within England. In its current form, as revised February 2025, Paragraph 198 and 200 of the NPPF states:

198.

"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:

- *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;*
- *identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and*
- *limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation."*

200.

"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."

5.2 BS4142 ASSESSMENT CRITERIA

5.2.1 BS4142 describes a method for rating and assessing sound of an industrial and/or commercial nature, which includes:

- Sound from industrial and manufacturing processes;
- Sound from fixed installations which comprise mechanical and electrical plant and equipment;
- Sound from the loading and unloading of goods and materials at industrial and/or commercial premises, and;
- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes.

5.2.2 The purpose of this standard is to determine the magnitude of potential impact on nearby sensitive receptors from industrial or commercial sound, with respect to the existing background sound levels and relevant character penalties owing to distinguishable sound features.

5.2.3 The numerical impact assessment may then be modified by taking consideration of the context in which the sound occurs.

5.2.4 A detailed overview of the BS4142 methodology is provided in Appendix C.

6.0 COMPETENCE

6.1 The sound measurements and assessment were carried out under the instruction of Michael Symmonds, a Senior Consultant at CSA and the author of this report. He has over eight years' experience in consulting, holding a First-Class Master's Degree in Acoustical Engineering.

6.2 The report adheres with the principles required by the Institute of Acoustics in their Code of Conduct, and the work is within the author's own area of knowledge and expertise. Where opinions have been expressed these represent true and complete professional opinions on the matters to which they refer.

6.3 CSA is a full member of the Association of Noise Consultants. The author of this report is a Corporate Member of the Institute of Acoustics.

7.0 ENVIRONMENTAL SOUND SURVEY

7.1 PROCEDURES & EQUIPMENT

7.1.1 A survey of the existing ambient and background sound levels was undertaken at 1.5m above local ground level at the position shown in site plan AS14594/SP1. The monitoring position is suitably representative of the background sound levels experienced at the nearby sensitive receptors.

7.1.2 The monitor was set to record measurements of consecutive 5-minute L_{Aeq} , L_{Amax} , L_{A10} and L_{A90} sound pressure levels between 13:00 hours on Friday 8th May and 12:00 hours on Wednesday 13th May 2026.

7.1.3 The following equipment was used during the course of the survey:

- 1 no. Rion data logging sound level meter type NL52;
- 1 no. Rion sound level field calibrator type NC74.

7.1.4 The calibration of the sound level meter was verified before and after use, with no significant calibration drift detected (≤ 0.5 dB). Certificates of laboratory calibration of all equipment used in the survey are available on request.

7.1.5 Measurements were made following procedures in BS4142 and BS 7445:1991 (ISO1996-2:1987) *Description and measurement of environmental noise Part 2-Acquisition of data pertinent to land use*.

7.1.6 From inspection of publicly available meteorological data, the majority of the measurement period was dry with light winds; a short period of adverse rain was noted on the morning of Wednesday 13th, which has been omitted from the dataset.

7.2 SURVEY RESULTS

7.2.1 Figures AS14594/TH1-TH5 show the L_{Aeq} , L_{Amax} , L_{A10} and L_{A90} sound pressure levels as time histories at the monitoring location.

7.2.2 The typical lowest representative background sound levels measured during the daytime and night-time periods are shown in Table 7.1, below.

Period	Typical Lowest Background Sound Level*
	$L_{A90,5mins}$
Daytime (07:00 – 23:00 hours)	37 dB
Night-time (23:00 – 07:00 hours)	32 dB

Table 7.1: Environmental sound survey results [dB ref. 20 μ Pa]
**typical background derived from the 10th percentile of the L_{A90} dataset*

7.2.3 From inspection of the time histories, background sound levels at night are periodically elevated by the substation on Riddell Way circa 30m to the east of monitoring location. Where night-time operation is not continuous and the most affected dwellings are =screened from this sound source, typical background sound levels in Table 7.1 have been derived from periods where the substation is not in operation, to ensure a robust assessment of potential noise impacts.

8.0 ASSESSMENT

8.1 PROPOSED PLANT

8.1.1 The project team has confirmed the following indicative building services plant selections based on other similar sites of a similar size, assumed to be installed as indicated in site plan AS14594/SP1:

Plant serving B8 Units

- 2 no. Daikin RZAG140 AC condensers.

Rooftop Plant serving Retail Unit

- 1 no. Gas Cooler;
- 1 no. Compressor Pack;
- 2 no. Store ACU;
- 1 no. Cash Office ACU.

Plant serving Coffee Drive-Thru Unit

- 1 no. Daikin RZAG100 AC condenser;
- 1 no Daikin RZAG140 AC condenser;
- 1 no. Daikin RZAG35A AC condenser.

8.1.2 Sound source data for the identified indicative building services units has been provided by the applicant, and is detailed in the appended plant noise schedule, AS14594/PNS.

8.1.3 It has been confirmed by the applicant that all plant areas will be surrounded by louvres.

8.1.4 With reference to information provided in other noise impact assessments for the intended coffee drive-thru and retail unit operators, it is understood that the plant serving the B8 Units and the Coffee Drive-Thru will operate during daytime hours only. The ACU's serving the retail unit will also only operate during daytime hours, however, the Gas Cooler and Compressor Pack could operate continuously during both daytime and night-time periods.

8.2 PREDICTED SOUND LEVELS

Initial Numerical Assessment

8.2.1 CSA has conducted an assessment following procedures in BS4142 to determine the likelihood of adverse impact being caused by the proposed building services installations.

8.2.2 The assessment is based upon the sound source data provided in the plant noise schedule, AS14594/PNS, and assumes plant could operate simultaneously at 100% duty during their relevant daytime and night-time operational periods, as detailed in paragraph 8.1.4.

8.2.3 The calculations indicate that acoustic screening will need to be implemented for the B8 condensers and the retail unit plant. The coffee drive-thru plant does not require screening, so the proposed louvre does not require a particular acoustic performance.

8.2.4 In order to provide acoustic screening to the receptors, the louvres surrounding the B8 condensers and retail plant are assumed to be solid and imperforate on the northern, eastern, and southern sides.

8.2.5 The height of this solid screen section will need to obscure line of sight between the plant items and the first-floor windows of the residential properties. Preliminary calculations indicate that this solid screen section will likely need to be circa 1.75m high at the B8 condensers, and circa 1.5m-2m high surrounding the rooftop retail plant, depending on final unit selections.

