enviroparks

APPENDIX 10.2

Noise survey report

ENERGY FROM WASTE FACILITY, HIRWAUN

NOISE SURVEY REPORT

Acoustics Report A1000 R01
30th June 2016

Report for:	Enviroparks (Wales) Ltd 1st Floor Offices Tiverton Chambers Abergavenny Monmouthshire NP7 5PN Attention: Mr N Bourton
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Issue/Revision number A1000 R01	Date 30/06/2016

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Contents

1 Introduction

Ion Acoustics is appointed by Enviroparks (Wales) Ltd to undertake a baseline noise monitoring survey in the vicinity of the proposed energy from waste (EFW) facility at Hirwaun, Wales. More specifically, the baseline survey will be used to inform the assessments undertaken in support of the permit application for the facility which will be submitted to Natural Resources Wales (NRW), the relevant permitting authority.

Ion Acoustics carried out a noise survey on 23rd / 24th June 2016 to quantify the existing baseline noise levels at the nearest noise-sensitive receptors. The results of this survey have been used to determine noise limits for the proposed facility.

2 Site and Development Proposals

The EFW facility is located on land off Fifth Avenue, on the Hirwaun Industrial Estate, near Hirwaun, Wales. The site location and the noise monitoring locations are shown in Figure 1 below; the monitoring locations are indicated by the yellow pins.

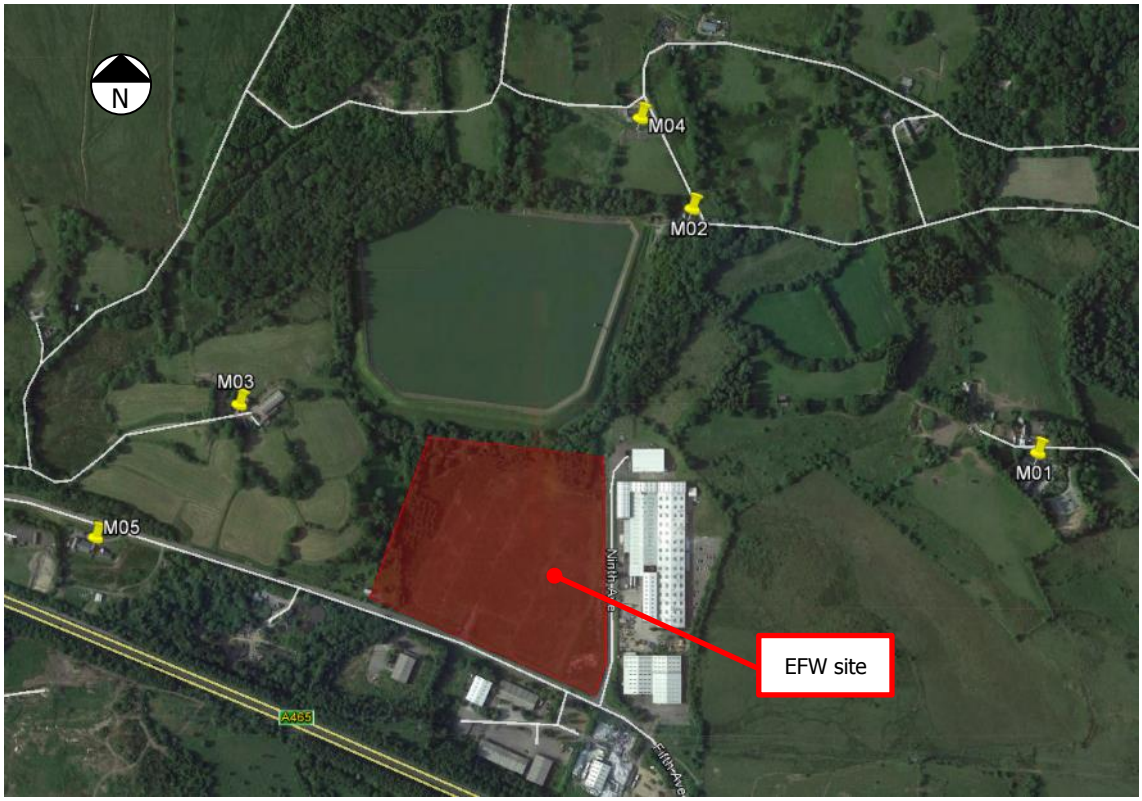


Figure 1: Site Location Plan and Sensitive Receptor Locations (Map Ref Google Earth)

The EFW facility is an integrated recycling facility which, as the name suggests, generates energy from recovered waste materials. This is achieved through a number of sorting and preparatory stages with the recovered fuels being used to power onsite generation engines. Planning permission for the facility was granted by Rhondda Cynon Taf County Borough Council under planning permission ref 08/1735/10 and Brecon Beacons National Parks Authority under planning permission ref 08/02444/FUL in December 2010.

A noise survey at the site was previously carried out in August 2008 as reported in the Environmental Statement. The measurements in this report are compared with the 2008 measurements.

3 Permitting Authority Consultation

Prior to this assessment, a telephone conversation was held with Toby Griffiths, Regulatory Officer at Natural Resources Wales on the 20th June 2016. During the conversation, aspects of the assessment were discussed including the proposed monitoring locations and durations, the assessment methodology and the appropriate assessment criteria.

Mr Griffiths broadly concurred with the identified monitoring locations and the proposals to replicate the monitoring undertaken during the previous planning assessment. Mr Griffiths indicated that an additional receptor, now identified as Fifth Avenue Guest House should be investigated to determine if it would be considered sensitive to noise.

It was agreed that the proposed facility would be assessed in line with BS4142 and that any noise generated from the facility would have to conform to a noise limit derived from the baseline noise monitoring data. Mr Griffiths indicated that the permitting authority would look for the rating level, including any appropriate penalties, to achieve parity with the existing background (L_{A90} +/-0dB) with an upper limit of L_{A90} +3dB.

3.1 BS4142:2014 Assessment Principles

The standard method for assessing plant noise affecting nearby housing is British Standard BS 4142 "Method for rating and assessing industrial and commercial sound". A BS4142 assessment is made by determining the difference between the intrusive noise under consideration and the background sound level as represented by the L_{A90} parameter, determined in the absence of the plant noise, in this case, by the noise survey. The L_{A90} parameter is defined as the level exceeded for 90% of the measurement time. Therefore, it represents the underlying noise in the absence of short-term events.

The intrusive noise under consideration is assessed in terms of the ambient level, L_{Aeq}, but a character correction penalty can be applied where the noise exhibits certain characteristics such as distinguishable tones, impulsiveness or is intermittent. The L_{Aeq} is defined as the notional steady-state noise level which has the same energy as the actually time-varying noise. It can be thought of as the average noise level over the stated time period.

