



REPORT REFERENCE:

SA – 7523-1

NOISE IMPACT ASSESSMENT

ASSESSMENT OF EXISTING KITCHEN EXTRACT & PLANT

British Standard 4142:2014+A1:2019

CLIENT:

Kitchen Ventilation Systems

SITE:

The Queens Hotel

Crouch End

London

N8 9DE

SURVEY DATE:

27th – 31st August 2023

Report By

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1 EXECUTIVE SUMMARY

1.1 Instruction

Sound Advice Acoustics Ltd have been instructed by Kitchen Ventilation Systems to undertake a background noise survey at the existing premises at The Queens Hotel, Crouch End, London, N8 9DE to understand the level of impact at the site in relation to the existing kitchen extract and associated plant on the rear flat roof, and calculate the resultant noise level at the nearest affected windows at the development and carry out assessments to BS 4142:2014+A1:2019.

1.2 Scope of Report

The measurements have been undertaken in accordance with British Standard 4142:2014+A1:2019 and ISO 1996 – Part 2: 2017 to establish if the proposed site has a demonstrable adverse effect in terms of noise that outweigh the benefits of the development. This report aims to establish the following:

- Existing background noise levels at the residential façade (L_{A90});
- Noise levels from the Existing Plant (L_{Aeq});
- Impact on the nearest noise sensitive property.
- Mitigation Levels if Required

1.3 Measured Background Noise Levels

Continuous background noise measurements were undertaken between the 27th and 31st July 2023 at the Assessment Position 1 as detailed within this report. The day time background noise levels between 07:00 and 23:00 was found to be $L_{A90,1 \text{ hour}}$ 40 dB. This background noise level has been assessed during daytime hours only as the proposed kitchen extract and associated plant is only likely to operate during daytime hours. Due to the existing operation of the plant, the background noise levels has been taken directly after the equipment is switched off.

Daytime Equivalent Existing Background Noise Levels 5 days (07:00 – 23:00)	Measured Levels at Assessment Position 1	$L_{A90, t}$ 40 dB
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1.4 Existing Plant

The following kitchen extract and associated plant is located on the rear flat roof area with the nearest residential being the flat directly above. The following noise levels were recorded at 1.0m with the plant operating under normal load.

Location @1m	Octave Band Centre Frequency (Hz)								dB(A) @ 1m
	63 Hz	125 Hz	250 Hz	500 Hz	1.0 kHz	2.0 kHz	4.0 kHz	8.0 kHz	
Wall Unit	65.2	66.7	59.5	56.4	52.6	46.9	38.6	32.6	58.5
Kitchen Extract	72.6	77.3	79.1	72.5	72.6	67.4	61.6	54.7	76.8
Right Hand Fan	73.4	72.9	75.1	70.4	67.8	63.5	57.4	52.6	73.0
Left Hand Fan	67.6	69.8	71.7	64.9	64.1	60.9	54.2	49.5	69.1

1.5 Mitigation Measures

Attenuation Selection	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1.0k	2.0k	4.0k	8.0k
Wall Unit	-8	-15	-25	-32	-35	-35	-38	-41
Kitchen Extract	-16	-32	-40	-50	-50	-50	-50	-47
Right Hand Fan	-12	-22	-40	-50	-50	-50	-50	-47
Left Hand Fan	-12	-22	-40	-50	-50	-50	-50	-47

1.6 Combined Noise Levels at Residential

Kitchen Inlet Fan	Octave Band Centre Frequency (Hz) Sound Power level								Lw dB(A)
	63	125	250	500	1.0k	2.0k	4.0k	8.0k	
Inlet	53	45	31	17	14	9	3	0	32

1.7 Assessment

1.7.1 Daytime (07:00 – 23:00).

Rating Level	73 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,1 \text{ hour}}$	40 dB	8.1	Modal Background Noise Level (07:00 – 23:00)
Assessment Level	+33 dB	11	The background level is subtracted from the rating level.
Conclusion BS 4142:2014+A1:2019 ^[1]	+10 dB Significant Adverse Effects, +5 dB Adverse Effects, +0 dB Low Impact		
Assessment	+33 dB		
Conclusion	The assessment level is 'Significant Adverse Impact'		

1.7.2 Daytime (07:00 – 23:00) Post Remedial Works

Rating Level	37 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,1 \text{ hour}}$	40 dB	8.1	Modal Background Noise Level (07:00 – 23:00)
Assessment Level	-3 dB	11	The background level is subtracted from the rating level.
Conclusion BS 4142:2014+A1:2019 ^[1]	+10 dB Significant Adverse Effects, +5 dB Adverse Effects, +0 dB Low Impact		
Assessment	-3 dB		
Conclusion	The assessment level is 'Low Impact'		

1.8 Conclusions

The operation of the existing kitchen extract and associated plant has been assessed to establish if the existing is having a 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 façade to the existing plant and the assessment of the impact of the 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 acoustic works are implemented as detailed within this report.

1.9 NPPF 2021

National Planning Policy Framework 2021 suggests that planning permission should be granted unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the framework taken as a whole, or specific policies in the framework indicate the application should be restricted.

1.10 Planning Approval Recommendation

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 2021, NPPF & NPSE and that, with regards to sound, planning permission can be granted, provided the remedial acoustic works are implemented.

2 INTRODUCTION

2.1 Instruction

Sound Advice Acoustics Ltd have been instructed by Kitchen Ventilation Systems to undertake a background noise survey at the existing premises at The Queens Hotel, Crouch End, London, N8 9DE to understand the level of impact at the site in relation to the existing kitchen extract and associated plant on the rear flat roof, and calculate the resultant noise level at the nearest affected windows at the development and carry out assessments to BS 4142:2014+A1:2019.

The purpose of this assessment is to ensure the acoustic protection of noise sensitive premises closest to the existing kitchen extract and associated plant. Noise sensitive premises are not restricted to residential dwellings as offices can be affected by unwanted external noise. However, the existing residential directly above have been identified as the nearest noise sensitive and therefore all calculations and assessments are to be made to this position.

2.2 Ambient and Background Measurements

External noise levels are to be recorded over, what has been considered for the site, an average / typical time period in order to assess the daytime noise levels. Levels have been recorded over more than one day in order to ensure the uncertainty of measurement aspects of BS 4142:2014+A1:2019 have been satisfied and that the data recorded is representative for the purpose of a robust assessment.

2.3 BS 4142: 2014+A1:2019

British Standard 4142:2014+A: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 acoustic impact the kitchen extract and associated plant is having 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. BS 4142:2014+A1:2019 supersedes the 2014 version and has been developed to move more in-line with The National Planning Policy Framework 2021 (NPPF) and the Noise Policy Statement for England 2010 (NPSE).

2.4 National Planning Policy Framework 2021 & Noise Policy Statement for England 2010

References and evaluations are to be made to the National Planning Policy Framework 2021 (NPPF) and the Noise Policy Statement for England 2010 (NPSE). The purpose of this document is to include all aspects of environmental noise within assessments i.e. environmental noise, neighbour noise and neighbourhood noise. Noise is to be considered alongside other relevant issues relating to the site and should not be considered in isolation, according to the NPSE.

There are several key phrases within the NPSE aims and these are discussed below.

2.5 “Significant adverse” and “adverse”

There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:

2.6 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.

