



NOISE MANAGEMENT PLAN: WILD ROOTS FESTIVAL, SLIGO

Prepared for: Wild Roots Festival

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1. INTRODUCTION

1.1 Noise Consultant - James Walsh

I have worked in the field of acoustics and sound for 24 years. This work has involved consulting on acoustics and noise related projects for a range of organisations across the public and private sector, and has included regularly undertaking environmental noise management and control for concerts, festivals and other outdoor events.

I hold a Post Graduate Diploma in Acoustics and Noise Control and a Master's Degree in Applied Acoustics. I am a full corporate member of the Institute of Acoustics (IOA) - the UK and Ireland's professional body for those working in Acoustics, Noise and Vibration - and the Institute of Sound and Communication Engineers (ISCE). I am also a founding member of the Association of Acoustics Consultants of Ireland (AACI)

1.2 Event - Wild Roots Festival 2022, Sligo

I have been appointed by the organisers of Wild Roots Festival to monitor, manage and report on noise emissions from the festival, with the aim of ensuring that disturbance or annoyance to those living and working in proximity to the event will be minimised.

1.3 Event Overview

It is proposed that the festival will take place from Thursday 2nd to Sunday 5th June 2022 in the Hazlewood area of Co. Sligo, approximately 2 kilometres to the east of Sligo town centre (see Figure 2).

Current site plans show two expected principal noise sources, the Main Stage situated to the west of the site and a Wild West stage to the north. Other potential noise sources include The Lost Forest dance marquee and other smaller stages, but as these other areas will either be enclosed or have lower level music output the Main Stage and the Wild West stages are expected to be the dominant sound sources. It is understood that background music will be played at a number of locations around the site throughout the event (see Figure 1).

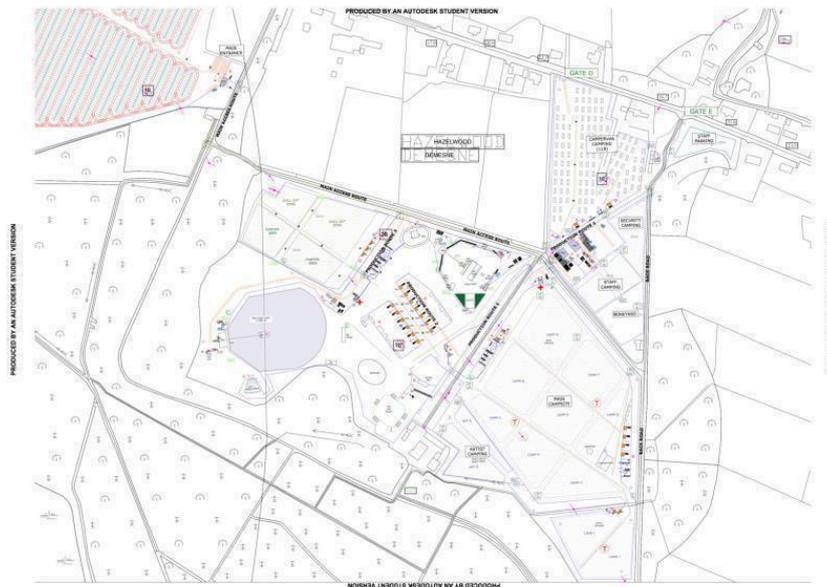


Figure 1 Proposed Site Plan

1.4 Noise Sensitive Premises

Following site visits and consultation with the event promoters, a number of Noise Sensitive Premises (NSPs) in the vicinity of the event site were identified and are listed below:

1. Houses on Hazlewood Avenue to the east of the festival site.
2. Houses at Doorley Park to the south-west of the site across the Garvoge River.
3. Houses at Holywell Road to the south of the site and just north of Lough Gill.



Figure 2 Site environs and NSPs (image courtesy Google Maps)

2.0 GUIDANCE & CRITERIA

2.1 Code of Practice on Environmental Noise Control at Concerts

In order to minimise disturbance due to the Wild Roots Festival at the NSPs identified above, unless otherwise stipulated by the Local Authority noise emissions will be managed and controlled according to guidance set out in the Code of Practice (CoP) on Environmental Noise Control at Concerts (1995).

The CoP offers guideline noise levels for various environments, along with details of the strategies that should be employed before, during and after the event to ensure regulations relating to noise are enforced.