The plant noise level (L_{Aeq}) with the character correction (if appropriate) is known as rating level, L_{Ar}, and the difference between the rating level and the background noise is determined to make the BS 4142 assessment. The standard then states:

- *"Typically, the greater the difference, the greater the magnitude of the impact;*
- *A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context;*

- *A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context;*
- *The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context."*

In this case the proposed limit criterion for the facility, background noise (L_{A90}) +/-0dB, will ensure a low impact according to the last bullet point. BS 4142 states that the 'typical' background noise level should be used, specifically:

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

The guidance document highlights the importance of considering the context in which a sound occurs. The standard indicates that factors including the absolute sound level, the character of the sound, the sensitivity of the receptor and the existing acoustic character of the area should be considered when assessing the noise impact.

4 Previous Noise Measurement Survey

As indicated above, a noise measurement survey was undertaken in 2008 by RPS, as part an environmental statement for the preceding planning application for the site. Noise measurements were taken at locations M01 to M04 during both the daytime and overnight periods by means of short term, attended measurements. The measurements were made for the following durations during the identified periods:

- Daytime (07:00 to 23:00) – 120minutes; and,
- Overnight (23:00 to 07:00) – 60minutes.

4.1 2008 Measured Noise Data

A summary of the noise monitoring survey was presented in the Environmental Statement document prepared by Savills plc. The summary tables for the daytime and overnight periods are presented below:

Table 1: 2008 Measured Daytime Data

Location	Time	Measured Statistical Parameters in dB		
		L_{Aeq}	L_{A90}	L_{Amax}
M01	09:00 – 10:00	46.1	40.2	82.1
	10:00 – 11:00	44.6	40.4	65.3
M02	11:10 – 12:10	46.1	41.7	71.2
	12:10 – 13:10	46.6	42.9	79.6
M03	15:50 – 16:50	50.1	40.9	75.6
	16:50 – 17:50	48.3	43.0	70.5
M04	13:25 – 14:25	49.0	45.9	66.0
	14:25 – 15:25	48.7	44.5	79.2

Table 2: 2008 Measured Overnight Data

Location	Time	Measured Statistical Parameters in dB		
		L_{Aeq}	L_{A90}	L_{Amax}
M01	00:00 – 01:00	40.8	24.5	67.1
M02	01:14 – 02:14	39.0	37.7	61.7
M03	03:39 – 04:39	54.6	31.6	81.1
M04	02:20 – 03:20	37.7	35.7	60.7

The 2008 survey data is presented for information purposes only and has not been used to inform the derivation of noise limits in this assessment.

5 Noise Survey

The noise monitoring survey in this assessment was carried out over 23rd / 24th June 2016. Measurements were undertaken at five locations in the vicinity of the Enviroparks site, at locations which were considered representative of the nearest noise sensitive receptor locations. The monitoring locations are presented on Figure 1 above and summarised in Table 3 below.

Table 3: Noise Monitoring Locations

Location Reference	Address	Grid Reference	Distance to Site Boundary, m
M01	Ty Newydd Hotel	294630, 206875	620
M02	Underwood Lodge (Reservoir House)	294173, 207265	365
M03	Tai-Cwpla Farm	293510, 207018	260
M04	Trebanog Uchaf Farm	294071, 207396	450
M05	Fifth Avenue Guest House	293275, 206864	400

The monitoring locations were chosen to mirror, as far as practical, the monitoring locations used during the assessments for the planning application. The notable exception to this was location M05 which was discussed with NRW prior to the survey and identified while on site as being a potentially noise sensitive receptor. The weather recorded during the monitoring

survey was largely dry and mild with a short period of rain recorded at approximately 02:40hrs. This appears to have been a short shower which ceased shortly afterwards. Wind speeds were generally low, peaking at a maximum of 3.8m/s. The maximum ambient daytime temperature was 23°C with overnight lows of 11°C.

Location M01 – Ty Newydd Hotel

The measurements at location M01 were made using a Larson Davis LD820 sound level meter fitted with a BAP 21 windshield and calibrated at the start and finish using a Brüel & Kjær 4231 sound level calibrator. Measurements were made with the meter set up to log various noise parameters in 15-minute periods. The measurements were unattended for the duration of the monitoring period except for the set-up and collection.

The noise monitoring station was situated to the east of the hotel, in a garden area, adjacent to the car park. The microphone was set at a height of 1.2m above ground height on soft ground. There were no reflective facades within 3.5m. The monitoring location is shown in Figure 2 below.