2.7 LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.

2.8 SOAEL – Significant Observed Adverse Effect Level

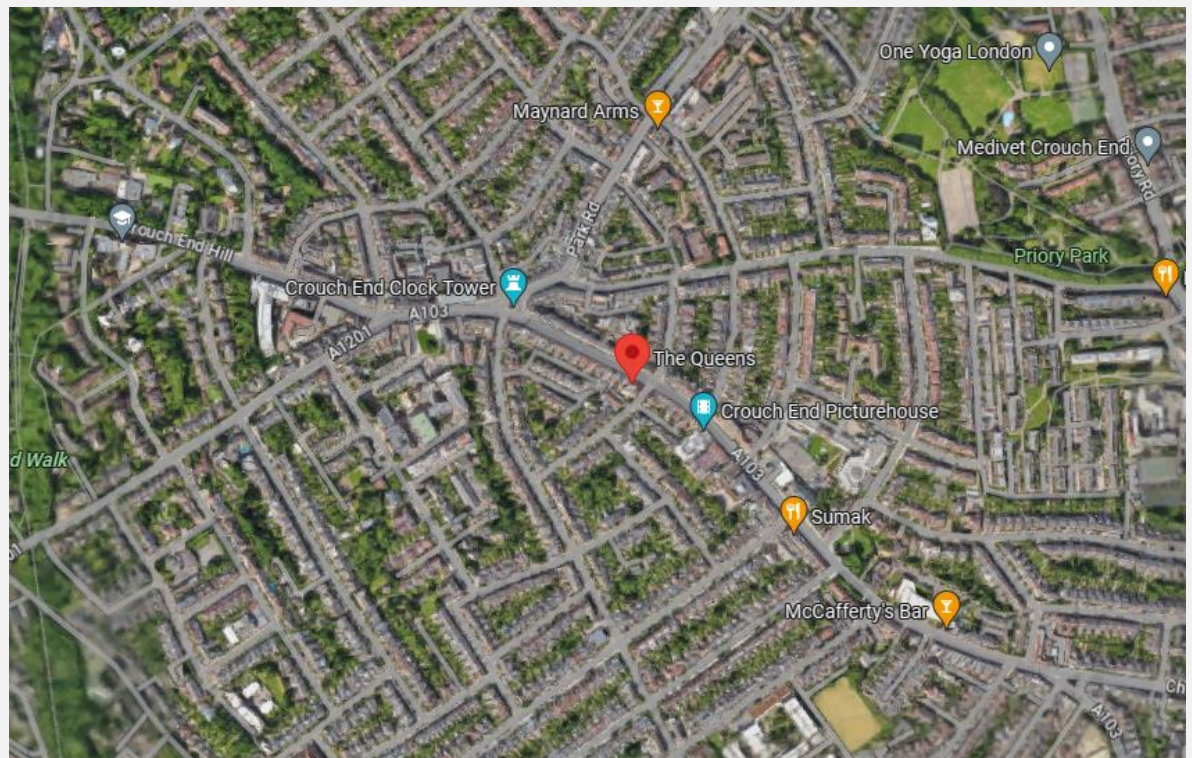
This is the level above which significant adverse effects on health and quality of life occur.

It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available.

3 SITE LOCATION

3.1 Position of Site in Wider Area

The site is located in Crouch End.



4 RESULTS

Continuous background noise measurements were undertaken between the 27th and 31st July 2023 at the Assessment Position 1 as detailed within this report. The day time background noise levels between 07:00 and 23:00 was found to be $L_{A90,1 \text{ hour}}$ 40 dB. This background noise level has been assessed during daytime hours only as the proposed kitchen extract and associated plant is only likely to operate during daytime hours. Due to the existing operation of the plant, the background noise levels has been taken directly after the equipment is switched off.

Daytime Equivalent Existing Background Noise Levels 5 days (07:00 – 23:00)	Measured Levels at Assessment Position 1	$L_{A90, t}$ 40 dB
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5 APPARATUS

5.1 Equipment Calibration

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 0.2 dB.

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.

5.2 Position 1

Description	Make	Type	Serial No.	Calibration Intervals	Last Calibrated	Next Due Calibration
Integrated Sound Level Meter	Rion	NL-52	00242696	2 YEARS	15.06.2023	15.06.2025
12.5mm Microphone (with windshield)	Rion	UC-59	06178	2 YEARS	15.06.2023	15.06.2025
Microphone Pre – Amplifier	Rion	NH-25	32724	2 YEARS	15.06.2023	15.06.2025

The noise meter was calibrated before and after the assessment period and found to be within the tolerance of the manufacturer's guidance. Full Calibration certificates are available upon request.

6 CALCULATIONS

6.1 Existing Plant

The following kitchen extract and associated plant is located on the rear flat roof area with the nearest residential being the flat directly above. The following noise levels were recorded at 1.0m with the plant operating under normal load.

Location @1m	Octave Band Centre Frequency (Hz)								dB(A) @ 1m
	63 Hz	125 Hz	250 Hz	500 Hz	1.0 kHz	2.0 kHz	4.0 kHz	8.0 kHz	
Wall Unit	65.2	66.7	59.5	56.4	52.6	46.9	38.6	32.6	58.5
Kitchen Extract	72.6	77.3	79.1	72.5	72.6	67.4	61.6	54.7	76.8
Right Hand Fan	73.4	72.9	75.1	70.4	67.8	63.5	57.4	52.6	73.0
Left Hand Fan	67.6	69.8	71.7	64.9	64.1	60.9	54.2	49.5	69.1

6.2 Existing Layout



Left Hand Extract



Right Hand Extract



Kitchen Extract



Wall Mounted Unit

6.3 Existing Extract Levels @ Noise Nearest Sensitive Premises.

Existing									
Existing External Plant	63	125	250	500	1.0k	2.0k	4.0k	8.0k	dB(A)
Wall Mounted Unit	65.2	66.7	59.5	56.4	52.6	46.9	38.6	32.6	58.5
Acoustic Enclosure Attenuation									0
Distance Correction to Residential 5m	-14	-14	-14	-14	-14	-14	-14	-14	
Reflection at Residential	3	3	3	3	3	3	3	3	
Calculated Level at Residential	54	56	49	45	42	36	28	22	48
Existing External Plant	63	125	250	500	1.0k	2.0k	4.0k	8.0k	dB(A)
Kitchen Extract	72.6	77.3	79.1	72.5	72.6	67.4	61.6	54.7	76.6
Acoustic Enclosure Attenuation									0
Distance Correction to Residential 5m	-14	-14	-14	-14	-14	-14	-14	-14	
Reflection at Residential	3	3	3	3	3	3	3	3	
Calculated Level at Residential	62	66	68	62	62	57	51	44	66
Existing External Plant	63	125	250	500	1.0k	2.0k	4.0k	8.0k	dB(A)
Right Hand Fan	73.4	72.9	75.1	70.4	67.8	63.5	57.4	52.6	73.0
Acoustic Enclosure Attenuation									0
Distance Correction to Residential 5m	-14	-14	-14	-14	-14	-14	-14	-14	
Reflection at Residential	3	3	3	3	3	3	3	3	
Calculated Level at Residential	62	62	64	59	57	53	46	42	62
Existing External Plant	63	125	250	500	1.0k	2.0k	4.0k	8.0k	dB(A)
Left Hand Fan	67.6	69.8	71.7	64.9	64.1	60.9	54.2	49.5	69.1
Acoustic Enclosure Attenuation									0
Distance Correction to Residential 5m	-14	-14	-14	-14	-14	-14	-14	-14	
Reflection at Residential	3	3	3	3	3	3	3	3	
Calculated Level at Residential	57	59	61	54	53	50	43	39	58
Combined	66	68	70	64	63	59	53	47	68

6.4 Mitigation Measures

Attenuation Selection	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1.0k	2.0k	4.0k	8.0k
Wall Unit	-8	-15	-25	-32	-35	-35	-38	-41
Kitchen Extract	-16	-32	-40	-50	-50	-50	-50	-47
Right Hand Fan	-12	-22	-40	-50	-50	-50	-50	-47
Left Hand Fan	-12	-22	-40	-50	-50	-50	-50	-47

6.4.1 Wall Unit

Relocate to the corner of the roof and enclosure within a full acoustic enclosure.

6.4.2 Kitchen Extract

Re-design ductwork onto the flat roof and incorporate two inline attenuators and 2 x acoustic bends to give the required static insertion loss values given above.

6.4.3 Left & Right Hand Extracts

Install attenuated square bends and transition onto rectangular attenuators to give the required static insertion loss values given above.