8.2.6 Based upon the sound data, distance losses and applicable acoustic screening losses, the Specific Levels would be substantially below the Background Level.

8.2.7 As such, no tonality or otherwise distinguishable characteristics are anticipated to be perceptible at the nearest affected receptors, so no corrections have been applied for tonality.

8.2.8 Whilst sound generated by the plant may vary across the daytime and night-time periods, it is not anticipated to operate intermittently, or produce impulsive sound, so no intermittency or impulsivity corrections are applicable.

8.2.9 The overall predictions are shown in Table 8.1, with calculations shown in Appendix B.

Parameter	Daytime (07:00 – 23:00 hrs)		Night-time (23:00 – 07:00 hrs)	
	Riddell Way	Bodenham Lane	Riddell Way	Bodenham Lane
Specific Sound Level	32 dB	27 dB	25 dB	24 dB
Acoustic Feature Corrections	-	-	-	-
Rating Level	32 dB	27 dB	25 dB	24 dB
Typical Lowest Background Sound Level (L_{A90})	37 dB		32 dB	
BS4142 Assessment Level	-5 dB	-10 dB	-7 dB	-8 dB

Table 8.1: Assessment of indicative building services plant selections

8.2.10 BS4142 states “where the rating level does not exceed the background sound level, this is an indication of the specific source having a low impact depending on the context”. The context is discussed in more detail below.

Contextual Discussion

8.2.11 The context forms a key part of any BS4142 assessment and must be considered alongside the numerical assessment.

8.2.12 The background sound level in the locale is influenced by an existing substation on Riddell Way during the night-time period. Sound from the proposed building services installations will, therefore, be similar to the character of the existing sound climate during much of the night-time period at the most affected dwellings off Riddell Way.

8.2.13 The siting of the plant and resultant propagation losses, including distance separation and acoustic screening, are expected to sufficiently control plant sound levels such that no distinguishable sound characteristic should be noticeable at the receptor locations.

8.2.14 Whilst sound levels from the proposed building services installations is considered continuous in nature, the units will operate on demand of heating/ventilation from the site, and will likely have periods of lower operational duty during the quieter periods.

Final Assessment

8.2.15 The predicted Rating Levels, with all plant operating simultaneously at 100% capacity, are at least 5dB below the Background Levels, thereby demonstrating a low likelihood of adverse impact and compliance with the WC criteria.

9.0 UNCERTAINTY

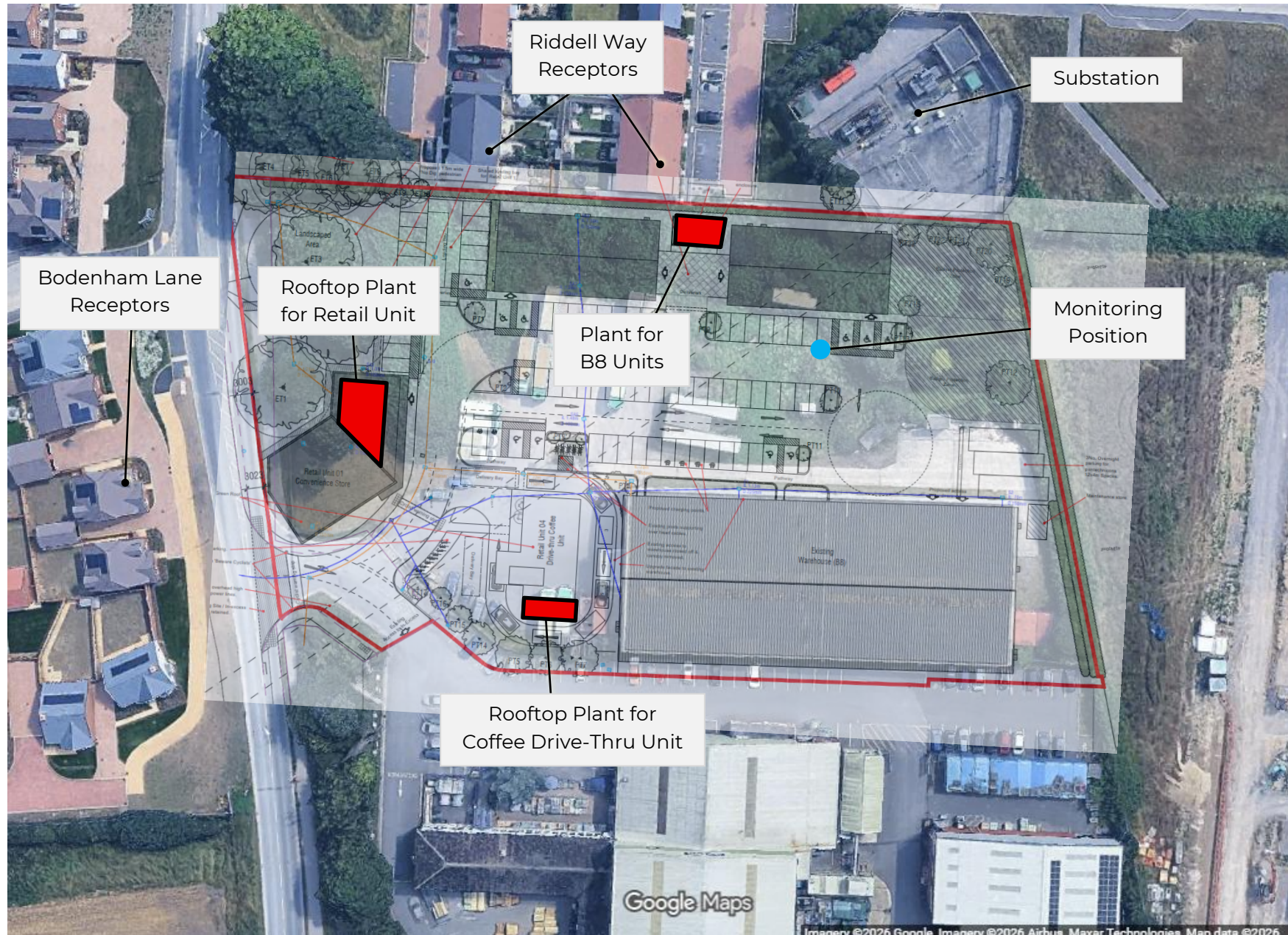
- 9.1 As per BS4142, the uncertainty in the assessment is considered and reported. This is not an indication of error, but an acknowledgment of possible variability of the factors contributing to the assessment.
- 9.2 Use of a calibrated type 1 sound level meter is considered to reduce measurement instrument error to insignificant levels compared with environmental variations.
- 9.3 Survey measurements were collected over multiple days, during which daily ambient sound fluctuations were observed.
- 9.4 The assessment has been based on considerations using assumptions of a 'worst case scenario'. Whilst not quantified, typical daytime operation may often be at a lower duty and, therefore, generate lower sound levels. This uncertainty provides a tolerance within the calculations.
- 9.5 The Rating Levels were determined to be significantly below the representative Background Levels, such that the uncertainty stated above will not affect the assessment outcome.

