

REPORT REFERENCE:

SA – 8210

NOISE IMPACT ASSESSMENT

EXTENSION OF HOURS

British Standard 4142:2014+A1:2019

CLIENT:

Fatjack's

SITE:

2 Ivel Court,
Letchworth Garden City,
Hertfordshire,
SG6 2NH

SURVEY DATE:

1st – 6th November 2018

Report By



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1 EXECUTIVE SUMMARY

1.1 Instruction

Sound Advice Acoustics Ltd have been instructed by Fatjack's to undertake a background noise survey at the existing premises at 2 Ivel Court, Letchworth Garden City, Hertfordshire, SG6 2NH to understand the level of impact at the existing site in relation to extending the operational time to 1am, 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:

- Previously Recorded noise levels at the residential façade (L_{A90});
- Noise levels from the Installed Plant (L_{Aeq});
- Impact on the nearest noise sensitive property.

1.3 Measured Background Noise Levels

Continuous background noise measurements were undertaken between the 1st and 6th November 2018 at the Assessment Position 1. The day time background noise levels between 07:00 and 23:00 was found to be $L_{A90,1 \text{ hour}}$ 57 dB and the night time background noise level between 23:00 and 07:00 found to be $L_{A90,15 \text{ MIN}}$ 43 dB between the hours of 11pm to 1am at the assessment position. This background noise level has been assessed during daytime and night time hours, as it is proposed to extend the operational hours until 1am. It has been agreed in writing by Mr Alan Stone, Senior Environmental Protection & Housing Officer to use the noise data that was recorded by Sound Advice Acoustics Ltd in November 2018 in order to carry out this assessment.

Daytime Equivalent Existing Background Noise Levels 5 days (07:00 – 23:00)	Measured Levels at Assessment Position 1	$L_{A90, t}$ 51 dB
Night time Equivalent Existing Background Noise Levels 5 days (23:00 – 07:00)	Measured Levels at Assessment Position 1	$L_{A90, t}$ 43 dB

1.3.1 Night time Hours (23.00 – 01:00)

	1 st November	2 nd November	3 rd November	4 th November	5 th November
	L _{A90} , t dB	L _{A90} , t dB	L _{A90} , t dB	L _{A90} , t dB	L _{A90} , t dB
23:00 – 23:15	50.0	52.0	56.0	47.0	48.0
23:15 – 23:30	48.0	50.0	52.0	46.0	48.0
23:30 – 23:45	47.0	48.0	50.0	47.0	48.0
23:45 – 00:00	47.0	48.0	50.0	46.0	46.0
00:00 – 00:15	49.0	47.0	50.0	45.0	46.0
00:15 – 00:30	47.0	47.0	49.0	46.0	44.0
00:30 – 00:45	46.0	47.0	48.0	43.0	44.0
00:45 – 01:00	47.0	46.0	48.0	44.0	44.0

1.4 Installed Plant

The following four units of plant have been installed on the rear roof and detailed in both this report and the 3D model.

The kitchen extract will only operate during daytime hours (07:00 – 23:00) and night time hours (23:00 – 01:00)

FLAKTWOODS 45JM/16/4/8/32-BT9		Octave Band Centre Frequency (Hz)							
	L _{Aeq}	63	125	250	500	1.0k	2.0k	4.0k	8.0k
Sound Pressure Level at 3m (L _p @ 3m)	55.0	43.9	45.9	49.9	51.9	50.9	47.9	42.9	35.9
Sound Power Level (L _w dB)	75.5	64.4	66.4	70.4	72.4	71.4	68.4	63.4	56.4

In order to ensure compliance with BS 4142: 2014+A1: 2019, the following attenuation measures have been introduced.

1. An attenuator after the fan unit that achieves the following minimum static insertion loss values.
2. Encase the fan unit itself within an acoustic box that achieves the following minimum static insertion loss values.

ATTENUATION LEVELS REQUIRED	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1.0k	2.0k	4.0k	8.0k
ATTENUATOR AFTER FAN UNIT	-4.0	-6.0	-11.0	-19.0	-24.0	-23.0	-18.0	-12.0
FAN CASING	-18.0	-24.0	-26.0	-31.0	-35.0	-39.0	-42.0	-37.0

1.5 Assessment

1.5.1 Daytime (07:00 – 23:00) Assessment

Rating Level	28 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,1 \text{ hour}}$	51 dB	8.1	Modal Background Noise Level (07:00 – 23:00)
Assessment Level	-23 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	-23 dB		
Conclusion	The assessment level is 'Low Impact'		

1.5.2 Night Time (23:00 – 01:00) Assessment

Rating Level	28 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 (23:00 – 01:00)
Assessment Level	-15 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	-15 dB		
Conclusion	The assessment level is 'Low Impact'		

1.6 Conclusions

The operation of the installed kitchen extract has been assessed to establish if the proposed extension of hours 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 façade to the installed kitchen extract and the assessment of the impact of the operation on nearby residential properties directly above. 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.

1.7 NPPF 2024

National Planning Policy Framework 2024 suggests that planning permission should be granted for the extension in hours 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.

1.8 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 extension of hours can demonstrate compliance with the National Planning Policy Framework 2024, NPPF & NPSE and that, with regards to sound, planning permission should be granted for the extension of hours.

2 INTRODUCTION

2.1 Instruction

Sound Advice Acoustics Ltd have been instructed by Fatjack's to undertake a background noise survey at the existing premises at 2 Ivel Court, Letchworth Garden City, Hertfordshire, SG6 2NH to understand the level of impact at the existing site in relation to extending the operational time to 1am, 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 installed kitchen extract system. Noise sensitive premises are not restricted to residential dwellings as offices can be affected by unwanted external noise. However, the residential accommodation directly above the site have been identified as the nearest noise sensitive and therefore all calculations and assessments are to be made to these positions.

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 proposed acoustic impact the extension of hours could have on the nearest affected residential and make suitable recommendations in order to demonstrate that the kitchen extract will not have a significant and demonstrable adverse impact on the nearest noise sensitive premises in accordance with the National Planning Policy Framework. BS 4142:2014+A1:2019 supersedes the 2014 version and has been developed to move more in-line with The National Planning Policy Framework 2024 (NPPF) and the Noise Policy Statement for England 2010 (NPSE).

2.4 National Planning Policy Framework 2024 & Noise Policy Statement for England 2010

References and evaluations are to be made to the National Planning Policy Framework 2024 (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

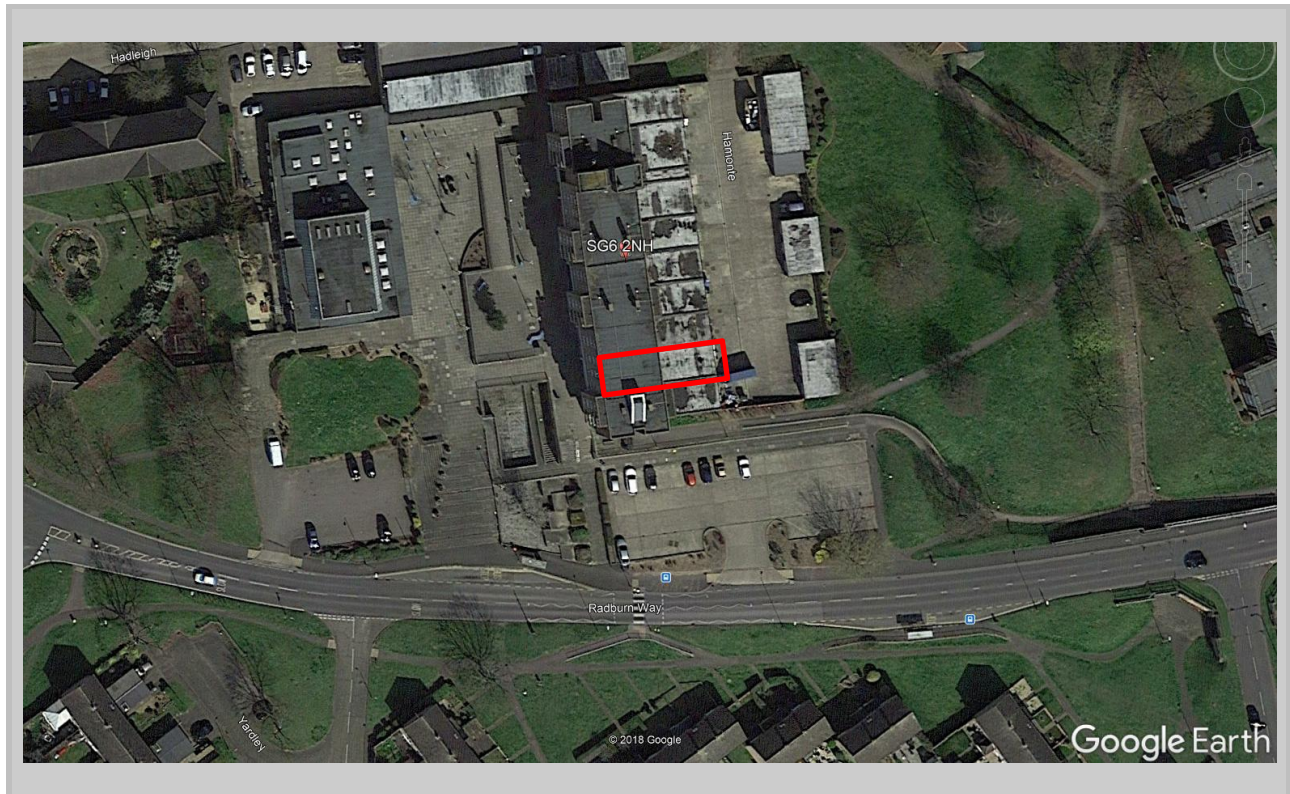
This is the level above which significant adverse effects on health and quality of life occur.

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 at 2 Ivel Court, Letchworth Garden City along with various other commercial units with residential flats above.



3.2 Assessment Position and Background Position

Continuous measurement was undertaken at the assessment position between 1st – 6th November 2018. Measurement was undertaken at 1st floor level at the representative nearest noise sensitive premises / receptor in accordance with ISO1996 part 2: 2017.