6.5 Post Installation Noise Levels @ Noise Nearest Sensitive Premises.

Post Remedial Works									
Proposed External Plant	63	125	250	500	1.0k	2.0k	4.0k	8.0k	dB(A)
Wall Mounted Unit	65.2	66.7	59.5	56.4	52.6	46.9	38.6	32.6	58.5
Acoustic Enclosure Attenuation	-8	-15	-25	-32	-35	-35	-38	-41	
Distance Correction to Residential 5m	-14	-14	-14	-14	-14	-14	-14	-14	
Reflection at Residential	3	3	3	3	3	3	3	3	
Calculated Level at Residential	46	41	24	13	7	1	-10	-19	26
Proposed External Plant	63	125	250	500	1.0k	2.0k	4.0k	8.0k	dB(A)
Kitchen Extract	72.6	77.3	79.1	72.5	72.6	67.4	61.6	54.7	76.6
Acoustic Attenuation	-16	-32	-40	-50	-50	-50	-50	-47	
Distance Correction to Residential 5m	-14	-14	-14	-14	-14	-14	-14	-14	
Reflection at Residential	3	3	3	3	3	3	3	3	
Calculated Level at Residential	46	34	28	12	12	7	1	-3	24
Proposed External Plant	63	125	250	500	1.0k	2.0k	4.0k	8.0k	dB(A)
Right Hand Fan	73.4	72.9	75.1	70.4	67.8	63.5	57.4	52.6	73.0
Acoustic Enclosure Attenuation	-12	-22	-40	-50	-50	-50	-50	-47	
Distance Correction to Residential 5m	-14	-14	-14	-14	-14	-14	-14	-14	
Reflection at Residential	3	3	3	3	3	3	3	3	
Calculated Level at Residential	50	40	24	9	7	3	-4	-5	28
Proposed External Plant	63	125	250	500	1.0k	2.0k	4.0k	8.0k	dB(A)
Left Hand Fan	67.6	69.8	71.7	64.9	64.1	60.9	54.2	49.5	69.1
Acoustic Enclosure Attenuation	-12	-22	-40	-50	-50	-50	-50	-47	
Distance Correction to Residential 5m	-14	-14	-14	-14	-14	-14	-14	-14	
Reflection at Residential	3	3	3	3	3	3	3	3	
Calculated Level at Residential	45	37	21	4	3	0	-7	-9	23
Combined	53	45	31	17	14	9	3	0	32

Based on these recommendations, the following assessments can be made:-

7 BS 4142:2014+A1:2019 NOISE ASSESSMENT

7.1 Scope of British Standard 4142: 2014

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.

7.2 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.

7.3 Assessment Position

The assessment position 1 was established as the existing residential directly above the flat roof mounted plant

7.4 Calculations

The specific noise levels are calculated at the assessment position located at the residential property directly above the roof mounted plant, using the calculations detailed within ISO 9613 Part 1 and 2: 1996. These calculations take the manufacturers sound power levels into account for a variety of factors including source directivity, distance, atmospheric absorption, ground absorption and the effects of any barriers and determine the resultant noise levels at the assessment position.

7.5 Equivalent Position

The background noise levels were measured at the equivalent position, chosen as it most represented the closest noise sensitive façade, on the flat roof area at the rear of the premises

7.6 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 BS 4142:2014+A1:2019. There are 3 methods for approaching this.

- a) Subjective method
- b) Objective method (for tonality)
- c) Reference method

7.7 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	Perceptibility to noise sensitive facades	Correction
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Subjective Method		
Readily Distinctive	Is not present	+0
	Is present	+3
Intermittency	Is not present	+0
	Is present	+3

7.8 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

7.9 Noise Meter Floor

BS 4142:2014+A1:2019 suggests that Care is necessary in circumstances where background sound levels are low to ensure that self-generated and electrical noise within the measurement system does not unduly influence reported values, which might be the case if the measured background sound levels are less than 10 dB above the noise floor of the measuring system. The floor of a typical class 1 noise meter is in the region of 14 dB(A) and therefore measurements of less than 24 dB(A) should be assessed with care.

7.10 BS 4142:2014+A1:2019 Penalties

Whilst BS 4142:2014+A1:2019 allows receptor assessments to be made to achieve levels equal to prevailing background noise levels, it also ensures that appropriate and more stringent penalties are applied to the specific noise level to ensure the correct level of protection for the local residents.

7.11 Assessments

7.11.1 Daytime (07:00 – 23:00).

Rating Industrial Noise affecting Mixed Industrial and Residential Areas	British Standard 4142:2014+A1:2019 Daytime (07:00 to 23:00)
Assessment Position	Residential Above

Background Position			At the assessment position
Item	Calculation	Clause	Commentary
Specific Noise Level $L_{Aeq,1\text{ hour}}$	68 dB	7	Calculated using ISO 9613:1996 ^[3] .
Tonality	+2 dB	8.1	Tonality Characteristic
Impulsivity	+3 dB	8.1	Impulsive Characteristic
Rating Level	73 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,1\text{ hour}}$	40 dB	8.1	Modal Background Noise Level (07:00 – 23:00)
Assessment Level	+33 dB	11	The background level is subtracted from the rating level.
Conclusion BS 4142:2014+A1:2019 ^[1]	+10 dB Significant Adverse Effects, +5 dB Adverse Effects, +0 dB Low Impact		
Assessment	+33 dB		
Conclusion	The assessment level is 'Significant Adverse Impact'		

7.11.2 Daytime (07:00 – 23:00) Post Remedial Works

Rating Industrial Noise affecting Mixed Industrial and Residential Areas	British Standard 4142:2014+A1:2019 Daytime (07:00 to 23:00)
Assessment Position	Residential Above
Background Position	At the assessment position

Item	Calculation	Clause	Commentary
Specific Noise Level $L_{Aeq,1\text{ hour}}$	32 dB	7	Calculated using ISO 9613:1996 ^[3] .
Tonality	+2 dB	8.1	Tonality Characteristic
Impulsivity	+3 dB	8.1	Impulsive Characteristic
Rating Level	37 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,1\text{ hour}}$	40 dB	8.1	Modal Background Noise Level (07:00 – 23:00)
Assessment Level	-3 dB	11	The background level is subtracted from the rating level.
Conclusion BS 4142:2014+A1:2019 ^[1]	+10 dB Significant Adverse Effects, +5 dB Adverse Effects, +0 dB Low Impact		
Assessment	-3 dB		
Conclusion	The assessment level is 'Low Impact'		

7.12 Tonal Penalty

A +2 dB penalty has been applied to the specific noise level to allow for any minor tonal elements that may be present from the proposed plant.

7.13 Impulsivity Penalty

A +3 dB penalty has been applied to the specific noise level to allow for any impulsive elements that may be present from the proposed plant.

7.14 Assessment Conclusion

It can be seen from the above assessments that with the proposed new kitchen plant in operational, an assessment conclusion of Low Impact could be expected during the daytime, provided the proposed remedial acoustic works are installed and achieves the minimum static insertion loss detailed within this report.

8 NPPF & NPSE

The National Planning Policy Framework 2021 (NPPF) and assessments to the Noise Policy Statement for England 2010 (NPSE) should be made in conjunction with each other. Paragraphs 185 - 188 of the National Planning Policy Framework 2021 (NPPF) states the following:

Paragraph 185 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 186 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 187 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 188 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 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.

9 CONCLUSIONS

9.1 Measured Background Noise Levels

Continuous background noise measurements were undertaken between the 27th and 31st July 2023 at the Assessment Position 1 as detailed within this report. The day time background noise levels between 07:00 and 23:00 was found to be $L_{A90,1 \text{ hour}}$ 40 dB. This background noise level has been assessed during daytime hours only as the proposed kitchen extract and associated plant is only likely to operate during daytime hours. Due to the existing operation of the plant, the background noise levels has been taken directly after the equipment is switched off.

Daytime Equivalent Existing Background Noise Levels 5 days (07:00 – 23:00)	Measured Levels at Assessment Position 1	$L_{A90, t}$ 40 dB
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9.2 Existing Plant

The following kitchen extract and associated plant is located on the rear flat roof area with the nearest residential being the flat directly above. The following noise levels were recorded at 1.0m with the plant operating under normal load.

Location @1m	Octave Band Centre Frequency (Hz)								dB(A) @ 1m
	63 Hz	125 Hz	250 Hz	500 Hz	1.0 kHz	2.0 kHz	4.0 kHz	8.0 kHz	
Wall Unit	65.2	66.7	59.5	56.4	52.6	46.9	38.6	32.6	58.5
Kitchen Extract	72.6	77.3	79.1	72.5	72.6	67.4	61.6	54.7	76.8
Right Hand Fan	73.4	72.9	75.1	70.4	67.8	63.5	57.4	52.6	73.0
Left Hand Fan	67.6	69.8	71.7	64.9	64.1	60.9	54.2	49.5	69.1

9.3 Mitigation Measures

Attenuation Selection	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1.0k	2.0k	4.0k	8.0k
Wall Unit	-8	-15	-25	-32	-35	-35	-38	-41
Kitchen Extract	-16	-32	-40	-50	-50	-50	-50	-47
Right Hand Fan	-12	-22	-40	-50	-50	-50	-50	-47
Left Hand Fan	-12	-22	-40	-50	-50	-50	-50	-47

9.4 Combined Noise Levels at Residential

Kitchen Inlet Fan	Octave Band Centre Frequency (Hz) Sound Power level								Lw dB(A)
	63	125	250	500	1.0k	2.0k	4.0k	8.0k	
Inlet	53	45	31	17	14	9	3	0	32

9.5 Assessment

9.5.1 Daytime (07:00 – 23:00).

Rating Level	73 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,1 \text{ hour}}$	40 dB	8.1	Modal Background Noise Level (07:00 – 23:00)
Assessment Level	+33 dB	11	The background level is subtracted from the rating level.
Conclusion BS 4142:2014+A1:2019 ^[1]	+10 dB Significant Adverse Effects, +5 dB Adverse Effects, +0 dB Low Impact		
Assessment	+33 dB		
Conclusion	The assessment level is 'Significant Adverse Impact'		

9.5.2 Daytime (07:00 – 23:00) Post Remedial Works

Rating Level	37 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,1 \text{ hour}}$	40 dB	8.1	Modal Background Noise Level (07:00 – 23:00)
Assessment Level	-3 dB	11	The background level is subtracted from the rating level.
Conclusion BS 4142:2014+A1:2019 ^[1]	+10 dB Significant Adverse Effects, +5 dB Adverse Effects, +0 dB Low Impact		
Assessment	-3 dB		
Conclusion	The assessment level is 'Low Impact'		

9.6 Conclusions

The operation of the existing kitchen extract and associated plant has been assessed to establish if the existing is having a 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 façade to the existing plant and the assessment of the impact of the 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 acoustic works are implemented as detailed within this report.