10.0 CONCLUSIONS

- 10.1 Clarke Saunders Acoustics has undertaken a noise impact assessment of indicative building services installations associated with the proposed mixed-use commercial development at Armishaws Removals, Netherhampton Road, Netherhampton, Salisbury, SP2 8RA. The assessment has been undertaken in accordance with the planning requirements of Wiltshire Council.
- 10.2 An environmental sound survey has been undertaken at the site between Friday 8th May and Wednesday 13th May 2026 to establish the baseline sound climate at a location representative of the nearest sensitive receptors. An assessment has been undertaken following procedures in BS4142.
- 10.3 The BS4142 numerical assessment levels at the most affected receptors were determined to be -7dB and -5dB for the daytime and night-time periods, respectively. Upon consideration of the numerical assessment and context, the resultant impact has been determined to be low, without further need for mitigation.
- 10.4 This report concludes that the proposed indicative building services installations associated with the development site can comply with the requirements of WC, demonstrating the feasibility of the proposals.



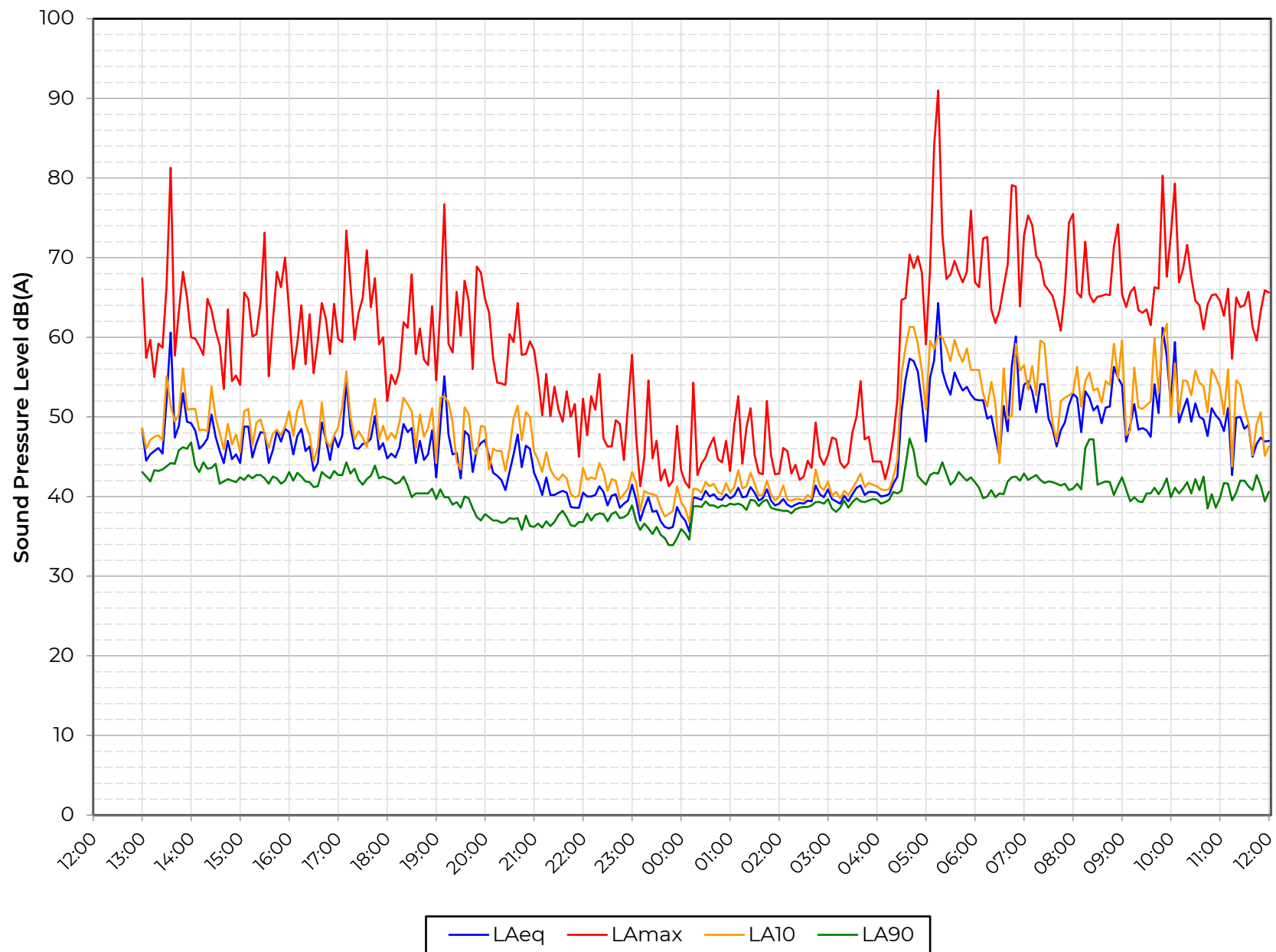
Michael Symmonds MIOA
CLARKE SAUNDERS ACOUSTICS



