



REPORT REFERENCE:

SA – 8067/Rev1

ENVIRONMENTAL NOISE IMPACT ASSESSMENT

BREEAM HEA-05 & POL-05

CLIENT:

The Cowplain School

SITE:

Hart Plain Avenue

Cowplain

Waterlooville

Hampshire

PO8 8RY

SURVEY DATES:

22nd – 27th May 2025

Compiled By

Mr. B. J. Scrivener MIOA

A handwritten signature in black ink, appearing to be 'BJS', located next to the name Mr. B. J. Scrivener.

Sound Advice Acoustics Ltd

2 West Links, Tollgate, Chandlers Ford, Hampshire, SO53 3TG

Tel: 0800 180 4005

soundadviceacoustics.co.uk

1	EXECUTIVE SUMMARY	5
1.1	INSTRUCTION	5
1.2	SCOPE OF REPORT.....	5
1.3	SUMMARY OF RESULTS	5
1.3.1	HEA-05 External Ambient Noise Levels	5
1.3.2	POL-05 External Background Noise Levels	5
1.4	HEA-05 ASSESSMENT	6
1.4.1	First Credit.....	6
1.4.2	Second Credit	6
1.4.3	Third Credit	6
1.5	PROPOSED PLANT CRITERIA	7
1.5.1	Position 1	7
1.6	ASSESSMENTS – POSITION 1	7
1.6.1	Daytime (07:00 – 23:00).	7
1.7	CONCLUSIONS.....	8
1.7.1	HEA-05	8
1.7.2	POL-05.....	8
2	INTRODUCTION.....	9
3	BREEAM CRITERIA.....	10
3.1	HEA-05 CRITERIA	10
3.2	POL-05 CRITERIA.....	12
4	SITE LOCATION.....	14
5	PROPOSED DEVELOPMENT	15
5.1.1	Proposed Concept Design.....	15
6	PROCEDURE	16
6.1	BS 4142: 2014+A1: 2019.....	16
7	APPARATUS	17
7.1	140 NOISE METER s/N 1402941 - ENVIRONMENTAL TESTING.....	17
8	RESULTS	18
8.1	EXTERNAL AMBIENT NOISE LEVELS.....	18
8.1.1	22 nd – 23 rd May 2025.....	18
8.1.2	23 rd – 24 th May 2025.....	18
8.1.3	24 th – 25 th May 2025.....	18
8.1.4	25 th – 26 th May 2025.....	18
8.1.5	26 th – 27 th May 2025.....	18
8.2	POL-05 EXTERNAL BACKGROUND NOISE LEVELS	19
9	HEA-05 ASSESSMENT	20
9.1	FIRST CREDIT – SOUND INSULATION	20

9.1.1	<i>Airborne</i>	20
9.1.2	<i>Typical Wall/Floor</i>	20
9.2	SECOND CREDIT – INTERNAL INDOOR AMBIENT NOISE LEVELS	20
9.2.1	<i>Building Bulletin 93</i>	20
9.3	THIRD CREDIT – ROOM ACOUSTICS	21
10	POL-05 ASSESSMENT	22
10.1	POSITION 1	22
11	BS4142: 2014 +A1:2019 NOISE ASSESSMENT	23
11.1	SCOPE OF BRITISH STANDARD 4142: 2014 +A1:2019	23
11.2	TERMS AND DEFINITIONS	23
11.3	ASSESSMENT POSITION	23
11.4	RATING LEVELS (CHARACTER CORRECTION)	23
11.5	SUBJECTIVE METHOD	24
11.6	ASSESSMENT CRITERION	24
11.7	ASSESSMENT – POSITION 1	25
11.7.1	<i>Daytime (07:00 – 23:00)</i>	25
11.8	TONAL PENALTY	25
11.9	IMPULSIVITY PENALTY	25
11.10	ASSESSMENT CONCLUSION	25
12	ELEMENT 4 – ASSESSMENT OF OTHER RELEVANT ISSUES	26
12.1	THE NATIONAL PLANNING POLICY FRAMEWORK 2024 (NPPF)	26
13	CONCLUSION	27
13.1	SUMMARY OF RESULTS	27
13.1.1	<i>HEA-05 External Ambient Noise Levels</i>	27
13.1.2	<i>POL-05 External Background Noise Levels</i>	27
13.2	HEA-05 ASSESSMENT	27
13.2.1	<i>First Credit</i>	27
13.2.2	<i>Second Credit</i>	27
13.2.3	<i>Third Credit</i>	28
13.3	PROPOSED PLANT CRITERIA	28
13.3.1	<i>Position 1</i>	28
13.4	ASSESSMENTS – POSITION 1	29
13.4.1	<i>Daytime (07:00 – 23:00)</i>	29
13.5	CONCLUSIONS	29
13.5.1	<i>HEA-05</i>	29
13.5.2	<i>POL-05</i>	29
14	APPENDIX A – UNCERTAINTY BUDGET	30
14.1	SCOPE	30
14.2	UNCERTAINTY OF MEASURED VALUES	30

14.3	UNCERTAINTY IN CALCULATIONS.....	31
14.4	UNCERTAINTY FROM OTHER FACTORS.....	31
14.5	COMBINED REPORTED EXPANDED UNCERTAINTY	31
15	APPENDIX B - RESULTS	32
15.1.1	22 nd – 23 rd May 2025.....	32
15.1.2	23 rd – 24 th May 2025.....	33
15.1.3	24 th – 25 th May 2025.....	34
15.1.4	25 th – 26 th May 2025.....	35
15.1.5	26 th – 27 th May 2025.....	36
16	APPENDIX C – ENVIRONMENTAL CONDITIONS.....	37
17	APPENDIX D - BS 4142:2019+A1:2019 INFORMATION	38
17.1	PROFESSIONAL COMPETENCE	38
17.2	SITE STATUS.....	38
17.3	MEASUREMENT INFORMATION – LOCATION 1.....	38
18	APPENDIX E - PROFESSIONAL QUALIFICATION	39

1 EXECUTIVE SUMMARY

1.1 Instruction

Sound Advice Acoustics Ltd have been instructed by The Cowplain School to undertake a background noise survey to HEA-05 & POL-05 to determine the impact of existing noise sources on the Erection of a school theatre building and changing rooms to serve adjacent sports facilities, with associated landscaping, planting, and ancillary works at The Cowplain School, Hart Plain Avenue, Cowplain, Waterlooville, Hampshire, PO8 8RY.

For the purpose of this assessment HEA 05 & POL 05 Acoustic performance – Health and Wellbeing: has been adopted in order to conform to the BRE Environmental Assessment Method (BREEAM) for the site.

1.2 Scope of Report

The measurements will be undertaken in accordance with British Standard 7445: 2003 'Description and measurement of environmental noise assessments and calculation made in accordance with BS8233: 2014 and BS4142: 2014 + A1: 2019.

This report aims to establish the following:

- Existing background noise levels within the area;
- Assess the potential internal levels
- Advice on mitigation measures that meet this criterion;
- Review BREEAM HEA- 05 & POL-05

1.3 Summary of Results

1.3.1 HEA-05 External Ambient Noise Levels

A 120 hour background noise survey was undertaken from 22nd – 27th May 2025 at one position in order to establish the underlying background noise levels. The maximum day time levels were found to be $L_{Aeq, 16 \text{ hour}}$ 62.3 dB.

Assessment Position	Date Start	Date Finish	Daytime LAeq
Position 1	22/05/2025	27/05/2025	62.3

1.3.2 POL-05 External Background Noise Levels

A 120 hour background noise survey was undertaken from 22nd – 27th May 2025 at one position in order to establish the underlying background noise levels. The day time levels were found to be $L_{A90, t}$ 43.0 dB at position 1.

Assessment Position	Date Start	Date Finish	Daytime LA90
Position 1	22/05/2025	27/05/2025	43.0

1.4 HEA-05 Assessment

1.4.1 First Credit

TEST LOCATION		AIRBORNE
		REQUIRED MIN $D_{nT,w}$ dB
FROM	Green Room	45
TO	Changing Room 2	

Based on the above table, this criteria demonstrates the requirement to achieve the first credit for BREEAM HEA-05.

1.4.2 Second Credit

Floor	Type of Room	Target Design Range L_{Aeq} 16 Hour
Ground	Changing Room 1	50
Ground	Changing Room 2	50
Ground	Green Room	40
Ground	Stage	45
Ground	Foyer	45
First	Conference Room	40
First	Control Room	35
First	Parents Viewing Gallery	45

Based on the above table, this criteria demonstrates the requirement to achieve the second credit for BREEAM HEA-05.

1.4.3 Third Credit

Floor	Type of Room	Target Reverberation Time (T_{mf} 500, 1k & 2k)
Ground	Changing Room 1	≤ 1.5
Ground	Changing Room 2	≤ 1.5
Ground	Green Room	≤ 0.8
Ground	Stage	$\leq 0.8 - 1.2$
Ground	Foyer	≤ 1.5
First	Conference Room	≤ 0.8
First	Control Room	≤ 0.5
First	Parents Viewing Gallery	≤ 1.5

Based on the above table, this criteria demonstrates the requirement to achieve the third credit for BREEAM HEA-05.

1.5 Proposed Plant Criteria

Calculations and assessments are to be made within this report to generate a maximum noise level criteria to which all future plant should be selected to. The maximum noise level calculated is to be achieved at 1.0m & 10m from the units in situ with all units operating under normal load and therefore the POL-05 credit awarded.

The following calculations have been based on the recorded LA90 background noise level over a typical 24 hour period at measurement positions 1 and doesn't include the possibility of night time operations.

1.5.1 Position 1

DAYTIME 07:00 – 23:00

Octave Band Centre Frequency (Hz)									dB(A)	Comments
63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k		
67.7	59.9	53.7	52.5	52.1	50.3	49.3	47.8	32.7	58	Calculated Noise Source Level @ 1.0m
47.7	39.9	33.7	32.5	32.1	30.3	29.3	27.8	12.7	38	Calculated Noise Source Level @ 10.0m
Sound Pressure Level (ref 2 x 10 ⁻⁵ Pa)										

1.6 Assessments – Position 1

1.6.1 Daytime (07:00 – 23:00).

Item	Calculation	Clause	Commentary
Rating Level	38 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level L _{A90,1 hour}	43 dB	8.1	Modal Background Noise Level
Assessment Level	-5 dB	11	The background level is subtracted from the rating level.
Assessment	-5 dB		
Conclusion	The assessment level is 'Low Impact'		
BREEAM POL-05 (-5dB)	Criteria Achieved		

1.7 Conclusions

1.7.1 HEA-05

The calculations within this report have demonstrated the requirement in order achieve three credits within the BREEAM requirements.

1.7.2 POL-05

The operation of any future proposed plant has been assessed to establish if the development will have a demonstrable adverse effect in terms of noise that outweigh the benefits of the development. Measurements have been undertaken in accordance with British Standard 4142: 2014 +A1:2019 and ISO 1996 – Part 2: 2017. This report has established the existing background noise levels at the closest residential façades to the site and the assessment of the impact of the site operation on nearby residential properties. The resulting emissions from the site running on a worst-case scenario show no conflict with ‘low impact’ criteria and give a strong indication that complaint and impact on the local amenity is unlikely, provided the recommended maximum noise levels plant criteria is achieved as detailed within this report.

The plant criteria was set as the new plant is yet to be designed and it is recommended that this criteria be set as a planning condition.

Based on the calculations and assessments made within this report it is the professional opinion of Sound Advice Acoustics Ltd that the proposed development can demonstrate compliance with the National Planning Policy Framework 2024, NPPF & NPSE and that, with regards to BREEAM the HEA-05 and POL-05 credits can be awarded.

2 INTRODUCTION

Sound Advice Acoustics Ltd have been instructed by The Cowplain School to undertake a background noise survey to HEA-05 & POL-05 to determine the impact of existing noise sources on the Erection of a school theatre building and changing rooms to serve adjacent sports facilities, with associated landscaping, planting, and ancillary works at The Cowplain School, Hart Plain Avenue, Cowplain, Waterlooville, Hampshire, PO8 8RY.

The primary function is a theatre building, but it includes changing rooms for the adjacent sports facilities and balcony for spectators.

This report by Sound Advice Acoustics Ltd gives the results of these measurements and an assessment in accordance with government planning guidelines and relevant standards together with mitigation measures as required.

With regards to external ambient noise, environmental noise levels are be monitored at the site in accordance with British Standard 7445: 2003 'Description and measurement of environmental noise assessments and calculation made in accordance with BS8233: 2014 and BS4142: 2014 + A1: 2019.

3 BREEAM Criteria

3.1 HEA-05 Criteria

With regards to the external noise criteria associated with the HEA 05 Acoustic performance – Health and Wellbeing, calculations and assessments are to be carried out in order to demonstrate compliance for the credits required.

101

SD5078: BREEAMUK New Construction 2018

Hea 05 Acoustic performance



Fully fitted



Simple building



Shell & core



Shell only



No minimum standards

Aim

To ensure the building is capable of providing an appropriate acoustic environment to provide comfort for building users.

Value

- Minimise disturbances to building occupants from noise transition between spaces.
- Enhance productivity by providing appropriate acoustic environment for the different functions of various buildings and spaces.

Context

Noise within buildings can come from various sources, including building systems, occupants, equipment and external sources. Excessive noise can have a range of adverse effects on building users including inconvenience and annoyance, loss of concentration, decreased productivity and sleep disturbance. Therefore, the management of noise within a building is important to maximise occupant comfort, occupant efficiency and to provide privacy. As a result, building acoustics are an important consideration in the design, operation and construction of buildings. Building acoustics should allow rooms to be used as intended, without compromising sound-sensitive spaces or activities. Designing to building type specific acoustic performance standards for sound insulation, indoor ambient noise levels and reverberation times, supports acoustic comfort for building occupants.