9.7 NPPF 2021

National Planning Policy Framework 2021 suggests that planning permission should be granted unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the framework taken as a whole, or specific policies in the framework indicate the application should be restricted.

9.8 Planning Approval Recommendation

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 2021, NPPF & NPSE and that, with regards to sound, planning permission can be granted, provided the remedial acoustic works are implemented.

10 APPENDIX A – UNCERTAINTY BUDGET

10.1 Scope

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.

10.2 Uncertainty of Measured Values

Ref	Source of Uncertainty Section 10.2 British Standard 4142:2014+A1:2019	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+A1:2019	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

10.3 Uncertainty in Calculations

Ref	Source of Uncertainty Section 10.2 British Standard 4142:2014+A1:2019	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

10.4 Uncertainty from Other Factors

Ref	Source of Uncertainty Section 10.2 British Standard 4142:2014+A1:2019	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

10.5 Combined Reported Expanded Uncertainty

Ref	Source of Uncertainty Section 10.2 British Standard 4142:2014+A1:2019	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.

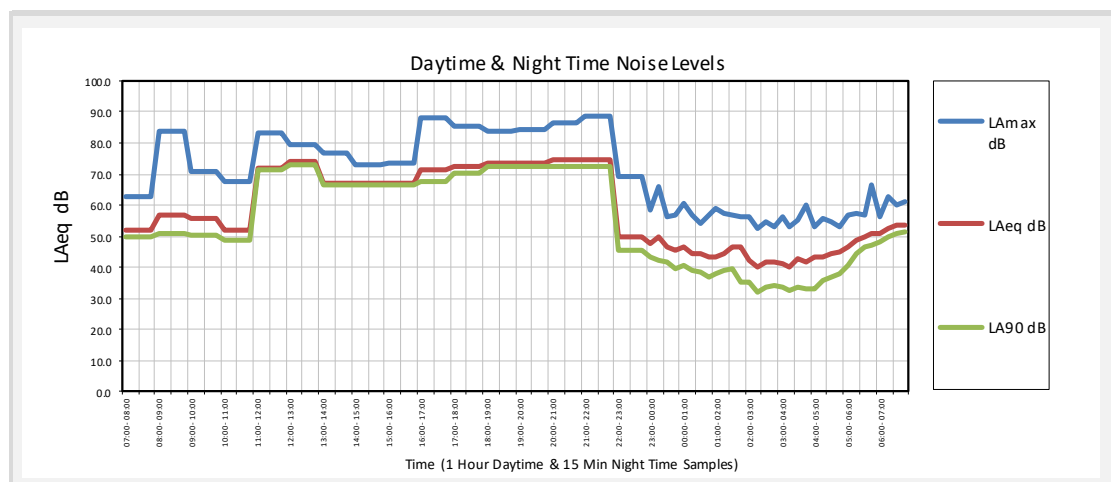
11 APPENDIX B – RESULTS

11.1 27th – 28th July 2023

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 LAeq 16 HOUR & Corresponding LAmaz 16 HOUR	70.7	88.4	73.0	66.5	69.7	73.0	67.3	65.8	62.7	55.1	47.6	36.5
NIGHT TIME 23:00 - 07:00 LAeq 8 HOUR & Corresponding LAmaz 8 HOUR	47.4	66.5	34.0	58.0	47.2	41.9	43.7	45.0	37.6	25.9	20.2	10.8

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	51.8	62.8	50.0	60.6	51.8	46.5	46.7	49.5	43.1	33.4	24.3	22.0
08:00 - 09:00	56.9	83.9	51.0	62.8	56.4	51.4	51.4	53.2	49.4	46.8	42.0	32.7
09:00 - 10:00	55.9	70.9	50.0	62.1	55.7	49.5	50.3	50.8	47.5	48.9	44.9	36.4
10:00 - 11:00	52.1	67.5	49.0	61.2	52.5	46.3	47.6	48.8	43.3	40.5	34.4	36.5
11:00 - 12:00	72.0	83.1	71.0	70.4	74.0	74.8	68.0	67.7	62.9	56.4	50.2	41.5
12:00 - 13:00	74.0	79.5	73.0	73.6	74.3	76.6	70.8	68.8	64.8	58.3	53.4	41.4
13:00 - 14:00	67.2	76.5	66.0	63.9	69.2	72.4	63.1	61.9	57.2	47.6	40.0	29.3
14:00 - 15:00	67.2	73.1	66.0	64.0	69.0	72.3	63.3	62.0	57.3	47.8	41.1	30.1
15:00 - 16:00	67.2	73.6	66.0	64.0	68.7	71.9	63.5	62.1	57.5	47.9	40.4	29.9
16:00 - 17:00	71.2	87.9	67.0	64.1	68.7	71.8	65.1	66.7	65.2	56.6	45.3	34.4
17:00 - 18:00	72.3	85.4	70.0	65.9	70.5	74.5	68.5	67.1	64.8	56.7	48.0	36.2
18:00 - 19:00	73.5	83.9	72.0	66.5	71.2	75.6	70.3	68.3	65.5	57.9	49.7	37.3
19:00 - 20:00	73.7	84.1	72.0	66.5	71.2	75.7	70.6	68.6	65.6	58.3	50.1	37.6
20:00 - 21:00	74.4	86.4	73.0	66.5	71.3	75.8	71.3	69.7	66.6	58.7	50.5	38.0
21:00 - 22:00	74.6	88.4	73.0	66.4	71.2	75.7	71.4	69.8	66.9	58.7	50.5	38.0
22:00 - 23:00	49.5	69.0	45.0	56.3	49.2	46.4	47.4	46.7	38.7	26.3	18.1	10.2