4 RESULTS

4.1 Downloaded results, and averages

4.1.1 07:00 – 07:00 on 1st – 2nd November 2018

NOISE LEVEL SUMMARY ASSESSMENT			Octave Band Centre Frequency (Hz)									
Date / Time	LAeq	LA90	31.5	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	61.0	56.0	64.0	66.0	61.0	61.0	55.0	54.0	54.0	56.0	41.0	29.0
NIGHT TIME 23:00 - 07:00 LA90 15 MINS & Corresponding LAeq 15 MINS	53.0	47.0	52.0	55.0	52.0	58.0	47.0	45.0	44.0	39.0	21.0	12.0

4.1.2 07:00 – 07:00 on 2nd - 3rd November 2018

NOISE LEVEL SUMMARY ASSESSMENT			Octave Band Centre Frequency (Hz)									
Date / Time	LAeq	LA90	31.5	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	57.0	51.0	63.0	66.0	61.0	58.0	54.0	51.0	49.0	46.0	30.0	16.0
NIGHT TIME 23:00 - 07:00 LA90 15 MINS & Corresponding LAeq 15 MINS	51.0	46.0	53.0	55.0	52.0	53.0	47.0	46.0	42.0	38.0	23.0	13.0

4.1.3 07:00 – 07:00 on 3rd - 4th November 2018

NOISE LEVEL SUMMARY ASSESSMENT			Octave Band Centre Frequency (Hz)									
Date / Time	LAeq	LA90	31.5	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	62.0	55.0	64.0	65.0	63.0	64.0	60.0	56.0	53.0	52.0	37.0	24.0
NIGHT TIME 23:00 - 07:00 LA90 15 MINS & Corresponding LAeq 15 MINS	53.0	48.0	58.0	57.0	56.0	53.0	48.0	46.0	44.0	45.0	34.0	22.0

4.1.4 07:00 – 07:00 on 4th - 5th November 2018

NOISE LEVEL SUMMARY ASSESSMENT			Octave Band Centre Frequency (Hz)									
Date / Time	LAeq	LA90	31.5	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	59.0	54.0	60.0	62.0	59.0	59.0	56.0	54.0	50.0	46.0	31.0	18.0
NIGHT TIME 23:00 - 07:00 LA90 15 MINS & Corresponding LAeq 15 MINS	52.0	42.0	54.0	56.0	51.0	52.0	49.0	49.0	43.0	38.0	22.0	13.0

4.1.5 07:00 – 07:00 on 5th – 6th November 2018

NOISE LEVEL SUMMARY ASSESSMENT			Octave Band Centre Frequency (Hz)									
Date / Time	LAeq	LA90	31.5	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	61.0	55.0	64.0	67.0	61.0	62.0	59.0	56.0	53.0	50.0	34.0	21.0
NIGHT TIME 23:00 - 07:00 LA90 15 MINS & Corresponding LAeq 15 MINS	53.0	44.0	54.0	57.0	53.0	53.0	50.0	49.0	43.0	38.0	22.0	12.0

Continuous background noise measurements were undertaken between the 1st and 6th November 2018 at the Assessment Position 1. The day time background noise levels between 07:00 and 23:00 was found to be $L_{A90,1 \text{ hour}}$ 57 dB and the night time background noise level between 23:00 and 07:00 found to be $L_{A90,15 \text{ MIN}}$ 43 dB between the hours of 11pm to 1am at the assessment position. This background noise level has been assessed during daytime and night time hours, as it is proposed to extend the operational hours until 1am. It has been agreed in writing by Mr Alan Stone, Senior Environmental Protection & Housing Officer to use the noise data that was recorded by Sound Advice Acoustics Ltd in November 2018 in order to carry out this assessment.

Daytime Equivalent Existing Background Noise Levels 5 days (07:00 – 23:00)	Measured Levels at Assessment Position 1	$L_{A90, t}$ 51 dB
Night time Equivalent Existing Background Noise Levels 5 days (23:00 – 07:00)	Measured Levels at Assessment Position 1	$L_{A90, t}$ 43 dB

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 – Rear of Site

Description	Make	Type	Serial No.	Calibration Intervals	Last Calibrated	Next Due Calibration
Integrated Sound Level Meter	Norsonic	118	31471	2 YEARS	08.08.2018	08.08.2020
12.5mm Microphone (with windshield)	Norsonic	1220	41075	2 YEARS	08.08.2018	08.08.2020
Microphone Pre – Amplifier	Norsonic	1201	30327	2 YEARS	08.08.2018	08.08.2020

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 Installed Plant

The following four units of plant have been installed on the rear roof and detailed in both this report and the 3D model.

The kitchen extract will only operate during daytime hours (07:00 – 23:00) and night time hours (23:00 – 01:00)

FLAKTWOODS 45JM/16/4/8/32-BT9		Octave Band Centre Frequency (Hz)							
	L _{Aeq}	63	125	250	500	1.0k	2.0k	4.0k	8.0k
Sound Pressure Level at 3m (L _p @ 3m)	55.0	43.9	45.9	49.9	51.9	50.9	47.9	42.9	35.9
Sound Power Level (L _w dB)	75.5	64.4	66.4	70.4	72.4	71.4	68.4	63.4	56.4

6.2 Calculations

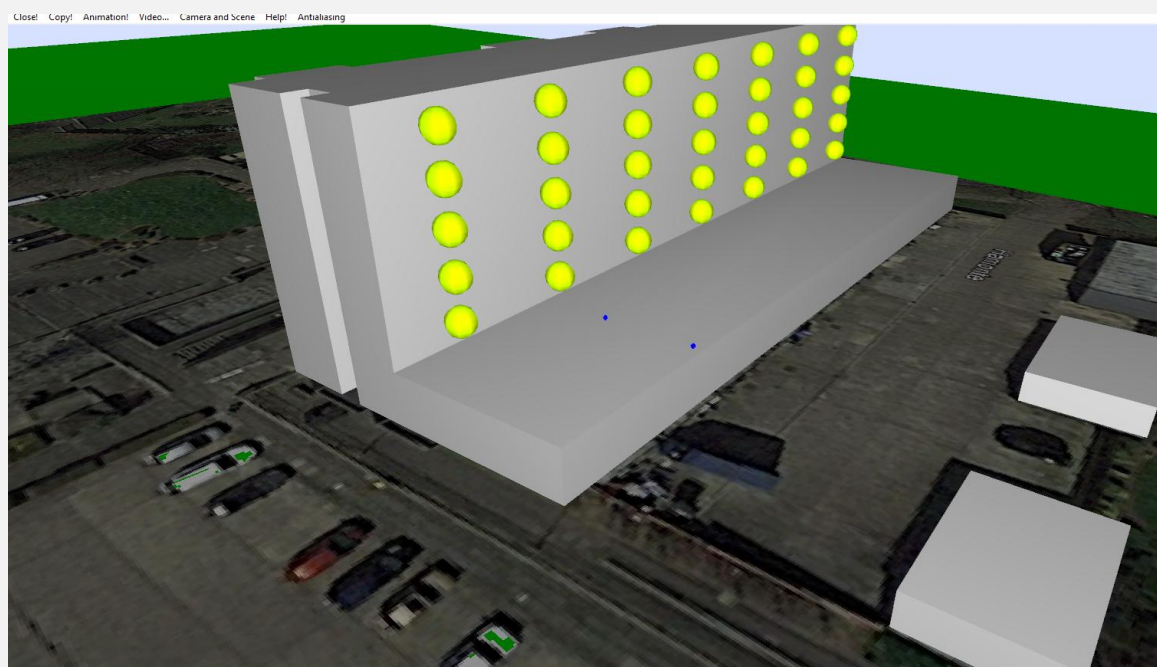
Extract Side	Octave Band Centre Frequency (Hz)								L _w dB
	63	125	250	500	1.0k	2.0k	4.0k	8.0k	
Fan Outlet	64.4	66.4	70.4	72.4	71.4	68.4	63.4	56.4	75.5
Silencer	-4.0	-6.0	-11.0	-19.0	-24.0	-23.0	-18.0	-12.0	
Bend Section	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Duct Length	-3.7	-3.0	-1.5	-0.7	-0.7	-0.7	-0.7	-0.7	
End Reflection Loss	-12.0	-7.0	-3.0	-1.0	0.0	0.0	0.0	0.0	
Directivity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
L _w to L _p Conversion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Calculated Discharge Levels	44.7	50.4	54.9	51.7	46.7	44.7	44.7	43.7	54.1
Case Breakout	Octave Band Centre Frequency (Hz)								L _w dB
	63	125	250	500	1.0k	2.0k	4.0k	8.0k	
Fan Outlet Measured SPL	64.4	66.4	70.4	72.4	71.4	68.4	63.4	56.4	75.5
Panel Attenuation	-18.0	-24.0	-26.0	-31.0	-35.0	-39.0	-42.0	-37.0	
Calculated Discharge Levels	46.4	42.4	44.4	41.4	36.4	29.4	21.4	19.4	42.2

6.3 Inputted Noise Levels

The following noise levels have been inputted in to the 3D acoustic Model in order to calculate the resultant noise levels at the aforementioned assessment position.

Sound Levels (local)														
OK Cancel Copy... Font... Adjust Col. Width Help														
Name	ID	Type	Oktave Spectrum (dB)											Source
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin
Kitchen Extract	KE	Li		0.0	44.7	50.4	54.9	51.7	46.7	44.7	44.7	43.7	54.1	58.6
Extract Fan	EF	Li		0.0	46.4	42.4	44.4	41.4	36.4	29.4	21.4	19.4	42.2	50.3

6.4 Calculated Levels



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

7 BRITISH STANDARD 4142:2014+A1:2019

7.1 Criteria

We have calculated the nearest noise sensitive premises to that of the residential accommodation above with the installed plant being no closer than 6m away.

7.2 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.

7.3 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.

7.4 Assessment Position

The assessment position 1 was established as the residential accommodation above and no closer than 6m from the installed plant.

7.5 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.

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

7.6 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

7.7 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

7.8 Assessments

7.8.1 Daytime (07:00 – 23:00).

Item	Calculation	Clause	Commentary
Specific Noise Level $L_{Aeq,1 \text{ hour}}$	23 dB	7	Calculated using ISO 9613:1996 _[3] .
Tonality	+2 dB	8.1	Tonality Characteristic
Impulsivity	+3 dB	8.1	Impulsive Characteristic
Rating Level	28 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,1 \text{ hour}}$	51 dB	8.1	Modal Background Noise Level
Assessment Level	-23 dB	11	The background level is subtracted from the rating level.
Assessment	-23 dB		
Conclusion	The assessment level is 'Low Impact'		

7.8.2 Night time (23:00 – 07:00).

Item	Calculation	Clause	Commentary
Specific Noise Level $L_{Aeq,15 \text{ MINUTES}}$	23 dB	7	Calculated using ISO 9613:1996 _[3] .
Tonality	+2 dB	8.1	Tonality Characteristic
Impulsivity	+3 dB	8.1	Impulsive Characteristic
Rating Level	28 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,15 \text{ MINUTES}}$	43 dB	8.1	Modal Background Noise Level
Assessment Level	-15 dB	11	The background level is subtracted from the rating level.
Assessment	-15 dB		
Conclusion	The assessment level is 'Low Impact'		

7.9 Assessment Conclusion

The background noise levels were measured at the equivalent position, chosen as it most represented the closest noise sensitive façade, located on the roof between 07:00 on 1st November 2018 and 07:00 on 6th November 2018.