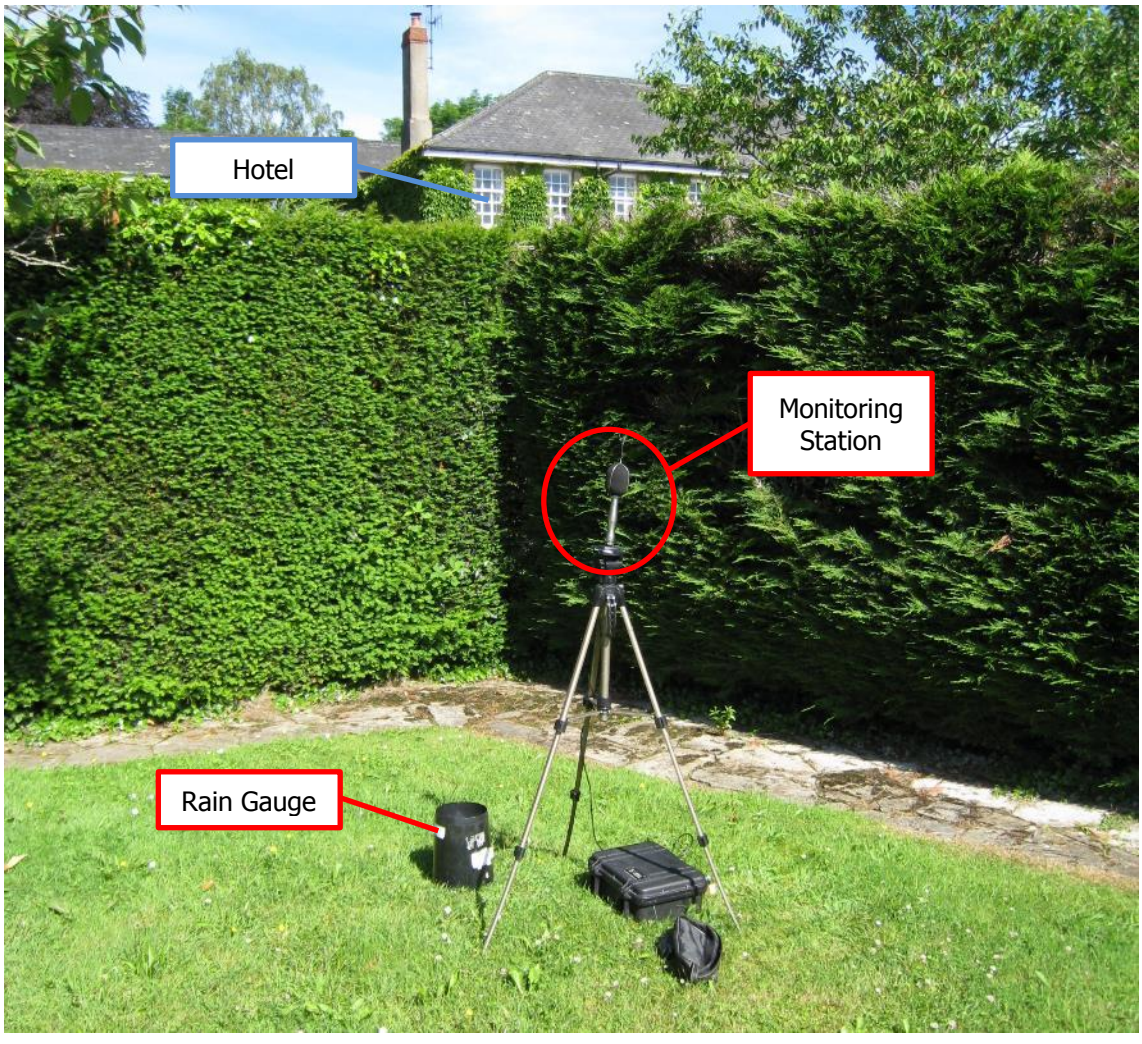


Figure 2: Monitoring Location M01 Detail

The noise monitoring survey was accompanied by tipping bucket rain gauge to record rain fall during the survey.

Location M02 – Underwood Lodge
Access to Underwood was refused as the residents were concerned that daytime construction noise at their house would unduly influence the measurements. Instead, measurements in the vicinity of Underwood Lodge were undertaken using a Norsonic NOR140 sound level meter and was fully attended due to ongoing construction works at the residence. The measurements at this location were undertaken by means of short term, sample measurements and covered approximately 75minutes during the daytime period and 45minutes during the overnight.

Subjective notes taken during the monitoring period indicated that construction noise was only occasionally audible and was noted to consist of occasional bangs and noise associated with hand-held power tools. The construction noise was considered to be of a very low level and sporadic and would not have resulted in any increase in the background, L_{A90} parameter.

The sound level meter was located on an area of hardstanding used for car parking by the road to the east of the residential property.

Figure 3: Monitoring Location M02 Detail

Location M03 – Tai-Cwpla Farm

The measurements at this location were made using a Rion NL-52 sound level meter fitted with a WS-15 windshield and calibrated at the start and finish using a Brüel & Kjær 4231 sound level calibrator. Measurements were made over 24 consecutive hours with the meter set up to log various noise parameters in 15-minute periods. The measurements were unattended for the duration of the monitoring period except for set-up and collection.

The noise monitoring station was situated to the south of the residential property, adjacent to the farm access road. The microphone was set at a height of 1.5m above ground height on soft ground. There were no reflective facades within 3.5m. The monitoring location is shown in Figure 4 below.

Figure 4: Monitoring Location M03 Detail

Location M04 – Trebanog Uchaf Farm

Trebanog Uchaf Farm is located to the north of the Enviroparks site, approximately 450m from the site boundary. The measurements at this location were made using a Rion NL-52 sound level meter fitted with a WS-15 windshield and calibrated at the start and finish using a Brüel & Kjær 4231 sound level calibrator. Measurements were made over 24 consecutive hours with the meter set up to log various noise parameters in 15-minute periods. The measurements were unattended for the duration of the monitoring period except for set-up and collection.

The monitoring station was located to the south of the residential property, in the garden area looking towards location M02.

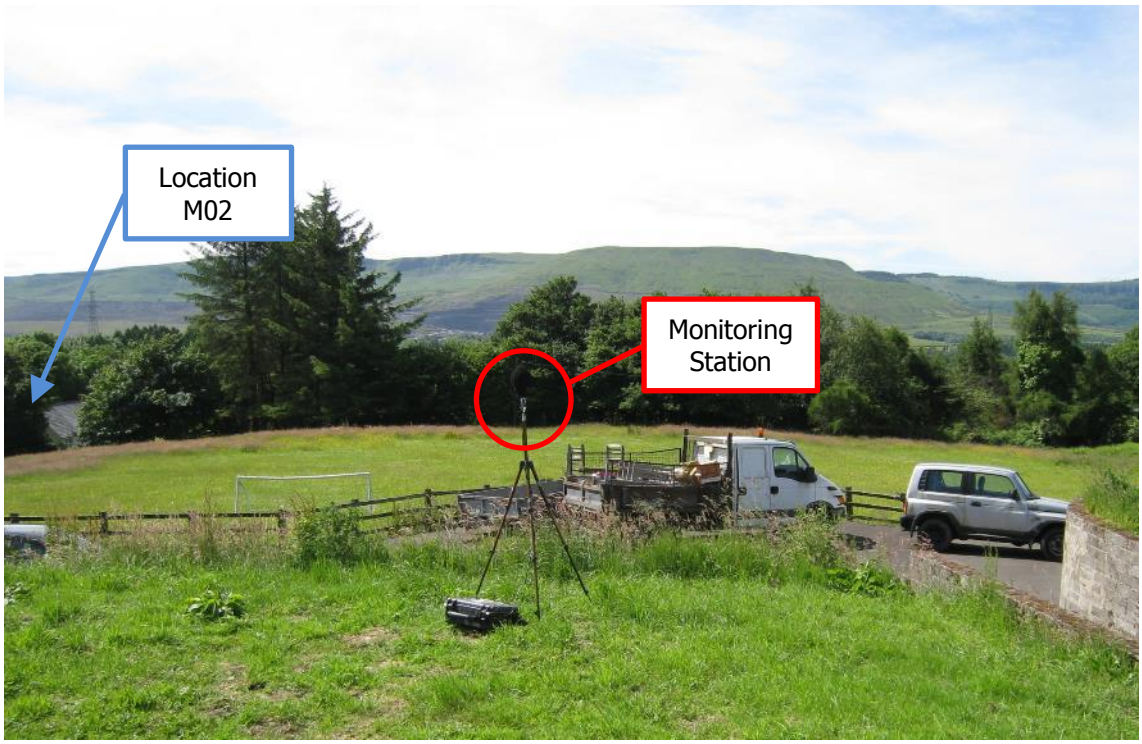


Figure 5: Monitoring Location M04 Detail

It is noted that monitoring location M02 was located approximately 160m to the south east of location M04. The general direction of location M02 is indicated on Figure 5 above.

The monitoring station at this location was accompanied by a small weather station which recorded wind speed, direction and temperature, in 10minute periods, for the duration of the monitoring survey.

Location M05 – Fifth Avenue Guest House

Fifth Avenue Guest House is located approximately 400m to the west of the Enviroparks site, along Fifth Avenue. Short-term attended measurements were made at this location. The measurements were made using a Norsonic NOR140 sound Level Meter and was attended for the duration of the measurements. Measurements at this location were undertaken for approximately 45 minutes during the daytime period only.

The measurements were made at the boundary of the property, approximately 2.5m from the carriageway of Fifth Avenue. It is noted that the traffic flow on Fifth Avenue was very low during the survey with only 10 vehicles passing the monitoring location in 45minutes.

The monitoring location is presented in further detail in Figure 6 below.

