

Wednesday, 6 July 2022

Outlook 2022 Noise Management Report

This document references Outlook Festival 2022 - Noise Management Plan V2

Contents

1. Abstract	3
2. Weather conditions	4
3. Event hours	5
4. Performance stages	5
5. Environment	6
6. Monitoring data	7
7. Summary	7
8. Appendix 1	8

Attachments

SPLtrackReport_2022-06-30_2022-07-03_Cholmondeley Estate (1).zip
SPLtrackReport_Cholmondeley Estate_2022-06-30_2022-07-03 (2).pdf
SPLtrackReport_Cholmondeley Estate_2022-06-30_2022-07-03 (1).pdf
Outlook 2022 Message Log.csv

1. Abstract

1.1. Outlook Festival took place at Cholmondeley Estate from the 30th June - 3rd July 2022.

1.2. The noise management team comprised two principle engineers:

1.2.1. Chris Beale

1.2.2. Kelly Lawrence

1.2.3. A reserve engineer suffered a back injury and had to leave the site on the 30th June.

1.3. Four offsite monitoring locations were established and fitted with remote meter systems. These were:

1.3.1. Heath Equine

1.3.2. Cross Lanes Farm

1.3.3. Croxton Heath

1.3.4. The Estate Office

1.3.5. The location of meters is shown on the site map.¹

1.4. Four meters were installed at principle sound stages:

1.4.1. The Main Stage

1.4.2. Sinai Arena

1.4.3. The Gatehouse

1.4.4. Dub Smugglers

1.5. Monitors were configured to record data from noon to 04:00 hours the following morning.

¹ Appendix 1

2. Weather conditions

2.1. Weather conditions for the duration of the event were largely fine and warm with variable winds. Evening temperatures fell rapidly at approximately 20:00 each day to approximately 12°C.

2.2. Conditions were ideal for inversion layer development. Inversions occur when cold air moves over warmer air near the ground creating a thermocline layer. The layer acts as an impedance barrier from which sound waves can be reflected, causing audibility at distances from the site that would not be possible under other meteorological conditions.

Time	Temperature (°F)			Dew Point (°F)			Humidity (%)			Wind Speed (mph)			Pressure (in)			Precipitation
Jun	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Total
26	66	59.3	52	48	45.8	43	82	62.8	43	14	9.3	3	29.6	29.5	29.4	0.00
27	63	56.9	52	52	47.0	39	94	70.8	45	14	7.6	2	29.8	29.6	29.6	0.00
28	64	58.8	54	52	48.4	45	82	69.3	56	14	7.4	2	29.7	29.6	29.6	0.00
29	68	60.1	54	55	53.5	50	94	79.0	56	16	5.3	2	29.6	29.5	29.5	0.00
30	66	59.8	54	55	51.0	46	100	74.2	49	12	5.2	1	29.6	29.6	29.5	0.00
1	64	57.8	52	54	51.7	50	100	80.7	63	15	6.0	2	29.7	29.7	29.6	0.00
2	66	58.9	50	55	49.4	46	94	71.9	55	16	8.7	3	29.7	29.7	29.6	0.00

Time	Temperature (°F)			Dew Point (°F)			Humidity (%)			Wind Speed (mph)			Pressure (in)			Precipitation
Jul	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Total
3	64	57.0	50	55	49.0	46	94	76.5	55	14	8.2	2	29.9	29.8	29.7	0.00
4	63	58.4	54	50	47.4	43	88	68.1	48	21	11.2	3	29.9	29.9	29.8	0.00
5	64	59.4	54	55	48.9	46	94	69.1	52	16	10.1	5	30.1	30.0	29.9	0.00
6	64	61.0	57	57	55.8	54	100	84.4	68	17	11.2	2	30.1	30.0	30.0	0.00

2.3. Weather summary:

2.4. These conditions present a dilemma for the festival, as even modest sound levels on the site can produce clear audibility at distance.