It can be seen from the above assessments that with the installed kitchen extract achieving the proposed maximum noise level criteria detailed within this report, an assessment conclusion of Low Impact could be expected. Therefore, no further mitigation measures would be required in order to extend the operating hours.

8 NPPF & NPSE

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.

9 CONCLUSIONS

9.1 Measured Background Noise Levels

Continuous background noise measurements were undertaken between the 1st and 6th November 2018 at the Assessment Position 1. The day time background noise levels between 07:00 and 23:00 was found to be $L_{A90,1 \text{ hour}}$ 57 dB and the night time background noise level between 23:00 and 07:00 found to be $L_{A90,15 \text{ MIN}}$ 43 dB between the hours of 11pm to 1am at the assessment position. This background noise level has been assessed during daytime and night time hours, as it is proposed to extend the operational hours until 1am. It has been agreed in writing by Mr Alan Stone, Senior Environmental Protection & Housing Officer to use the noise data that was recorded by Sound Advice Acoustics Ltd in November 2018 in order to carry out this assessment.

Daytime Equivalent Existing Background Noise Levels 5 days (07:00 – 23:00)	Measured Levels at Assessment Position 1	$L_{A90, t}$ 51 dB
Night time Equivalent Existing Background Noise Levels 5 days (23:00 – 07:00)	Measured Levels at Assessment Position 1	$L_{A90, t}$ 43 dB

9.1.1 Night time Hours (23.00 – 01:00)

	1 st November	2 nd November	3 rd November	4 th November	5 th November
	$L_{A90, t}$ dB	$L_{A90, t}$ dB	$L_{A90, t}$ dB	$L_{A90, t}$ dB	$L_{A90, t}$ dB
23:00 – 23:15	50.0	52.0	56.0	47.0	48.0
23:15 – 23:30	48.0	50.0	52.0	46.0	48.0
23:30 – 23:45	47.0	48.0	50.0	47.0	48.0
23:45 – 00:00	47.0	48.0	50.0	46.0	46.0
00:00 – 00:15	49.0	47.0	50.0	45.0	46.0
00:15 – 00:30	47.0	47.0	49.0	46.0	44.0
00:30 – 00:45	46.0	47.0	48.0	43.0	44.0
00:45 – 01:00	47.0	46.0	48.0	44.0	44.0

9.2 Installed Plant

The following four units of plant have been installed on the rear roof and detailed in both this report and the 3D model. The kitchen extract will only operate during daytime hours (07:00 – 23:00) and night time hours (23:00 – 01:00)

FLAKTWOODS 45JM/16/4/8/32-BT9		Octave Band Centre Frequency (Hz)							
	L_{Aeq}	63	125	250	500	1.0k	2.0k	4.0k	8.0k
Sound Pressure Level at 3m (L_p @ 3m)	55.0	43.9	45.9	49.9	51.9	50.9	47.9	42.9	35.9
Sound Power Level (L_w dB)	75.5	64.4	66.4	70.4	72.4	71.4	68.4	63.4	56.4

In order to ensure compliance with BS 4142: 2014+A1: 2019, the following attenuation measures have been introduced.

1. An attenuator after the fan unit that achieves the following minimum static insertion loss values.
2. Encase the fan unit itself within an acoustic box that achieves the following minimum static insertion loss values.

ATTENUATION LEVELS REQUIRED	Octave Band Centre Frequency (Hz)							
	63	125	250	500	1.0k	2.0k	4.0k	8.0k
ATTENUATOR AFTER FAN UNIT	-4.0	-6.0	-11.0	-19.0	-24.0	-23.0	-18.0	-12.0
FAN CASING	-18.0	-24.0	-26.0	-31.0	-35.0	-39.0	-42.0	-37.0

9.3 Assessment

9.3.1 Daytime (07:00 – 23:00) Assessment

Rating Level	28 dB	9.1	The acoustic feature correction is added to the specific noise level
Background Noise Level $L_{A90,1 \text{ hour}}$	51 dB	8.1	Modal Background Noise Level (07:00 – 23:00)
Assessment Level	-23 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	-23 dB		
Conclusion	The assessment level is 'Low Impact'		

9.3.2 Night Time (23:00 – 01:00) Assessment

Rating Level	28 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 (23:00 – 01:00)
Assessment Level	-15 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	-15 dB		
Conclusion	The assessment level is 'Low Impact'		

9.4 Conclusions

The operation of the installed kitchen extract has been assessed to establish if the proposed extension of hours 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 façade to the installed kitchen extract and the assessment of the impact of the operation on nearby residential properties directly above. 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.

9.5 NPPF 2024

National Planning Policy Framework 2024 suggests that planning permission should be granted for the extension in hours 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.

9.6 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 extension of hours can demonstrate compliance with the National Planning Policy Framework 2024, NPPF & NPSE and that, with regards to sound, planning permission should be granted for the extension of hours.

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

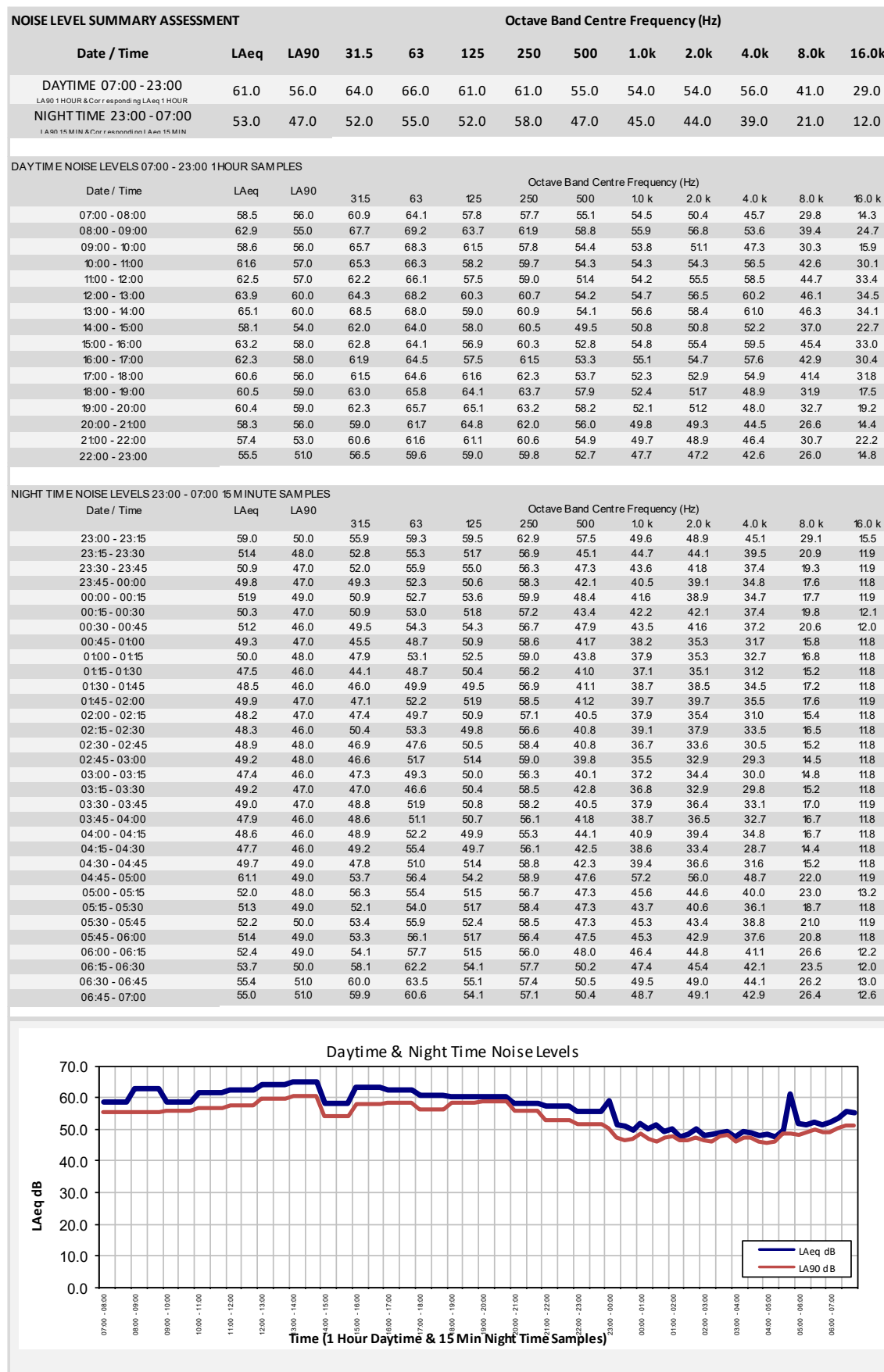
10.5 Combined Reported Expanded Uncertainty

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 1st – 2nd November 2018

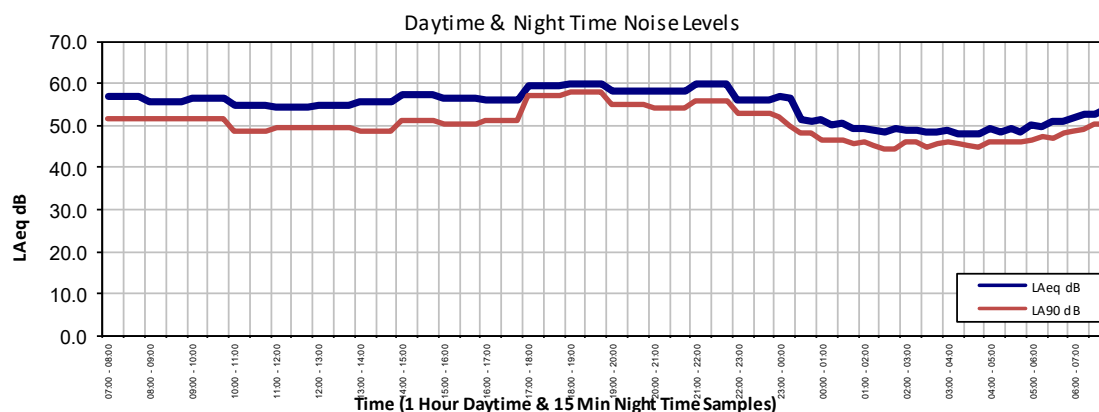


11.2 2nd – 3rd November 2018

NOISE LEVEL SUMMARY ASSESSMENT											
Octave Band Centre Frequency (Hz)											
Date / Time	LAeq	LA90	31.5	63	125	250	500	1.0k	2.0k	4.0k	8.0k 16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	57.0	51.0	63.0	66.0	61.0	58.0	54.0	51.0	49.0	46.0	30.0 16.0
NIGHT TIME 23:00 - 07:00 LA90 15 MIN & Corresponding LAeq 15 MIN	51.0	46.0	53.0	55.0	52.0	53.0	47.0	46.0	42.0	38.0	23.0 13.0