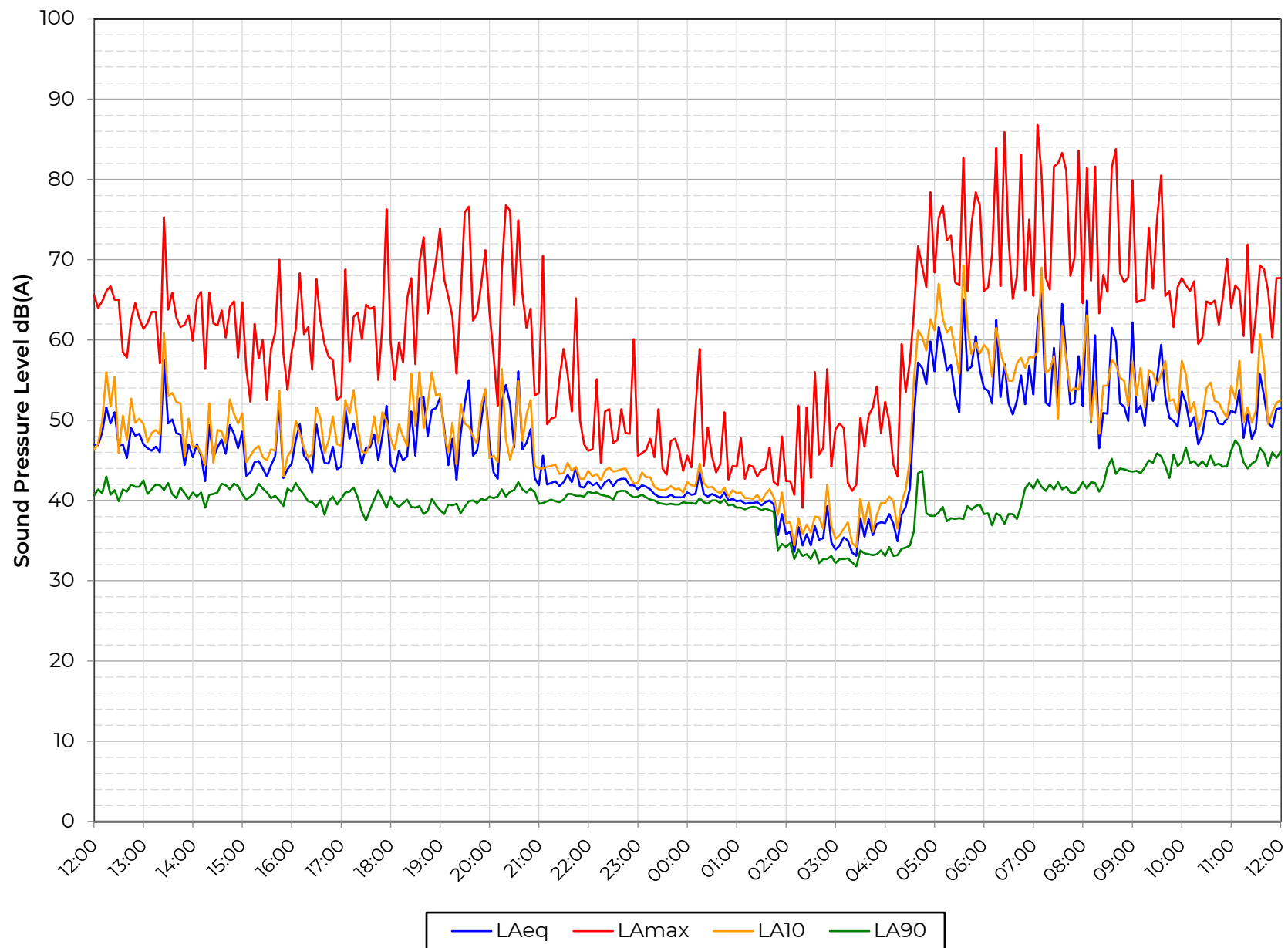
Indicative Site Plan

Figure AS14594/SP1

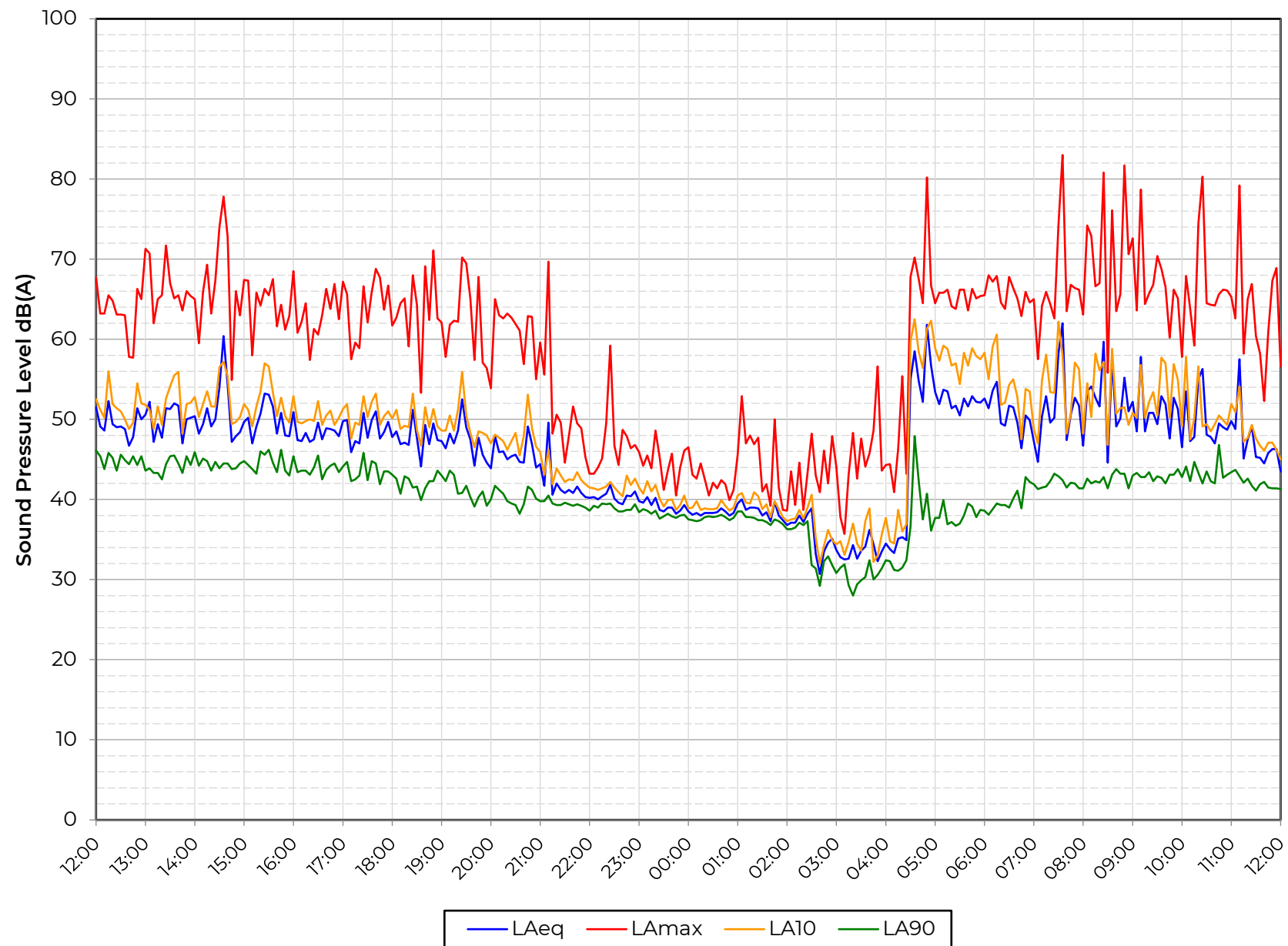
Position 1



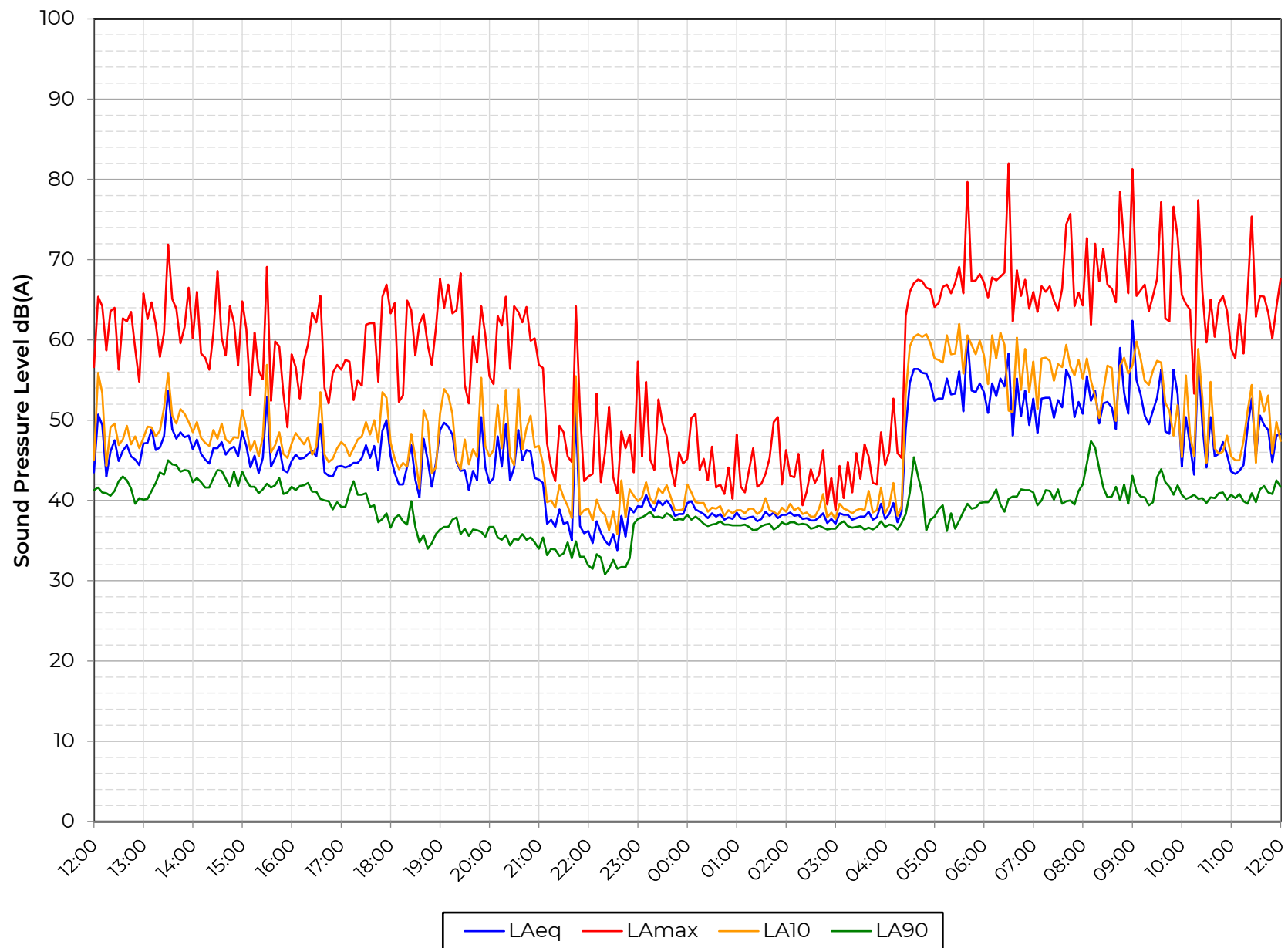
Position 1



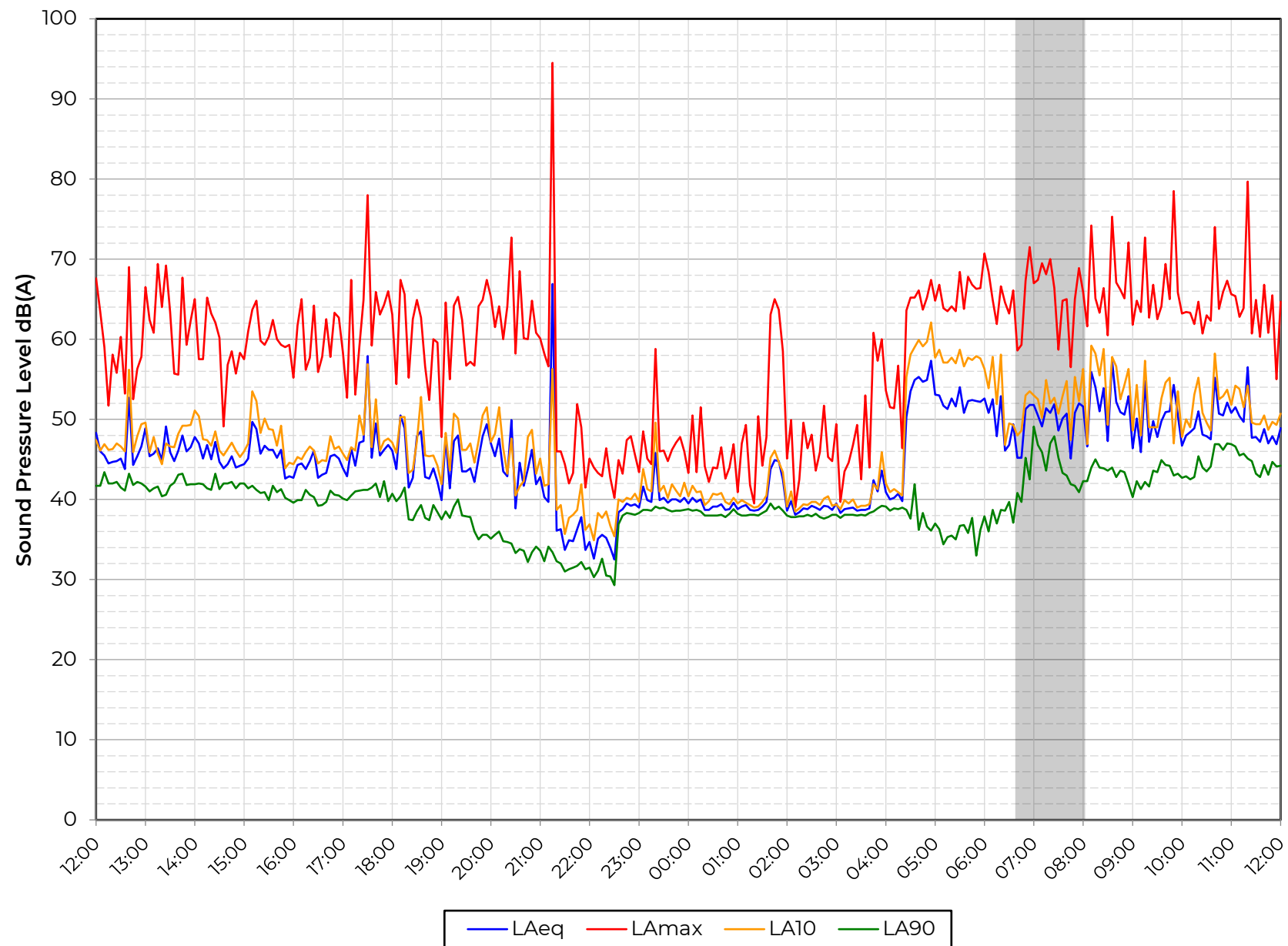
Position 1



Position 1



Position 1



Ref:	AS14594/PNS	Revision:	1.0	Date:	18 May 2026	Engineer:	Michael Symmonds
Plant Reference/Location				Notes		Distance	Sound Pressure Level (L _p)
Use Class B8 - Trade Counter Units							
Daikin RZAG140 Condenser (2 no.)				Heating 100%		1 m	52 dB
Use Class E(a) – Retail Unit							
Gas Cooler (1 no.)				Daytime		10 m	40 dB
				Night-time			30 dB
Compressor Pack (1 no.)				Daytime		10 m	42 dB
				Night-time			42 dB
Store ACU (2 no.)				-		1 m	51 dB
Cash Office ACU (1 no.)				-		1 m	47 dB
Use Class E(b) – Drive-Thru Coffee Unit							
Daikin RZAG100 Condenser (1 no.)				Heating 100%		1 m	50 dB
Daikin RZAG140 Condenser (1 no.)				Heating 100%		1 m	52 dB
Daikin RZAG35A Condenser (1 no.)				Heating 100%		1 m	48 dB

Acoustic Terminology

The human impact of sounds is dependent upon many complex interrelated factors such as 'loudness', its frequency (or pitch) and variation in level. In order to have some objective measure of the annoyance, scales have been derived to allow for these subjective factors.

Sound	Vibrations propagating through a medium (air, water, etc.) that are detectable by the auditory system.
Noise	Sound that is unwanted by or disturbing to the perceiver.