Assessment scope

	Fully fitted	Simple building	Shell and core	Shell only
Applicable assessment criteria	All	All	1.b only, or 2 or 3.b on page 105 only (see ref 2.0)	1.b only, or 2 or 3.b on page 105 only (see ref 2.0)
Assessment type specific notes	None	None	see ref 1.0 and 1.1	see ref 1.0 and 1.1

Specific notes

Assessment type specific	
1.0	Alternative means of compliance The basic built form has a large impact on the acoustic performance of the building and would be outside the control of the tenant. A suitably qualified acoustician (SQA) must carry out a quantifiable assessment of the specification of the build form, construction and any external factors likely to affect the indoor ambient noise levels. The SQA must then confirm the developer's works will enable a future tenant utilising a typical fit-out and specification to meet the levels required to demonstrate compliance.

Hea 05 Acoustic performance

102

Assessment type specific	
1.1	Bespoke performance requirements When assessing criteria 2 below for a shell and core or shell only building, only indoor ambient noise level below should be assessed.
Building type specific	
2.0	Residential institutions (short term and long term stay) When assessing a shell and core or shell only residential institution, only indoor ambient noise level below should be assessed.

Assessment criteria

This issue is split into two parts:

- Acoustic performance (up to three credits for all building types, except Residential institutions (short term and long term stay))
- Acoustic performance for Residential institutions (short term and long term stay) (up to four credits available).

The following is required to demonstrate compliance:

Up to three credits - Acoustic performance

For all building types, except Residential institutions (short term and long term stay), which have four credits available below.

- The building meets the appropriate acoustic performance standards and testing requirements defined in the relevant table below. These tables define criteria for the acoustic principles of:
 - Sound insulation
 - Indoor ambient noise level
 - Room acoustics.

OR

- A suitably qualified acoustician (SQA) is appointed to define a bespoke set of performance requirements for all function areas in the building. The bespoke performance requirements use the three acoustic principles defined in criterion Hea 05 Acoustic performance - Criterion 1 above, setting out the performance requirements for each and the testing regime required.

Table 5.14 BREEAM acoustic criteria for education buildings

Education buildings (three credits)	
First credit - Sound insulation	
Criteria	Achieve the performance standards set out in Section 1 of Building Bulletin 93: Acoustic design of schools: performance standards, February 2015 (BB93) ⁽⁸⁶⁾ relating to airborne sound insulation between spaces and impact sound insulation of floors.
Testing requirement	A programme of pre-completion acoustic testing is carried out by a compliant test body in accordance with the BB93 requirements and the Association of Noise Consultants (ANC) Good Practice Guide, Acoustic testing of Schools ⁽⁸⁷⁾ .
Second credit - Internal indoor ambient noise levels	
Criteria	Achieve the indoor ambient noise level standards set out within Section 1 of BB93 for all room types.
Testing requirement	A programme of acoustic measurements is carried out by a compliant test body in accordance with the ANC Good Practice Guide, Acoustic testing of schools.
Third credit - Room acoustics	
Criteria	<p>Room acoustics (Control of reverberation, sound absorption and speech transmission index (STI)):</p> <p>Teaching and study spaces achieve the requirements relating to reverberation time for teaching and study spaces set out within Section 1 of BB93.</p> <p>Open plan teaching spaces achieve the performance requirements relating to reverberation time and STI set out within Section 1 of BB93.</p> <p>Corridor and stairwells, for those that give direct access to teaching and study spaces, achieve the performance requirements relating to sound absorption.</p>

Education buildings (three credits)	
Testing requirement	<p>Teaching and study spaces: A programme of acoustic measurements is carried out by a compliant test body in accordance with the requirements of BB93 and ANC Good Practice Guide, Acoustic testing of schools.</p> <p>Open plan teaching spaces: A programme of acoustic measurements of reverberation time is carried out within open plan teaching spaces. The measurement is carried out by a compliant test body in accordance with the requirements of BB93 and ANC Good Practice Guide, Acoustic testing of schools. STI testing is not required. To demonstrate compliance the SQA shall undertake measurements of reverberation times to compare against the STI model. The SQA should provide a report confirming that the surface finishes and distribution of sound absorption within the completed space is in line with the design intent implemented within the STI model. Where significant changes or differences are observed, the SQA shall re-model the space accordingly to demonstrate that the STI measurement is met by the completed spaces.</p> <p>Corridors and stairwells: Installation of a specification compliant with the BB93 criteria demonstrates compliance. A site inspection by the developer or SQA is required to confirm that a compliant specification has been installed.</p>

BB93 February 2015 suggests design criteria levels for schools, ranging from $L_{Aeq,16\text{ Hour}}$ 35 dB – 50 dB for daytime. Therefore, this design criterion is to be adopted for this assessment.

3.2 POL-05 Criteria

Pol 05 Reduction of noise pollution

324

Pol 05 Reduction of noise pollution



Aim

To reduce the likelihood of noise arising from fixed installations on the new development affecting nearby noise-sensitive buildings.

Value

- Minimise nuisance noise to neighbours and local wildlife.

Context

Excessive noise can have a detrimental effect on the use and enjoyment of private property such as dwellings and business premises. It can also cause disruption for wildlife. Noise can have a major impact on the mental and physical wellbeing of individuals within, and neighbouring, a building. Legislation is in place to control buildings and other noise-producing processes but these are typically enforced following complaints from neighbours, and improvements required as a result can be costly to make. It is important to consider the noise that will be produced by developments at an early stage, plan the development in a way that minimises it, and seek to design and specify the building and its services in a way that limits its impact.

Assessment scope

	Fully fitted	Simple building	Shell and core	Shell only
Applicable assessment criteria	All	Not applicable	All	Not applicable
Assessment type specific notes	None	None	None	None

Specific notes

Assessment type specific
None
Building type specific
None

Assessment criteria

One credit

- 1 There are no noise-sensitive areas within the assessed building or within 800 m radius of the assessed site.
OR
- 2 Where there are noise-sensitive areas within the assessed building or noise-sensitive areas within 800 m radius of the assessed site, a noise impact assessment compliant with BS 4142:2014⁽²²²⁾ is commissioned. Noise levels must be measured or determined for:
 - 2.a Existing background noise levels:
 - 2.a.i at the nearest or most exposed noise-sensitive development to the proposed assessed site

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



Methodology

Compliance at the design stage

At the design stage of assessment, where noise-sensitive areas or buildings are present, actual measurement is unlikely to be possible due to the planned but non-existent installation. In such situations, compliance can be demonstrated through the use of acousticians' calculations or by scale model investigations. For such cases, BS 4142 states 'Determine the specific sound level by calculation alone if measurement is not practicable, for example if the source is not yet in operation. In such cases, report the method of calculation in detail and give the reason for using it'. Where prediction methods are not possible, measurement will be necessary using either a noise source similar to that proposed or measurement of the actual noise from the installation (once installed). Compliance with the latter approach requires a written commitment to appoint a suitably qualified acoustician to carry out the required measurements post-installation, and a further commitment to attenuate the noise source in compliance with criteria 4 above and 5 above (if proved necessary by the measurements).



Evidence

Criteria	Interim design stage	Final post-construction stage
All	One or more of the appropriate evidence types listed in The BREEAM evidential requirements on page 26 can be used to demonstrate compliance with these criteria.	

Definitions

Noise-sensitive area

Landscapes or buildings where the occupiers are likely to be sensitive to noise created by the new plant installed in the assessed building, including:

1. Residential areas
2. Hospitals, health centres, care homes, doctor's surgeries etc.
3. Schools, colleges and other teaching establishments
4. Libraries
5. Places of worship
6. Wildlife areas, historic landscapes, parks and gardens
7. Located in an Area of Outstanding Natural Beauty or near a Site of Special Scientific Interest
8. Any other development that can be considered noise-sensitive.

Not all of these locations will necessarily be sensitive at all times. The assessments should be carried out at times which are relevant to the location use. For example, schools, libraries and doctor's surgeries may not require a night-time assessment of background noise if they are unoccupied at the time. When making the assessment the SQA should make it clear during which periods the receptor is considered sensitive providing clear reasoning and justification.

Suitably qualified acoustician (SQA)

An individual achieving all the following items can be considered to be 'suitably qualified' for the purposes of a BREEAM assessment:

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

Pol 05 Reduction of noise pollution

326

2. An individual who holds a recognised acoustic qualification and membership of an appropriate professional body. The primary professional body for acoustics in the UK is the Institute of Acoustics. Where an SQA is verifying the acoustic measurements or calculations carried out by another acoustician who does not meet the SQA requirements, they must, as a minimum, have read and reviewed the report and confirm in writing that they have found it to:
 1. Represent sound industry practice
 2. Be appropriate given the building being assessed and scope of works proposed
 3. Avoid invalid, biased and exaggerated recommendations.
- Additionally, written confirmation from the third party verifier that they comply with the definition of an SQA is required.



Additional information

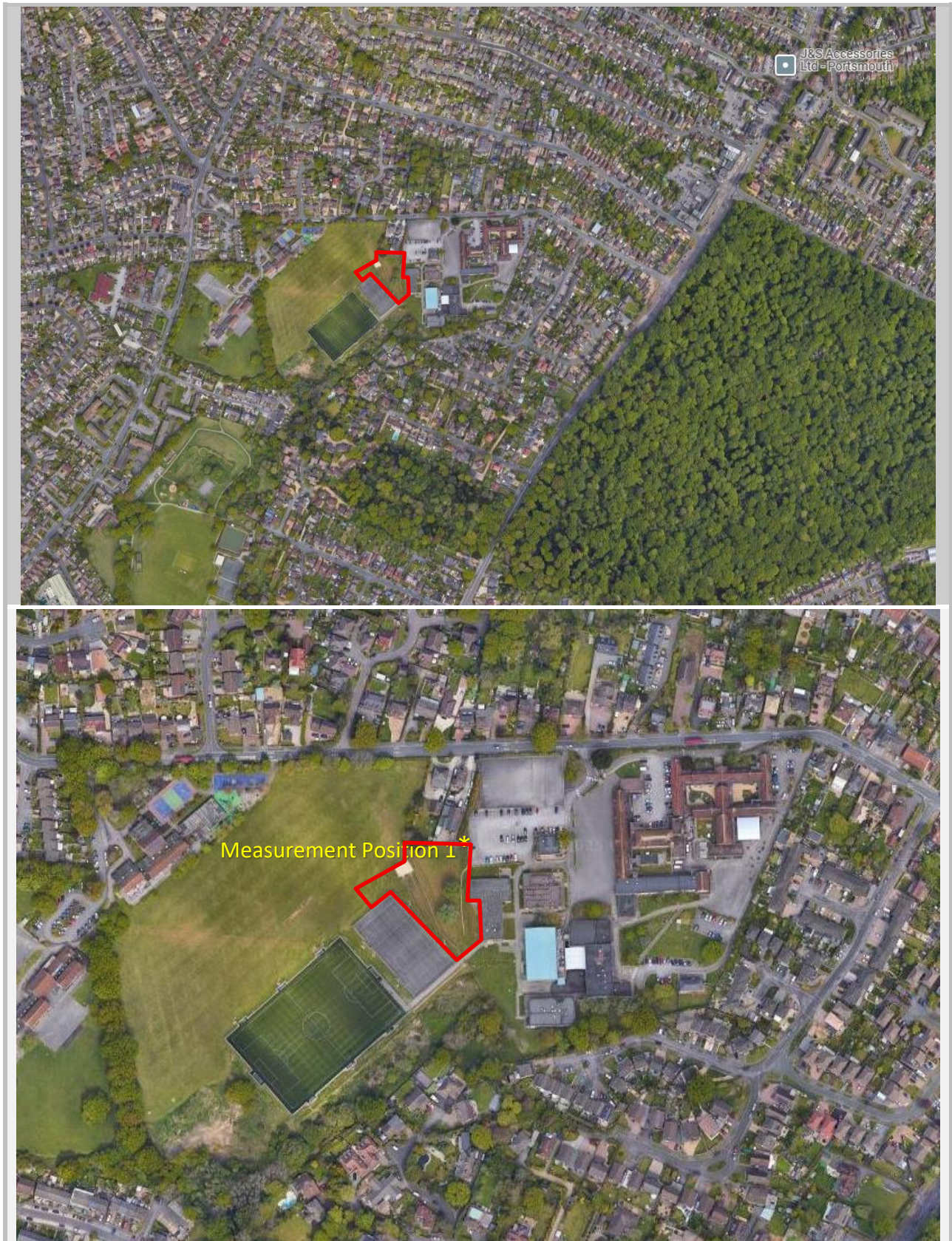
Attenuating noise at its source

BS 8233:2014(223) gives recommendations for the control of noise in and around buildings and may be a useful reference when considering control of noise from external plant. See criteria 4 and 5 on the previous page.

Therefore, a full assessment to BS 4142: 2014 +A1: 2019 with a design criteria of no greater than -5 dB below the background noise level for both daytime and night time periods.