2.2 Exceedance Levels - 09:00 hours to 23:00 hours

In the case of a rural venue, the CoP states that over a 15 minute period the Music Noise Level (MNL) shall not exceed 65 dB LA_{eq} at 1 metre from the facade of any NSP between the hours of 09:00 and 23:00 hrs.

2.3 Exceedance Levels - after 23:00 hours

For events continuing after 23:00 hrs the music noise should not be audible inside an NSP with the windows open for ventilation.

It is stated in the CoP that “control can be exercised in this situation by limiting the music noise so it is just audible outside the NSP. When that is achieved it can be assumed that the music is not audible inside the NSP”.

The CoP notes that in venues where only one event is held on just one day in any one year, it has been found possible to adopt a higher limit value without causing an unnecessary level of disturbance.

2.4 Recommended Stage Orientation

In order to direct noise emissions away from nearby dwellings and other NSPs, it is recommended that stages are oriented in the directions shown in Figure 3 below.



Figure 3 Stage Orientation (image courtesy Google Maps)

2.5 Offsite Noise Level Predictions

It is understood that the two larger stages, the Main Stage and the Wild West stage, will not run concurrently at any time during the festival. Therefore, noise predictions at the NSPs have been carried out to assess for combinations of each large stage and the Lost Forest dance stage. The results of these predictions are presented below, with more detailed calculations set out in Appendix B. The assumptions used in the prediction model were as follows:

- The directivity factor: A combination of the sound system design and the orientation of the speakers and stage relative to the NSP (-20 dB at 120° to – 180°, - 10 dB at 60° – 120°; and 0 dB at 0° – 60° from the centre axis of the PA system)
- Attenuation through the fabric of the dance marquee (taken to be 5 dBA)
- Barrier attenuation from buildings, site structures and topography taken to be 5 dBA (partial line of sight and 10 dBA no line of sight)
- Front of house levels at stages - Main Stage 100 dBA maximum level typically reserved for headline act and therefore considered to be worst-case condition. Wild West Stage 95 dBA.
- No ground attenuation has been included.

Stages	Offsite Predicted Noise Level (LAeq)			Level Exceedance?
	NSP 1 (Hazlewood)	NSP 2 (Doorley)	NSP 3 (Holywell)	
Main & Dance	56	59	61	No
Wild West & Dance	64	56	47	No

Table 1 Offsite Noise Level Predictions

2.6 Validation of Level Prediction Method

A promotional event was held at the festival site on Friday 14th May at which the Wild West stage and several other site structures were erected and a sound system equivalent to the one that will be in place for the August event was installed. A number of short sound level readings were taken offsite at the nearest NSPs on Hazelwood Road while a sound analyser at the Front of House mixing desk logged the concurrent onsite level. This procedure allowed verification of the offsite level prediction model described in section 2.4 above.

As expected, the LAeq level at the NSP was 52 dBA, corresponding to a level of 90 dBA at Front of House and representing an attenuation of 38 dBA, which is within 3 dBA of the level predicted, thus validating the prediction method.

3.0 NOISE MANAGEMENT

3.1 Pre-event Noise Mitigation

The Event Manager/Production manager will be advised of onsite noise limits and this information should be conveyed to all contractors and PA companies in the form of contractual documentation.

Residents in the vicinity of the festival site will be informed of a contact phone number that will be available to them for the duration of the festival, and via which they can log a comment or complaint with respect to noise. They, along with the Local Authority, should also be informed of the concert, sound check and propagation test times.

During load-in and load-out of production equipment, care should be taken to limit any unnecessary noise and minimise potential noise impacts on any NSPs in the vicinity of the site.

3.2 Noise Monitoring Strategy

Meteorological conditions on the day(s) of the festival, such as wind direction or temperature inversions, have the potential to skew pre-event noise level predictions and therefore a noise propagation test will be undertaken prior to the start of the event (beginning no earlier than 10:00) in order to set appropriate control limits in the audience area and at locations at the site perimeter. Adherence to these limits will ensure that the MNL will not exceed the levels set out in Section 2 above at NSPs during the event.

A permanent noise monitoring station will then be set up inside the Lost Forest Dance tent, along with a monitor that will be alternately placed at the Wild West stage and the Main Stage and at three offsite NSPs as identified in Section 1.4. These monitoring stations will be wirelessly linked to enable continuous observation.