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	47.5	58.5	44.0	54.0	48.1	44.2	43.9	45.1	37.1	23.5	18.4	9.5
23:15 - 23:30	49.6	66.2	42.0	54.6	49.0	45.1	47.1	46.6	39.9	27.5	18.7	10.4
23:30 - 23:45	46.4	56.2	42.0	54.1	46.2	40.4	42.6	44.2	36.2	23.5	18.9	9.7
23:45 - 00:00	45.4	57.0	40.0	53.3	46.6	42.5	42.1	42.6	36.0	24.6	18.7	10.2
00:00 - 00:15	46.7	60.7	41.0	55.2	51.0	46.7	44.5	42.8	35.6	27.1	20.9	9.9
00:15 - 00:30	44.6	56.7	39.0	54.3	45.4	42.2	42.0	41.6	33.9	22.5	19.6	9.3
00:30 - 00:45	44.2	54.3	38.0	52.0	41.7	39.2	40.7	42.1	33.5	22.0	19.0	11.7
00:45 - 01:00	43.3	56.6	37.0	53.0	42.9	39.2	40.9	40.5	32.5	21.6	19.0	10.3
01:00 - 01:15	43.4	58.8	38.0	56.4	43.2	36.4	39.5	40.9	33.8	22.8	19.0	10.2
01:15 - 01:30	44.6	57.4	39.0	56.4	45.1	39.7	41.8	41.6	34.8	26.5	20.3	10.9
01:30 - 01:45	46.3	56.6	39.0	67.7	54.0	44.1	42.9	41.3	34.4	27.5	21.4	10.7
01:45 - 02:00	46.7	56.3	35.0	67.3	54.4	44.2	43.0	42.0	35.2	27.8	21.5	10.4
02:00 - 02:15	42.0	56.4	35.0	51.3	41.7	35.5	39.0	39.4	31.6	21.3	19.9	9.7
02:15 - 02:30	40.2	52.6	32.0	50.6	39.0	33.9	36.3	38.0	30.2	20.7	19.7	9.6
02:30 - 02:45	41.6	54.5	34.0	51.4	41.0	37.3	38.1	38.7	32.7	22.1	20.0	9.8
02:45 - 03:00	41.5	53.0	34.0	51.8	41.8	34.8	37.3	39.1	32.2	21.6	20.1	9.6
03:00 - 03:15	41.2	56.5	34.0	49.0	37.8	32.9	36.6	39.0	32.0	23.6	20.2	10.4
03:15 - 03:30	40.1	53.1	32.0	47.3	37.8	34.4	35.8	37.6	30.3	26.1	20.0	10.9
03:30 - 03:45	42.7	55.3	34.0	53.1	42.7	36.7	39.2	40.2	32.6	21.8	19.8	9.8
03:45 - 04:00	41.5	59.9	33.0	52.2	38.4	34.7	37.8	39.2	31.7	21.8	20.2	10.2
04:00 - 04:15	43.3	53.1	33.0	51.0	38.7	36.0	39.4	41.2	33.1	22.1	20.2	10.0
04:15 - 04:30	43.3	55.9	36.0	49.7	37.8	35.5	39.8	41.3	33.1	21.6	20.2	9.9
04:30 - 04:45	44.4	54.9	37.0	51.6	42.2	36.8	40.3	42.3	34.6	23.3	20.5	10.2
04:45 - 05:00	45.2	52.8	38.0	53.3	41.4	38.6	41.4	42.9	35.9	23.8	20.6	10.0
05:00 - 05:15	46.6	56.8	41.0	53.2	42.5	39.2	42.7	44.5	36.8	24.5	20.0	10.0
05:15 - 05:30	48.5	57.6	44.0	55.5	45.5	42.4	44.7	46.2	39.1	25.6	20.3	10.2
05:30 - 05:45	49.6	56.7	46.0	55.5	45.6	43.0	45.6	47.6	39.8	26.7	19.9	11.1
05:45 - 06:00	51.0	66.5	47.0	56.9	46.1	44.4	48.5	48.4	41.1	27.9	22.0	12.8
06:00 - 06:15	50.6	56.4	48.0	57.4	46.3	43.7	46.2	48.6	41.0	28.1	20.8	10.4
06:15 - 06:30	52.3	62.8	50.0	58.6	50.6	45.0	48.0	50.1	43.4	30.0	21.3	10.6
06:30 - 06:45	53.3	60.0	51.0	59.2	50.9	46.3	48.8	51.3	43.8	31.6	20.6	11.2
06:45 - 07:00	53.3	61.0	51.0	60.3	50.9	46.7	49.1	51.1	43.9	31.5	20.6	11.7

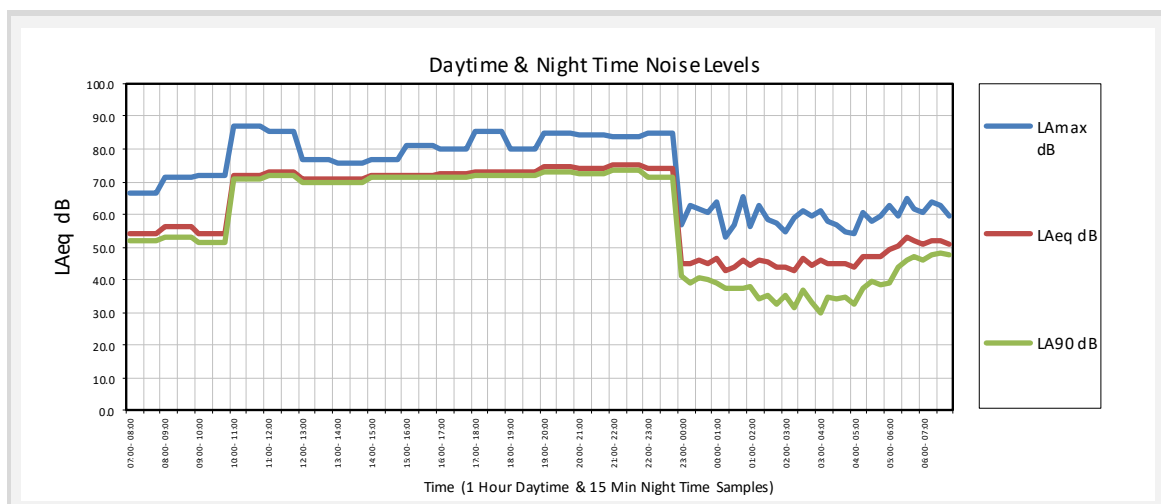


11.2 28th – 29th July 2023

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 LAeq 16 HOUR & Cor r esponding LAmaz 16 HOUR	72.1	87.1	72.0	65.7	70.1	74.3	68.9	67.0	63.8	56.9	48.6	36.7
NIGHT TIME 23:00 - 07:00 LAeq 8 HOUR & Cor r esponding LAmaz 8 HOUR	47.8	65.4	38.0	53.0	44.7	41.9	43.5	45.6	38.5	24.4	20.1	11.1

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	53.9	66.6	52.0	61.8	53.0	48.1	49.5	51.7	44.4	32.8	22.3	26.3
08:00 - 09:00	56.3	71.5	53.0	62.2	56.9	52.5	52.4	52.7	47.8	44.8	36.4	34.9
09:00 - 10:00	54.0	71.9	51.0	63.2	55.0	49.8	49.8	50.8	45.4	40.9	34.9	37.6
10:00 - 11:00	71.7	87.1	71.0	66.1	71.0	75.0	68.2	66.0	62.9	57.9	51.2	38.0
11:00 - 12:00	72.7	85.3	72.0	66.5	71.4	75.6	69.0	67.4	64.8	57.1	48.5	36.7
12:00 - 13:00	70.6	76.8	70.0	65.4	70.4	74.3	67.1	65.1	61.6	54.3	46.8	35.6
13:00 - 14:00	71.0	75.4	70.0	65.6	70.5	74.6	67.6	65.5	62.1	54.7	46.6	35.1
14:00 - 15:00	72.0	76.9	72.0	66.3	71.0	75.4	68.7	66.6	63.2	56.1	48.1	36.4
15:00 - 16:00	72.2	80.9	72.0	66.3	71.1	75.4	68.7	66.7	63.5	56.3	48.1	36.4
16:00 - 17:00	72.3	79.8	72.0	66.4	71.1	75.4	68.9	67.0	63.8	56.5	48.4	36.6
17:00 - 18:00	73.1	85.4	72.0	66.3	71.1	75.4	69.3	67.9	65.6	57.8	49.2	36.9
18:00 - 19:00	73.1	80.2	72.0	66.4	71.2	75.6	70.0	67.7	64.5	57.5	49.1	37.0
19:00 - 20:00	74.4	84.7	73.0	66.5	71.3	75.7	71.2	69.5	66.6	60.0	51.9	38.7
20:00 - 21:00	73.9	84.1	73.0	66.5	71.4	75.8	70.9	69.0	65.6	58.5	50.5	37.7
21:00 - 22:00	75.2	84.0	73.0	66.5	71.4	75.9	72.4	70.7	67.1	60.1	51.1	38.2
22:00 - 23:00	74.0	85.0	71.0	65.1	69.0	73.3	71.3	69.6	66.2	59.3	50.3	37.2