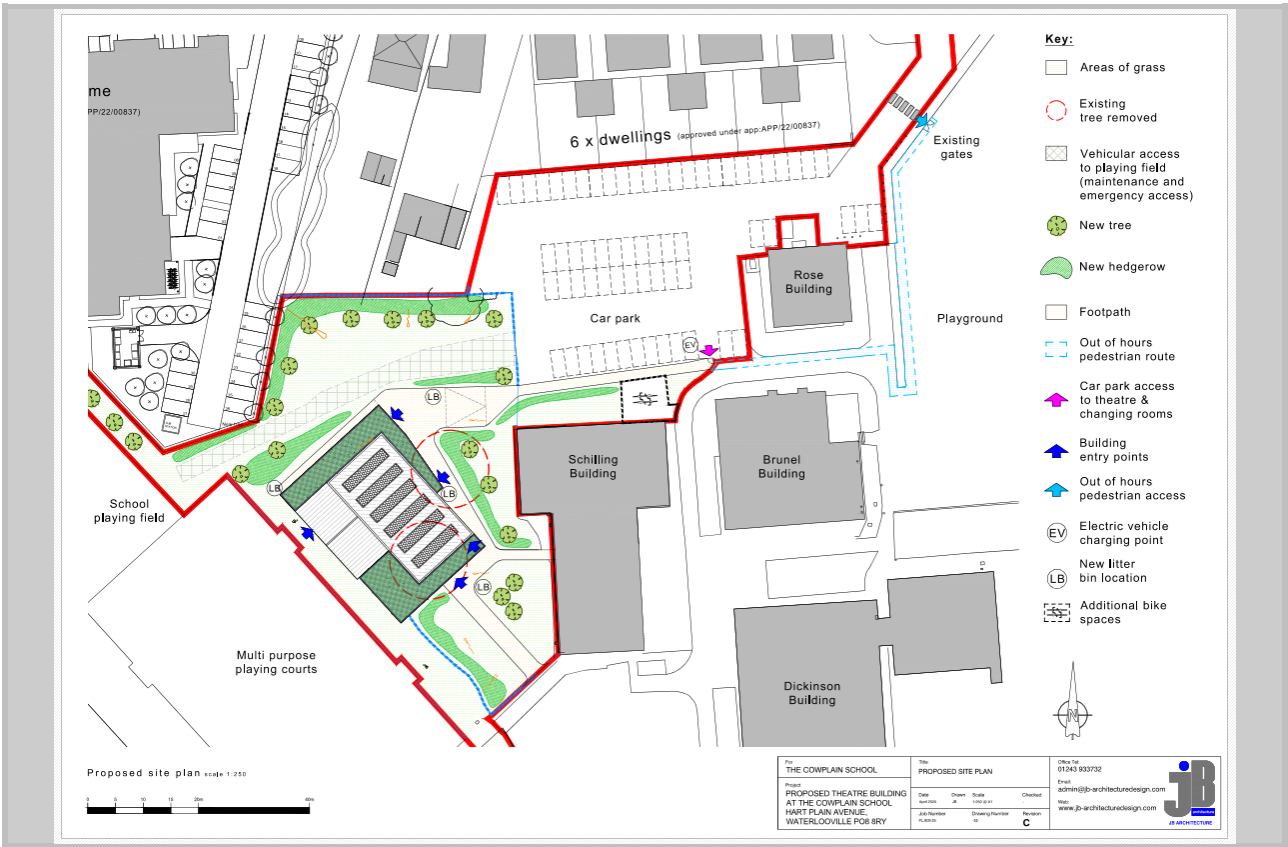
4 SITE LOCATION

The site is located in Waterloooville. The dominant noise source is road traffic noise.

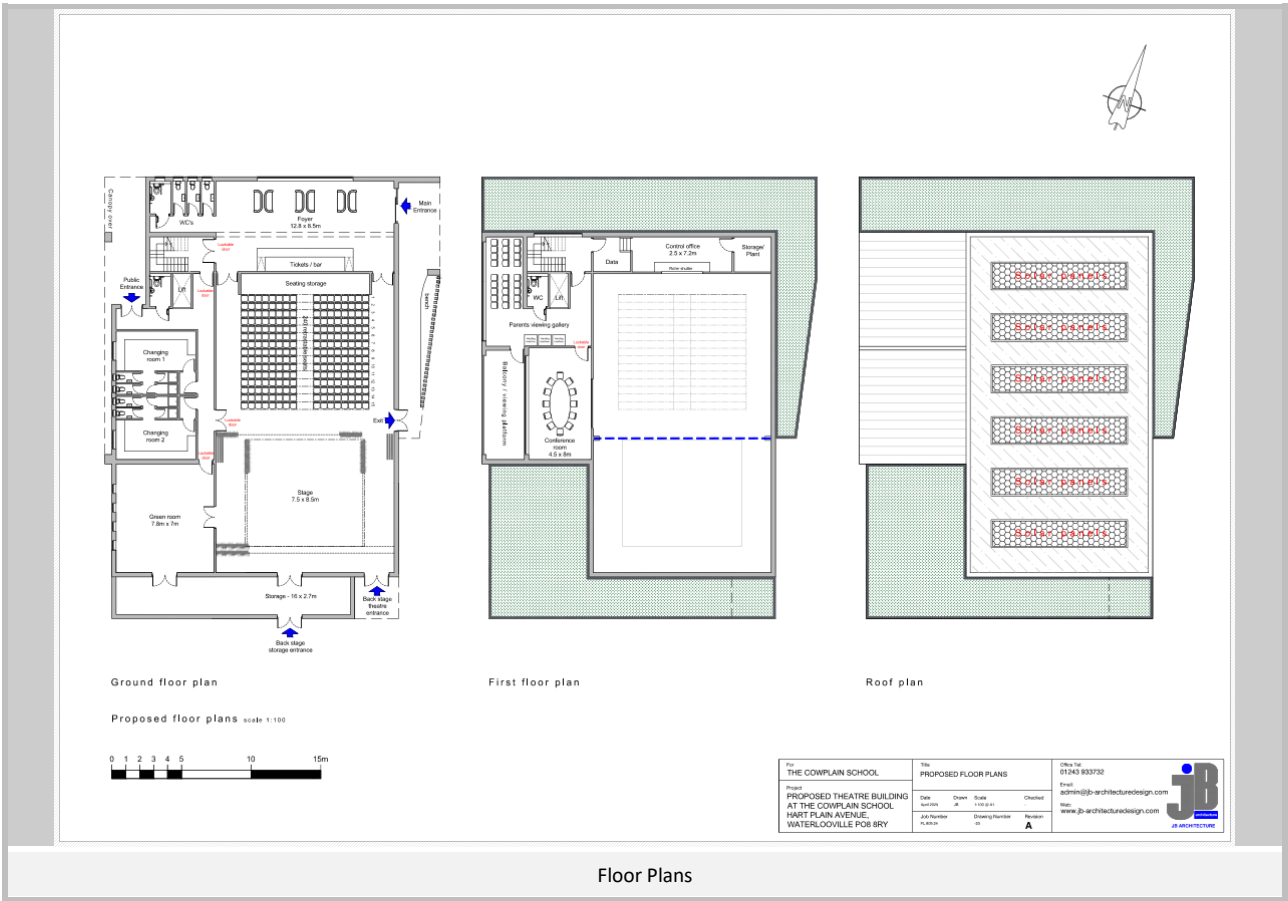


5 PROPOSED DEVELOPMENT

The proposed development is shown below.



5.1.1 Proposed Concept Design



6 PROCEDURE

External noise levels were recorded over a typical period and analysis date extrapolated between 07:00 hrs 22nd - 07:00 hrs on 27th May 2025 at 1 position as detailed within this report.

Position 1 was located at the Western boundary of the existing car park in order to capture noise levels associated with the site and road. Sample measurements were recorded over continuous 1 minute samples and from this data the hourly LAeq daytime values have been evaluated. Sound Pressure Levels were recorded on the following setting along with a full octave band frequency analysis measured simultaneously and between 31.5 Hz and 16.0 kHz.

Daytime 07:00 – 23:00

L _{Aeq} 1 HOUR dB	L _{A10} 1 HOUR dB
L _{AMAX} 1 HOUR dB	L _{A50} 1 HOUR dB
L _{AMIN} 1 HOUR dB	L _{A90} 1 HOUR dB

Calculations have been made in accordance with BS 8233: 2014 'Sound Insulation and Reduction of Buildings - Code of Practice'. Recommendations were made for any additional acoustics measures to conform to these standards.

From the downloaded recorded results, the daytime periods were assessed and used within the above calculations as L_{Aeq} 16 HOUR dB levels for daytime. These are detailed within this report. All data averaged throughout the day has been done so on a logarithmic basis to give accurate L_{Aeq} 16 Hour dB daytime noise levels.

Finally, it should be noted that calculations are carried out with façade levels corrected from the recorded noise levels to the calculated façade levels.

6.1 BS 4142: 2014+A1: 2019

British Standard 4142: 2014 +A1:2019 is to be adopted for the basis of this background noise level assessment. A BS 4142: 2014 +A1:2019 noise assessment will be carried out in order to demonstrate the existing acoustic impact the external plant could have on the nearest affected residential and make suitable recommendations in order to demonstrate that these units will not have a significant and demonstrable adverse impact on the nearest noise sensitive premises in accordance with the National Planning Policy Framework, once remedial works are completed.

7 APPARATUS

The equipment was calibrated using a sound pressure level of 114.0 dB at an octave band centre frequency of 1000Hz with reference to $2 \times 10^{-5} \text{ Nm}^{-2}$ before and after the tests and the equipment set to have no inaccuracy greater than 0.2dB.

All the following equipment was calibrated in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service (UKAS) on the following dates. Calibration schedules are implemented within Sound Advice Acoustics Ltd in accordance with UKAS directive LAB 23.

7.1 140 NOISE METER s/n 1402941 - Environmental Testing

Description	Make	Type	Serial No.	Calibration Intervals	Cert No.	Last Calibrated	Next Due Calibration
Integrated Sound Level Meter	Norsonic	140	1402941	2 YEARS	48450	30.07.2024	30.07.2026
12.5mm Microphone (with windshield)	GRAS	40AF	179711	2 YEARS	48449	30.07.2024	30.07.2026
Microphone Pre – Amplifier	Norsonic	1209	30479	2 YEARS	48450	30.07.2024	30.07.2026

Full calibration certificates are available upon request.

8 RESULTS

8.1 External Ambient Noise Levels

8.1.1 22nd – 23rd May 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 <small>LAeq 16 HOUR & Corresponding LAmaz 16 HOUR</small>	53.6	85.5	43.0	63.4	55.6	49.4	48.2	47.8	46.0	45.0	43.5	28.4

8.1.2 23rd – 24th May 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 <small>LAeq 16 HOUR & Corresponding LAmaz 16 HOUR</small>	53.5	76.7	47.0	62.3	54.7	49.5	47.0	46.4	45.4	46.7	45.6	33.3

8.1.3 24th – 25th May 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 <small>LAeq 16 HOUR & Corresponding LAmaz 16 HOUR</small>	57.4	87.4	50.0	67.4	58.6	54.3	49.0	47.2	47.4	52.2	51.6	39.5

8.1.4 25th – 26th May 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 <small>LAeq 16 HOUR & Corresponding LAmaz 16 HOUR</small>	54.0	87.4	49.0	62.4	53.6	50.1	46.7	45.0	44.5	48.6	47.7	35.2

8.1.5 26th – 27th May 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 <small>LAeq 16 HOUR & Corresponding LAmaz 16 HOUR</small>	62.3	85.3	57.0	75.7	66.3	60.5	55.9	52.2	52.3	56.3	55.9	43.9

The following noise levels at position 1 have been used within the BS 8233: 2014 calculations.

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 <small>LAeq 16 HOUR & Corresponding LAmaz 16 HOUR</small>	62.3	85.3	57.0	75.7	66.3	60.5	55.9	52.2	52.3	56.3	55.9	43.9

8.2 POL-05 External Background Noise Levels

A 120-hour background noise survey was undertaken from the 22nd – 27th May 2025 at one position on the site in order to establish the underlying background noise levels.

The following background noise levels have been recorded and the worst-case modal levels evaluated for the site

Assessment Position	Date Start	Date Finish	Daytime LA90
Position 1	22/05/2025	27/05/2025	43.0

9 HEA-05 ASSESSMENT

9.1 First Credit – Sound Insulation

It is understood that a new build theatre space is being provided and therefore the following criteria from the British Bulletin 93 Acoustic design of schools: performance standards should be achieved.

9.1.1 Airborne

Vertical sound reduction between individual floors should be at least $D_{nT,w}$ 45 dB. This is when tested in accordance with BS EN ISO 16283-1:2014 Acoustics – Field measurement of sound insulation in buildings and of building elements – Part 1: Airborne sound insulation and rated in accordance with BS EN ISO 717-1: 2013 Acoustics. Rating of sound insulation in buildings and of building elements.

9.1.2 Typical Wall/Floor

TEST LOCATION		AIRBORNE
		REQUIRED MIN $D_{nT,w}$ dB
FROM	Green Room	45
TO	Changing Room 2	

Based on the above table, this criteria demonstrates the requirement to achieve the first credit for BREEAM HEA-05.

9.2 Second Credit – Internal Indoor Ambient Noise Levels

The following measurements have been carried out internally to meet the requirements of Building Bulletin 93.

9.2.1 Building Bulletin 93

Building Bulletin 93 set the following parameters as target levels that should be designed to.

Table 1 Upper limit for the indoor ambient noise level $L_{Aeq, 30 \text{ mins}}$ dB

The following table demonstrates the criteria of the internal ambient noise levels within the proposed Theatre Building.

Floor	Type of Room	Target Design Range $L_{Aeq 16 \text{ Hour}}$
Ground	Changing Room 1	50
Ground	Changing Room 2	50
Ground	Green Room	40
Ground	Stage	45
Ground	Foyer	45
First	Conference Room	40
First	Control Room	35
First	Parents Viewing Gallery	45

Based on the above table, this criteria demonstrates the requirements to achieve the second credit for BREEAM HEA-05.

9.3 Third Credit – Room Acoustics

The following table demonstrates the required reverberation times within the Theatre Building.

Floor	Type of Room	Target Reverberation Time (Tmf 500, 1k & 2k)
Ground	Changing Room 1	≤1.5
Ground	Changing Room 2	≤1.5
Ground	Green Room	≤0.8
Ground	Stage	≤0.8 - 1.2
Ground	Foyer	≤1.5
First	Conference Room	≤0.8
First	Control Room	≤0.5
First	Parents Viewing Gallery	≤1.5

Based on the above table, this criteria demonstrates the requirement to achieve the third credit for BREEAM HEA-05.

10 POL-05 ASSESSMENT

The following calculations have been based on the recorded LA90 background noise level over a typical 24 hour period at the measurement positions 1 and does not include the possibility of night time operations as the theatre building should only be operational during the daytime hours.