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES											
Octave Band Centre Frequency (Hz)											
Date / Time	LAeq	LA90	31.5	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k 16.0 k
07:00 - 08:00	56.8	52.0	61.3	63.8	57.7	58.6	52.7	50.4	49.5	47.8	33.4 17.4
08:00 - 09:00	55.8	52.0	62.8	66.5	60.3	56.1	52.2	49.6	48.3	44.9	28.0 19.8
09:00 - 10:00	56.5	51.0	63.2	67.7	60.7	56.8	53.8	49.6	48.8	45.5	29.6 14.6
10:00 - 11:00	54.7	49.0	62.8	64.8	57.9	54.2	50.8	48.1	47.5	45.7	30.7 15.4
11:00 - 12:00	54.5	49.0	62.9	67.3	59.4	53.6	50.2	47.9	47.6	44.8	28.5 15.0
12:00 - 13:00	54.9	50.0	64.0	67.2	60.0	55.2	51.3	48.1	47.4	44.0	27.7 13.4
13:00 - 14:00	55.7	49.0	62.5	66.3	59.3	54.8	51.8	49.5	48.4	45.9	29.5 14.4
14:00 - 15:00	57.3	51.0	65.7	68.6	60.9	56.3	53.5	50.0	49.9	49.7	35.8 18.9
15:00 - 16:00	56.6	50.0	64.2	68.3	59.8	56.3	53.5	49.7	49.3	46.4	29.1 13.7
16:00 - 17:00	56.2	51.0	62.7	65.2	57.8	56.3	51.7	50.7	49.5	44.8	27.5 14.5
17:00 - 18:00	59.5	57.0	62.2	65.9	65.4	60.4	57.4	52.8	50.9	46.5	28.4 13.4
18:00 - 19:00	60.0	58.0	62.9	66.4	62.8	60.6	58.2	53.5	51.5	46.5	28.9 16.9
19:00 - 20:00	58.2	55.0	63.1	68.5	62.7	58.5	54.1	52.8	51.0	46.3	27.5 14.3
20:00 - 21:00	58.2	54.0	61.4	62.8	59.7	59.1	55.8	52.4	50.2	45.8	28.7 17.8
21:00 - 22:00	60.0	56.0	59.0	61.9	65.6	60.6	58.9	53.4	50.0	45.3	26.0 15.0
22:00 - 23:00	56.0	53.0	63.7	61.2	59.7	58.5	52.2	50.5	48.2	42.1	25.4 14.4

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES											
Octave Band Centre Frequency (Hz)											
Date / Time	LAeq	LA90	31.5	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	52.0	60.9	60.6	57.6	58.6	52.5	51.2	50.1	46.1	33.1 22.3
23:15 - 23:30	56.4	50.0	56.5	58.0	58.0	58.5	54.1	49.9	47.5	43.3	26.6 14.6
23:30 - 23:45	51.5	48.0	58.0	57.4	54.8	53.9	47.3	47.4	42.5	37.4	21.8 12.6
23:45 - 00:00	51.0	48.0	54.2	54.8	50.1	52.9	46.6	47.1	42.4	37.0	20.5 12.2
00:00 - 00:15	51.5	47.0	56.2	56.0	52.0	52.3	47.9	46.9	43.2	40.0	24.5 13.4
00:15 - 00:30	50.0	47.0	51.3	54.9	51.5	53.1	46.5	45.1	41.1	37.1	23.2 13.6
00:30 - 00:45	50.5	47.0	53.1	54.6	51.1	53.1	45.9	46.0	42.4	37.9	26.9 12.8
00:45 - 01:00	49.1	46.0	49.8	52.5	48.7	53.1	44.9	44.7	39.8	34.2	18.4 11.9
01:00 - 01:15	49.4	46.0	51.4	55.5	50.9	54.1	44.4	44.4	40.3	35.8	18.7 11.9
01:15 - 01:30	48.8	45.0	49.6	52.8	50.1	51.8	44.3	44.3	40.5	35.1	17.7 11.8
01:30 - 01:45	48.6	45.0	51.6	55.5	50.1	51.1	44.8	44.2	39.9	34.4	18.3 11.9
01:45 - 02:00	49.1	45.0	50.9	53.4	49.2	51.4	45.6	44.7	40.5	35.0	17.5 11.8
02:00 - 02:15	48.8	46.0	49.1	51.4	50.4	53.8	45.2	44.1	37.5	32.4	17.3 11.9
02:15 - 02:30	48.8	46.0	51.3	52.7	51.3	53.9	44.9	43.8	38.2	33.8	19.0 12.0
02:30 - 02:45	48.5	45.0	49.4	50.3	48.8	53.0	44.4	43.8	38.2	35.1	21.3 12.5
02:45 - 03:00	48.6	46.0	51.0	51.1	49.8	53.4	44.6	43.6	37.8	36.3	24.2 13.4
03:00 - 03:15	48.8	46.0	50.4	53.0	50.2	53.6	44.1	43.4	39.2	37.1	23.9 13.3
03:15 - 03:30	48.0	46.0	51.3	50.4	50.2	53.6	44.2	42.5	36.4	33.8	20.1 12.3
03:30 - 03:45	48.1	45.0	51.1	52.2	48.9	53.0	44.7	43.5	36.6	32.3	18.5 12.1
03:45 - 04:00	47.9	45.0	49.1	51.8	49.1	52.7	43.9	43.3	37.4	32.8	17.6 12.0
04:00 - 04:15	49.3	46.0	50.0	52.0	50.7	54.6	45.4	44.3	38.6	33.9	17.6 11.9
04:15 - 04:30	48.6	46.0	50.0	51.1	49.6	53.7	45.7	44.2	35.2	28.9	15.8 11.9
04:30 - 04:45	49.3	46.0	50.9	50.7	48.5	53.0	46.6	45.1	37.6	31.3	16.7 11.9
04:45 - 05:00	48.5	46.0	50.6	50.2	49.3	52.8	45.1	44.4	36.3	32.4	19.1 12.1
05:00 - 05:15	50.2	46.0	52.6	58.8	56.7	53.1	45.7	45.5	40.6	37.0	21.0 12.2
05:15 - 05:30	49.8	47.0	51.4	53.1	50.0	52.5	46.3	45.9	39.5	34.7	20.1 12.1
05:30 - 05:45	50.8	47.0	52.6	53.8	48.9	50.6	47.3	47.1	42.2	37.5	21.4 12.2
05:45 - 06:00	50.8	48.0	53.0	54.0	51.0	52.9	47.3	47.1	41.0	35.9	21.0 12.4
06:00 - 06:15	52.0	49.0	53.5	56.6	51.6	53.3	47.6	48.2	43.7	39.1	26.3 12.5
06:15 - 06:30	52.5	49.0	54.9	55.4	52.0	53.9	49.4	48.1	43.4	40.0	24.2 12.9
06:30 - 06:45	52.6	50.0	54.8	55.7	50.5	53.0	48.5	49.3	43.6	37.7	22.0 12.2
06:45 - 07:00	54.0	50.0	55.1	55.6	52.6	53.1	49.2	49.9	47.6	40.6	25.6 12.5

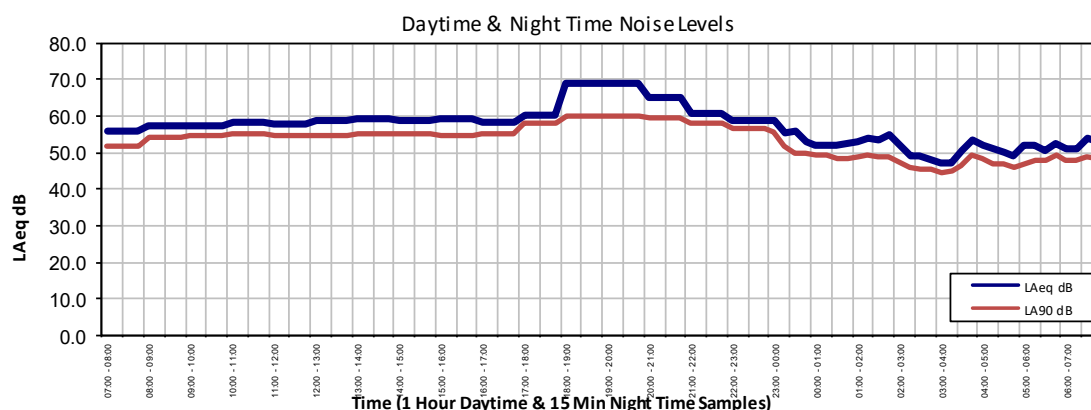


11.3 3rd – 4th November 2018

NOISE LEVEL SUMMARY ASSESSMENT												
Date / Time	LAeq	LA90	31.5	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corrected LAeq 1 HOUR	62.0	55.0	64.0	65.0	63.0	64.0	60.0	56.0	53.0	52.0	37.0	24.0
NIGHT TIME 23:00 - 07:00 LA90 15 MIN & Corrected LAeq 15 MIN	53.0	48.0	58.0	57.0	56.0	53.0	48.0	46.0	44.0	45.0	34.0	22.0

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES												
Date / Time	LAeq	LA90	Octave Band Centre Frequency (Hz)									
			31.5	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	55.9	52.0	60.0	60.7	54.7	54.9	51.9	51.3	48.8	44.2	30.4	15.6
08:00 - 09:00	57.3	54.0	60.0	62.8	56.6	55.1	52.6	53.4	49.6	46.2	32.7	16.3
09:00 - 10:00	57.5	55.0	61.5	64.0	56.0	55.7	52.5	53.5	49.9	47.3	33.6	20.2
10:00 - 11:00	58.4	55.0	63.6	64.5	58.3	57.0	53.6	53.5	50.8	49.9	38.1	24.8
11:00 - 12:00	57.5	55.0	62.7	66.5	57.2	55.9	52.6	53.0	49.9	48.1	35.9	22.1
12:00 - 13:00	58.9	55.0	63.5	65.1	57.3	56.6	53.6	53.6	52.0	50.7	38.2	24.1
13:00 - 14:00	59.1	55.0	65.7	66.8	58.9	58.4	54.7	53.6	51.7	50.6	38.4	25.5
14:00 - 15:00	58.8	55.0	64.3	63.7	57.0	56.2	53.9	53.4	50.6	52.4	39.5	26.1
15:00 - 16:00	59.1	55.0	64.3	65.5	58.9	57.9	54.9	53.8	51.6	50.3	38.9	26.6
16:00 - 17:00	58.4	55.0	62.7	64.8	59.0	58.1	54.9	53.8	50.2	47.2	34.4	21.3
17:00 - 18:00	60.3	58.0	64.8	66.3	61.9	60.3	58.0	54.5	51.4	49.6	37.7	25.9
18:00 - 19:00	69.0	60.0	65.4	65.7	66.2	70.8	67.1	62.1	60.6	56.2	39.9	24.3
19:00 - 20:00	68.7	60.0	63.7	64.7	70.9	71.4	67.1	61.6	57.2	57.9	40.5	24.1
20:00 - 21:00	65.2	59.0	67.3	65.0	66.4	67.7	63.0	57.7	55.6	54.5	36.1	23.4
21:00 - 22:00	60.6	58.0	66.0	62.5	64.7	61.5	59.4	53.1	51.2	48.0	34.0	20.5
22:00 - 23:00	58.5	57.0	60.6	61.6	65.7	59.9	56.8	51.4	48.3	46.1	34.4	23.0