3. Event hours

- 3.1. The festival was programmed to operate from 14:00 to 04:00 Thursday to Sunday (Monday morning).
- 3.2. Following observations of impact the organisers elected to stop the event at midnight on the 3rd July to prevent disturbance to those working on Monday 4th.

4. Performance stages

- 4.1. Considerable effort was made to mitigate sound propagation from all stages. This involved hay bale baffle walls and, in some cases, novel systems designs.
- 4.2. High pass filters were applied to reduce very low frequency output.
- 4.3. Stages that presented the greatest challenge were:
 - 4.3.1. Sinai Arena - this stage was under a big top tent. The roof fabric was extremely taught and became a passive loudspeaker in its own right when excited by bass energy from the sound system. Unfortunately the tent that was ordered for the event became unavailable and was replaced at the last minute by this less suitable structure.
 - 4.3.2. SubDub arena - featured reggae sound systems that were variable in quality and in some cases difficult to control. This stage closed at 23:00 each day and 09:00 on Sunday.
 - 4.3.3. The Keep stage - a smaller stage that saw a great variation in audience size depending upon the artist and produced similarly variable impact.
 - 4.3.4. The Gatehouse - a large system under a clearspan marquee. The operators were helpful however the size of the system relative to the audience and the passive effect of the roof fabric demanded regular attenuation.
- 4.4. Stages that were more controllable were:
 - 4.4.1. Main stage - well designed and managed. This stage had a relatively small effect upon environmental noise. It closed at 23:00 each day.

4.4.2. The Tiltyard - a novel design using distributed array techniques with low frequency baffles. This stage emitted very little bass and was one of the better sounding stages.

4.4.3. Dub Smugglers - a smaller stage enclosed by a tall hay bale wall. This stage produced low propagation offsite.

4.5. In general the nature of the event was to showcase music that had significant bass content and there was a strong desire on the part of the system suppliers to present their systems in the best light to an audience that expected that experience. This placed great pressure on the noise team to mitigate environmental impact.

5. Environment

5.1. Rural Cheshire in the areas around the estate is not used to music events of this kind. There was significant response from residents² via the event portal that was accessible on the website and via the complaints phone line.

5.2. Whilst complaints were understandable, there were some that objected to hearing the event at any level, day or night. Events of this nature are always audible to some degree and there is well established guidance³ that provides sound limits that are acceptable for sites that hold a small number of events each year.

5.3. Night noise (post 23:00) has lower noise limit guidance and it was this period that created the greatest challenge for the event.

5.4. Weather gave the event the worst possible conditions for noise propagation. Had the nights been warmer or had there been significant rainfall the noise impact of the event would have been far less. Background levels in virtually still night-time conditions were very low, giving the site greater prominence, and inversion layers caused extreme far-field propagation.

² Attached as separate file

³ Noise Council Guidance on the Control of Noise at Concerts 1995

6. Monitoring data

6.1. Data files are large and have been attached to this document separately.

6.2. Equivalent sound levels were relatively low, not exceeding:

6.2.1. 55dBLAeq(t) from 14:00-23:00 and

6.2.2. 50dBLAeq(t) from 23:00-04:00.

6.3. These levels are similar to those imposed as limits at rural music events in other parts of the country.

6.4. Low frequency levels were higher than expected, reaching:

6.4.1. 70-77dBLCeq(t) from 14:00-23:00 and

6.4.2. Up to 77dBLCeq(t) from 23:00-04:00 at Croxton, the closest point to the event.

7. Summary

7.1.1. Whilst it was possible to manage the stages at this event to suitable A weighted levels the low frequency content was so great that it became very difficult to contain bass propagation.

7.1.2. If the event were to happen again it would be necessary to focus design on structures and avoid marquee fabric covers.

7.1.3. The Tiltyard arena was an example of excellent sound containment that did not create significant offsite noise, whilst the Sinai big top stage had severe impact even when the volume was reduced to marginal levels and much of the bass removed.

7.1.4. Clearly events of this nature cannot operate into the early hours in rural settings on Thursday and Sunday evenings as there is a high risk of disturbance to those with work the following day.