10.1 Position 1

DAYTIME 07:00 – 23:00

Octave Band Centre Frequency (Hz)									dB(A)	Comments
63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k		
63.4	55.6	49.4	48.2	47.8	46.0	45.0	43.5	28.4		Recorded Background Noise Levels
3	3	3	3	3	3	3	3	3		Reflection at Residential
10	10	10	10	10	10	10	10	10		BS 4142: 2014+A1:2019 Corrections
10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6		LAeq - LA90
30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9		Distance Correction
0	0	0	0	0	0	0	0	0		Barrier Attenuation
3	3	3	3	3	3	3	3	3		Reflection at Source
42.8	35.0	28.8	27.6	27.2	25.4	24.4	22.9	7.8	33	Target Level at Residential
6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0		Reflections
30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9	30.9		Distance and Barriers
67.7	59.9	53.7	52.5	52.1	50.3	49.3	47.8	32.7	58	Calculated Noise Source Level @ 1.0m
47.7	39.9	33.7	32.5	32.1	30.3	29.3	27.8	12.7	38	Calculated Noise Source Level @ 10.0m

The above calculations have demonstrated that in order to meet the criteria of the background noise level, the following external noise level plant criteria should be achieved at 1.0m and 10.0m from all units operating at the same time under normal load.

DAYTIME 07:00 – 23:00

Octave Band Centre Frequency (Hz)									dB(A)	Comments
63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k		
67.7	59.9	53.7	52.5	52.1	50.3	49.3	47.8	32.7	58	Calculated Noise Source Level @ 1.0m
47.7	39.9	33.7	32.5	32.1	30.3	29.3	27.8	12.7	38	Calculated Noise Source Level @ 10.0m
Sound Pressure Level (ref 2 x 10 ⁻⁵ Pa)										

The above calculations have been made on the worst-case scenario with the plant being positioned no closer than 35m (linear) to the nearest affected window.

Based on the above being achieved, the following noise assessment can be concluded.

11 BS4142: 2014 +A1:2019 NOISE ASSESSMENT

11.1 Scope of British Standard 4142: 2014 +A1:2019

In the assessment of the existing surrounding commercial premises, consideration has been given to the scope of British Standard 4142: 2014+A1: 2019, which in section 1, details applicability of this standard to rating assessing sound of an industrial and/or commercial nature. It is considered appropriate that both the background noise levels and the rating noise levels obtained fall within the scope of British Standard 4142: 2014 +A1:2019 by using outdoor sound levels to assess the effect of sound on local residents.

11.2 Terms and Definitions

Symbol	Term	Definition
AP	Assessment Position	Position externally at the façade property under investigation at which the assessment is undertaken which is usually 1m from the 1 st floor bedroom window.
EP	Equivalent Position	Position at which the background noise levels are measured if there is no access to the assessment position or if source under investigation is audible.
$L_s = L_{Aeq, T}$	Specific Level	The average continuous equivalent sound pressure level of the source at the assessment position.
$L_{Ar, Tr}$	Rating Level	The average continuous equivalent sound pressure level of the source at the assessment position with a correction to account for the characteristic features.
$L_r = L_{Aeq, T}$	Residual Level	The average continuous equivalent sound pressure level at the assessment position without the source operating.
$L_{A90, T}$	Background Level	The sound pressure level that is not exceeded 90% of the time at the assessment position.
$L_a = L_{Aeq, T}$	Ambient Level	The totally encompassing sound at the assessment position including the residual and specific noise.

11.3 Assessment Position

The assessment position was established as the existing residential accommodation premises and no closer than 35m from any proposed plant.

11.4 Rating Levels (Character Correction)

It is appropriate to add a character correction where there is a new source that cannot be measured in line with BS4142: 2014+A1: 2019. There are 3 methods for approaching this.

- Subjective method
- Objective method (for tonality)
- Reference method

11.5 Subjective Method

The subjective method establishes a rating penalty that is added to the specific noise level if any of the following is present at the assessment position. If a tone is expected to be present a character correction of 0 dB to 6 dB is added depending on how perceptible it is at noise sensitive locations.

BS 4142:2014+A1:2019 – Section 9.2 Subjective Method	Perceptibility to noise sensitive facades	Correction
Tonality Ranging from not tonal to prominently tonal	Not tonal	+0
	Just perceptible	+2
	Clearly perceptible	+4
	Highly perceptible	+6

If the source is expected to be impulsive a character correction of 0 dB to 9 dB is added depending on how perceptible it is at noise sensitive locations.

BS 4142:2014+A1:2019 – Section 9.2 Subjective Method	Perceptibility to noise sensitive facades	Correction
Impulsivity Considering both the rapidity and any overall change in sound levels	Not impulsive	+0
	Just perceptible	+3
	Clearly perceptible	+6
	Highly perceptible	+9

When the sound features are neither tonal nor impulsive, a character correction of +3 is added for the readily distinctive quality against the acoustic environment or for the intermittency of the source.

BS 4142:2014+A1:2019 – Section 9.2 Subjective Method	Perceptibility to noise sensitive facades	Correction
Readily Distinctive	Is not present	+0
	Is present	+3
Intermittency	Is not present	+0
	Is present	+3

11.6 Assessment Criterion

The significance of the resulting noise on the residential property depends on the margin by which it exceeds the background noise levels. British Standard 4142:2014+A1:2019 provides the following guidance within section 11.

Difference	Assessment of Impact
+10 dB	Indication of a significant adverse impact
+5 dB	Indication of an adverse impact
+0 dB	Indication of low impact

11.7 Assessment – Position 1

11.7.1 Daytime (07:00 – 23:00).

Item	Calculation	Clause	Commentary
Specific Noise Level $L_{Aeq,1\text{ hour}}$	33 dB	7	Calculated using ISO 9613:1996 ^[3] .
Tonality	+2 dB	8.1	Tonality Characteristic
Impulsivity	+3 dB	8.1	Impulsivity Characteristic
Rating Level	38 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,1\text{ hour}}$	43 dB	8.1	Modal Background Noise Level
Assessment Level	-5 dB	11	The background level is subtracted from the rating level.
Assessment	-5 dB		
Conclusion	The assessment level is 'Low Impact'		
BREEAM POL-05 (-5dB)	Criteria Achieved		

11.8 Tonal Penalty

A penalty has been applied to the specific noise level to allow for any tonal elements that may be present from any proposed plant.

11.9 Impulsivity Penalty

A penalty has been applied to the specific noise level to allow for any impulsive elements that may be present from any proposed plant.

11.10 Assessment Conclusion

It can be seen from the above assessments that any proposed plant has returned an assessment conclusion of Low Impact. Therefore, further mitigation measures are not required if the above plant criteria is achieved and that the POL-05 credit can be awarded.

12 ELEMENT 4 – ASSESSMENT OF OTHER RELEVANT ISSUES

12.1 The National Planning Policy Framework 2024 (NPPF)

The National Planning Policy Framework 2024 (NPPF) and assessments to the Noise Policy Statement for England 2010 (NPSE) should be made in conjunction with each other. Paragraphs 198 - 201 of the National Planning Policy Framework 2024 (NPPF) states the following:

Paragraph 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:

- 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.

Paragraph 199 Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications.

Paragraph 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.

Paragraph 201 The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities

The Noise Policy Statement for England gives various levels of effect as detailed within this report.

With the glazing / ventilation specifications achieved within this report, the development can be implemented within the guidelines of the aforementioned documents and ensure a conclusion of **NOEL – No Observed Effect Level**. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

13 CONCLUSION

13.1 Summary of Results

13.1.1 HEA-05 External Ambient Noise Levels

A 120 hour background noise survey was undertaken from 22nd – 27th May 2025 at one position in order to establish the underlying background noise levels. The maximum day time levels were found to be $L_{Aeq, 16 \text{ hour}}$ 62.3 dB.

Assessment Position	Date Start	Date Finish	Daytime L_{Aeq}
Position 1	22/05/2025	27/05/2025	62.3

13.1.2 POL-05 External Background Noise Levels

A 120 hour background noise survey was undertaken from 22nd – 27th May 2025 at one position in order to establish the underlying background noise levels. The day time levels were found to be $L_{A90, t}$ 43.0 dB at position 1.

Assessment Position	Date Start	Date Finish	Daytime L_{A90}
Position 1	22/05/2025	27/05/2025	43.0

13.2 HEA-05 Assessment

13.2.1 First Credit

TEST LOCATION		AIRBORNE
		REQUIRED MIN $D_{nT,w}$ dB
FROM	Green Room	45
TO	Changing Room 2	

Based on the above table, this criteria demonstrates the requirement to achieve the first credit for BREEAM HEA-05.

13.2.2 Second Credit

Floor	Type of Room	Target Design Range $L_{Aeq 16 \text{ Hour}}$
Ground	Changing Room 1	50
Ground	Changing Room 2	50
Ground	Green Room	40
Ground	Stage	45
Ground	Foyer	45
First	Conference Room	40
First	Control Room	35
First	Parents Viewing Gallery	45

Based on the above table, this criteria demonstrates the requirement to achieve the second credit for BREEAM HEA-05.

13.2.3 Third Credit

Floor	Type of Room	Target Reverberation Time (Tmf 500, 1k & 2k)
Ground	Changing Room 1	≤1.5
Ground	Changing Room 2	≤1.5
Ground	Green Room	≤0.8
Ground	Stage	≤0.8 - 1.2
Ground	Foyer	≤1.5
First	Conference Room	≤0.8
First	Control Room	≤0.5
First	Parents Viewing Gallery	≤1.5

Based on the above table, this criteria demonstrates the requirement to achieve the third credit for BREEAM HEA-05.

13.3 Proposed Plant Criteria

Calculations and assessments are to be made within this report to generate a maximum noise level criteria to which all future plant should be selected to. The maximum noise level calculated is to be achieved at 1.0m & 10m from the units in situ with all units operating under normal load.

The following calculations have been based on the recorded LA90 background noise level over a typical 24 hour period at measurement positions 1 and doesn't include the possibility of night time operations.

The above calculations have demonstrated that in order to meet the criteria of -5 dB below the rating noise level, the following external noise level plant criteria should be achieved at 1.0m and 10m from all units operating at the same time under normal load and therefore the POL-05 credit awarded.

13.3.1 Position 1

DAYTIME 07:00 – 23:00

Octave Band Centre Frequency (Hz)									dB(A)	Comments
63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k		
67.7	59.9	53.7	52.5	52.1	50.3	49.3	47.8	32.7	58	Calculated Noise Source Level @ 1.0m
47.7	39.9	33.7	32.5	32.1	30.3	29.3	27.8	12.7	38	Calculated Noise Source Level @ 10.0m
Sound Pressure Level (ref 2 x 10 ⁻⁵ Pa)										

13.4 Assessments – Position 1

13.4.1 Daytime (07:00 – 23:00).

Item	Calculation	Clause	Commentary
Rating Level	38 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,1 \text{ hour}}$	43 dB	8.1	Modal Background Noise Level
Assessment Level	-5 dB	11	The background level is subtracted from the rating level.
Assessment	-5 dB		
Conclusion	The assessment level is 'Low Impact'		
BREEAM POL-05 (-5dB)	Criteria Achieved		

13.5 Conclusions

13.5.1 HEA-05

The calculations within this report have demonstrated the requirement in order achieve three credits within the BREEAM requirements.

13.5.2 POL-05

The operation of any future proposed plant has been assessed to establish if the development will have a demonstrable adverse effect in terms of noise that outweigh the benefits of the development. Measurements have been undertaken in accordance with British Standard 4142: 2014 +A1:2019 and ISO 1996 – Part 2: 2017. This report has established the existing background noise levels at the closest residential façades to the site and the assessment of the impact of the site operation on nearby residential properties. The resulting emissions from the site running on a worst-case scenario show no conflict with 'low impact' criteria and give a strong indication that complaint and impact on the local amenity is unlikely, provided the recommended maximum noise levels plant criteria is achieved as detailed within this report.

The plant criteria has been set as the new plant is yet to be designed and it is recommended that this criteria be set as a planning condition.

Based on the calculations and assessments made within this report it is the professional opinion of Sound Advice Acoustics Ltd that the proposed development can demonstrate compliance with the National Planning Policy Framework 2024, NPPF & NPSE and that, with regards to BREEAM the POL-05 credit could be awarded.

14 APPENDIX A – UNCERTAINTY BUDGET

14.1 Scope

Section 10 of British Standard 4142: 2014 +A1:2019 entitled “*Uncertainty*” requires the following:

“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.”

Annex B of British Standard 4142: 2014 +A1:2019 entitled “consideration of uncertainty and good practice for reducing uncertainty” makes reference to the University of Salford publication entitled “A Good Practice Guide on the Source and Magnitude of Uncertainty arising in the Practical Measurement of Environmental Noise” edition 1a dated May 2007.

14.2 Uncertainty of Measured Values

Ref	Source of Uncertainty Section 10.2 British Standard 4142: 2014	Value dB(A)	Distribution (Divisor)	Uncertainty dB(A)
a	Variability and complexity of sound source	0.50	$\sqrt{2}$	0.35
b	Variability and complexity of residual sound	0.00	$\sqrt{3}$	0.00
c	Residual sound present in specific sound	0.00	$\sqrt{3}$	0.00
d	Background noise position selection	0.10	$\sqrt{3}$	0.06
e	Distance between source and receiver	0.15	$\sqrt{2}$	0.11
f	Number of measurements taken (5 Days)	0.10	$\sqrt{3}$	0.06
g	Measurement time interval variation	0.00	$\sqrt{2}$	0.00
h	Range of times measurements taken	0.10	$\sqrt{3}$	0.06
i	Suitable weather conditions during measurements	0.20	$\sqrt{3}$	0.12
j	Application of British Standard 4142: 2014	0.10	$\sqrt{2}$	0.07
k	Rounding of each measurement	0.05	$\sqrt{3}$	0.03
l	Instrumentation – Calibration	1.20	$\sqrt{3}$	0.69
Reported Expanded Uncertainty (95% confidence, convergence k = 2)				1.61

14.3 Uncertainty in Calculations

Ref	Source of Uncertainty Section 10.2 British Standard 4142: 2014	Value dB(A)	Distribution (Divisor)	Uncertainty dB(A)
a	Impact of measured sound level on calculations	0.00	$\sqrt{2}$	0.00
b	Assumption on sound power level of source	0.00	$\sqrt{3}$	0.00
c	Uncertainty of calculation method (ISO 9613)	0.20	$\sqrt{3}$	0.12
d	Model fit against real world conditions	0.10	$\sqrt{3}$	0.06
e	Error in the calculation process	0.15	$\sqrt{2}$	0.11
Reported Expanded Uncertainty (95% confidence, convergence k = 2)				0.33

14.4 Uncertainty from Other Factors

Ref	Source of Uncertainty Section 10.2 British Standard 4142: 2014	Value dB(A)	Distribution (Divisor)	Uncertainty dB(A)
a	Standing waves or interference patterns	0.15	$\sqrt{3}$	0.09
b	Approximation of sound source to a point source	0.10	$\sqrt{3}$	0.06
c	Maintenance and repair of source over 15 years	0.50	$\sqrt{3}$	0.29
Reported Expanded Uncertainty (95% confidence, convergence k = 2)				0.61

14.5 Combined Reported Expanded Uncertainty

Ref	Source of Uncertainty Section 10.2 British Standard 4142: 2014	Value dB(A)	Distribution (Divisor)	Uncertainty dB(A)
a	Section 7.1.2. Uncertainty of measured values	2.7	$\sqrt{2}$	1.14
b	Section 7.1.3. Uncertainty of calculations	2.7	$\sqrt{2}$	0.23
c	Section 7.1.4. Uncertainty from other factors	2.7	$\sqrt{2}$	0.43
Combined Reported Expanded Uncertainty (95% confidence, convergence k = 2)				2.55

It should be noted that the uncertainty calculations have assumed a Type B uncertainty.