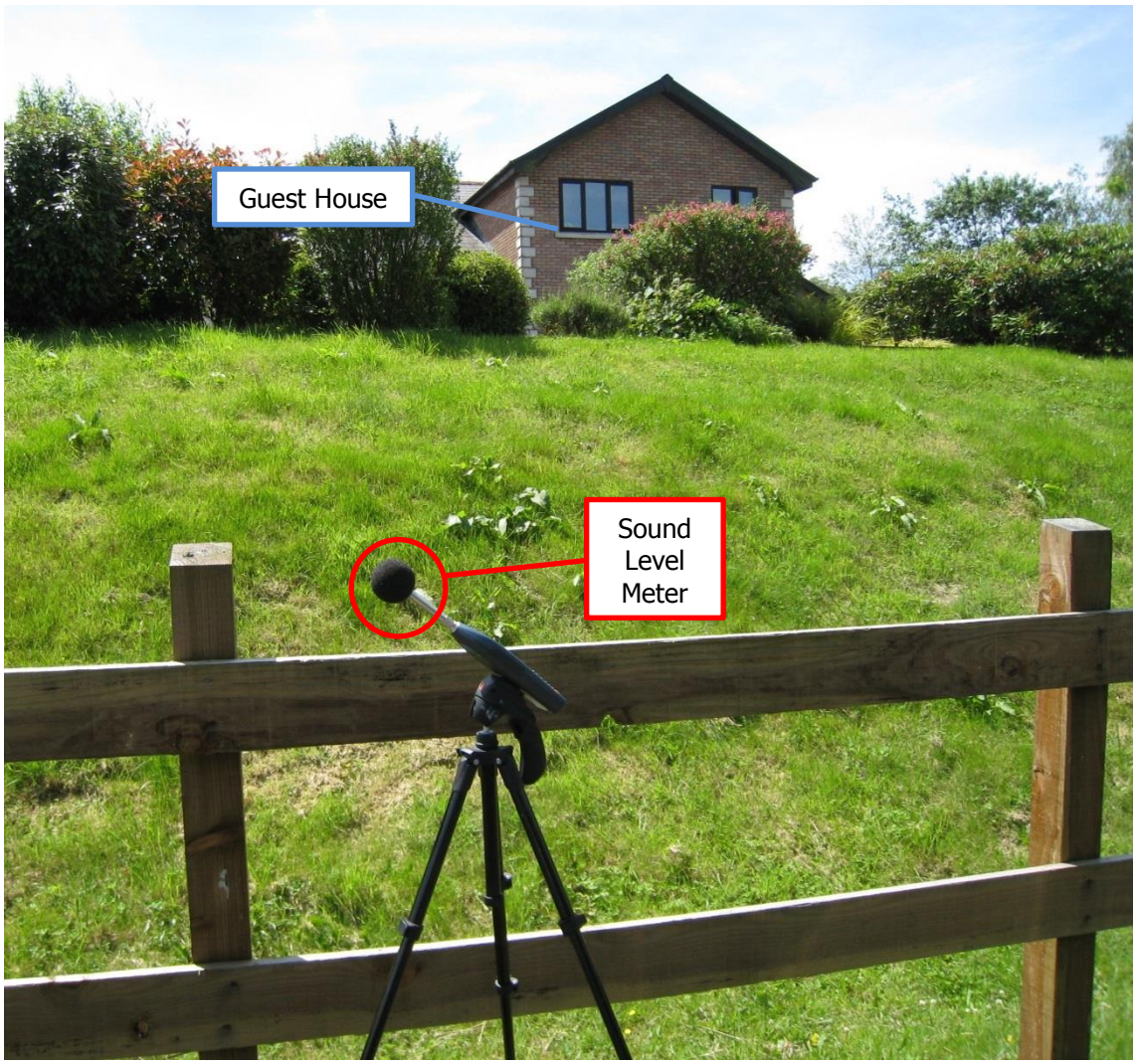


Figure 6: Monitoring Location M05 Detail

5.1 Noise Survey Results

The noise climate in the area was largely dominated by traffic movements on the A465 which was audible, at a low level, at all monitoring locations. Other noise sources included wind noise in the undergrowth/ trees and bird song. More localised noise sources included a water course audible in the vicinity of M02 and a dog barking at M03. Noise from the open cast mining operation in the vicinity of the A4061 was audible at location M01 but only at a very low level.

During the night, the noise climate was markedly quieter with sporadic vehicle movements on the A465 audible. The water course at location M02 was more clearly audible at this location during the night.

The baseline survey data is summarised in Table 4 below. For the measurements, the logarithmic average L_{Aeq} is shown. For background sound levels, L_{A90}, the arithmetic mean values are reported.

Table 4: Measured Noise Data

Location	Period	Duration hh:mm:ss	L_{Aeq}, dB	Average L_{A90}, dB
M01 Ty Newydd Hotel	Daytime	15:15:00	46.8	39
	Night-time	05:00:00	35.1	29
M02 Underwood Lodge	Daytime	01:15:00	48.7	41
	Night-time	00:45:00	36.8	33
M03 Tai Cwpla Farm	Daytime	16:45:00	53.8	42
	Night-time	05:00:00	46.4	32
M04 Trebanog Uchaf Farm	Daytime	16:00:00	45.3	41
	Night-time	05:00:00	37.7	34
M05 Fifth Avenue Guest House	Daytime	00:45:00	56.1	41
	Night-time	00:00:00	/	/

It is noted that for locations M01, M03 and M04, the overnight period is presented as the average between 23:00hrs and 04:00. This is intended to minimise the impact of the seasonal dawn chorus, which typically occurs from 04:00hrs onwards.

The time history for each unattended monitoring station is presented in appendix A of this report. The charts indicate that the noise climate of the area follows a typical daytime/ night-time pattern, with the daytime noise levels generally reducing from 21:30 hours onwards. The night-time levels are relatively quiet from 23:00hrs onwards until increasing from 04:00hrs as a result of the dawn chorus.

A direct comparison of the concurrent monitoring data for the same time period for locations M03 and M05, indicates that the background (L_{A90}) noise levels are broadly similar, reporting a difference of only 0.2dB. Therefore the longer term measurement data at location M03 is a reasonable representation of the noise climate at the Fifth Avenue Guest House.

Similarly, a direct comparison between the measurements at M02 and M04 during the concurrent monitoring periods indicate a difference of +3dB at M02 during the daytime and -1dB during the overnight. Given this, it could be reasonable to consider the noise climate at M04 to be broadly representative of the noise climate at M02.

5.2 Noise Measurement Comparison

A direct comparison between the 2008 dataset and the 2016 data set indicates that, overall the background noise climate during the 2008 survey was marginally higher than the 2016

background noise measurements. Further analysis of broadly concurrent measurement periods indicates a more complex picture with some locations reporting markedly different background noise levels than those established during the most recent noise monitoring survey.

To that end, the noise limits presented within Section 6 below are based solely on the noise data established during this monitoring survey and are not based on the 2008 data.

6 Plant Noise Limits

Plant noise limits for the project are set at a level agreed with NRW, as discussed in section 3 above. The discussions with NRW indicate that the authority would look to achieve L_{A90} +/- 0dB with a maximum rating noise level of L_{A90} +3dB. Using this information, and the data summarised in Table 4 above, rating level noise limits have been derived in Table 5 below.

