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Noise Management Strategy

COGO

Barking Park, Barking



JOYNES NASH
ACOUSTIC CONSULTANTS

Client Slammin Events
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www.joynes-nash.co.uk

Simon Joynes
07870508492
simon@joynes-nash.co.uk

Pete Nash
07769202073
pete@joynes-nash.co.uk

Office
17 Park Lane, Henlow,
Bedfordshire, SG16 6AT

Company Number:
9422341

VAT Registration No:
204 752234

About The Team

Peter Nash BSc(Hons), MSc, CEnvH, MCIEH, MIOA, TechIOSH

Peter Nash has 16 years' experience as a Local Authority Environmental Health Officer, up to Technical Manager Level and has 15 years of Professional Practice within the Environment Industry. He holds a BSc(Hons) in Environmental Health, the IOA Diploma in Acoustics and Noise Control and an MSc in Applied Acoustics. He is a Chartered Environmental Health Practitioner and registered with the Environmental Health Registration Board. Peter is a Member of the Chartered Institute of Environmental Health, and a Member of the Institute of Acoustics. He has appeared as an expert witness in a number of significant noise nuisance and planning cases, public inquiries and appeals.

Simon Joynes BSc(Hons), MSc, CEnvH, MCIEH, AMILM, AMIOA

Simon Joynes has over 20 years' experience in both Private Sector and Local Government. He has acted as a senior advisor and has significant experience in the technical aspects and practical application of environmental law, including acting as an expert witness in courts and planning enquiries and the preparation and reviewing of environmental reports and mitigation strategies. (Air Quality, Land Contamination, Acoustics, Water Quality, Odour Management & Industry Regulation). He holds a BSc (Hons) Environmental Health, MSc in Contaminated Land Remediation, the IOA Diploma in Acoustics and Noise Control, Certificates of Competence Environmental Impact Assessments. He also holds affiliations with the Chartered Institute of Environmental Health, the Institute of Acoustics and is an Associate Member of the Institute of Leadership and Management.

An introduction to Joynes Nash

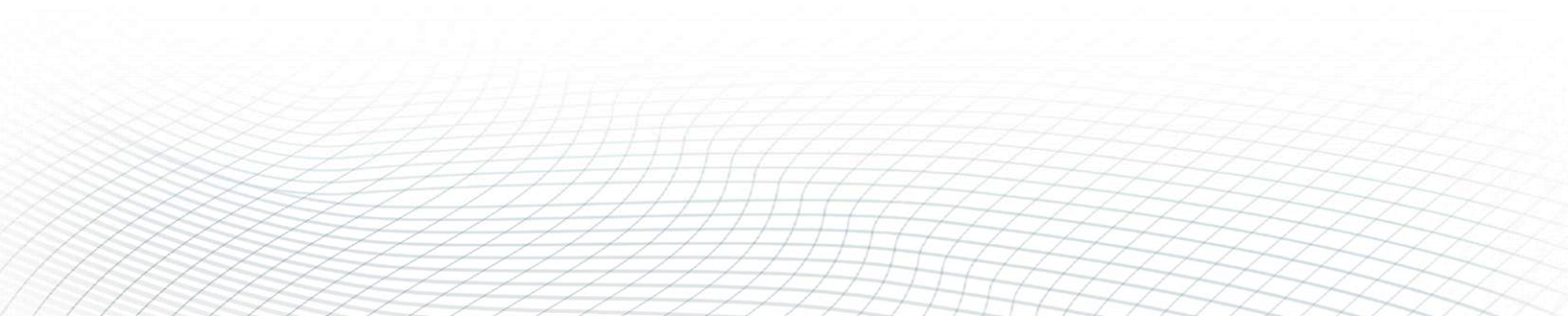
Joynes Nash is a leading consultancy for the live events industry. We have extensive experience of live music events and a proven track record of working with event organisers to enhance the audience's experience, whilst preserving the image of events and venues.

Our consultants experience has ranged from relatively small scale to major events staged both in urban and residential environments, providing for tens of thousands of people. Projects and clients have included Junction 2, Carfest (North and South), Garage Nation Festival, BBC Introducing, Guards Polo Club, Tramlines Festival, Liverpool Sound City, Red Bull Music Academy. We are also responsible for looking after the interests of venues such as Donington Park Racing Circuit, Saracens Rugby Club and Tobacco Dock with respect to live events.

We consider despite the many technical challenges that events bring, that relationships between all interested parties are of paramount importance and that each and every one of these understands situations clearly. We therefore approach each event not in isolation, but carefully consider the public image of events, the venues and the thoughts of the wider community to make events successful and to secure venues for future years.