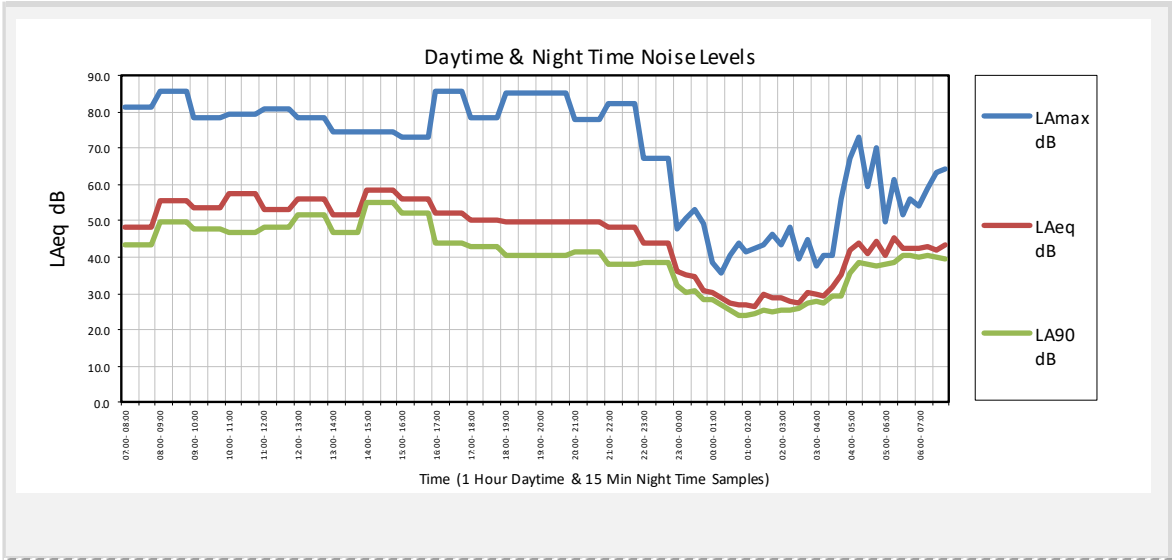
15 APPENDIX B - RESULTS

15.1.1 22nd – 23rd May 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 <small>LAeq 16 HOUR & Cor r esponding LAmaz 16 HOUR</small>	53.6	85.5	43.0	63.4	55.6	49.4	48.2	47.8	46.0	45.0	43.5	28.4
NIGHT TIME 23:00 - 07:00 <small>LAeq 8 HOUR & Cor r esponding LAmaz 8 HOUR</small>	39.0	72.9	25.0	41.5	37.2	33.5	36.4	33.1	29.4	30.9	30.3	12.1

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES												
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	48.2	39.6	43.3	53.1	47.1	44.4	43.2	41.1	37.7	43.0	38.4	23.6
08:00 - 09:00	55.3	85.5	49.6	63.0	57.0	50.7	49.2	52.2	46.0	44.8	43.0	30.5
09:00 - 10:00	53.7	78.3	47.6	62.7	55.9	50.2	47.2	46.9	44.0	47.3	46.1	315
10:00 - 11:00	57.6	79.5	46.9	65.6	60.3	56.5	53.5	51.8	49.9	47.2	44.5	313
11:00 - 12:00	52.9	80.9	48.0	64.7	58.7	50.0	47.1	46.7	44.2	45.1	42.6	27.5
12:00 - 13:00	55.9	78.5	51.8	64.6	57.2	51.4	50.8	50.7	48.6	46.5	43.3	28.2
13:00 - 14:00	51.7	74.3	46.6	60.6	52.9	46.2	44.0	45.5	44.4	44.5	43.1	30.8
14:00 - 15:00	58.6	74.3	54.8	65.4	59.3	50.8	53.6	52.0	52.9	49.9	45.5	30.7
15:00 - 16:00	56.0	73.1	51.9	72.0	60.5	52.0	51.0	50.1	47.7	46.6	43.2	29.8
16:00 - 17:00	52.2	85.4	43.6	58.1	51.5	45.6	44.7	44.3	42.4	42.6	49.7	29.7
17:00 - 18:00	50.4	78.4	43.1	54.7	50.3	45.2	43.5	44.2	42.7	44.1	39.5	26.4
18:00 - 19:00	49.8	84.9	40.6	49.0	45.7	40.5	39.6	39.8	39.2	45.5	44.8	26.6
19:00 - 20:00	49.9	77.6	41.6	52.5	47.9	44.4	45.2	45.6	43.4	38.0	35.2	18.6
20:00 - 21:00	48.3	82.3	37.8	46.6	44.2	39.2	41.5	44.6	42.4	36.8	31.9	18.9
21:00 - 22:00	43.6	67.2	38.7	47.0	43.3	39.6	36.6	37.2	34.6	37.4	35.9	23.3
22:00 - 23:00	41.4	57.4	36.1	43.0	40.9	34.9	33.0	33.7	31.3	36.1	35.4	23.0

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES												
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	36.1	47.6	32.0	38.5	34.9	29.4	29.5	30.4	25.9	29.8	28.8	16.7
23:15 - 23:30	35.0	50.8	30.1	38.6	35.1	31.6	30.1	30.5	27.6	24.6	23.5	12.8
23:30 - 23:45	34.7	53.2	30.6	37.9	34.8	28.2	27.7	28.9	25.1	28.4	27.3	15.7
23:45 - 00:00	30.5	49.4	28.4	38.5	34.7	28.2	26.1	27.7	20.0	15.9	14.6	9.8
00:00 - 00:15	30.1	38.7	28.2	36.3	33.6	26.3	25.8	27.6	19.1	14.1	13.6	9.8
00:15 - 00:30	28.6	35.6	26.8	37.4	35.6	28.6	24.6	25.2	17.0	11.5	11.1	9.4
00:30 - 00:45	27.5	40.6	25.2	37.6	34.3	27.2	24.9	23.4	15.9	10.5	10.4	9.3
00:45 - 01:00	26.9	43.9	23.7	37.9	33.3	24.6	21.7	23.8	17.5	10.8	10.5	9.3
01:00 - 01:15	26.8	41.4	24.0	38.1	34.0	25.6	21.5	23.4	17.0	10.8	10.5	9.3
01:15 - 01:30	26.2	42.6	24.5	37.2	34.5	26.5	20.7	22.4	15.3	10.5	10.4	9.3
01:30 - 01:45	30.0	43.4	25.4	39.1	36.4	35.2	24.8	24.3	17.1	10.5	10.4	9.3
01:45 - 02:00	28.8	46.5	24.7	38.1	33.6	27.3	25.3	25.0	19.4	13.9	10.8	9.3
02:00 - 02:15	29.0	43.3	25.2	38.4	32.1	26.4	24.5	26.4	18.7	10.7	10.4	9.3
02:15 - 02:30	27.8	48.4	25.3	39.7	33.5	26.1	24.0	24.3	17.0	11.8	10.7	9.3
02:30 - 02:45	27.3	39.4	25.8	38.0	33.4	26.5	24.1	23.6	15.2	10.3	10.4	9.3
02:45 - 03:00	30.3	44.6	27.3	40.4	34.6	29.8	26.5	27.1	20.0	11.5	10.8	9.4
03:00 - 03:15	29.9	37.7	27.9	38.2	33.3	28.5	27.9	26.6	17.3	10.7	10.5	9.3
03:15 - 03:30	29.5	40.2	27.2	38.3	34.4	29.1	27.0	25.8	17.5	10.7	10.4	9.3
03:30 - 03:45	31.9	40.6	29.2	39.6	35.1	29.9	28.8	29.1	20.1	11.1	10.4	9.3
03:45 - 04:00	35.2	55.9	29.4	37.6	34.3	29.0	28.3	28.8	22.5	30.5	27.8	10.5
04:00 - 04:15	41.9	67.2	35.6	38.8	36.1	31.0	28.8	29.2	34.4	38.5	32.5	12.3
04:15 - 04:30	43.8	72.9	38.3	38.8	34.5	29.7	31.3	31.3	36.7	36.3	40.9	17.1
04:30 - 04:45	41.0	59.6	37.8	39.9	36.5	35.3	36.2	33.6	34.5	34.3	28.8	10.6
04:45 - 05:00	44.2	70.2	37.3	38.9	34.7	33.3	39.2	33.0	32.8	37.7	40.6	19.8
05:00 - 05:15	40.3	49.6	37.9	41.8	37.7	33.5	38.2	35.0	31.5	32.2	24.6	9.6
05:15 - 05:30	45.3	61.4	38.7	41.1	37.7	36.9	47.6	36.2	31.6	33.9	26.7	9.9
05:30 - 05:45	42.3	51.6	40.6	44.6	41.8	39.0	39.4	38.6	31.8	32.6	24.9	9.7
05:45 - 06:00	42.2	56.1	40.5	44.1	40.8	38.0	39.4	38.7	31.6	31.5	25.7	10.2
06:00 - 06:15	42.3	53.9	40.0	45.0	38.3	36.4	40.4	37.8	31.9	33.2	28.9	11.0
06:15 - 06:30	42.8	59.1	40.6	47.9	40.6	37.5	39.3	38.4	32.1	35.4	29.8	12.2
06:30 - 06:45	41.9	63.4	39.8	47.3	42.5	38.5	39.0	37.6	30.0	33.0	29.9	11.4
06:45 - 07:00	43.3	64.3	39.5	47.0	44.0	39.6	38.8	39.4	34.7	32.5	31.0	11.5

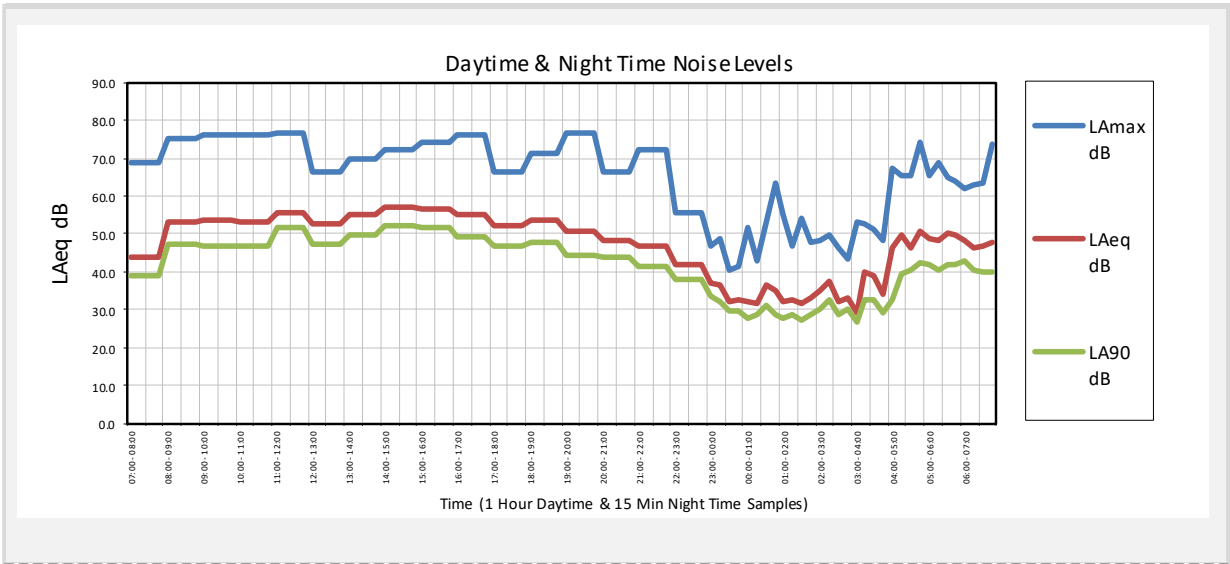


15.1.2 23rd – 24th May 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmx	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 <small>LAeq 16 HOUR & Cor r esponding LAmx 16 HOUR</small>	53.5	76.7	47.0	62.3	54.7	49.5	47.0	46.4	45.4	46.7	45.6	33.3
NIGHT TIME 23:00 - 07:00 <small>LAeq 8 HOUR & Cor r esponding LAmx 8 HOUR</small>	44.6	74.1	29.0	46.2	40.9	38.2	37.5	32.6	33.4	39.7	40.3	25.2