Table 5: Proposed Noise Limits

Location	Period	Typical background noise level, L_{A90} dB	Noise Limit L_{Ar}, dB
M01 Ty Newydd Hotel	**Daytime Period** 07:00 to 23:00	39	39
	Night-time Period 23:00 to 07:00	29	29
M02 Underwood Lodge	**Daytime Period** 07:00 to 23:00	41	41
	Night-time Period 23:00 to 07:00	33	33
M03 Tai Cwpla Farm	**Daytime Period** 07:00 to 23:00	42	42
	Night-time Period 23:00 to 07:00	32	32
M04 Trebanog Uchaf Farm	**Daytime Period** 07:00 to 23:00	41	41
	Night-time Period 23:00 to 07:00	34	34
M05 Fifth Avenue Guest House	**Daytime Period** 07:00 to 23:00	41	41
	Night-time Period 23:00 to 07:00	32*	32
* Note the typical overnight noise level at location M05 is based on the measured data at M03			

The noise limits presented above apply to noise generated by activity within the Enviroparks site at 1 m from the façade of the nearest noise sensitive receptor locations. The rating level will apply to the plant noise level plus any specific character corrections which need to be applied in line with BS 4142:2014.

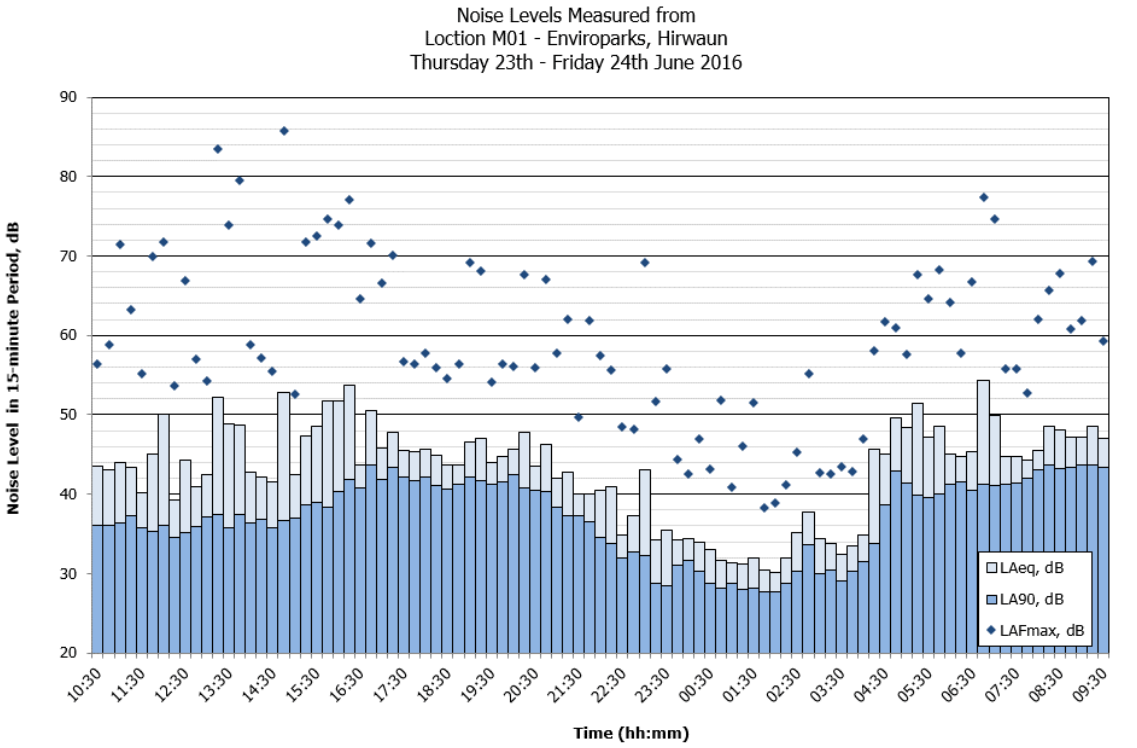
7 Summary

This report summarises the baseline noise survey undertaken in the vicinity of the Enviroparks site, near Hirwaun, Wales. The survey was undertaken between the 23rd and 24th of June

2016. Using this data, appropriate noise limits have been derived in accordance with the criteria identified in consultation with Natural Resources Wales (NRW).

Adherence to these rating level noise limits would confirm compliance with the requirements of NRW.