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	45.2	56.9	41.0	52.9	45.7	39.5	41.7	42.9	34.9	22.9	20.1	11.3
23:15 - 23:30	44.9	62.9	39.0	52.3	42.5	38.4	40.6	43.0	34.9	23.6	20.0	10.6
23:30 - 23:45	46.1	61.7	41.0	54.8	46.6	42.7	44.3	43.0	34.6	22.5	20.1	10.4
23:45 - 00:00	44.9	60.4	40.0	54.4	47.9	42.1	41.7	42.1	34.3	22.4	20.3	15.2
00:00 - 00:15	46.4	63.9	39.0	52.6	46.8	47.6	44.5	42.5	34.5	25.0	19.4	10.2
00:15 - 00:30	42.7	52.8	37.0	52.2	41.0	36.6	38.9	40.5	32.5	20.5	19.8	10.2
00:30 - 00:45	44.0	57.0	37.0	53.0	42.0	37.4	40.1	41.8	34.2	23.1	20.6	10.4
00:45 - 01:00	45.8	65.4	38.0	50.2	48.7	43.1	43.2	42.7	35.5	24.5	20.2	11.0
01:00 - 01:15	44.2	56.0	38.0	52.8	43.2	41.4	40.5	41.8	33.7	21.3	19.6	10.9
01:15 - 01:30	45.9	63.0	34.0	50.4	48.7	45.0	44.8	41.7	34.8	23.5	20.1	10.2
01:30 - 01:45	45.3	58.6	35.0	52.9	43.4	40.0	43.1	42.4	34.9	22.7	20.4	10.3
01:45 - 02:00	43.9	57.1	33.0	49.7	38.4	36.0	39.5	42.0	34.3	20.9	20.4	10.4
02:00 - 02:15	43.7	54.5	35.0	51.4	41.6	39.0	41.1	41.2	33.0	20.6	19.4	10.0
02:15 - 02:30	43.0	58.7	32.0	49.6	39.2	37.1	40.0	40.7	32.3	19.6	20.0	12.0
02:30 - 02:45	46.5	61.0	37.0	47.3	38.3	38.1	41.8	44.7	37.1	22.2	20.2	10.7
02:45 - 03:00	44.2	59.3	33.0	48.3	36.6	36.3	39.6	42.3	34.5	21.4	20.8	10.4
03:00 - 03:15	46.0	61.3	30.0	54.1	41.0	39.5	42.3	44.0	35.9	22.8	20.1	10.2
03:15 - 03:30	45.1	57.7	35.0	49.4	38.5	37.4	40.7	43.2	35.6	22.2	20.7	10.3
03:30 - 03:45	45.0	56.7	34.0	48.6	38.9	37.1	40.2	43.2	35.6	21.9	19.9	10.1
03:45 - 04:00	44.8	54.4	35.0	49.9	38.3	36.6	40.0	43.0	35.4	21.3	19.8	10.2
04:00 - 04:15	44.1	54.3	33.0	48.8	41.0	38.7	39.4	42.2	34.2	21.0	19.5	10.1
04:15 - 04:30	47.3	60.6	38.0	51.0	40.4	39.9	43.2	45.4	37.2	23.0	20.1	16.6
04:30 - 04:45	47.3	57.8	40.0	53.4	43.3	40.8	43.0	45.3	37.5	23.6	21.0	11.3
04:45 - 05:00	46.9	59.3	38.0	51.4	40.0	40.1	42.3	44.9	37.8	23.6	21.6	10.7
05:00 - 05:15	49.3	62.8	39.0	51.5	41.3	39.8	43.5	47.6	40.5	25.7	20.6	10.3
05:15 - 05:30	50.3	59.7	44.0	53.5	45.0	43.3	45.8	48.3	41.3	26.5	19.7	10.1
05:30 - 05:45	52.9	65.0	46.0	55.8	44.8	44.2	47.5	51.1	44.2	28.5	20.1	11.8
05:45 - 06:00	51.8	61.7	47.0	53.6	44.2	44.1	45.6	50.0	43.5	27.8	20.0	10.2
06:00 - 06:15	51.0	60.5	46.0	55.4	45.2	43.3	46.1	49.1	42.2	26.8	19.0	10.0
06:15 - 06:30	52.2	63.6	48.0	58.3	50.0	45.9	47.6	50.0	43.8	28.4	19.3	9.9
06:30 - 06:45	51.7	62.7	48.0	55.0	48.7	46.0	47.2	49.6	42.7	27.5	19.3	10.0
06:45 - 07:00	50.6	59.7	48.0	56.3	48.2	44.2	45.9	48.4	41.7	28.6	18.9	10.0

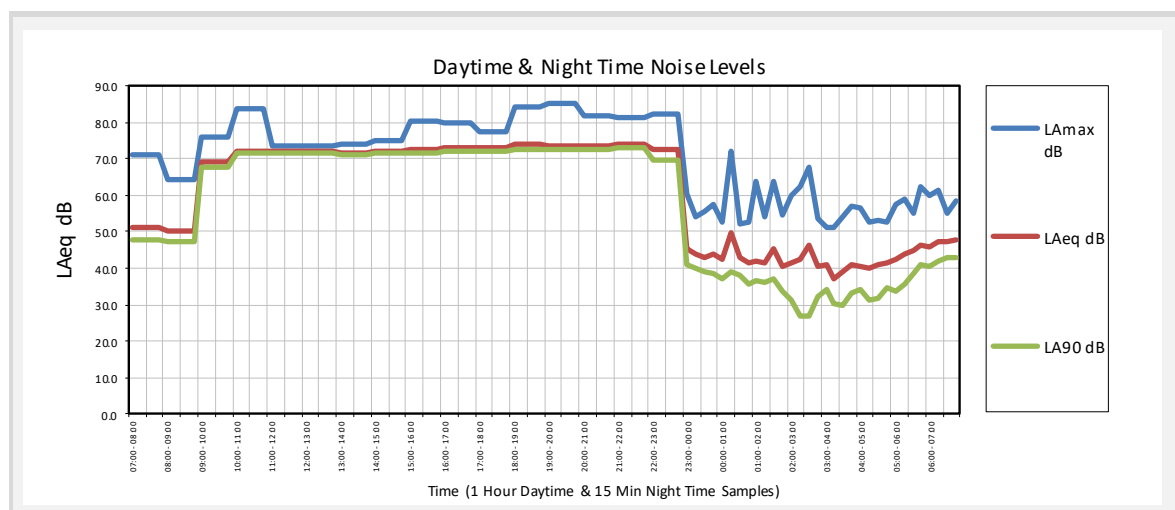


11.3 29th – 30th July 2023

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 LAeq 16 HOUR & Cor r esponding LAmaz 16 HOUR	72.0	85.3	71.0	65.5	70.3	74.5	68.8	66.8	63.4	56.4	48.4	37.0
NIGHT TIME 23:00 - 07:00 LAeq 8 HOUR & Cor r esponding LAmaz 8 HOUR	44.0	71.9	39.0	52.0	44.3	39.0	39.8	41.5	34.9	23.6	15.9	14.7

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	51.3	71.1	48.0	57.9	51.0	47.9	48.3	48.7	40.9	28.1	21.1	28.0
08:00 - 09:00	50.3	64.0	47.0	58.8	52.0	46.0	45.8	47.5	41.2	33.3	31.1	40.6
09:00 - 10:00	69.2	75.6	67.0	64.4	67.0	71.7	66.3	63.6	60.5	53.9	45.7	37.4
10:00 - 11:00	72.0	83.8	71.0	66.0	70.6	75.0	68.6	66.4	63.3	57.0	50.4	37.9
11:00 - 12:00	71.9	73.6	71.0	66.1	70.7	75.2	68.5	66.4	63.1	55.9	47.6	36.1
12:00 - 13:00	72.0	73.7	71.0	66.2	71.0	75.3	68.6	66.6	63.1	56.0	48.0	36.1
13:00 - 14:00	71.8	74.1	71.0	66.1	70.8	75.1	68.4	66.4	63.0	55.8	47.7	35.9
14:00 - 15:00	72.0	75.1	71.0	66.0	70.9	75.3	68.5	66.6	63.3	56.1	48.0	36.1
15:00 - 16:00	72.4	80.3	72.0	66.2	71.0	75.3	69.1	67.2	63.9	56.8	48.9	36.7
16:00 - 17:00	72.9	79.9	72.0	66.1	71.2	75.4	69.6	67.7	64.5	57.4	49.3	37.0
17:00 - 18:00	72.9	77.5	72.0	66.1	71.2	75.5	69.9	67.6	64.2	57.1	49.0	36.5
18:00 - 19:00	73.7	84.1	73.0	66.2	71.6	75.7	70.5	68.8	65.6	58.1	49.9	37.3
19:00 - 20:00	73.5	85.3	72.0	66.3	71.6	75.8	70.5	68.3	64.8	58.3	50.9	38.0
20:00 - 21:00	73.5	81.5	72.0	66.4	71.8	75.8	70.5	68.4	64.7	57.4	49.4	37.0
21:00 - 22:00	74.1	81.0	73.0	66.5	72.1	75.9	71.0	69.3	65.6	58.3	49.6	37.2
22:00 - 23:00	72.4	82.2	70.0	64.3	69.6	72.5	69.6	68.0	64.0	57.3	48.0	35.0