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES												
Date / Time	LAeq	LA90	Octave Band Centre Frequency (Hz)									
			31.5	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	58.9	56.0	63.3	62.1	65.3	59.8	57.1	51.5	49.7	47.0	33.7	21.3
23:15 - 23:30	55.5	52.0	58.1	57.7	55.5	58.2	52.8	49.7	45.4	44.2	33.6	20.6
23:30 - 23:45	55.7	50.0	61.0	64.7	55.1	56.4	51.6	50.2	48.3	44.6	31.7	18.9
23:45 - 00:00	52.7	50.0	56.8	57.8	51.3	53.4	47.9	49.0	44.3	41.4	28.8	15.7
00:00 - 00:15	51.7	50.0	54.7	55.6	51.3	53.2	46.9	48.2	42.7	39.6	27.1	15.0
00:15 - 00:30	52.1	49.0	57.4	55.8	51.6	54.1	47.3	48.0	43.2	41.6	29.9	16.7
00:30 - 00:45	51.8	48.0	57.0	55.1	50.2	51.3	46.4	47.2	43.6	43.9	33.3	19.4
00:45 - 01:00	52.3	48.0	54.9	55.3	51.4	53.1	46.3	47.5	44.6	43.8	31.1	18.3
01:00 - 01:15	53.1	49.0	57.3	54.9	51.3	54.3	48.5	47.2	44.5	45.7	35.6	25.4
01:15 - 01:30	53.9	50.0	59.6	65.3	53.0	55.7	49.6	47.1	44.1	46.9	36.5	25.6
01:30 - 01:45	53.2	49.0	59.2	56.0	51.3	52.7	47.8	46.9	45.1	46.9	36.7	24.9
01:45 - 02:00	54.8	49.0	59.8	57.9	66.8	53.9	46.7	46.0	45.1	47.3	37.2	25.0
02:00 - 02:15	51.7	47.0	56.1	54.2	54.2	55.1	49.2	45.2	41.6	41.7	30.5	17.6
02:15 - 02:30	48.9	46.0	51.9	57.3	49.6	52.9	43.5	43.5	39.5	39.8	28.8	15.8
02:30 - 02:45	48.8	45.0	50.9	55.0	51.5	51.2	43.4	43.6	40.8	38.6	26.4	14.4
02:45 - 03:00	48.0	45.0	51.1	52.9	51.2	51.1	43.1	42.9	39.0	37.9	26.4	14.6
03:00 - 03:15	47.3	45.0	49.4	50.7	48.6	51.8	41.7	41.8	38.4	36.7	23.7	13.3
03:15 - 03:30	47.3	45.0	51.5	50.9	48.5	52.1	42.5	41.0	37.6	38.0	26.4	14.5
03:30 - 03:45	50.4	47.0	57.4	54.4	50.5	52.7	44.7	43.2	41.4	44.3	33.8	21.3
03:45 - 04:00	53.2	50.0	60.9	56.7	51.5	52.2	46.2	44.3	44.7	48.8	38.5	26.8
04:00 - 04:15	51.8	48.0	57.6	51.1	48.6	52.8	45.5	43.6	42.9	46.9	37.1	24.1
04:15 - 04:30	50.8	47.0	60.3	53.1	49.1	52.0	44.3	42.7	41.7	45.9	36.0	24.4
04:30 - 04:45	49.8	47.0	54.8	53.6	50.0	52.4	44.9	43.3	40.3	42.9	32.6	20.3
04:45 - 05:00	49.1	46.0	55.6	53.4	49.6	51.6	43.7	43.1	39.5	42.1	32.1	19.3
05:00 - 05:15	52.0	47.0	59.0	57.3	49.8	51.2	45.8	44.5	42.5	47.5	37.8	24.9
05:15 - 05:30	51.9	48.0	60.6	57.8	57.1	50.8	45.4	44.5	42.8	46.8	36.5	22.6
05:30 - 05:45	50.5	48.0	55.0	51.3	51.2	50.3	45.2	44.7	41.6	44.1	33.4	20.2
05:45 - 06:00	52.4	49.0	58.5	53.4	49.8	51.6	46.5	45.4	43.8	47.1	36.6	23.0
06:00 - 06:15	51.2	48.0	55.9	52.1	48.8	49.6	45.8	45.1	43.0	45.3	34.1	20.0
06:15 - 06:30	50.8	48.0	54.3	52.7	50.6	50.8	45.8	45.6	42.2	43.5	32.5	19.1
06:30 - 06:45	53.7	49.0	60.0	56.6	54.5	54.0	50.2	47.1	44.9	46.5	36.8	24.2
06:45 - 07:00	53.0	48.0	53.6	53.1	50.1	50.1	47.0	47.5	47.6	43.7	31.4	18.7



11.4 4th – 5th November 2018

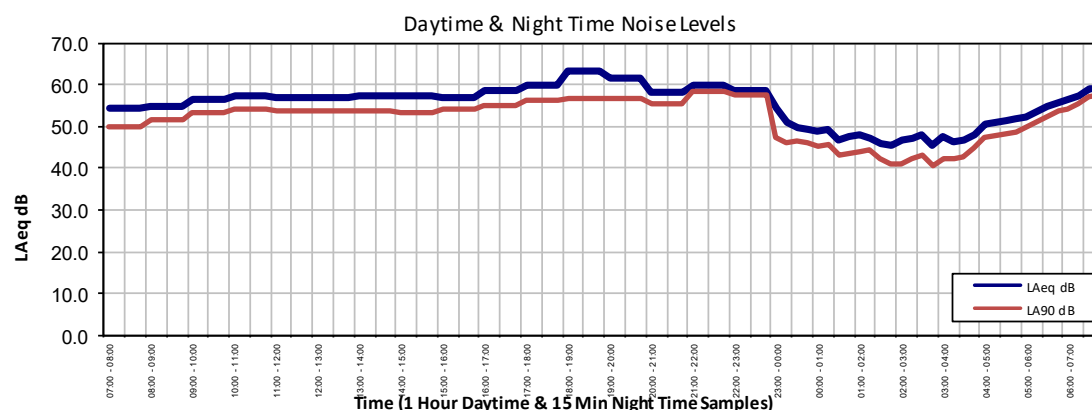
NOISE LEVEL SUMMARY ASSESSMENT												
Date / Time	LAeq	LA90	31.5	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	59.0	54.0	60.0	62.0	59.0	59.0	56.0	54.0	50.0	46.0	31.0	18.0
NIGHT TIME 23:00 - 07:00 LA90 15 MIN & Corresponding LAeq 15 MIN	52.0	42.0	54.0	56.0	51.0	52.0	49.0	49.0	43.0	38.0	22.0	13.0

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES

Date / Time	LAeq	LA90	Octave Band Centre Frequency (Hz)									
			31.5	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	54.4	50.0	56.1	56.1	52.7	53.4	49.0	49.2	48.2	44.7	30.7	16.4
08:00 - 09:00	54.8	51.0	57.2	57.7	53.6	54.0	51.0	50.6	46.7	44.1	31.8	18.7
09:00 - 10:00	56.6	53.0	58.1	59.8	55.0	55.9	52.7	52.5	48.5	45.4	32.7	19.4
10:00 - 11:00	57.4	54.0	59.2	61.1	56.1	55.4	52.7	53.4	50.3	45.7	31.5	18.5
11:00 - 12:00	56.9	54.0	59.3	61.7	55.0	55.3	52.7	53.3	49.1	44.3	29.9	16.6
12:00 - 13:00	56.9	54.0	60.1	62.8	56.2	55.5	52.5	53.3	48.8	44.9	31.1	22.2
13:00 - 14:00	57.2	54.0	61.0	63.5	56.4	54.9	52.3	53.4	49.8	45.9	32.5	18.9
14:00 - 15:00	57.2	53.0	61.6	62.8	57.0	55.5	52.8	53.1	49.4	46.5	32.9	17.3
15:00 - 16:00	57.0	54.0	62.6	63.3	56.5	55.0	52.4	53.6	49.1	44.3	29.0	14.2
16:00 - 17:00	58.6	55.0	59.8	63.6	59.7	58.1	55.4	54.5	50.4	45.2	27.5	13.4
17:00 - 18:00	59.6	56.0	60.0	62.6	59.4	59.4	56.9	55.3	51.2	46.0	27.5	14.5
18:00 - 19:00	63.3	56.0	60.0	62.3	60.2	64.5	62.6	56.9	53.4	49.5	29.9	16.7
19:00 - 20:00	61.6	57.0	60.2	62.0	62.9	62.3	59.9	55.7	52.5	50.2	29.7	15.2
20:00 - 21:00	58.3	56.0	60.8	61.5	61.8	59.4	56.1	52.7	49.1	45.0	28.2	16.0
21:00 - 22:00	59.7	58.0	57.4	61.0	61.6	63.0	56.8	52.2	49.9	45.5	29.4	17.0
22:00 - 23:00	58.7	57.0	56.4	59.7	60.5	61.9	56.2	51.1	48.4	44.6	28.9	17.2

NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES

Date / Time	LAeq	LA90	Octave Band Centre Frequency (Hz)									
			31.5	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	54.4	47.0	55.9	57.4	55.6	55.0	51.6	48.2	46.4	43.3	29.1	17.7
23:15 - 23:30	50.9	46.0	51.9	53.1	50.8	51.8	47.6	46.5	42.3	38.1	21.8	12.5
23:30 - 23:45	49.6	47.0	50.2	52.7	49.0	51.5	46.6	46.3	38.0	32.2	19.4	12.3
23:45 - 00:00	49.3	46.0	51.8	55.1	49.9	51.4	45.6	45.7	39.0	33.4	18.3	12.1
00:00 - 00:15	49.0	45.0	51.2	51.6	47.4	48.8	45.9	45.3	39.5	35.1	20.1	12.4
00:15 - 00:30	49.1	46.0	51.5	51.9	48.2	49.7	45.6	45.7	39.1	34.9	20.8	12.5
00:30 - 00:45	46.9	43.0	49.5	51.4	49.2	49.1	43.6	42.8	36.0	33.2	20.5	12.3
00:45 - 01:00	47.4	44.0	50.2	53.4	49.7	47.0	44.0	43.5	37.1	36.2	24.8	15.9
01:00 - 01:15	47.8	44.0	55.1	51.2	46.6	49.5	44.7	42.5	37.5	38.7	27.2	16.6
01:15 - 01:30	47.1	44.0	52.5	51.2	49.2	48.9	43.3	41.6	37.7	38.1	26.3	16.3
01:30 - 01:45	46.0	42.0	48.8	51.1	49.3	48.1	42.9	41.4	36.3	32.4	19.4	13.1
01:45 - 02:00	45.6	41.0	47.1	49.4	47.6	47.8	42.6	41.7	34.8	29.6	15.3	11.8
02:00 - 02:15	46.8	41.0	52.5	52.7	48.6	48.6	44.8	42.7	34.5	30.0	15.6	11.9
02:15 - 02:30	47.3	42.0	49.5	53.1	50.0	48.1	44.8	43.3	36.9	31.8	17.6	12.1
02:30 - 02:45	47.8	43.0	48.7	52.1	49.0	47.9	45.5	44.3	36.8	32.2	16.0	11.8
02:45 - 03:00	45.5	41.0	46.3	46.4	46.4	47.0	43.2	41.7	34.4	27.5	13.3	11.8
03:00 - 03:15	47.4	42.0	49.5	55.1	49.9	49.3	44.4	43.1	37.2	33.8	17.5	11.8
03:15 - 03:30	46.1	42.0	46.5	50.9	49.0	47.7	42.7	42.4	36.2	30.5	14.5	11.8
03:30 - 03:45	46.8	43.0	50.5	51.7	46.0	48.6	44.7	42.9	35.0	29.6	14.4	11.8
03:45 - 04:00	48.2	45.0	48.1	52.3	48.6	52.0	45.0	44.0	37.3	31.2	15.4	11.8
04:00 - 04:15	50.5	48.0	52.8	54.2	50.7	53.1	47.7	46.8	39.2	34.1	19.5	12.6
04:15 - 04:30	51.0	48.0	53.4	52.2	49.2	51.6	48.5	47.9	39.1	34.1	20.2	12.5
04:30 - 04:45	51.5	48.0	53.4	53.1	47.7	52.7	49.1	47.8	40.3	35.9	22.3	13.0
04:45 - 05:00	51.9	49.0	54.7	54.1	51.2	51.6	49.4	48.6	41.3	35.2	21.5	12.5
05:00 - 05:15	52.2	50.0	52.9	54.8	51.2	51.1	49.1	49.2	42.1	36.7	21.2	12.5
05:15 - 05:30	53.5	51.0	54.4	58.3	53.3	51.5	50.9	50.4	43.1	36.5	19.8	12.3
05:30 - 05:45	54.8	53.0	54.8	58.8	52.0	52.4	51.1	51.8	45.9	40.4	22.2	12.2
05:45 - 06:00	55.6	54.0	55.4	57.4	52.8	53.4	52.1	52.8	46.1	39.6	21.9	12.2
06:00 - 06:15	56.5	54.0	56.8	58.3	52.2	54.6	53.1	53.7	46.6	40.4	24.7	12.4
06:15 - 06:30	57.4	56.0	59.6	61.3	52.7	54.6	53.7	54.6	48.4	42.6	24.5	12.5
06:30 - 06:45	59.1	57.0	61.1	64.2	55.8	57.7	55.3	55.9	50.9	44.4	26.8	12.7
06:45 - 07:00	59.2	58.0	60.4	62.0	55.5	57.0	55.5	56.5	49.8	42.8	27.7	12.4



11.5 5th – 6th November 2018

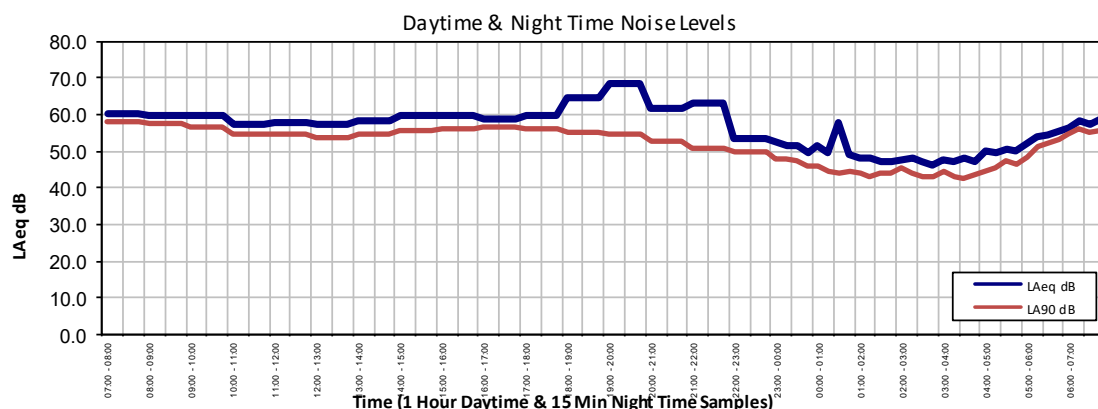
NOISE LEVEL SUMMARY ASSESSMENT												
Date / Time	LAeq	LA90	31.5	63	125	250	500	1.0k	2.0k	4.0k	8.0k	16.0k
DAYTIME 07:00 - 23:00 LA90 1 HOUR & Corresponding LAeq 1 HOUR	61.0	55.0	64.0	67.0	61.0	62.0	59.0	56.0	53.0	50.0	34.0	21.0
NIGHT TIME 23:00 - 07:00 LA90 15 MIN & Corresponding LAeq 15 MIN	53.0	44.0	54.0	57.0	53.0	53.0	50.0	49.0	43.0	38.0	22.0	12.0

DAYTIME NOISE LEVELS 07:00 - 23:00 1 HOUR SAMPLES

Date / Time	LAeq	LA90	Octave Band Centre Frequency (Hz)									
			31.5	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
07:00 - 08:00	59.9	58.0	62.0	64.4	57.5	58.0	55.9	56.8	51.2	46.2	32.0	13.6
08:00 - 09:00	59.8	57.0	65.0	67.6	59.3	58.1	56.1	55.6	51.7	49.3	36.0	21.1
09:00 - 10:00	59.5	57.0	68.4	69.0	61.8	58.9	56.8	54.3	50.9	48.7	34.5	17.9
10:00 - 11:00	57.1	55.0	62.7	65.5	59.1	56.9	53.6	52.9	48.5	45.1	31.1	17.6
11:00 - 12:00	57.8	55.0	65.4	68.1	60.9	57.1	55.0	52.7	49.4	46.0	30.3	18.5
12:00 - 13:00	57.1	54.0	64.9	67.5	60.4	56.3	53.5	52.4	49.2	44.9	28.7	14.3
13:00 - 14:00	58.3	55.0	63.4	66.5	60.2	57.9	55.4	53.8	49.6	46.2	30.1	16.8
14:00 - 15:00	59.8	56.0	66.5	69.5	61.7	57.7	56.0	54.2	53.2	48.8	34.9	24.0
15:00 - 16:00	59.7	56.0	65.7	69.1	62.4	59.1	56.6	54.8	51.5	48.0	32.4	18.7
16:00 - 17:00	58.9	56.0	62.7	65.5	57.7	56.8	55.1	55.5	50.2	46.3	29.7	14.1
17:00 - 18:00	59.7	56.0	63.1	65.7	58.5	57.8	57.4	55.6	50.9	46.1	27.8	13.9
18:00 - 19:00	64.7	55.0	62.7	65.6	62.5	67.3	61.5	57.6	56.2	54.0	37.7	18.9
19:00 - 20:00	68.3	54.0	61.3	64.8	63.8	70.5	67.4	60.5	58.7	54.6	37.1	18.0
20:00 - 21:00	61.6	53.0	59.2	64.4	62.1	59.4	59.4	55.5	53.9	51.8	37.9	30.1
21:00 - 22:00	63.0	51.0	59.8	62.1	58.5	57.6	62.1	57.0	54.0	52.9	32.8	16.5
22:00 - 23:00	53.3	50.0	54.6	58.0	52.9	52.9	49.8	50.0	44.1	37.8	20.4	12.0

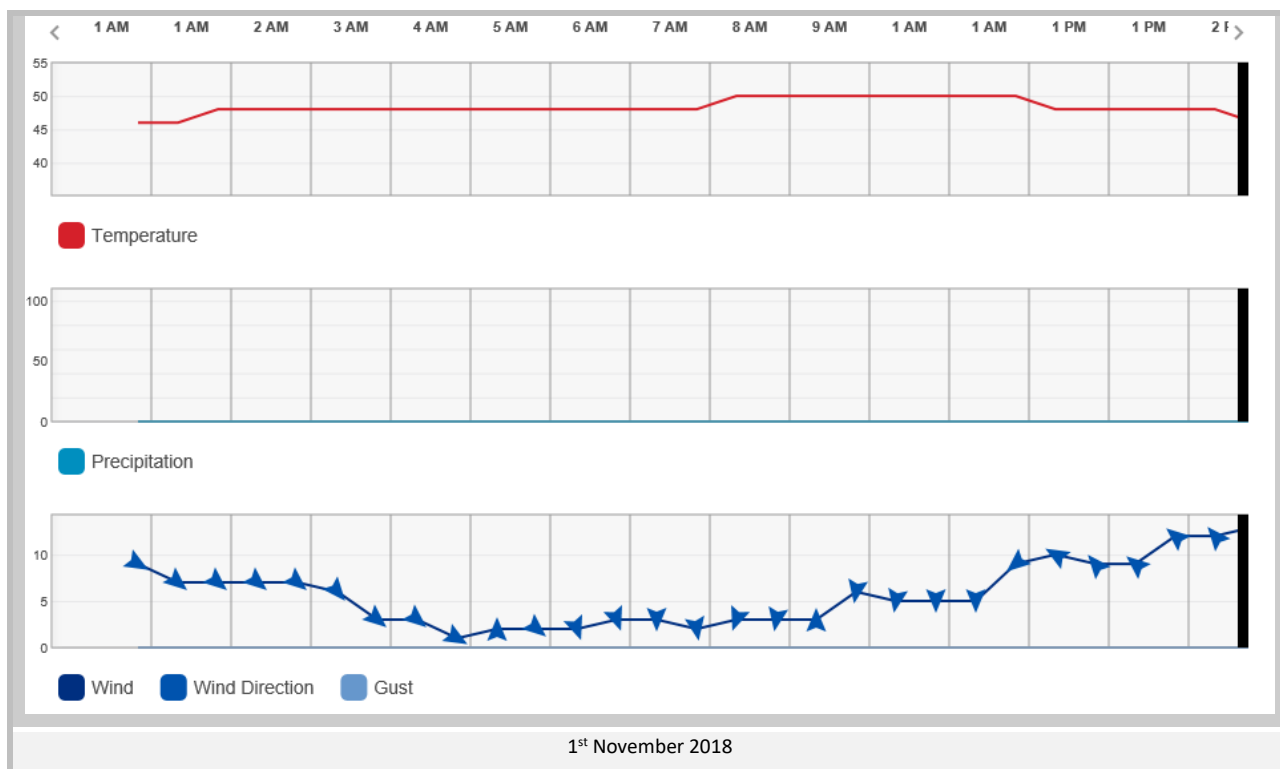
NIGHT TIME NOISE LEVELS 23:00 - 07:00 15 MINUTE SAMPLES