Location M01 – Ty Newydd Country Hotel

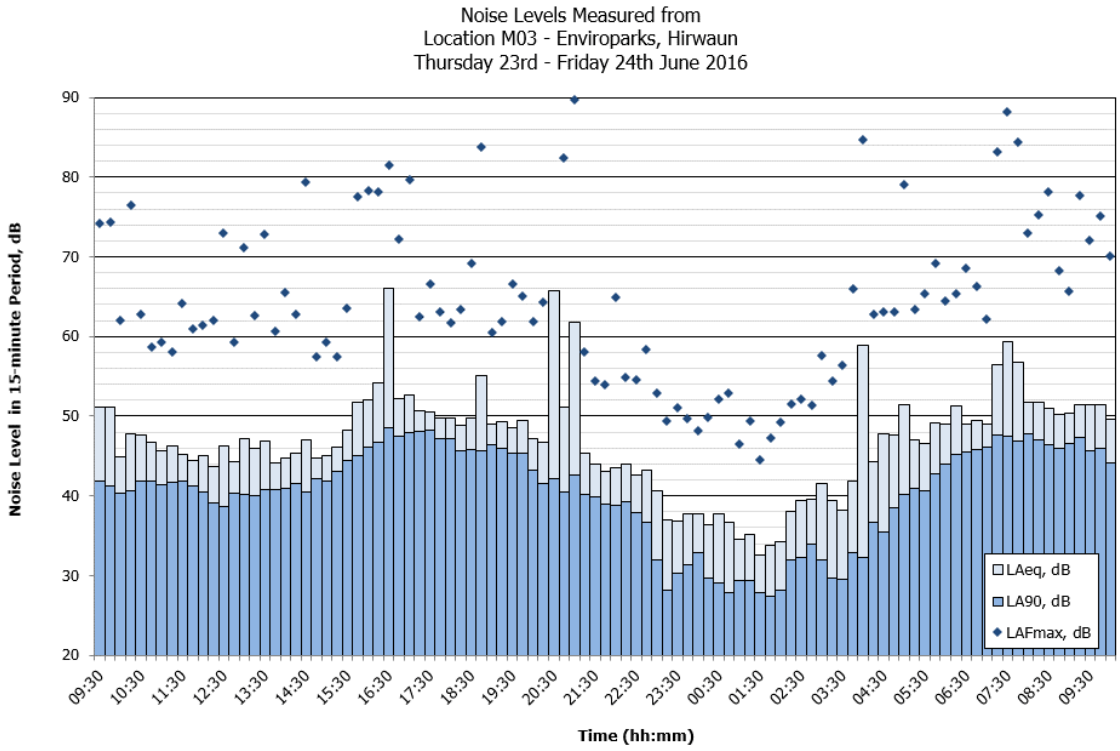


Time	$L_{A\,eq}$ dB	$L_{A\,max,F}$ dB	$L_{A\,F90}$ dB	Time	$L_{A\,eq}$ dB	$L_{A\,max,F}$ dB	$L_{A\,F90}$ dB
23/06/2016 10:30	43.5	56.4	36.0	23/06/2016 22:30	34.8	48.4	31.9
23/06/2016 10:45	43.0	58.8	36.1	23/06/2016 22:45	37.3	48.1	32.7
23/06/2016 11:00	43.9	71.4	36.4	23/06/2016 23:00	43.1	69.1	32.2
23/06/2016 11:15	43.4	63.2	37.2	23/06/2016 23:15	34.3	51.7	28.7
23/06/2016 11:30	40.1	55.1	35.7	23/06/2016 23:30	35.5	55.7	28.5
23/06/2016 11:45	45.1	69.9	35.3	23/06/2016 23:45	34.2	44.3	31.0
23/06/2016 12:00	50.1	71.7	36.1	24/06/2016 00:00	34.4	42.5	31.7
23/06/2016 12:15	39.3	53.7	34.6	24/06/2016 00:15	34.0	47.0	30.3
23/06/2016 12:30	44.2	66.8	35.1	24/06/2016 00:30	33.0	43.2	28.8
23/06/2016 12:45	41.0	57.0	35.9	24/06/2016 00:45	31.6	51.8	28.2
23/06/2016 13:00	42.4	54.2	37.1	24/06/2016 01:00	31.3	40.8	28.8
23/06/2016 13:15	52.2	83.4	37.4	24/06/2016 01:15	31.2	46.0	28.0
23/06/2016 13:30	48.9	73.8	35.8	24/06/2016 01:30	31.9	51.5	28.2
23/06/2016 13:45	48.7	79.5	37.5	24/06/2016 01:45	30.4	38.3	27.7
23/06/2016 14:00	42.8	58.8	36.4	24/06/2016 02:00	30.1	38.8	27.7
23/06/2016 14:15	42.2	57.1	36.8	24/06/2016 02:15	32.0	41.2	28.7
23/06/2016 14:30	41.5	55.5	35.7	24/06/2016 02:30	35.1	45.2	30.2
23/06/2016 14:45	52.8	85.7	36.7	24/06/2016 02:45	37.7	55.2	33.6
23/06/2016 15:00	42.4	52.6	36.9	24/06/2016 03:00	34.4	42.7	29.9
23/06/2016 15:15	47.3	71.7	38.6	24/06/2016 03:15	33.8	42.5	30.4
23/06/2016 15:30	48.6	72.5	38.9	24/06/2016 03:30	32.4	43.5	29.1
23/06/2016 15:45	51.8	74.6	38.4	24/06/2016 03:45	33.4	42.8	30.2
23/06/2016 16:00	51.8	73.8	40.3	24/06/2016 04:00	34.9	47.0	31.5
23/06/2016 16:15	53.7	77.0	41.8	24/06/2016 04:15	45.7	58.0	33.7
23/06/2016 16:30	43.7	64.6	40.8	24/06/2016 04:30	45.0	61.7	38.7
23/06/2016 16:45	50.5	71.6	43.6	24/06/2016 04:45	49.6	61.0	42.9
23/06/2016 17:00	45.8	66.6	41.8	24/06/2016 05:00	48.4	57.6	41.4
23/06/2016 17:15	47.7	70.1	43.3	24/06/2016 05:15	51.5	67.7	39.8
23/06/2016 17:30	45.5	56.7	42.2	24/06/2016 05:30	47.1	64.6	39.5
23/06/2016 17:45	45.3	56.3	41.7	24/06/2016 05:45	48.6	68.3	40.0
23/06/2016 18:00	45.7	57.7	42.1	24/06/2016 06:00	45.1	64.2	41.2
23/06/2016 18:15	44.9	55.9	41.1	24/06/2016 06:15	44.8	57.7	41.5
23/06/2016 18:30	43.6	54.5	40.6	24/06/2016 06:30	45.3	66.7	40.4
23/06/2016 18:45	43.7	56.3	41.3	24/06/2016 06:45	54.3	77.4	41.2
23/06/2016 19:00	46.5	69.2	42.1	24/06/2016 07:00	49.9	74.6	41.1
23/06/2016 19:15	47.0	68.1	41.7	24/06/2016 07:15	44.8	55.8	41.3
23/06/2016 19:30	44.0	54.1	41.2	24/06/2016 07:30	44.7	55.8	41.4
23/06/2016 19:45	44.7	56.4	41.6	24/06/2016 07:45	44.2	52.7	42.0
23/06/2016 20:00	45.7	56.0	42.5	24/06/2016 08:00	45.5	62.0	43.1
23/06/2016 20:15	47.7	67.7	40.7	24/06/2016 08:15	48.5	65.7	43.6
23/06/2016 20:30	43.5	55.9	40.5	24/06/2016 08:30	48.1	67.8	43.2
23/06/2016 20:45	46.2	67.0	40.3	24/06/2016 08:45	47.2	60.8	43.3
23/06/2016 21:00	42.0	57.8	38.4	24/06/2016 09:00	47.1	61.9	43.7
23/06/2016 21:15	42.7	62.0	37.3	24/06/2016 09:15	48.5	69.3	43.7
23/06/2016 21:30	40.0	49.6	37.3	24/06/2016 09:30	47.0	59.3	43.3
23/06/2016 21:45	40.0	61.9	36.5				
23/06/2016 22:00	40.5	57.5	34.5				
23/06/2016 22:15	41.0	55.6	33.7				