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	45.2	60.3	41.0	53.9	43.8	41.3	41.5	42.8	34.7	22.3	14.2	16.5
23:15 - 23:30	44.0	54.2	40.0	55.1	46.1	41.5	39.8	41.6	33.1	20.1	13.2	15.8
23:30 - 23:45	42.7	55.3	39.0	54.5	46.0	37.7	37.6	40.7	32.3	19.0	12.9	17.5
23:45 - 00:00	43.6	57.6	39.0	52.7	47.6	41.6	39.5	41.2	32.7	19.6	12.2	16.6
00:00 - 00:15	42.5	52.4	37.0	51.6	45.8	38.4	37.8	40.5	32.2	19.1	12.1	12.1
00:15 - 00:30	49.5	71.9	39.0	50.6	42.2	39.6	46.2	47.3	38.5	31.0	17.9	11.3
00:30 - 00:45	42.8	52.2	38.0	51.1	43.0	37.3	38.3	40.9	32.5	19.8	12.8	15.0
00:45 - 01:00	41.3	52.6	35.0	51.1	42.6	34.6	37.0	39.3	30.7	17.4	11.6	12.5
01:00 - 01:15	41.9	63.9	36.0	51.8	42.3	38.5	37.4	39.7	32.1	19.1	11.2	11.5
01:15 - 01:30	41.2	54.0	36.0	55.1	41.2	38.7	37.1	38.8	30.8	18.4	11.3	11.0
01:30 - 01:45	45.4	63.5	37.0	51.9	49.0	44.0	43.2	41.6	35.7	26.2	13.7	14.1
01:45 - 02:00	40.5	54.5	34.0	49.4	38.4	32.7	36.8	38.4	30.5	17.3	12.2	12.7
02:00 - 02:15	41.4	60.1	31.0	48.7	44.8	34.7	37.3	38.8	32.4	21.5	14.1	13.3
02:15 - 02:30	42.5	62.3	27.0	49.4	39.8	38.1	38.3	39.7	34.5	21.0	12.6	10.9
02:30 - 02:45	46.1	67.4	27.0	47.3	44.8	40.5	46.2	42.2	34.3	21.2	12.7	13.0
02:45 - 03:00	40.6	53.5	32.0	46.9	37.0	32.2	36.1	38.8	30.7	18.0	12.0	11.9
03:00 - 03:15	41.1	51.3	34.0	49.3	41.7	35.4	36.9	38.9	31.1	19.3	12.6	13.2
03:15 - 03:30	37.0	51.2	30.0	47.3	36.2	30.6	32.4	34.9	27.0	15.3	12.1	13.1
03:30 - 03:45	39.1	53.8	30.0	46.1	36.7	30.4	32.7	37.5	29.8	17.3	12.2	12.9
03:45 - 04:00	41.0	56.9	33.0	49.0	40.5	35.1	35.5	38.9	31.9	21.3	15.2	13.1
04:00 - 04:15	40.6	56.3	34.0	51.9	43.9	38.9	35.5	37.9	31.0	23.6	17.6	17.8
04:15 - 04:30	39.8	52.8	31.0	49.4	41.0	35.8	34.9	37.4	30.4	21.1	15.6	17.0
04:30 - 04:45	40.9	53.3	32.0	48.0	40.9	35.9	34.7	39.1	31.4	20.5	15.4	15.5
04:45 - 05:00	41.6	52.6	35.0	51.3	42.5	36.8	36.6	39.4	32.0	22.7	17.3	15.5
05:00 - 05:15	42.5	57.4	34.0	51.7	42.2	36.5	37.2	40.0	34.8	23.5	17.3	14.4
05:15 - 05:30	43.7	58.7	36.0	55.0	45.6	40.4	38.6	40.9	35.0	24.9	18.9	13.7
05:30 - 05:45	44.7	55.2	39.0	50.5	43.3	37.8	39.2	42.4	36.8	23.8	16.6	11.8
05:45 - 06:00	46.5	62.4	41.0	52.6	46.2	41.0	40.3	43.9	39.4	27.4	19.8	12.8
06:00 - 06:15	45.8	59.8	41.0	52.5	44.6	39.8	39.9	43.1	38.8	25.9	19.6	12.7
06:15 - 06:30	47.2	61.3	42.0	55.3	47.8	40.3	42.2	44.2	40.3	26.8	18.6	12.9
06:30 - 06:45	47.0	54.8	43.0	53.4	46.8	41.9	41.3	44.6	39.0	26.6	19.3	14.3
06:45 - 07:00	47.6	58.4	43.0	55.5	47.1	42.8	42.5	45.3	39.0	28.0	21.1	20.9

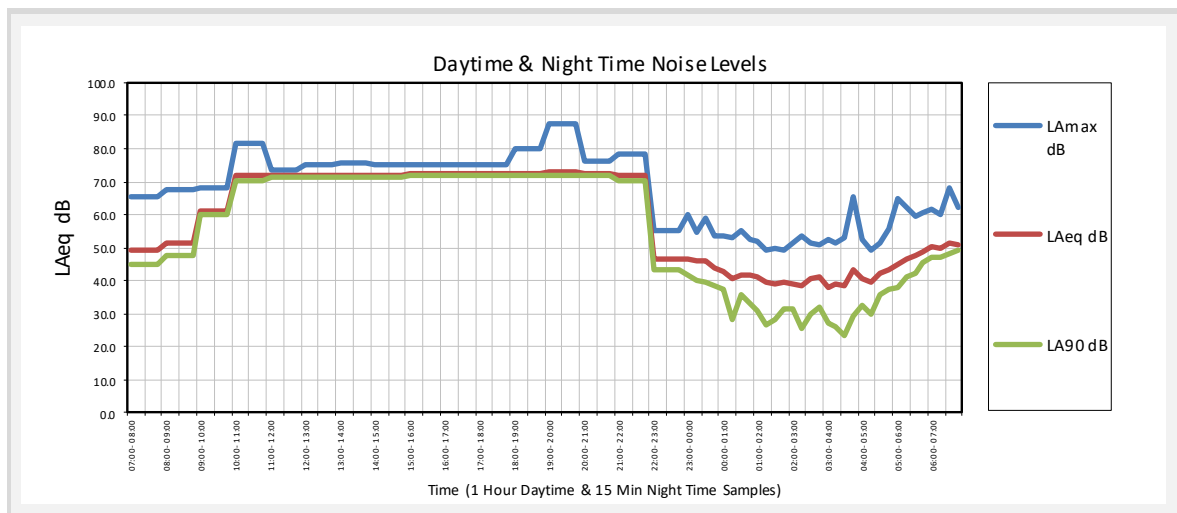


11.4 30th – 31st July 2023

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 LAeq 16 HOUR & Cor r esponding LAmaz 16 HOUR	71.0	87.7	72.0	65.3	70.2	74.2	67.7	65.5	62.2	55.4	47.6	36.1
NIGHT TIME 23:00 - 07:00 LAeq 8 HOUR & Cor r esponding LAmaz 8 HOUR	45.2	68.2	38.0	53.2	44.7	38.9	40.8	43.0	36.0	24.6	16.7	12.2