Frequency	The rate per second of vibration constituting a wave, measured in Hertz (Hz), where 1Hz = 1 vibration cycle per second. The human hearing can generally detect sound having frequencies in the range 20Hz to 20kHz. Frequency corresponds to the perception of 'pitch', with low frequencies producing low 'notes' and higher frequencies producing high 'notes'.
dB(A):	Human hearing is more susceptible to mid-frequency sounds than those at high and low frequencies. To take account of this in measurements and predictions, the 'A' weighting scale is used so that the level of sound corresponds roughly to the level as it is typically discerned by humans. The measured or calculated 'A' weighted sound level is designated as dB(A) or L_A .
L_{eq}:	A notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (e.g. 8 hour, 1 hour, etc). The concept of L_{eq} (equivalent continuous sound level) has primarily been used in assessing noise from industry, although its use is becoming more widespread in defining many other types of sounds, such as from amplified music and environmental sources such as aircraft and construction. Because L_{eq} is effectively a summation of a number of events, it does not in itself limit the magnitude of any individual event, and this is frequently used in conjunction with an absolute sound limit.
L_{10} & L_{90}:	Statistical L_n indices are used to describe the level and the degree of fluctuation of non-steady sound. The term refers to the level exceeded for n% of the time. Hence, L_{10} is the level exceeded for 10% of the time and as such can be regarded as a typical maximum level. Similarly, L_{90} is the typical minimum level and is often used to describe background noise. It is common practice to use the L_{10} index to describe noise from traffic as, being a high average, it takes into account the increased annoyance that results from the non-steady nature of traffic flow.
L_{max}:	The maximum sound pressure level recorded over a given period. L_{max} is sometimes used in assessing environmental noise, where occasional loud events occur which might not be adequately represented by a time-averaged L_{eq} value.
NR	<i>Noise Rating</i> . A single figure noise level rating that takes into account the frequency content of an acoustic environment.
R	<i>Sound Reduction Index</i> . Effectively the Level Difference of a building element when measured in an accredited laboratory test suite in accordance with the procedures laid down in BS EN ISO 10140-2:2010 and corrected for its size and the reverberant characteristics of the receive room.
D	The sound insulation performance of a construction is described in terms of the difference in sound level on either side of the construction in the presence of a

sound source on one side and the reverberant characteristics of the adjoining 'receive' space. D is the arithmetic Level Difference in decibels between the source and receive sound levels when filtered into frequency bands.