Location M02 – Underwood Lodge

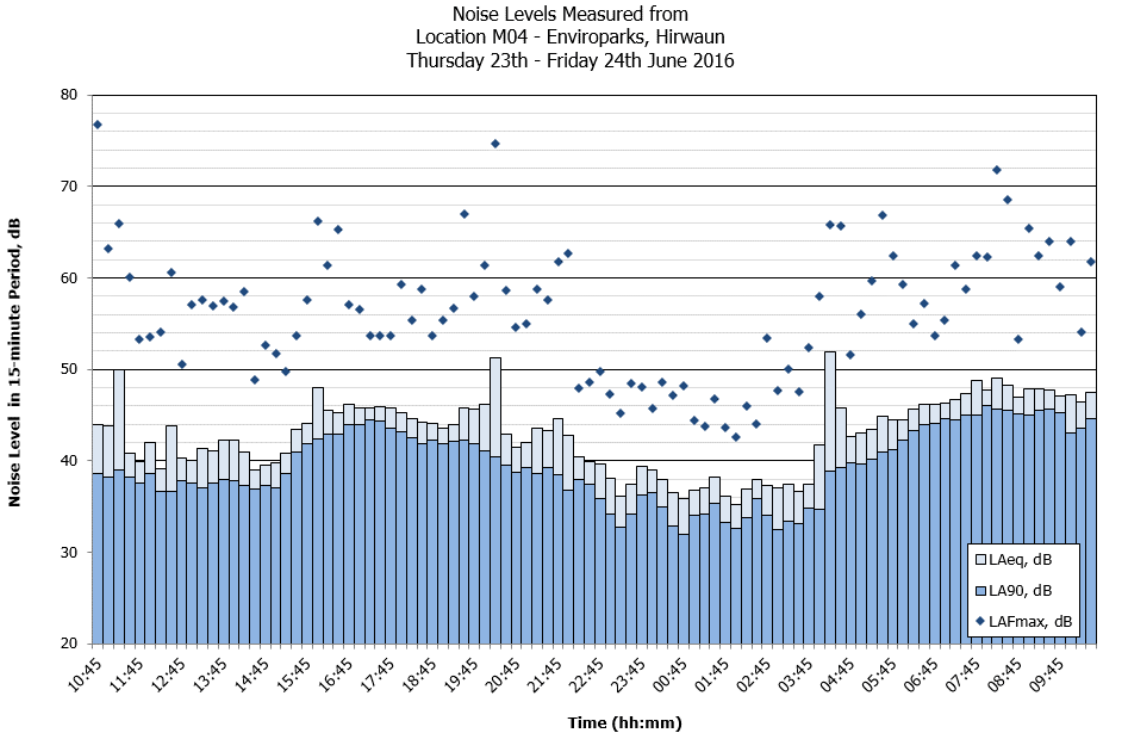
Time and Date	LAeq, dB	LAFmax, dB	LA90, dB
(2016/06/23 11:00:02.00)	51.2	76.5	41.5
(2016/06/23 11:15:02.00)	51.4	79.2	41.4
(2016/06/23 11:30:02.00)	43.4	57.2	41.1
(2016/06/23 11:45:03.00)	45.8	59.5	40.9
(2016/06/23 13:45:02.00)	46.5	70.3	41.9
(2016/06/24 00:02:47.00)	37.8	65.1	34.2
(2016/06/24 00:53:02.00)	37.2	69.2	32.2
(2016/06/24 01:08:04.00)	34.9	45.9	32.7

Location M03 – Tai-Cwpla Farm



Time	$L_{A\,eq}$ dB	$L_{A\,max,F}$ dB	$L_{A\,F90}$ dB	Time	$L_{A\,eq}$ dB	$L_{A\,max,F}$ dB	$L_{A\,F90}$ dB
23/06/2016 09:30	51.1	74.2	41.9	23/06/2016 21:30	44.0	54.4	39.8
23/06/2016 09:45	51.1	74.3	41.3	23/06/2016 21:45	43.1	54.0	39.0
23/06/2016 10:00	44.9	62.0	40.3	23/06/2016 22:00	43.5	64.9	38.8
23/06/2016 10:15	47.7	76.4	40.6	23/06/2016 22:15	43.9	54.8	39.3
23/06/2016 10:30	47.6	62.8	41.8	23/06/2016 22:30	42.6	54.6	37.9
23/06/2016 10:45	46.7	58.7	41.8	23/06/2016 22:45	43.2	58.3	36.7
23/06/2016 11:00	45.6	59.2	41.4	23/06/2016 23:00	40.6	52.9	32.0
23/06/2016 11:15	46.3	58.0	41.7	23/06/2016 23:15	37.0	49.3	28.2
23/06/2016 11:30	45.2	64.2	41.9	23/06/2016 23:30	36.8	51.0	30.2
23/06/2016 11:45	44.4	61.0	41.3	23/06/2016 23:45	37.8	49.6	31.4
23/06/2016 12:00	45.0	61.4	40.4	24/06/2016 00:00	37.8	48.2	32.8
23/06/2016 12:15	43.6	62.0	39.1	24/06/2016 00:15	36.3	49.8	29.7
23/06/2016 12:30	46.3	72.9	38.7	24/06/2016 00:30	37.7	52.1	29.0
23/06/2016 12:45	44.2	59.2	40.3	24/06/2016 00:45	36.7	52.8	27.9
23/06/2016 13:00	47.1	71.2	40.1	24/06/2016 01:00	34.5	46.5	29.4
23/06/2016 13:15	45.9	62.6	40.0	24/06/2016 01:15	35.1	49.3	29.3
23/06/2016 13:30	46.8	72.8	40.7	24/06/2016 01:30	32.5	44.5	27.8
23/06/2016 13:45	44.1	60.6	40.7	24/06/2016 01:45	33.8	47.3	27.4
23/06/2016 14:00	44.8	65.5	41.0	24/06/2016 02:00	34.3	49.2	28.2
23/06/2016 14:15	45.4	62.8	41.5	24/06/2016 02:15	38.1	51.5	32.0
23/06/2016 14:30	47.0	79.4	40.5	24/06/2016 02:30	39.4	52.1	32.2
23/06/2016 14:45	44.8	57.4	42.1	24/06/2016 02:45	39.5	51.4	33.9
23/06/2016 15:00	45.1	59.3	41.9	24/06/2016 03:00	41.6	57.6	32.0
23/06/2016 15:15	46.1	57.4	43.1	24/06/2016 03:15	39.4	54.4	29.6
23/06/2016 15:30	48.3	63.5	44.4	24/06/2016 03:30	38.2	56.3	29.5
23/06/2016 15:45	51.8	77.5	45.1	24/06/2016 03:45	41.9	66.0	32.9
23/06/2016 16:00	52.0	78.3	46.1	24/06/2016 04:00	58.9	84.7	32.3
23/06/2016 16:15	54.2	78.2	46.7	24/06/2016 04:15	44.2	62.7	36.6
23/06/2016 16:30	66.0	81.5	48.6	24/06/2016 04:30	47.7	63.0	35.5
23/06/2016 16:45	52.2	72.2	47.5	24/06/2016 04:45	47.6	63.0	38.5
23/06/2016 17:00	52.6	79.7	47.9	24/06/2016 05:00	51.4	79.1	40.1
23/06/2016 17:15	50.6	62.5	48.1	24/06/2016 05:15	47.0	63.3	40.9
23/06/2016 17:30	50.5	66.6	48.3	24/06/2016 05:30	46.5	65.3	40.6
23/06/2016 17:45	49.8	63.0	47.1	24/06/2016 05:45	49.1	69.2	42.8
23/06/2016 18:00	49.7	61.7	47.2	24/06/2016 06:00	49.0	64.5	44.0
23/06/2016 18:15	48.9	63.4	45.7	24/06/2016 06:15	51.3	65.4	45.2
23/06/2016 18:30	49.8	69.1	45.8	24/06/2016 06:30	49.0	68.5	45.5
23/06/2016 18:45	55.1	83.8	45.6	24/06/2016 06:45	49.4	66.2	45.8
23/06/2016 19:00	49.0	60.5	46.4	24/06/2016 07:00	49.0	62.2	46.1
23/06/2016 19:15	49.3	61.9	46.0	24/06/2016 07:15	56.5	83.2	47.6
23/06/2016 19:30	48.5	66.5	45.3	24/06/2016 07:30	59.4	88.1	47.5
23/06/2016 19:45	49.5	65.1	45.3	24/06/2016 07:45	56.7	84.3	46.9
23/06/2016 20:00	47.1	61.8	43.2	24/06/2016 08:00	51.8	73.0	47.8
23/06/2016 20:15	46.7	64.3	41.5	24/06/2016 08:15	51.7	75.3	47.0
23/06/2016 20:30	65.7	91.4	42.1	24/06/2016 08:30	50.9	78.2	46.4
23/06/2016 20:45	51.1	82.4	40.4	24/06/2016 08:45	50.2	68.3	46.0
23/06/2016 21:00	61.7	89.7	42.6	24/06/2016 09:00	50.3	65.6	46.5
23/06/2016 21:15	45.3	58.0	40.2	24/06/2016 09:15	51.5	77.7	47.3