Date / Time	LAeq	LA90	Octave Band Centre Frequency (Hz)									
			31.5	63	125	250	500	1.0 k	2.0 k	4.0 k	8.0 k	16.0 k
23:00 - 23:15	52.6	48.0	56.9	56.8	51.1	50.3	48.6	49.0	44.8	39.8	24.7	13.9
23:15 - 23:30	51.4	48.0	53.1	56.7	51.1	52.3	48.6	47.6	41.7	35.4	18.1	11.9
23:30 - 23:45	51.4	48.0	51.8	55.3	50.6	52.4	47.2	47.7	42.9	37.4	18.8	11.9
23:45 - 00:00	49.3	46.0	52.0	53.2	49.8	51.1	46.3	45.8	38.3	32.4	16.4	11.9
00:00 - 00:15	51.5	46.0	51.9	54.3	53.5	54.7	50.5	46.1	38.6	32.0	16.6	11.9
00:15 - 00:30	49.4	44.0	51.8	56.5	50.2	51.7	46.6	45.2	38.9	33.5	18.1	12.0
00:30 - 00:45	57.8	44.0	53.0	60.4	61.4	60.6	58.0	47.7	46.1	41.2	24.7	13.3
00:45 - 01:00	48.9	44.0	51.0	51.2	48.5	49.1	46.7	45.2	38.2	32.7	17.5	12.0
01:00 - 01:15	48.0	44.0	48.8	50.2	47.9	50.4	45.1	43.8	37.8	33.3	19.2	12.2
01:15 - 01:30	48.3	43.0	52.1	53.7	52.2	51.5	45.4	43.0	37.8	34.6	21.4	12.5
01:30 - 01:45	47.2	44.0	51.3	49.0	50.1	49.2	44.3	41.6	37.0	37.1	25.4	15.5
01:45 - 02:00	46.9	44.0	49.4	48.0	48.7	49.8	43.7	41.2	36.9	37.0	25.1	13.7
02:00 - 02:15	47.7	46.0	54.1	50.5	50.1	51.7	43.9	41.6	37.7	37.8	26.1	14.9
02:15 - 02:30	48.1	44.0	49.5	52.5	50.3	50.4	44.5	43.2	39.1	36.3	23.0	12.9
02:30 - 02:45	47.3	43.0	48.8	49.1	49.3	52.4	42.5	42.0	37.7	33.5	18.6	12.0
02:45 - 03:00	46.0	43.0	47.3	48.8	50.0	51.5	41.9	40.5	34.5	29.3	16.0	12.0
03:00 - 03:15	47.5	44.0	50.2	50.6	50.0	50.1	44.8	42.8	36.8	32.6	18.6	12.1
03:15 - 03:30	47.0	43.0	49.0	49.4	46.2	48.0	44.7	43.0	36.2	31.3	18.2	12.0
03:30 - 03:45	47.9	42.0	51.1	52.0	48.9	50.4	44.9	43.6	38.0	32.2	17.0	12.0
03:45 - 04:00	47.2	44.0	50.9	52.7	50.0	49.9	44.6	42.9	36.4	30.1	15.8	11.9
04:00 - 04:15	49.8	44.0	51.0	53.9	55.1	50.6	47.3	45.5	39.6	33.7	16.7	11.9
04:15 - 04:30	49.6	46.0	49.9	52.6	56.7	52.3	46.7	44.9	38.2	31.5	16.9	12.0
04:30 - 04:45	50.3	47.0	50.2	52.8	54.3	51.9	47.9	46.4	38.6	30.7	16.9	12.0
04:45 - 05:00	49.9	46.0	50.8	54.1	50.9	49.6	46.3	46.4	41.1	35.2	18.3	12.0
05:00 - 05:15	51.7	49.0	54.2	56.5	51.6	51.1	48.6	48.1	42.4	35.9	19.5	12.1
05:15 - 05:30	53.8	51.0	54.6	57.7	50.8	53.6	50.7	50.3	45.0	38.5	20.1	12.0
05:30 - 05:45	54.4	52.0	54.6	57.9	52.0	53.6	50.8	51.3	45.5	38.4	20.0	12.0
05:45 - 06:00	55.5	53.0	56.0	57.8	52.6	53.9	52.2	52.5	46.4	39.3	23.5	12.4
06:00 - 06:15	56.4	54.0	56.7	58.2	52.0	55.7	53.1	53.3	47.0	41.1	24.6	12.3
06:15 - 06:30	58.2	56.0	59.5	63.4	54.9	57.3	54.7	54.6	49.2	44.7	26.9	12.6
06:30 - 06:45	57.5	55.0	60.0	64.2	56.2	56.6	54.2	54.1	48.3	42.9	25.2	12.3
06:45 - 07:00	58.9	56.0	58.7	61.1	57.0	57.2	55.1	55.0	51.5	45.0	28.7	12.8