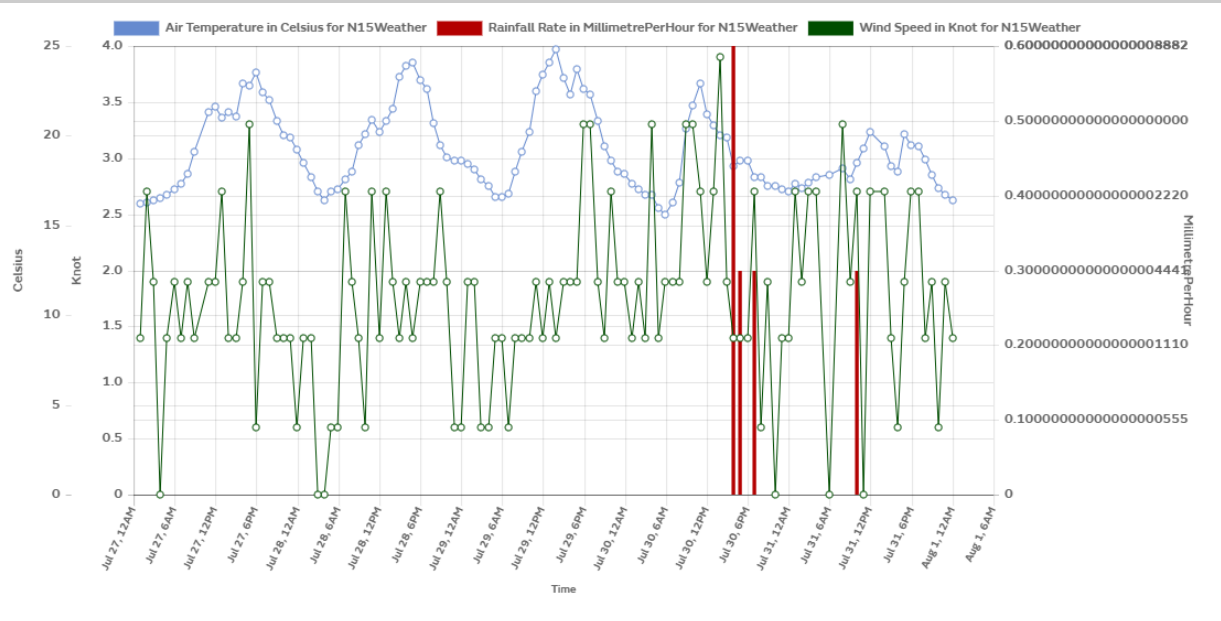
DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES				Octave Band Centre Frequency (Hz)								
Date / Time	LAeq	LAmaz	LA90	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	49.5	65.2	45.0	57.8	50.6	47.0	45.1	46.9	39.9	29.3	23.0	21.5
08:00 - 09:00	51.5	67.9	48.0	58.2	51.3	48.4	47.4	49.1	41.6	29.8	24.9	34.6
09:00 - 10:00	61.1	68.3	60.0	61.3	62.8	65.6	57.1	56.4	51.5	42.0	34.6	26.1
10:00 - 11:00	71.7	81.7	71.0	65.8	70.7	75.0	68.3	66.1	63.0	56.7	49.2	36.6
11:00 - 12:00	71.8	73.6	71.0	66.0	70.8	75.2	68.4	66.3	63.0	55.8	47.6	35.8
12:00 - 13:00	71.9	75.2	71.0	66.2	71.1	75.3	68.5	66.4	63.2	56.0	47.9	36.0
13:00 - 14:00	72.1	75.7	72.0	66.2	71.4	75.4	68.7	66.6	63.2	56.2	48.1	36.3
14:00 - 15:00	72.1	75.0	72.0	66.3	71.3	75.5	68.8	66.6	63.3	56.2	48.2	36.5
15:00 - 16:00	72.4	75.1	72.0	66.5	71.7	75.7	69.0	66.8	63.6	56.9	50.1	39.0
16:00 - 17:00	72.4	75.2	72.0	66.5	71.6	75.7	69.0	66.8	63.6	56.7	48.7	37.5
17:00 - 18:00	72.4	75.2	72.0	66.6	71.6	75.7	69.0	66.9	63.6	56.6	48.5	37.0
18:00 - 19:00	72.6	80.2	72.0	66.5	71.7	75.8	69.4	67.2	63.8	56.8	48.8	37.1
19:00 - 20:00	72.8	87.7	72.0	66.7	71.9	75.8	69.5	67.2	64.0	58.3	51.1	38.6
20:00 - 21:00	72.5	76.1	72.0	66.7	71.8	75.8	69.2	67.0	63.7	56.8	49.0	37.6
21:00 - 22:00	71.8	78.4	71.0	66.0	70.5	74.5	68.7	66.4	63.1	56.2	48.0	36.3
22:00 - 23:00	46.8	55.0	43.0	53.6	44.6	40.9	42.3	45.0	36.7	22.6	12.4	11.7

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	46.4	60.1	42.0	52.3	42.7	39.5	42.5	44.5	36.1	21.9	12.3	10.7
23:15 - 23:30	45.8	54.7	40.0	51.9	41.8	39.2	41.3	44.0	35.5	22.1	12.5	10.4
23:30 - 23:45	45.9	59.2	40.0	54.7	50.2	44.8	41.8	43.1	35.3	23.5	13.6	10.0
23:45 - 00:00	44.1	53.4	38.0	50.4	41.4	36.9	39.8	42.2	33.8	20.1	11.4	10.3
00:00 - 00:15	43.0	53.5	37.0	49.2	41.0	35.1	38.7	41.1	33.1	19.7	11.4	9.6
00:15 - 00:30	40.7	53.0	28.0	49.4	37.1	33.6	36.4	38.7	30.8	17.3	11.1	9.5
00:30 - 00:45	41.8	55.2	36.0	46.2	37.9	34.4	37.2	40.0	31.9	18.6	11.5	10.0
00:45 - 01:00	41.8	52.3	33.0	48.5	42.7	35.5	37.4	39.6	32.3	18.8	13.3	12.2
01:00 - 01:15	41.0	52.0	31.0	44.4	36.1	31.5	34.6	39.4	32.2	18.0	11.5	10.8
01:15 - 01:30	39.4	49.0	27.0	49.1	39.7	32.3	36.6	36.9	28.7	17.2	11.5	10.1
01:30 - 01:45	39.0	49.7	28.0	48.2	36.3	33.5	35.2	36.7	28.9	17.4	11.0	9.3
01:45 - 02:00	39.5	49.2	32.0	48.9	38.2	33.4	35.5	37.4	29.2	16.7	10.9	9.3
02:00 - 02:15	39.0	51.4	32.0	45.7	35.6	31.2	34.4	37.1	29.2	17.1	11.0	9.1
02:15 - 02:30	38.5	53.6	26.0	44.4	43.6	41.3	33.1	35.2	27.2	14.9	10.7	9.1
02:30 - 02:45	40.4	51.4	30.0	48.1	38.2	37.5	36.9	37.9	30.4	19.0	11.6	9.1
02:45 - 03:00	41.2	50.6	32.0	50.0	37.1	33.9	37.7	39.1	31.2	18.9	11.3	9.3
03:00 - 03:15	38.1	52.6	27.0	44.9	34.1	29.7	33.8	36.2	27.8	16.4	11.1	9.3
03:15 - 03:30	39.0	51.5	26.0	49.4	35.1	30.4	34.2	37.1	29.0	16.7	11.1	9.2
03:30 - 03:45	38.5	53.2	23.0	46.0	33.3	29.4	32.8	36.9	28.8	16.1	11.2	9.4
03:45 - 04:00	43.4	65.6	29.0	46.7	34.1	30.9	35.3	41.1	36.9	27.3	14.8	9.9
04:00 - 04:15	40.5	52.7	33.0	47.1	35.2	31.3	35.8	38.6	30.8	18.1	12.4	10.9
04:15 - 04:30	39.7	49.0	30.0	50.0	38.4	31.9	35.3	37.7	29.6	17.6	12.8	12.0
04:30 - 04:45	42.3	51.3	36.0	51.2	38.1	33.3	37.4	40.5	32.6	20.1	14.1	21.7
04:45 - 05:00	43.3	55.8	38.0	51.1	39.9	35.3	38.9	41.3	33.7	22.1	14.0	11.6
05:00 - 05:15	44.9	64.9	38.0	51.5	42.2	37.0	41.9	42.4	35.9	23.4	15.5	11.5
05:15 - 05:30	46.4	62.4	41.0	55.7	46.9	42.3	42.5	43.6	37.8	25.2	15.0	10.4
05:30 - 05:45	47.4	59.5	42.0	55.6	43.6	38.8	42.8	45.0	39.3	27.6	19.3	12.3
05:45 - 06:00	48.6	60.5	46.0	55.9	46.6	40.2	43.7	46.5	40.0	28.3	19.1	10.6
06:00 - 06:15	50.1	61.8	47.0	58.7	52.1	45.5	45.4	47.6	41.1	29.0	17.6	10.5
06:15 - 06:30	50.0	60.3	47.0	58.6	49.6	42.2	44.9	47.9	40.8	29.7	17.5	10.7
06:30 - 06:45	51.4	68.2	48.0	59.1	51.7	44.7	47.2	49.0	42.1	33.2	28.3	17.2
06:45 - 07:00	51.1	62.4	49.0	60.0	50.5	42.9	47.0	48.8	41.9	30.6	19.7	12.1



12 APPENDIX C – WEATHER CONDITIONS

12.1 27th – 31st July 2023



27th – 31st July 2023

13 APPENDIX D – BS 4142:2019+A1:2019 INFORMATION

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

13.1 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	
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.	

13.2 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

13.3 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 Roof	1.5m
Reflective Surfaces	None (Free Field)
Distance to NSP	5m
Distance to Source	1m
Topographical Change (m)	None
Ground between Source and Receiver	100% Hard ground from kitchen extract and plant to residential directly above
Windshield Information	Norsonic Outdoor Microphone Protection Kit Model No: 1212
Distance from Proposed Source to Receiver	5m
NSP* - Noise Sensitive Premises	

END OF REPORT