Location M04 – Trebanog Uchaf Farm



Time	$L_{A\,eq}$ dB	$L_{A\,max,F}$ dB	$L_{A\,F90}$ dB	Time	$L_{A\,eq}$ dB	$L_{A\,max,F}$ dB	$L_{A\,F90}$ dB
23/06/2016 10:45	44.0	76.8	38.6	23/06/2016 22:45	39.6	49.7	35.8
23/06/2016 11:00	43.8	63.2	38.2	23/06/2016 23:00	38.1	47.2	34.2
23/06/2016 11:15	49.9	65.9	39.0	23/06/2016 23:15	36.1	45.2	32.7
23/06/2016 11:30	40.8	60.0	38.2	23/06/2016 23:30	37.4	48.4	34.1
23/06/2016 11:45	39.9	53.3	37.6	23/06/2016 23:45	39.4	48.1	36.2
23/06/2016 12:00	42.0	53.5	38.6	24/06/2016 00:00	39.0	45.7	36.5
23/06/2016 12:15	39.1	54.0	36.6	24/06/2016 00:15	38.0	48.5	34.9
23/06/2016 12:30	43.8	60.5	36.6	24/06/2016 00:30	36.5	47.1	32.9
23/06/2016 12:45	40.3	50.5	37.8	24/06/2016 00:45	35.9	48.2	32.0
23/06/2016 13:00	40.0	57.1	37.5	24/06/2016 01:00	36.7	44.4	34.0
23/06/2016 13:15	41.3	57.6	37.0	24/06/2016 01:15	37.0	43.8	34.1
23/06/2016 13:30	41.1	56.9	37.5	24/06/2016 01:30	38.2	46.7	35.3
23/06/2016 13:45	42.3	57.4	37.9	24/06/2016 01:45	36.1	43.6	33.3
23/06/2016 14:00	42.2	56.8	37.8	24/06/2016 02:00	35.2	42.6	32.6
23/06/2016 14:15	41.0	58.5	37.3	24/06/2016 02:15	36.9	46.0	33.8
23/06/2016 14:30	39.0	48.8	36.9	24/06/2016 02:30	38.0	44.0	35.9
23/06/2016 14:45	39.5	52.6	37.3	24/06/2016 02:45	37.3	53.4	34.0
23/06/2016 15:00	39.8	51.7	37.0	24/06/2016 03:00	37.0	47.6	32.4
23/06/2016 15:15	40.8	49.7	38.6	24/06/2016 03:15	37.4	50.0	33.4
23/06/2016 15:30	43.4	53.6	41.0	24/06/2016 03:30	36.6	47.5	33.1
23/06/2016 15:45	44.1	57.6	41.9	24/06/2016 03:45	37.4	52.3	34.8
23/06/2016 16:00	48.0	66.2	42.4	24/06/2016 04:00	41.7	57.9	34.7
23/06/2016 16:15	45.5	61.4	42.9	24/06/2016 04:15	51.9	65.8	38.8
23/06/2016 16:30	45.2	65.2	42.9	24/06/2016 04:30	45.7	65.6	39.2
23/06/2016 16:45	46.1	57.0	43.9	24/06/2016 04:45	42.6	51.5	39.7
23/06/2016 17:00	45.7	56.5	44.0	24/06/2016 05:00	43.0	56.0	39.6
23/06/2016 17:15	45.8	53.6	44.4	24/06/2016 05:15	43.4	59.7	40.1
23/06/2016 17:30	45.9	53.6	44.3	24/06/2016 05:30	44.8	66.8	41.0
23/06/2016 17:45	45.7	53.7	43.5	24/06/2016 05:45	44.4	62.4	41.2
23/06/2016 18:00	45.3	59.3	43.2	24/06/2016 06:00	44.5	59.2	42.3
23/06/2016 18:15	44.6	55.4	42.5	24/06/2016 06:15	45.6	55.0	43.3
23/06/2016 18:30	44.2	58.7	41.9	24/06/2016 06:30	46.2	57.2	43.9
23/06/2016 18:45	44.1	53.6	42.3	24/06/2016 06:45	46.2	53.6	44.1
23/06/2016 19:00	43.5	55.3	41.8	24/06/2016 07:00	46.3	55.4	44.6
23/06/2016 19:15	44.0	56.6	42.1	24/06/2016 07:15	46.7	61.4	44.4
23/06/2016 19:30	45.8	67.0	42.3	24/06/2016 07:30	47.3	58.8	45.0
23/06/2016 19:45	45.6	58.0	41.8	24/06/2016 07:45	48.8	62.4	45.0
23/06/2016 20:00	46.1	61.3	41.1	24/06/2016 08:00	47.7	62.3	46.0
23/06/2016 20:15	51.3	74.7	40.4	24/06/2016 08:15	49.0	71.8	45.6
23/06/2016 20:30	42.9	58.6	39.5	24/06/2016 08:30	48.2	68.5	45.5
23/06/2016 20:45	41.5	54.6	38.7	24/06/2016 08:45	47.0	53.3	45.1
23/06/2016 21:00	42.0	54.9	39.2	24/06/2016 09:00	47.8	65.4	45.0
23/06/2016 21:15	43.6	58.8	38.6	24/06/2016 09:15	47.8	62.4	45.5
23/06/2016 21:30	43.3	57.6	39.2	24/06/2016 09:30	47.7	64.0	45.6
23/06/2016 21:45	44.6	61.7	38.5	24/06/2016 09:45	47.1	59.0	45.3
23/06/2016 22:00	42.7	62.7	36.8	24/06/2016 10:00	47.2	63.9	43.0
23/06/2016 22:15	40.4	47.9	38.0	24/06/2016 10:15	46.4	54.1	43.5
23/06/2016 22:30	39.9	48.5	37.4	24/06/2016 10:30	47.4	61.8	44.6

Location M05 – Fifth Avenue Guest House

Time and Date	L_{Aeq}, dB	L_{AFmax}, dB	L_{A90}, dB
(2016/06/23 12:45:02.00)	53.4	80.3	41.3
(2016/06/23 13:00:02.00)	55.4	78.7	42.0
(2016/06/23 13:15:03.00)	58.2	84.8	40.6