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES												
Date / Time	LAeq	LAmx	LA90	Octave Band Centre Frequency (Hz)								
				63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	44.1	69.0	38.8	52.3	47.1	41.9	38.3	39.2	36.7	33.4	34.1	16.0
08:00 - 09:00	53.4	75.3	47.2	64.2	57.4	49.8	46.9	48.4	46.7	42.9	39.9	24.0
09:00 - 10:00	53.8	76.2	46.8	64.2	56.0	46.2	51.2	47.0	46.3	45.1	42.8	28.2
10:00 - 11:00	53.3	76.1	46.6	62.2	53.8	48.8	47.3	48.1	46.3	44.3	41.6	28.7
11:00 - 12:00	55.7	76.5	51.9	63.9	56.6	50.5	50.8	49.4	49.0	47.0	44.9	32.5
12:00 - 13:00	52.5	66.6	47.5	62.1	53.9	48.7	45.4	45.2	43.9	46.1	45.1	33.0
13:00 - 14:00	55.2	69.9	49.8	64.6	55.6	51.6	47.1	46.0	45.7	49.8	49.2	37.3
14:00 - 15:00	57.3	72.4	52.4	66.4	58.0	53.5	49.5	49.7	49.1	51.0	50.0	38.0
15:00 - 16:00	56.7	74.0	51.8	65.3	58.7	53.4	49.0	47.9	48.0	51.0	49.8	37.6
16:00 - 17:00	55.3	76.0	49.5	64.1	55.8	51.9	47.3	47.7	46.8	49.2	48.4	36.4
17:00 - 18:00	52.2	66.3	47.0	58.4	52.7	47.9	44.6	45.0	43.4	45.9	45.2	33.0
18:00 - 19:00	53.6	71.2	48.0	60.2	52.4	49.3	46.5	46.7	45.5	46.9	46.5	33.8
19:00 - 20:00	50.8	76.7	44.5	56.3	50.5	47.2	44.3	43.8	42.2	43.6	44.2	30.3
20:00 - 21:00	48.3	66.3	43.8	52.7	47.5	44.2	40.9	40.7	38.9	42.4	41.9	29.6
21:00 - 22:00	46.6	72.4	41.6	55.1	48.6	43.7	41.2	40.6	38.4	38.9	36.7	24.3
22:00 - 23:00	42.1	55.6	38.0	46.0	41.9	40.0	36.5	34.6	32.0	35.7	35.3	23.3

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES												
Date / Time	LAeq	LAmx	LA90	Octave Band Centre Frequency (Hz)								
				63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	37.1	46.7	33.6	40.9	38.5	35.5	33.3	31.7	27.2	28.4	27.7	16.2
23:15 - 23:30	36.5	48.8	32.2	40.9	37.2	33.7	30.8	30.4	26.7	29.4	29.0	17.5
23:30 - 23:45	32.0	40.3	29.7	36.5	33.9	31.1	28.3	28.5	22.0	18.5	17.4	10.4
23:45 - 00:00	32.7	41.2	29.5	40.2	37.1	33.4	28.6	28.7	22.8	17.3	15.9	10.1
00:00 - 00:15	32.1	51.8	27.9	43.1	36.5	32.9	29.2	27.8	21.6	13.5	12.0	9.5
00:15 - 00:30	31.5	43.1	28.7	39.3	35.9	32.6	28.4	27.2	20.9	15.9	14.7	9.8
00:30 - 00:45	36.5	53.1	31.2	45.3	39.0	38.6	35.8	30.3	24.0	17.9	16.7	10.3
00:45 - 01:00	34.9	63.5	28.8	38.1	38.5	37.2	34.2	28.0	22.3	19.7	18.9	11.0
01:00 - 01:15	32.1	55.1	27.9	35.0	32.1	33.7	29.4	26.4	21.7	19.7	18.9	11.3
01:15 - 01:30	32.8	46.7	28.6	39.5	34.6	32.9	29.9	27.6	22.8	21.5	20.6	11.7
01:30 - 01:45	31.9	54.2	27.1	38.8	33.2	33.0	30.1	26.5	21.3	17.9	16.3	10.1
01:45 - 02:00	32.9	47.6	28.8	36.8	35.2	34.2	30.9	26.3	21.9	22.3	21.1	11.7
02:00 - 02:15	35.2	48.2	30.2	37.3	34.2	29.9	28.1	27.9	26.0	29.4	28.6	16.9
02:15 - 02:30	37.3	49.8	32.6	41.3	40.0	35.9	32.1	28.5	27.5	31.2	30.2	18.2
02:30 - 02:45	32.3	46.4	28.7	38.2	33.0	27.8	26.8	26.4	23.2	25.2	24.1	13.4
02:45 - 03:00	33.2	43.2	30.2	36.7	34.7	30.9	28.2	27.7	24.4	24.9	23.8	13.3
03:00 - 03:15	29.2	53.1	26.5	34.5	30.6	25.8	24.3	22.7	19.7	22.1	21.5	11.3
03:15 - 03:30	39.9	52.5	32.7	43.0	38.0	33.3	29.6	29.5	30.1	35.3	34.9	22.9
03:30 - 03:45	38.8	51.1	32.6	41.6	36.8	31.6	29.0	28.7	29.1	34.1	33.6	21.6
03:45 - 04:00	34.1	48.2	29.3	37.8	32.8	29.0	27.7	28.3	25.4	27.4	26.0	15.0
04:00 - 04:15	46.5	67.3	32.8	42.1	37.5	33.3	28.5	28.7	32.3	44.0	40.8	23.1
04:15 - 04:30	49.8	65.4	39.6	49.8	43.6	39.5	33.5	33.4	37.3	46.5	45.3	28.9
04:30 - 04:45	46.5	65.3	40.3	49.3	44.1	40.0	34.4	33.4	38.2	41.8	41.5	28.0
04:45 - 05:00	50.6	74.1	42.6	50.6	44.3	40.5	35.8	35.4	38.1	46.7	46.7	30.4
05:00 - 05:15	48.9	65.3	41.8	53.1	46.7	43.7	38.6	38.7	39.9	44.0	43.4	31.3
05:15 - 05:30	48.1	69.0	40.5	46.4	40.7	38.1	38.8	35.3	37.9	41.2	46.1	28.7
05:30 - 05:45	50.0	64.9	41.9	50.9	45.1	41.5	39.8	35.8	36.8	42.6	48.7	30.9
05:45 - 06:00	49.8	63.8	42.1	51.2	44.8	42.2	47.1	37.5	38.1	43.4	45.4	30.8
06:00 - 06:15	48.1	61.8	42.8	50.2	45.1	43.6	45.0	37.0	37.5	42.7	42.0	29.8
06:15 - 06:30	46.5	62.7	40.7	48.8	45.6	44.4	42.3	35.8	36.0	41.0	40.0	27.7
06:30 - 06:45	46.7	63.3	40.1	48.8	44.2	41.1	42.5	36.0	36.0	41.7	40.5	28.0
06:45 - 07:00	47.7	73.5	40.0	46.7	42.0	40.1	36.3	35.8	35.1	44.3	42.2	26.1

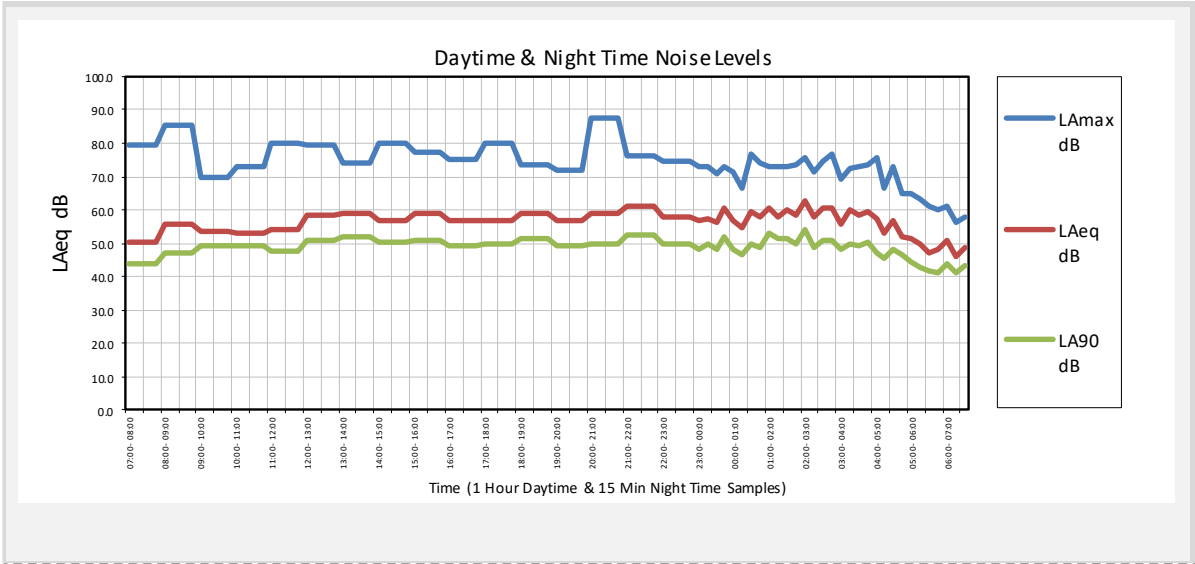


15.1.3 24th – 25th May 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 <small>LAeq 16 HOUR & Cor r esponding LAmaz 16 HOUR</small>	57.4	87.4	50.0	67.4	58.6	54.3	49.0	47.2	47.4	52.2	51.6	39.5
NIGHTTIME 23:00 - 07:00 <small>LAeq 8 HOUR & Cor r esponding LAmaz 8 HOUR</small>	57.5	76.6	48.0	69.3	60.0	55.1	49.7	47.2	47.5	52.0	51.6	39.7

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES												
Date / Time	LAeq	LAmaz	LA90	Octave Band Centre Frequency (Hz)								
				63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	50.1	79.4	44.0	57.3	49.0	44.2	40.3	39.6	39.3	45.4	45.4	31.2
08:00 - 09:00	55.5	85.6	47.1	62.3	51.5	47.8	46.3	43.3	43.9	52.0	49.5	34.3
09:00 - 10:00	53.6	69.8	49.5	59.9	52.0	47.9	44.0	43.9	44.3	48.3	48.7	36.8
10:00 - 11:00	53.2	73.1	49.4	59.3	51.8	48.4	44.8	44.1	44.4	47.4	48.0	36.5
11:00 - 12:00	54.0	80.0	47.5	60.6	53.5	52.5	49.1	46.6	45.5	46.6	45.7	34.0
12:00 - 13:00	58.3	79.2	50.6	67.9	59.5	55.3	49.3	48.4	48.2	53.4	52.1	40.1
13:00 - 14:00	58.9	74.3	51.9	69.4	60.7	56.4	50.6	49.0	49.4	53.4	53.0	41.3
14:00 - 15:00	56.8	79.8	50.5	65.1	56.8	53.5	49.6	48.1	48.3	50.9	50.0	37.8
15:00 - 16:00	59.0	77.3	51.1	70.0	61.0	56.4	50.2	48.2	48.4	54.0	53.2	41.0
16:00 - 17:00	56.7	74.9	49.5	68.0	59.4	55.1	48.6	46.5	46.4	51.2	50.8	39.0
17:00 - 18:00	57.0	80.2	49.9	66.1	57.9	53.8	48.5	46.6	46.8	52.1	51.2	39.1
18:00 - 19:00	59.0	73.6	51.4	69.2	60.2	56.0	50.3	48.6	48.9	53.7	53.4	41.6
19:00 - 20:00	56.6	71.8	49.5	66.4	57.9	54.0	47.6	45.9	46.2	51.4	51.4	39.1
20:00 - 21:00	58.9	87.4	50.0	68.9	60.0	55.3	49.7	47.6	48.1	54.1	53.5	40.7
21:00 - 22:00	61.2	76.3	52.6	72.5	63.1	58.1	53.0	50.6	51.2	55.8	55.5	43.6
22:00 - 23:00	57.9	74.6	49.8	68.5	59.3	55.0	49.6	47.5	47.9	52.5	52.1	40.2

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES												
Date / Time	LAeq	LAmaz	LA90	Octave Band Centre Frequency (Hz)								
				63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	57.0	72.9	48.0	67.8	58.6	54.3	48.1	46.6	47.0	51.8	51.4	39.5
23:15 - 23:30	57.1	72.8	49.7	67.5	58.5	54.3	48.2	46.6	47.1	51.8	51.5	39.6
23:30 - 23:45	56.2	70.6	48.4	66.0	56.8	52.7	47.6	45.9	46.3	50.9	50.6	38.7
23:45 - 00:00	60.4	73.1	52.1	70.2	60.8	56.4	52.3	50.3	50.8	55.2	54.7	42.7
00:00 - 00:15	57.1	71.4	48.3	66.5	57.6	54.0	48.3	46.8	47.2	51.8	51.5	39.6
00:15 - 00:30	54.4	66.3	46.7	63.9	55.7	52.6	48.0	44.5	44.2	48.7	48.4	36.4
00:30 - 00:45	59.4	76.6	49.8	71.6	62.1	57.1	51.1	48.8	49.2	53.9	53.6	41.8
00:45 - 01:00	57.9	74.3	48.7	67.8	59.3	55.6	49.9	47.4	47.8	52.4	52.1	40.3
01:00 - 01:15	60.6	73.0	53.1	72.5	63.0	58.5	52.3	50.1	50.5	55.2	54.9	43.1
01:15 - 01:30	57.8	72.8	51.4	68.9	59.6	55.5	49.2	47.2	47.6	52.4	52.1	40.2
01:30 - 01:45	60.0	73.0	51.4	71.9	62.1	57.2	51.4	49.3	49.9	54.7	54.4	42.6
01:45 - 02:00	58.7	73.7	49.8	70.8	61.5	56.8	50.6	48.0	48.4	53.1	52.8	41.0
02:00 - 02:15	62.6	75.7	53.9	75.3	65.7	60.1	54.6	51.9	52.4	57.0	56.7	44.9
02:15 - 02:30	57.8	71.5	48.8	70.6	61.4	56.7	49.9	47.2	47.4	52.0	51.6	39.7
02:30 - 02:45	60.7	74.4	50.6	73.8	64.0	58.4	54.1	50.4	50.6	54.8	54.3	42.4
02:45 - 03:00	60.8	76.5	50.6	73.7	64.0	58.1	53.9	50.7	50.8	55.1	54.6	42.8
03:00 - 03:15	55.8	69.0	48.1	65.3	57.2	53.1	47.3	45.7	45.8	50.5	50.0	38.1
03:15 - 03:30	59.9	72.2	49.9	72.4	63.0	57.5	52.4	49.9	49.8	54.2	53.7	41.8
03:30 - 03:45	58.2	72.8	49.3	71.2	61.8	56.3	51.4	48.2	48.0	52.3	51.7	39.8
03:45 - 04:00	59.8	73.7	50.6	72.2	62.7	57.1	52.5	49.7	49.9	54.1	53.5	41.6
04:00 - 04:15	57.5	75.8	47.3	69.5	60.9	55.9	50.3	47.3	47.3	51.7	51.1	39.3
04:15 - 04:30	53.1	66.5	45.3	61.5	54.1	50.3	44.5	43.1	43.5	47.9	47.2	35.1
04:30 - 04:45	56.7	73.0	48.1	68.9	60.0	55.2	48.9	46.4	46.6	51.0	50.4	38.7
04:45 - 05:00	51.8	64.9	46.3	60.6	52.8	49.0	43.2	41.4	42.1	46.7	46.1	34.0
05:00 - 05:15	51.3	65.1	44.3	60.7	52.9	49.2	43.0	40.8	41.1	46.0	45.5	33.5
05:15 - 05:30	49.6	63.5	43.0	58.0	50.3	46.9	40.9	39.1	39.5	44.4	44.0	31.8
05:30 - 05:45	47.0	61.0	41.7	52.5	48.4	44.6	39.7	37.2	37.8	41.6	40.8	28.6
05:45 - 06:00	47.9	60.0	41.2	55.7	48.9	45.1	40.9	37.8	37.7	42.7	42.0	30.0
06:00 - 06:15	50.7	61.0	43.9	58.3	51.4	47.9	43.6	40.0	40.4	45.6	45.0	32.9
06:15 - 06:30	45.8	56.3	41.3	51.0	45.8	42.1	40.1	36.9	36.1	40.1	39.4	27.1
06:30 - 06:45	48.6	58.1	43.3	53.9	47.3	44.5	41.1	39.4	39.0	43.3	42.7	30.4
06:45 - 07:00	49.9	62.5	43.7	55.6	49.4	46.0	41.3	40.2	40.0	44.8	44.2	32.1