D_{nT}	<i>Weighted Standardised Level Difference.</i> As defined in BS EN ISO 717-1, representing the Weighted Level Difference, when standardised for reference receiving room reverberant characteristics.
$D_{n,e}$	Normalised sound insulation of small building elements of fixed dimensions, such as vents, measured in an accredited laboratory test suite in accordance with the procedures laid down in BS EN ISO 10140-2:2010.
$D_{n,f}$	Flanking sound insulation of lightweight elements, such as curtain wall mullions, measured in an accredited laboratory test suite in accordance with the procedures laid down in ISO 10848-2:2006
R_w D_w $D_{nT,w}$ $D_{n,e,w}$ $D_{n,f,w}$	Value of parameter, determined as above, but weighted in accordance with the procedures laid down in BS EN ISO 717-1 to provide a single-figure value.
C , C_{tr}	Spectral adaptation terms to be added to a single number quantity such as $D_{nT,w}$, to take account of the sound insulation within frequency ranges of particular interest.
$L'_{nT,w}$	<i>Weighted Standardised Impact Sound Pressure Level</i> as defined in BS EN ISO 717-2, representing the level of sound pressure when measured within a space where the floor above is under excitation from a calibrated tapping machine, standardised for the receiving room reverberant characteristics.
ΔL_w	Change in impact sound pressure level when a floor is fitted with a 'soft' or resilient covering, as measured in an accredited laboratory test suite in accordance with the procedures laid down in BS EN ISO 10140-3:2010.

Octave Band Frequencies

In order to determine the way in which the energy of sound is distributed across the frequency range, the International Standards Organisation has agreed on "preferred" bands of frequency for sound measurement and analysis. The widest and most commonly used band for frequency measurement and analysis is the Octave Band.

In these bands, the upper frequency limit is twice the lower frequency limit, with the band being described by its "centre frequency" which is the average (geometric mean) of the upper and lower limits, e.g. 250 Hz octave band extends from 176 Hz to 353 Hz. The most commonly used octave bands are:

Octave Band Centre Frequency Hz	63	125	250	500	1000	2000	4000	8000
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Human Perception of Broadband Noise

Because of the logarithmic nature of the decibel scale, it should be borne in mind that sound levels in dB(A) do not have a simple linear relationship. For example, 100dB(A) sound level is not twice as loud as 50dB(A). It has been found experimentally that changes in the average level of fluctuating sound, such as from traffic, need to be of the order of 3dB before becoming definitely perceptible to the human ear. Data from other

experiments have indicated that a change in sound level of 10dB is perceived by the average listener as a doubling or halving of loudness. Using this information, a guide to the subjective interpretation of changes in environmental sound level can be given.

INTERPRETATION

Change in Sound Level dB	Subjective Impression	Human Response
0 to 2	Imperceptible change in loudness	Marginal
3 to 5	Perceptible change in loudness	Noticeable
6 to 10	Up to a doubling or halving of loudness	Significant
11 to 15	More than a doubling or halving of loudness	Substantial
16 to 20	Up to a quadrupling or quartering of loudness	Substantial
21 or more	More than a quadrupling or quartering of loudness	Very Substantial

Earth Bunds and Barriers - Effective Screen Height

When considering the reduction in sound level of a source provided by a barrier, it is necessary to establish the "effective screen height". For example if a tall barrier exists between a sound source and a listener, with the barrier close to the listener, the listener will perceive the sound as being louder if they climb up a ladder (and are closer to the top of the barrier) than if they were standing at ground level. Equally if they sat on the ground the sound would seem quieter than if standing. This is explained by the fact that the "effective screen height" is changing with the three cases above. In general, the greater the effective screen height, the greater the perceived reduction in sound level.

Similarly, the attenuation provided by a barrier will be greater where it is aligned close to either the source or the listener than where the barrier is midway between the two.

APPENDIX B

AS14594 - NETHERHAMPTON ROAD, SALISBURY

SUMMARY OF PLANT SOUND CALCULATIONS

DAYTIME OPERATION (07:00 - 23:00 hrs)

PLANT SOUND TO RIDDELL WAY		dB(A)
Plant serving B8 Units		
<u>RZAG140 - Heating 100%</u>	Lp @ 1m	52
Number of	2no	3
Screening Loss		-5
Distance Loss	10m	-20
	Subtotal	30
Rooftop Plant serving Retail Unit		
<u>Gas Cooler - Day</u>	Lp @ 10m	40
Number of	1no	0
Screening Loss		-5
Distance Loss	40m	-12
	Subtotal	23
<u>Compressor Pack - Day</u>	Lp @ 10m	42
Number of	1no	0
Screening Loss		-5
Distance Loss	40m	-12
	Subtotal	25
<u>Store ACU - Day</u>	Lp @ 1m	51
Number of	2no	3
Screening Loss		-5
Distance Loss	40m	-32
	Subtotal	17
<u>Cash Office ACU - Day</u>	Lp @ 1m	47
Number of	1no	0
Screening Loss		-5
Distance Loss	40m	-32
	Subtotal	10
Rooftop Plant serving Coffee Drive-Thru		
<u>RZAG100 - Heating 100%</u>	Lp @ 1m	50
Number of	1no	0
Screening Loss		0
Distance Loss	75m	-38
	Subtotal	13
<u>RZAG140 - Heating 100%</u>	Lp @ 1m	52
Number of	1no	0
Screening Loss		0
Distance Loss	75m	-38
	Subtotal	14
<u>RZAG35A - Heating 100%</u>	Lp @ 1m	48
Number of	1no	0
Screening Loss		0
Distance Loss	75m	-38
	Subtotal	11
Specific sound level at receptor	L_{eq} 1hr	32