During the event, occasional readings will be taken at other stages and as close as is reasonably practicable to NSPs to verify the accuracy of the control limit and, moreover, to ensure that noise level limits are not exceeded.

If there is a breach of levels set out in Section 2, the mixing engineer will be immediately instructed to reduce the system output level as appropriate.

3.3 Community Engagement

Should complaints of music noise in the community arise during the event, the details will be logged by the onsite Event Production Team and passed on to the noise consultant who will assess the music noise level at the closest permanent external monitor to the complainant. Where a resident wishes for a consultant to visit, this will be undertaken (wherever practicable) and location measurements recorded.

A complaint log is provided in Appendix C

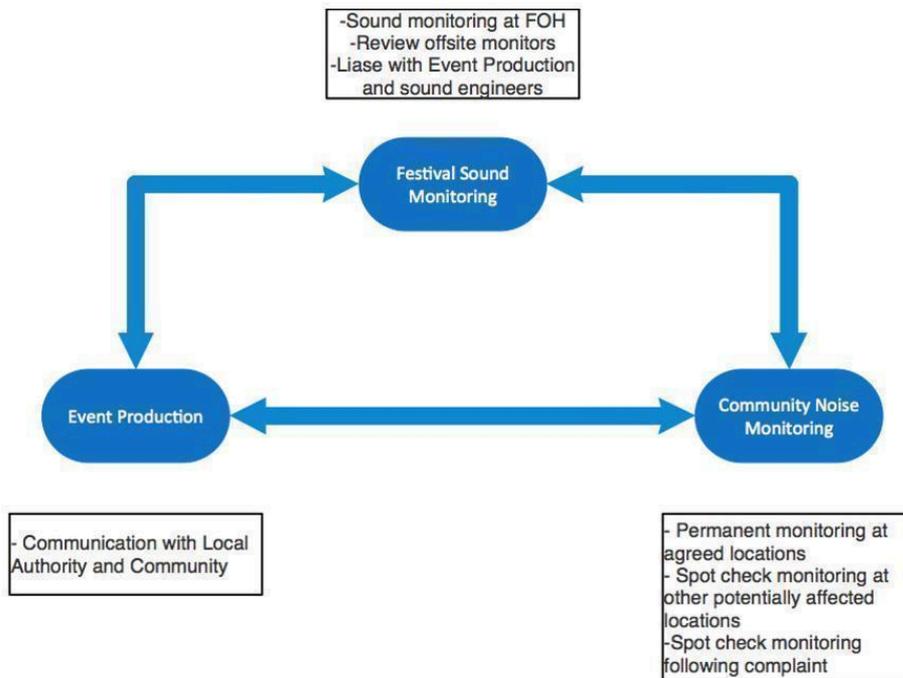


Figure 3 Noise Control Process

3.4 Other Potential Noise Sources

Where generators are to be used, they should be placed away from residential properties and if possible behind a structure or screen. Silenced generators may need to be selected.

3.5 Provision of Noise Data

Ongoing noise monitoring data will be made available to Event Production and the relevant authorities at all times on request. Full monitoring details will be submitted within five working days of the festival end.



4.0 CONCLUSION

It is proposed that the Wild Roots Festival will take place in Hazlewood, Sligo from the 2nd to the 5th June 2022 and the organisers are committed to ensuring that the festival does not cause undue noise disturbance to the nearby community.

Offsite noise level predictions have been carried out to test the viability of the event and it has been found that Main Stage FOH levels can reach 100 dBA without resulting in excessive levels at nearby NSPs.

A comprehensive Noise Management Plan has been drawn up and will be implemented in full during the Wild Roots festival. The plan includes contact details to allow any complaints that might arise to be easily communicated to and acted upon by the organisers. The implementation of this policy will ensure that noise emissions from the event will be minimised.

APPENDIX A

ACOUSTIC TERMINOLOGY

Decibel (dB)

The human ear responds to magnitudes of sound pressure ranging from 2×10^{-5} Pa up to 200 Pa. In order to conveniently express this large order of values a different scale is used. The resulting parameter is called the 'sound pressure level' (L_p) and the associated measurement unit is the decibel (dB). As the decibel is a logarithmic ratio, the laws of logarithmic addition and subtraction apply. The threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is only perceptible under controlled conditions. A change of 3 dB is just noticeable and a change of 10 dB is perceived as a doubling or halving of loudness.