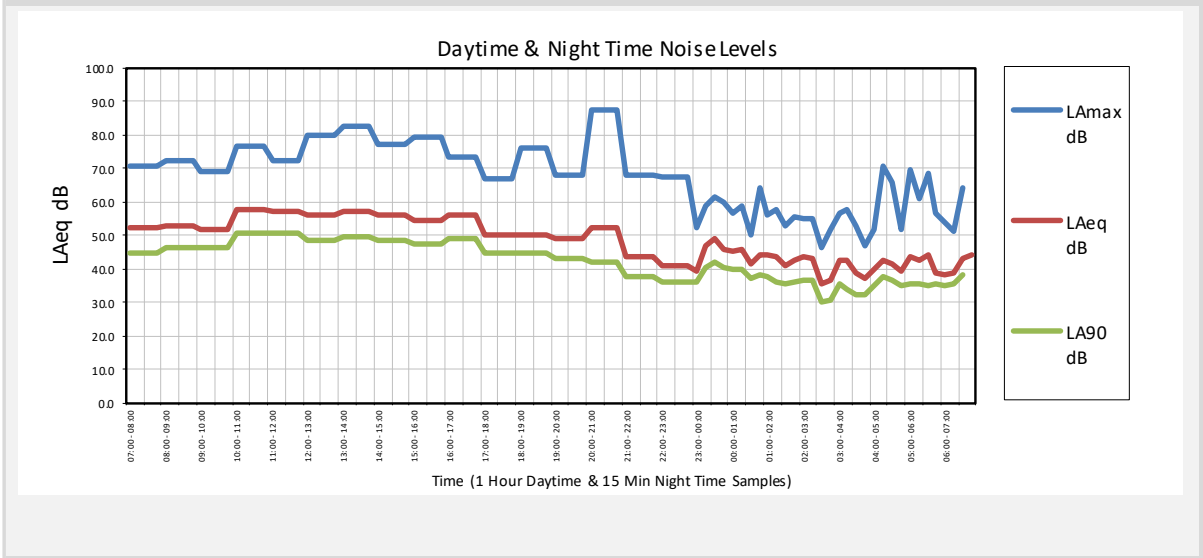


15.1.4 25th – 26th May 2025

NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 <small>LAeq 16 HOUR & Corresponding LAmaz 16 HOUR</small>	54.0	87.4	49.0	62.4	53.6	50.1	46.7	45.0	44.5	48.6	47.7	35.2
NIGHT TIME 23:00 - 07:00 <small>LAeq 8 HOUR & Corresponding LAmaz 8 HOUR</small>	43.0	70.8	35.0	47.0	41.8	38.8	37.9	33.8	33.4	37.3	36.6	23.8

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	52.2	70.7	44.8	61.8	53.6	49.6	43.9	42.1	41.9	47.0	46.5	34.1
08:00 - 09:00	52.7	72.3	46.1	62.9	54.5	50.6	44.1	42.7	42.4	47.2	46.9	34.9
09:00 - 10:00	51.8	69.0	46.5	58.4	49.9	47.5	44.7	43.9	43.0	45.9	45.1	33.0
10:00 - 11:00	57.8	76.7	50.4	66.6	57.8	53.5	50.7	48.7	48.6	52.1	51.5	39.4
11:00 - 12:00	57.0	72.4	50.4	66.0	56.5	53.2	50.4	48.2	47.8	51.2	50.6	38.4
12:00 - 13:00	55.8	79.6	48.2	62.1	53.5	50.8	48.2	46.5	46.1	50.9	49.8	36.9
13:00 - 14:00	57.1	82.4	49.4	65.1	55.9	52.4	49.5	47.9	47.7	51.7	51.3	37.8
14:00 - 15:00	55.9	77.2	48.6	63.3	54.5	51.4	48.1	47.0	46.6	50.7	49.3	36.9
15:00 - 16:00	54.4	79.2	47.1	62.7	54.1	50.6	47.8	45.9	45.3	48.7	47.9	35.3
16:00 - 17:00	55.8	73.3	49.1	66.5	57.0	53.0	49.1	46.7	46.3	50.1	49.3	37.2
17:00 - 18:00	50.2	67.0	44.5	56.7	49.3	47.0	43.1	41.9	40.8	44.4	43.7	31.4
18:00 - 19:00	50.2	76.0	44.5	56.6	48.7	46.4	43.1	41.8	40.6	44.9	43.7	31.3
19:00 - 20:00	48.9	67.9	43.1	57.2	49.7	46.7	42.4	40.5	39.3	42.8	42.3	30.0
20:00 - 21:00	52.1	87.4	42.1	55.0	47.3	44.2	40.3	39.4	39.5	49.4	44.8	29.8
21:00 - 22:00	43.4	67.9	37.7	46.6	41.5	38.3	36.3	37.7	37.3	34.9	32.8	20.1
22:00 - 23:00	40.7	67.5	36.1	44.2	40.2	40.2	38.8	34.7	29.3	30.9	30.2	18.1

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	39.5	52.3	36.0	44.2	39.3	36.7	34.2	33.5	29.5	32.3	31.6	19.4
23:15 - 23:30	46.8	59.0	40.3	52.3	45.7	42.7	38.4	37.8	37.1	41.5	41.1	28.6
23:30 - 23:45	48.8	61.6	42.2	54.5	46.9	44.6	40.6	39.5	39.3	43.5	43.0	30.5
23:45 - 00:00	45.8	59.6	40.4	51.9	44.8	42.7	38.5	37.3	36.3	40.1	39.5	27.0
00:00 - 00:15	45.0	56.5	39.6	48.8	42.9	40.5	37.0	36.2	35.6	39.6	39.0	26.5
00:15 - 00:30	45.7	58.9	39.6	49.6	42.9	40.4	36.9	36.3	36.2	40.7	40.2	27.7
00:30 - 00:45	41.6	50.2	37.2	44.5	39.2	37.7	35.2	33.8	32.2	35.7	35.0	22.4
00:45 - 01:00	44.0	63.9	38.1	44.3	41.3	43.7	42.0	36.9	32.4	35.7	35.0	22.5
01:00 - 01:15	43.9	56.1	37.9	46.5	41.6	38.8	36.1	35.1	34.3	38.6	38.0	25.4
01:15 - 01:30	43.8	57.4	36.3	49.1	42.4	39.4	34.9	33.9	34.1	38.8	38.3	25.8
01:30 - 01:45	41.0	52.8	35.5	44.2	39.5	36.2	32.7	31.8	31.4	35.9	35.3	22.8
01:45 - 02:00	42.7	55.7	36.0	45.9	40.3	37.2	33.7	32.8	33.1	37.8	37.3	24.8
02:00 - 02:15	43.4	55.2	36.6	48.5	41.8	39.0	34.5	33.5	33.9	38.5	38.0	25.5
02:15 - 02:30	42.9	55.1	36.6	47.7	41.5	38.3	34.1	33.4	33.3	37.9	37.3	24.8
02:30 - 02:45	35.5	46.2	30.2	38.8	35.1	30.9	28.9	27.7	26.1	29.6	28.9	16.9
02:45 - 03:00	36.4	51.8	30.5	40.6	36.1	32.3	29.3	28.9	27.3	30.4	29.9	17.9
03:00 - 03:15	42.8	56.5	35.4	48.4	41.5	38.2	33.3	32.4	32.9	37.8	37.5	25.0
03:15 - 03:30	42.3	57.4	33.9	48.3	42.2	38.7	32.7	32.1	32.4	37.3	37.1	24.9
03:30 - 03:45	38.7	52.9	32.0	42.8	38.2	33.9	30.1	29.4	29.0	33.5	33.1	20.8
03:45 - 04:00	37.2	46.8	31.9	39.7	35.5	31.6	29.5	28.5	28.1	31.7	31.0	18.8
04:00 - 04:15	39.9	51.9	34.7	40.3	35.1	31.6	29.6	29.7	34.2	34.3	31.6	19.1
04:15 - 04:30	42.5	70.8	37.4	40.7	36.4	32.3	30.2	30.1	35.9	36.6	37.6	20.8
04:30 - 04:45	41.3	66.0	36.4	40.7	38.9	36.1	35.6	29.4	33.8	35.7	34.9	20.4
04:45 - 05:00	39.5	51.9	35.0	37.0	33.8	33.0	39.7	28.9	29.8	31.9	27.7	15.2
05:00 - 05:15	43.8	69.6	35.2	37.9	35.9	33.6	42.8	30.1	29.7	39.5	34.3	15.4
05:15 - 05:30	42.6	60.7	35.3	42.4	38.8	34.3	44.9	32.2	29.5	30.7	27.7	14.0
05:30 - 05:45	43.9	68.7	35.0	40.7	39.6	35.7	45.1	30.7	28.5	34.0	38.1	18.4
05:45 - 06:00	38.9	56.4	35.7	42.1	42.0	38.7	34.2	30.6	29.8	32.4	29.2	15.8
06:00 - 06:15	38.3	53.8	34.8	42.6	42.0	37.0	33.5	30.9	29.7	31.2	27.9	15.1
06:15 - 06:30	38.4	51.1	35.2	42.4	39.8	35.9	36.4	32.4	29.8	29.2	24.9	13.0
06:30 - 06:45	42.9	64.0	38.2	46.8	42.9	38.8	36.8	34.8	34.2	36.9	36.1	23.7
06:45 - 07:00	43.9	62.1	39.6	49.5	48.7	42.6	38.2	35.9	35.5	36.3	36.6	23.3