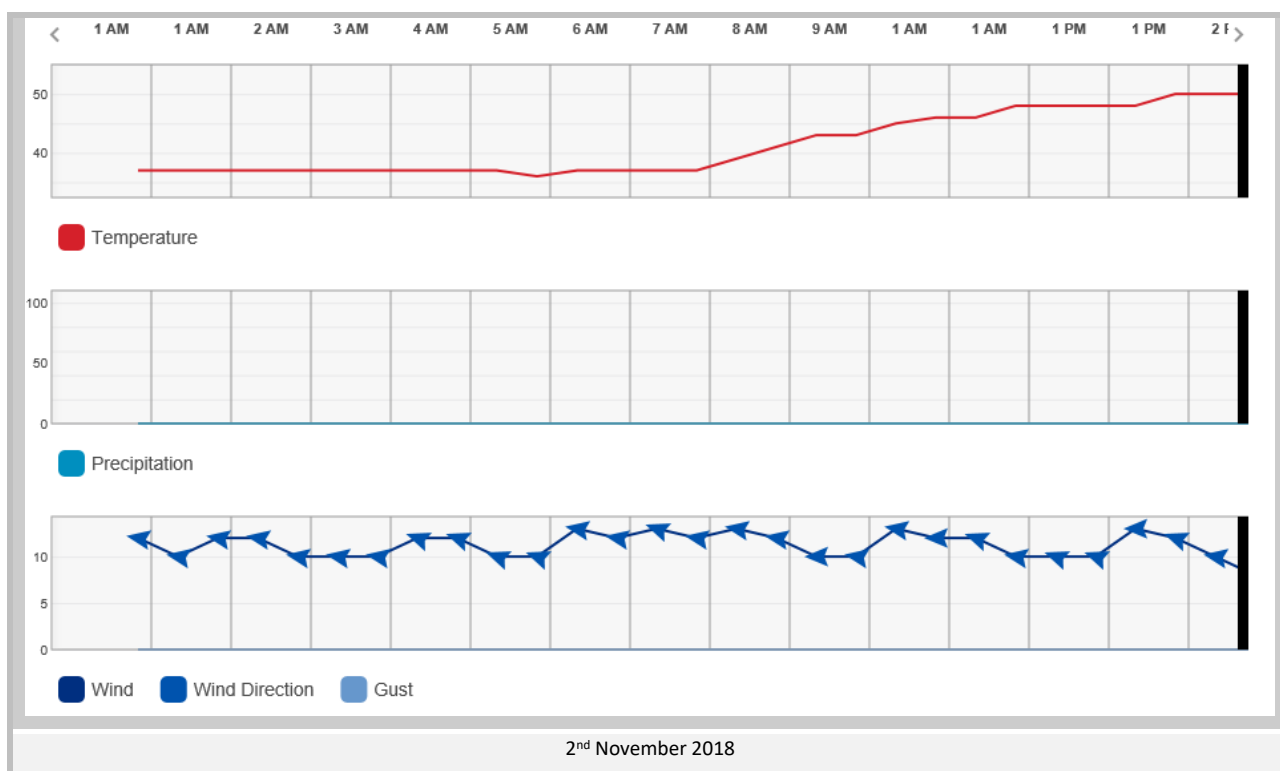


12 APPENDIX C – WEATHER CONDITIONS

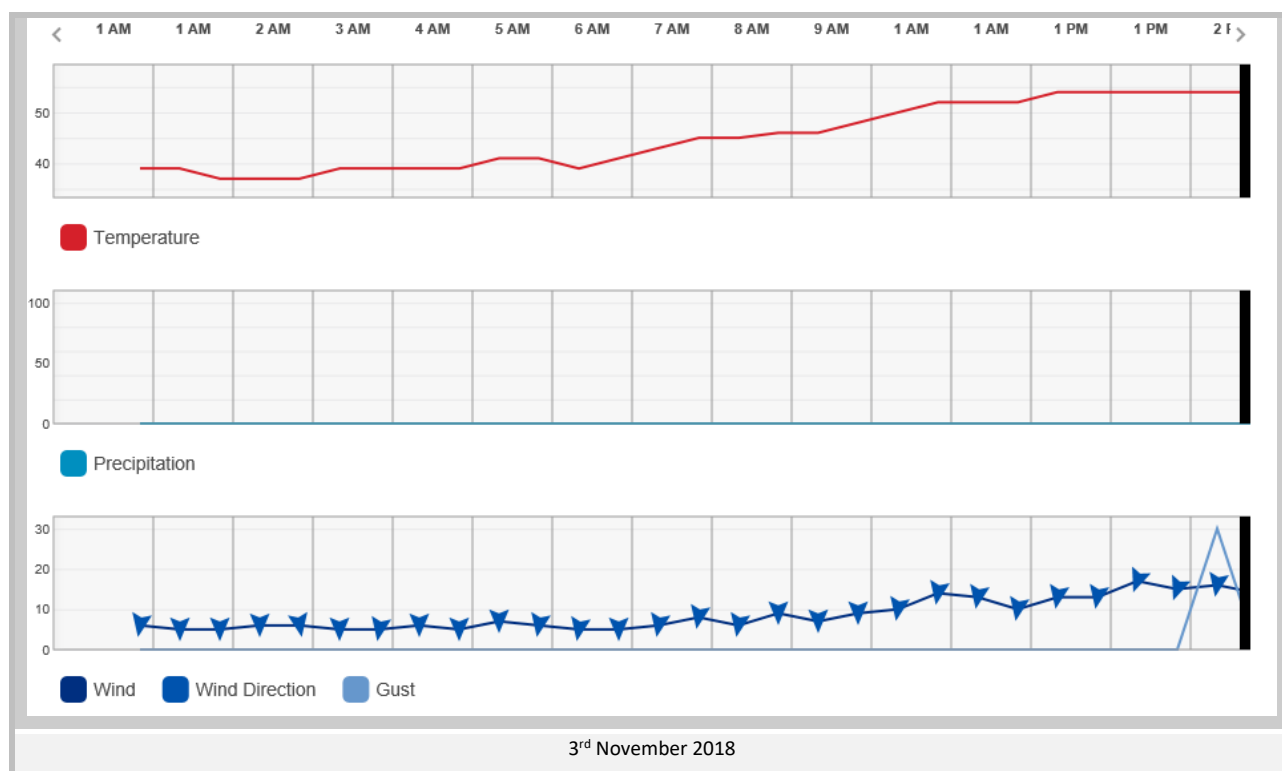
12.1 1st November 2018



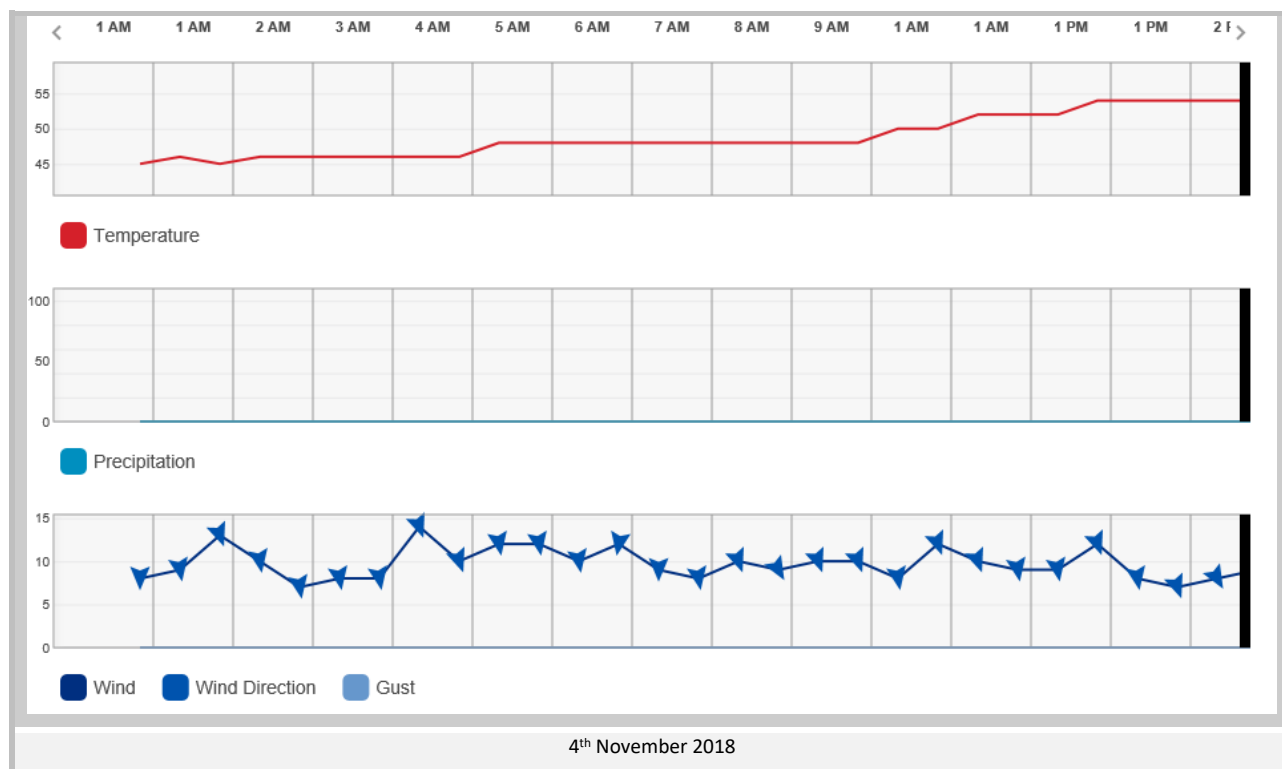
12.2 2nd November 2018



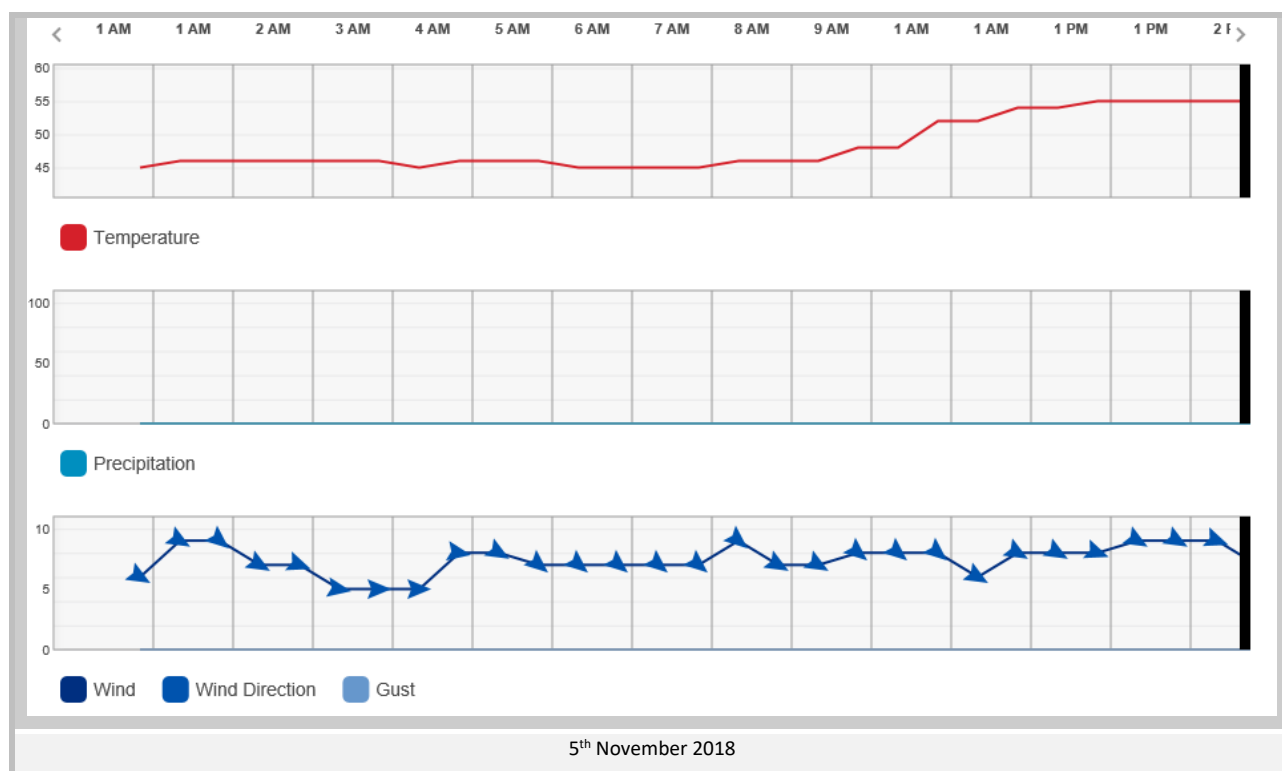
12.3 3rd November 2018



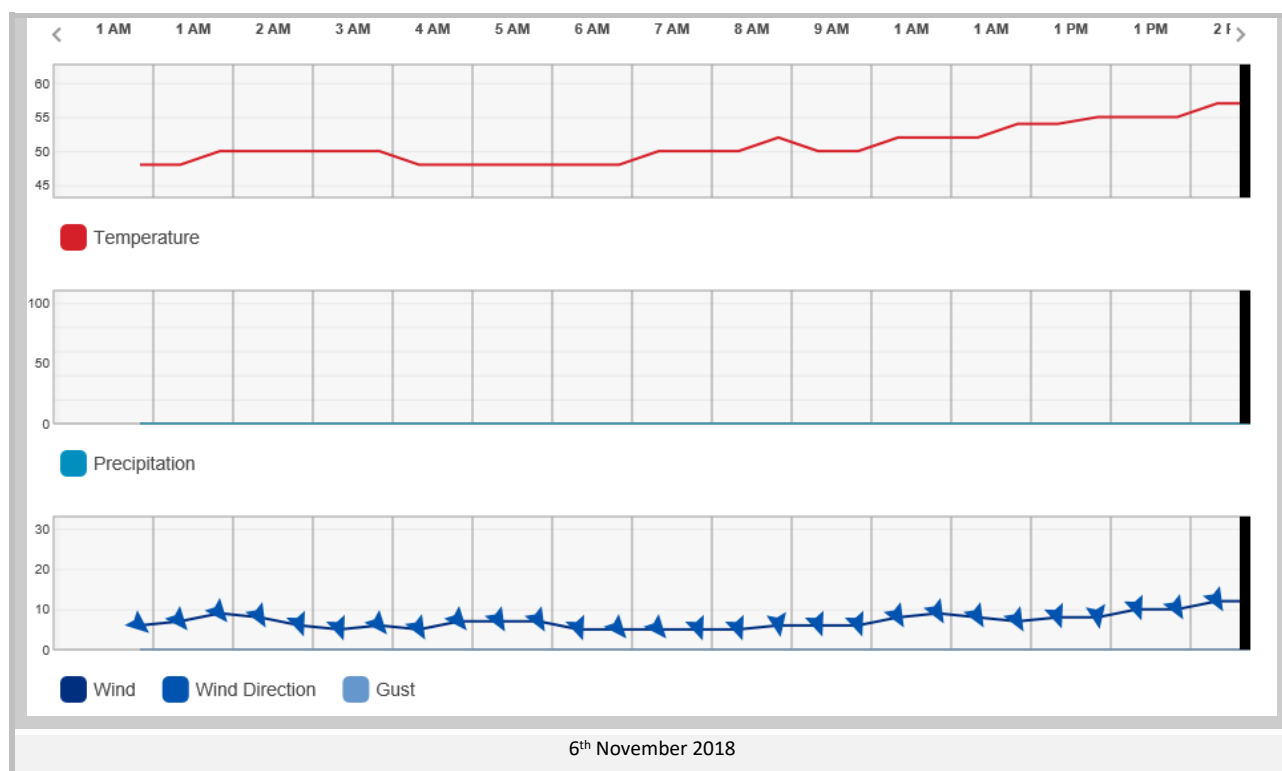
12.4 4th November 2018



12.5 5th November 2018



12.6 6th November 2018



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 Ground	1.5m
Reflective Surfaces	None (Free Field)
Distance to NSP	6m
Distance to Source	2m
Topographical Change (m)	None
Ground between Source and Receiver	100% Hard surface from kitchen extract to residential flats above
Windshield Information	Norsonic Outdoor Microphone Protection Kit Model No: 1212
Distance from Proposed Source to Receiver	6m
NSP* - Noise Sensitive Premises	

END OF REPORT