A-weighting (dB(A))

The human ear responds to frequency variations ranging from 20Hz to 20kHz, with increased sensitivity occurring in or about the 800Hz - 6kHz range. At low sound pressure levels (less than 40 dB) the ear is particularly insensitive to frequencies below 200Hz or above 8kHz, but as the level of sound increases the ear's response becomes increasingly more linear across the audible bandwidth. In an attempt to simulate the human ear's natural response to sound sources of different intensity, three weighting contours were adopted and incorporated into sound level meters, namely the 'A', 'B' and 'C' weighting curves.

It has been discovered that the 'A' weighting curve most accurately represents human's response to noise, as in effect it gradually reduces the significance of lower frequencies.

Equivalent Continuous Sound Pressure Level - (L_{Aeq})

The equivalent continuous A-weighted sound pressure level in decibels at the measurement position over a given reference time interval. This is used to provide an equivalent steady state noise level whenever a fluctuating noise is measured.

APPENDIX B

NOISE LEVEL PREDICTION CALCULATIONS

NSP	Stage	Distance m	FOH m	Distance Correction dBA	Directivity Correction dBA	Structural Attenuation dBA	Barrier Attenuation dBA	FOH level dBA	NSP level dBA
NSP 1 Hazlewood Road	Wild West	630	30	-26	0	0	-5	95	64
	Dance	630	20	-30	-20	-5	-5	100	40
<i>Combined Level at NSP 1 = 64 dBA</i>									

NSP	Stage	Distance m	FOH m	Distance Correction dBA	Directivity Correction dBA	Structural Attenuation dBA	Barrier Attenuation dBA	FOH level dBA	NSP level dBA
NSP 1 Hazlewood Road	Main	820	30	-29	-10	0	-5	100	56
	Dance	630	20	-30	-20	-5	-5	100	40
<i>Combined Level at NSP 1 = 56 dBA</i>									

NSP	Stage	Distance m	FOH m	Distance Correction dBA	Directivity Correction dBA	Structural Attenuation dBA	Barrier Attenuation dBA	FOH level dBA	NSP level dBA
NSP 2 Doorley Park	Main	900	30	-29	-10	0	-5	100	56
	Dance	1000	20	-34	0	-5	-5	100	56
<i>Combined Level at NSP 2 = 59 dBA</i>									

NSP	Stage	Distance m	FOH m	Distance Correction dBA	Directivity Correction dBA	Structural Attenuation dBA	Barrier Attenuation dBA	FOH level dBA	NSP level dBA
NSP 2 Doorley Park	Wild West	1150	30	-32	-20	0	-5	95	38
	Dance	1000	20	-34	0	-5	-5	100	56
<i>Combined Level at NSP 2 = 56 dBA</i>									



NSP	Stage	Distance m	FOH m	Distance Correction dBA	Directivity Correction dBA	Structural Attenuation dBA	Barrier Attenuation dBA	FOH level dBA	NSP level dBA
NSP 3 Holywell Road	Main	1600	30	-34	0	0	-5	100	61
	Dance	1500	20	-37	-10	-5	-5	100	43
	<i>Combined Level at NSP 3 = 61 dBA</i>								

NSP	Stage	Distance m	FOH m	Distance Correction dBA	Directivity Correction dBA	Structural Attenuation dBA	Barrier Attenuation dBA	FOH level dBA	NSP level dBA
NSP 3 Holywell Road	Wild West	1650	30	-35	-10	0	-5	95	45
	Dance	1500	20	-37	-10	-5	-5	100	43
	<i>Combined Level at NSP 3 = 47 dBA</i>								



APPENDIX C

COMPLAINT FORM

WILD ROOTS FESTIVAL	NOISE COMPLAINT/COMMENT
<i>Date and Time Complaint received</i>	
<i>Name of Complainant</i>	
<i>Address of Complainant</i>	
<i>Telephone Number of Complainant</i>	
<i>Location of Noise Disturbance</i>	
<i>Time Disturbance Occurred</i>	
<i>Description of Noise (e.g. Bass, Indoor or Outdoors)</i>	
<i>Action taken</i>	