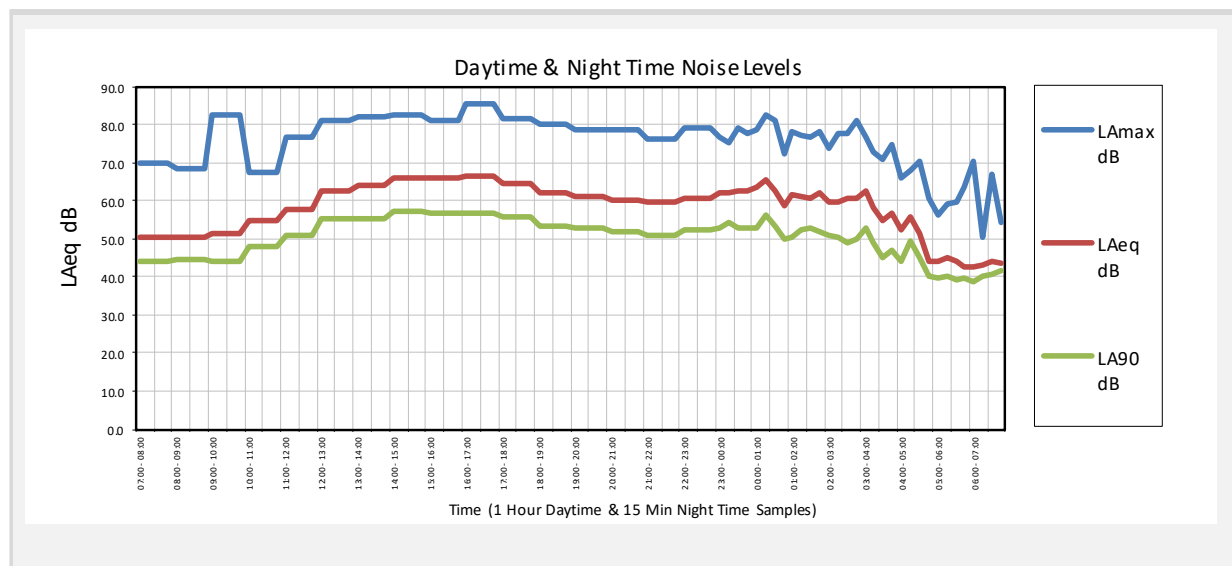


15.1.5 26th – 27th May 2025

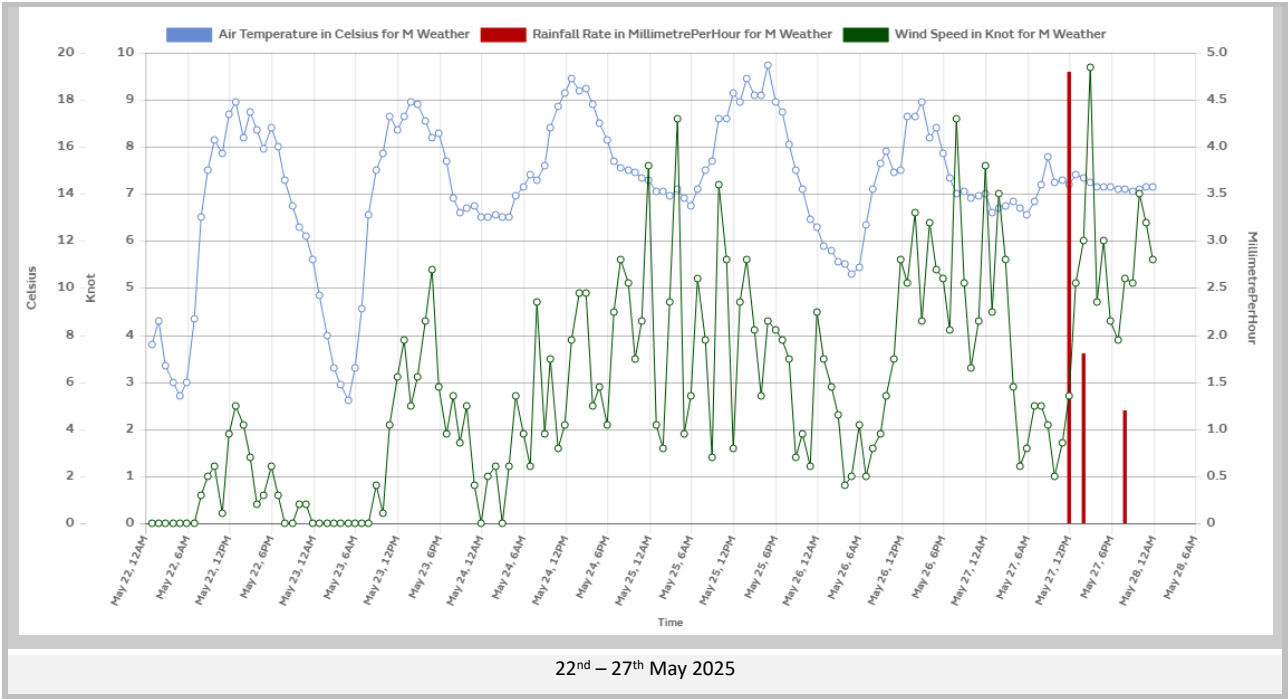
NOISE LEVEL SUMMARY ASSESSMENT				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmx	LA90	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LAeq 16 HOUR & Cor r esponding LAmx 16 HOUR	62.3	85.3	57.0	75.7	66.3	60.5	55.9	52.2	52.3	56.3	55.9	43.9
NIGHT TIME 23:00 - 07:00 LAeq 8 HOUR & Cor r esponding LAmx 8 HOUR	59.6	82.7	53.0	73.1	63.8	58.1	53.1	49.5	49.5	53.5	53.2	41.1

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES												
Date / Time	LAeq	LAmx	LA90	63	125	Octave Band Centre Frequency (Hz)						
						250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	50.4	69.9	44.3	57.2	49.4	46.7	43.5	41.7	40.9	44.7	44.3	32.2
08:00 - 09:00	50.3	68.7	44.5	58.2	50.6	47.5	43.3	41.6	40.6	44.6	44.1	31.9
09:00 - 10:00	51.3	82.5	44.1	57.6	50.2	46.7	41.9	41.2	39.8	47.7	44.1	30.7
10:00 - 11:00	54.9	67.6	48.0	65.3	56.6	52.7	46.4	45.2	44.7	49.3	49.1	37.1
11:00 - 12:00	57.8	76.8	50.9	68.9	60.1	55.7	50.0	48.0	47.8	52.2	52.0	40.0
12:00 - 13:00	62.7	81.2	55.1	75.9	66.4	60.8	55.5	52.5	52.6	56.8	56.4	44.5
13:00 - 14:00	64.3	82.0	55.5	77.4	68.0	62.2	57.8	54.2	54.3	58.3	57.9	46.0
14:00 - 15:00	66.3	82.6	57.3	79.7	70.2	64.2	60.2	56.1	56.3	60.1	59.7	47.8
15:00 - 16:00	65.8	81.1	56.8	79.6	70.1	64.0	59.7	55.6	55.7	59.5	59.1	47.2
16:00 - 17:00	66.7	85.3	56.9	80.8	71.8	64.9	60.8	56.6	56.6	60.3	59.9	47.9
17:00 - 18:00	64.5	81.4	55.9	77.9	68.4	62.7	58.0	54.2	54.4	58.6	57.9	45.9
18:00 - 19:00	62.1	80.1	53.1	75.1	65.8	60.5	55.5	52.0	52.0	55.9	55.6	43.6
19:00 - 20:00	61.0	78.6	53.0	73.4	64.1	59.3	53.7	51.0	51.0	55.1	54.8	42.8
20:00 - 21:00	60.4	78.6	51.7	72.9	63.7	58.6	53.2	50.2	50.3	54.5	54.2	42.1
21:00 - 22:00	59.6	76.1	51.2	72.0	62.9	58.1	52.0	49.4	49.5	53.7	53.4	41.4
22:00 - 23:00	60.9	79.1	52.2	74.0	64.6	59.4	54.0	50.7	50.7	54.9	54.7	42.6

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES												
Date / Time	LAeq	LAmx	LA90	63	125	Octave Band Centre Frequency (Hz)						
						250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	62.2	76.5	53.1	75.0	65.4	60.0	55.0	52.0	52.2	56.3	56.0	43.9
23:15 - 23:30	62.1	75.4	54.3	76.0	66.5	61.2	55.1	51.7	51.8	55.9	55.6	43.6
23:30 - 23:45	62.7	79.2	52.6	75.8	66.5	60.8	55.9	52.4	52.6	56.6	56.3	44.3
23:45 - 00:00	62.8	77.8	52.8	76.4	67.0	61.6	55.6	52.4	52.6	56.7	56.5	44.5
00:00 - 00:15	63.4	78.7	53.0	76.3	66.9	60.7	56.6	53.1	53.4	57.5	57.2	45.2
00:15 - 00:30	65.6	82.7	56.5	79.5	70.3	64.3	60.1	55.2	55.3	59.2	58.9	46.9
00:30 - 00:45	62.6	81.3	53.3	77.1	67.6	61.4	56.1	52.2	52.2	56.2	55.9	43.8
00:45 - 01:00	58.6	72.4	50.0	70.9	61.8	57.0	51.0	48.6	48.6	52.8	52.5	40.4
01:00 - 01:15	61.8	78.3	50.3	75.9	66.4	60.5	55.0	51.4	51.6	55.6	55.3	43.3
01:15 - 01:30	60.9	77.3	52.5	73.4	64.3	59.2	53.7	50.9	51.0	55.0	54.7	42.6
01:30 - 01:45	60.6	76.5	52.7	73.7	64.4	59.2	53.1	50.4	50.5	54.6	54.4	42.3
01:45 - 02:00	62.2	78.0	51.7	75.8	66.1	60.9	55.6	51.9	52.0	56.1	55.8	43.8
02:00 - 02:15	59.8	73.8	51.0	73.1	63.9	59.2	52.4	49.5	49.4	53.7	53.4	41.4
02:15 - 02:30	59.8	77.5	50.7	73.0	63.4	57.9	53.5	49.8	49.8	53.8	53.4	41.3
02:30 - 02:45	60.9	77.5	48.9	75.2	65.4	58.7	54.8	50.6	50.7	54.6	54.3	42.3
02:45 - 03:00	60.8	80.9	49.9	75.2	65.8	59.1	56.1	50.6	50.5	54.2	53.7	41.8
03:00 - 03:15	62.8	76.8	53.0	76.5	67.1	61.2	56.7	53.0	52.8	56.5	56.2	44.1
03:15 - 03:30	58.1	72.9	48.8	70.5	61.4	56.8	51.0	48.4	48.0	52.0	51.6	39.5
03:30 - 03:45	54.7	71.1	45.2	67.3	59.0	54.4	46.9	44.6	44.3	48.7	48.4	36.3
03:45 - 04:00	56.7	74.7	46.9	68.6	60.2	55.9	49.3	46.6	46.4	50.8	50.5	38.4
04:00 - 04:15	52.2	65.8	44.1	63.7	55.6	51.4	44.2	42.3	42.2	46.3	45.8	33.7
04:15 - 04:30	55.6	68.1	49.5	67.2	58.3	54.2	47.7	45.7	45.9	49.8	49.4	37.2
04:30 - 04:45	51.2	70.4	45.3	61.1	52.6	48.5	43.9	41.9	42.2	45.4	44.6	32.3
04:45 - 05:00	44.3	60.7	40.1	50.4	44.1	41.1	36.8	35.2	36.0	38.7	37.4	25.0
05:00 - 05:15	43.9	56.1	39.9	49.5	44.9	43.7	38.5	34.6	33.9	38.0	36.4	23.5
05:15 - 05:30	44.9	59.0	40.1	51.9	46.1	42.5	38.1	36.2	35.0	39.5	38.0	24.9
05:30 - 05:45	44.2	59.8	39.3	51.9	46.2	41.9	37.5	36.1	34.6	38.3	37.3	24.8
05:45 - 06:00	42.6	63.7	39.8	47.6	46.6	43.4	38.5	36.1	32.0	33.6	33.5	18.7
06:00 - 06:15	42.8	70.6	38.8	45.0	41.7	38.3	36.8	35.9	32.4	34.1	38.8	17.9
06:15 - 06:30	42.9	50.5	40.2	47.8	44.4	41.9	38.0	37.2	33.9	34.8	33.4	20.7
06:30 - 06:45	44.1	66.8	40.8	49.3	43.5	40.6	38.5	38.2	36.2	36.6	34.3	21.2
06:45 - 07:00	43.6	54.1	41.6	50.1	45.6	43.3	39.9	38.9	34.5	32.7	29.8	17.0



16 APPENDIX C – ENVIRONMENTAL CONDITIONS



17 APPENDIX D - BS 4142:2019+A1:2019 INFORMATION

In accordance with BS 4142:2014 +A1:2019, section 12, the following information is provided.

17.1 Professional Competence

Acoustic Consultant	Mr Brian Scrivener MIOA
Qualifications	Member of the Institute of Acoustics (MIOA)
Date Certified	June 2003
Time Operating as an active Noise Consultant	Permanently Since June 2003
Professional Position	Owner of Sound Advice Acoustics Ltd & Sound Advice Engineering Managing Director & Share Holder
Professional Status	Noise Consultant
Professional Statement	
<p>I have been active within the field of noise consultancy and noise control engineering since I joined the company in April 1997. Working my way through the company and gaining experience in this specialist field, I qualified as a noise consultant in June 2003 when I passed my Diploma in Noise Control & Engineering from Epsom College under the tutor of Dr Latha Vesudevan. Subsequently I was awarded the status of 'Member of the Institute of Acoustics (MIOA)'. Since then, I have taken over the company and continued to work and develop my professional competence within the field of acoustic consultancy, engineering and noise control.</p>	

17.2 Site Status

Site Attended By	Mr Brian Scrivener MIOA
Baseline Measurements Conducted by	Mr Brian Scrivener MIOA
Site Source Measurements Conducted By	Mr Brian Scrivener MIOA

17.3 Measurement Information – Location 1

Details & Justification	Measurement position 1 was located at the rear of the existing premises, representative of the Nearest Noise Sensitive Premises
Height from Ground	1.5m
Reflective Surfaces	None (Free Field)
Distance to NSP	35m
Distance to Source	18m
Topographical Change (m)	None
Ground between Source and Receiver	Varied
Windshield Information	Norsonic Outdoor Microphone Protection Kit Model No: 1212
Distance from Proposed Source to Receiver	50m
NSP* - Noise Sensitive Premises	

18 APPENDIX E - PROFESSIONAL QUALIFICATION

Mr Brian Scrivener MIOA

Managing Director – Sound Advice Acoustics Ltd

2004 – [Present Day]

I am a qualified Acoustic Consultant with a wide range of experience in both large and small developments. I have provided acoustics management for a wide range of sectors including education, community, leisure, residential and industrial.

Summary of Activities

- Full Management of acoustics advise, design, surveying for large scale new build and conversion development projects,
- Extensive experience in solving sound insulation testing failures
- Assessments for BS: 4142 and BS: 8233. Reporting, advice and design of projects to comply with British Standards.
- Assessments and reporting for noise complaints including required resolutions
- City councils on school & college design & assessment
- Environmental assessments for pubs, clubs, PEL's, compressor condensers, extract fans etc.
- Traffic Assessments, reporting, advise and design
- Noise at work, reporting, advise, resolution and acoustics management
- Full project Management for new build residential properties from Sound Insulation testing, acoustical prediction, recommendations for compliance and completion testing.
- Use BASTIAN & CADNA programmes to include in client reports
- Specialist in assessment and design of acoustic products for industrial applications

Consultant – Sound Advice Acoustics Ltd

1997 – 2004

Prior to taking on Directorship, I was a successful Consultant working on a wide range of both large and small developments. Assisting in providing acoustics management for a wide range of sectors.

Summary of Activities

- Large scale new build development projects, acoustics advise, design, surveying
- Air Tightness Testing
- Assessments for BS:4142 and BS:8233
- Assessments for noise complaints including required resolutions
- Traffic Assessments, reporting, advise and design
- Noise at work reporting
- Sound Insulation testing, acoustical prediction, completion testing.
- Client Relations
- Use BASTIAN & CADNA programmes to include in client reports
- Assessment and design of acoustic products for industrial applications
- Sales and Marketing

Relevant Qualifications

- Post Graduate Diploma in Acoustic & Noise Control (June 2003)
- Member of the Institute Of Acoustics (MIOA Number 43096)
- Level 1 air tester

; 02380 641 357

; brian@soundadviceacoustics.co.uk

#END OF REPORT#