APPENDIX B

AS14594 - NETHERHAMPTON ROAD, SALISBURY SUMMARY OF PLANT SOUND CALCULATIONS

PLANT SOUND TO BODENHAM LANE		dB(A)
Plant serving B8 Units		
<u>RZAG140 - Heating 100%</u>	Lp @ 1m	52
Number of	2no	3
Screening Loss		-5
Distance Loss	110m	-41
	Subtotal	9
Rooftop Plant serving Retail Unit		
<u>Gas Cooler - Day</u>	Lp @ 10m	40
Number of	1no	0
Screening Loss		-5
Distance Loss	45m	-13
	Subtotal	22
<u>Compressor Pack - Day</u>	Lp @ 10m	42
Number of	1no	0
Screening Loss		-5
Distance Loss	45m	-13
	Subtotal	24
<u>Store ACU - Day</u>	Lp @ 1m	51
Number of	2no	3
Screening Loss		-5
Distance Loss	45m	-33
	Subtotal	16
<u>Cash Office ACU - Day</u>	Lp @ 1m	47
Number of	1no	0
Screening Loss		-5
Distance Loss	45m	-33
	Subtotal	9
Rooftop Plant serving Coffee Drive-Thru		
<u>RZAG100 - Heating 100%</u>	Lp @ 1m	50
Number of	1no	0
Screening Loss		0
Distance Loss	65m	-36
	Subtotal	14
<u>RZAG140 - Heating 100%</u>	Lp @ 1m	52
Number of	1no	0
Screening Loss		0
Distance Loss	65m	-36
	Subtotal	16
<u>RZAG35A - Heating 100%</u>	Lp @ 1m	48
Number of	1no	0
Screening Loss		0
Distance Loss	65m	-36
	Subtotal	12
Specific sound level at receptor	L_{eq} 1hr	27

APPENDIX B

AS14594 - NETHERHAMPTON ROAD, SALISBURY
SUMMARY OF PLANT SOUND CALCULATIONS

NIGHT-TIME OPERATION (23:00 - 07:00 hrs)

PLANT SOUND TO RIDDELL WAY		dB(A)
Rooftop Plant serving Retail Unit		
<u>Gas Cooler - Night</u>	Lp @ 10m	30
Number of	1no	0
Screening Loss		-5
Distance Loss	40m	-12
	Subtotal	13
<u>Compressor Pack - Night</u>	Lp @ 10m	42
Number of	1no	0
Screening Loss		-5
Distance Loss	40m	-12
	Subtotal	25
Specific sound level at receptor	L_{eq} 1hr	25

PLANT SOUND TO BODENHAM LANE		dB(A)
Rooftop Plant serving Retail Unit		
<u>Gas Cooler - Night</u>	Lp @ 10m	30
Number of	1no	0
Screening Loss		-5
Distance Loss	45m	-13
	Subtotal	12
<u>Compressor Pack - Night</u>	Lp @ 10m	42
Number of	1no	0
Screening Loss		-5
Distance Loss	45m	-13
	Subtotal	24
Specific sound level at receptor	L_{eq} 1hr	24

BS4142 is designed to allow contextual assessment of impact from commercial, or industrial sound on sensitive receptors. Examples covered by the Standard include:

- Sound from industrial and manufacturing processes;
- Sound from fixed installations which comprise mechanical and electrical plant and equipment.
- Sound from the loading and unloading of goods and materials at industrial and/or commercial premises, and
- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes.

In brief, the assessment procedure involves establishing sound levels from the items or processes of interest, (the specific sound source(s)), corrected for any acoustic features to derive the Rating Level, (L_{Ar,T_r}), at the relevant assessment position(s). The Rating Level is compared against the existing Background Sound Level, (L_{A90,T_r}), to provide an initial estimate of impact. The Standard offers the following guidance with regard to the significance of estimated impact:

- 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 could be an indication of an adverse impact, depending on the context;*
- d) *Where the rating level does not exceed the background sound level, this is an indication of the specific sound having a low impact, depending on the context. The lower the rating level is relative to the background sound level, the less likely it is that the specific sound source will have an adverse impact.*

Where relevant, the initial estimate should then be modified by accounting for contextual aspects of the operation of the specific sound source and / or the context of the character of the area.

Other Assessment Parameters and Guidance on Character Corrections

The Specific Sound Level (L_s) is expressed in terms of an L_{Aeq} for a reference time interval, (T_r) of one-hour during the daytime (07:00 – 23:00 hours) and a fifteen-minute period during the night-time (23:00 – 07:00 hours). The Rating Level is also expressed in terms of the reference time interval, T_r .

The Specific Sound Level can be determined by various means, which can include prediction based on manufacturer's data and accompanying propagation calculations to the assessment position(s). This method could be used, for instance, where the specific sound source is not yet in-situ, or is in-situ but not yet operational.

Where the specific sound source is already operational and in-situ, measurements of the sound climate resulting from both the specific sound source and all other contributing sources, (known as the Ambient Sound Level, $L_a = L_{Aeq,T_r}$) should be measured over a representative time period, ideally at the assessment position(s).

Depending on the relative contribution of other sources not related to the specific sound, (known as the residual sound), the Specific Sound Level can be derived by logarithmically subtracting the Residual Sound Level, $L_r = L_{Aeq, T_r}$ from the Ambient Sound Level.

With justification, representative proxy locations can be used for the measurement of the ambient and/or residual sound climate. Where these measurement locations are not fully representative of the assessment position(s), measurement can be supplemented with calculation.

The Background Sound Level should ideally also be measured at the assessment position(s) but can be measured at representative proxy locations where suitable reasons can be provided. The Background Sound Level should be measured over a period which is suitable to characterise the background sound climate during the period of interest and should normally be at least 15 minutes.

When deriving the Rating Level from the Specific Sound Level, consideration is given to the character of the sound. The Standard provides several methods for deriving appropriate character corrections, offering the following advice for subjective assessment:

Tonality

For sound ranging from not tonal to prominently tonal, the Joint Nordic Method gives a correction of between 0 dB and +6 dB for tonality. Subjectively, this can be allocated as a penalty of 2 dB for a tone which is just perceptible at the sound receptor, 4 dB where it is clearly perceptible and 6 dB where it is highly perceptible.

Impulsivity

A correction of up to +9dB can be applied for sound that is highly impulsive considering both the rapidity of the change in sound level and the overall change in sound level. Subjectively, this can be allocated as a penalty of 3dB for impulsivity which is just perceptible at the receiver, 6dB where it is clearly perceptible and 9dB where it is highly perceptible.

Other sound characteristics

Where the specific sound contains characteristics that are neither tonal nor impulsive, but are otherwise startling, disturbing or incongruous with the residual acoustic environment, a penalty of +3dB can be applied.

Intermittency

When the specific sound has identifiable on/off conditions, if the intermittency is readily distinctive against the residual acoustic environment, a penalty of +3dB can be applied.