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1. Introduction

Joynes Nash has been tasked to consider the approach to noise management, for a COGO Festival at Barking Park, Barking in 2023.

2. About the Noise Management Strategy

The event promoters and their advisors are committed to proactively manage noise and have successfully held events of a similar nature for many years throughout the UK. This Strategy looks to consider the feasibility of the venue, outline mechanisms for the control of noise during any event, ensure that any event accords with relevant guidance, does not cause a Public Nuisance and ensure that mechanisms are in place to effectively manage complaints.

3. Event Outline

COGO is a 15,000 capacity three stage electronic dance music festival, looking to be held for the first time in 2023. The operating hours for Regulated Entertainment will be 12:00 – 22:30.

The team behind the event are responsible for some of the largest dance music events in the UK including, ELROW (held in Parsloes Park in 2022), Arcadia Festival and Abode.

4. Site Context

Barking Park is a large park consisting of some 30 Hectares in the London Borough of Barking and Dagenham. Like many urban parks it is managed and owned by the borough council and presents many challenges in terms of receptors, mainly in the form of residential premises around the site.

To our knowledge the venue has held several events but has not held an event of this scale previously and it is expected that 2023 will in fact be a trial year for the venue. It is accepted that residents and the Local Authorities will remain nervous ahead of the event. However, it is not uncommon to hold such events in urban parks with similar challenges and providing that appropriate management is in place there is no reason that such events cannot successfully take place.

The map extract below identifies the main residential areas and the critical isolated properties.



5. Premises Licences

It is understood that the organisers are intending to apply for the appropriate licences and this strategy looks to fulfil part of the due diligence being conducted by our clients into the feasibility of the site.

6. Permitted Noise Levels

The main guidance for any festival was historically contained within the Code of Practice for Concerts 1995 and whilst this has been withdrawn (and no replacement is currently available) the approach detailed in this strategy and to be adopted throughout is consistent with such.

Regarding permitted levels, all venues present several challenges and indeed there needs to be a careful balance between the needs of the organisers being able to deliver a successful event and the impacts on the local community. In recent years, we have seen many debates on permitted levels and the guidance is currently subject to review with a view to taking a more pragmatic approach to the control of noise. This has been further driven by the economic constraints placed on venues and Local Authorities as they look to use the spaces to generate additional income from events not typical of previous uses both in terms of scale and content.

The outcome of which is that for many spaces to operate we have seen a relaxation in the permitted levels, largely to reflect those in urban stadia where the permitted levels are 75dB(A).

This approach is consistent with the findings of the DEFRA study NANR 292, in that the source location for the concert does not have any impact on the annoyance of residents, so the differentiation between parks and stadia outlined within the old code of practice is irrelevant.

Likewise, many Local Authorities throughout the UK have relaxed the number of permitted days to which these levels apply in order to facilitate events of this kind.

Joynes Nash have been successful in delivering similar events throughout the UK and our approach as always is to only seek a relaxation where it is necessary and ensure that during any such event any exceedance of a permitted level is both justified and necessary. In order to achieve such we monitor front of house levels, to ensure that such remain between 95 – 98dB(A), the minimum considered necessary for an event, and then balance such with offsite observations. Control is therefore always maintained throughout and it is demonstrable that there has been no unnecessary increase or creep in noise levels.

It is proposed that for this event a target music noise limit of 74dB $L_{Aeq(15\text{ min})}$ will be in place, as was the case for the ELROW event at Parsloes Park in 2022.

7. Low Frequency Noise

At the time of publication of the Noise Council Code, little information on the community response to low frequency noise from concerts was available. Footnotes were included in the Code which concluded, in the absence of any precise guidance, that a level of 70dB in the 63Hz and 125Hz octave band was satisfactory and that a level of 80dB or more in either of those octave frequency bands causes significant disturbance. The study referred to in the guidance is in fact based on frequency imbalance from concerts and relates to impacts at locations 2km away.

Near to the venue, the use of the L_{Aeq} index will adequately take account of the low frequency sound as the music's frequency spectrum is dominated by the low frequency bass sounds and in these circumstances the A-weighting network is sensitive to changes in the music noise level. The L_{Aeq} criterion will therefore limit the low frequency sound adequately. This approach has been supported by research carried out on behalf of DEFRA.

What is therefore proposed, is that we deal with the low frequency element based on professional experience both onsite and offsite. Experience suggests that to maintain a satisfactory level within audience areas individual frequencies between 40 and 80Hz should be kept between 105 and 115dB. Offsite the key is to then identify and rectify any frequency imbalances between the 1:3 octaves.

8. Preliminary Site Feasibility Study

In order to evaluate the feasibility of the site, noise predictions have been carried out at the most sensitive receptor positions based on an indicative site layout shown below.

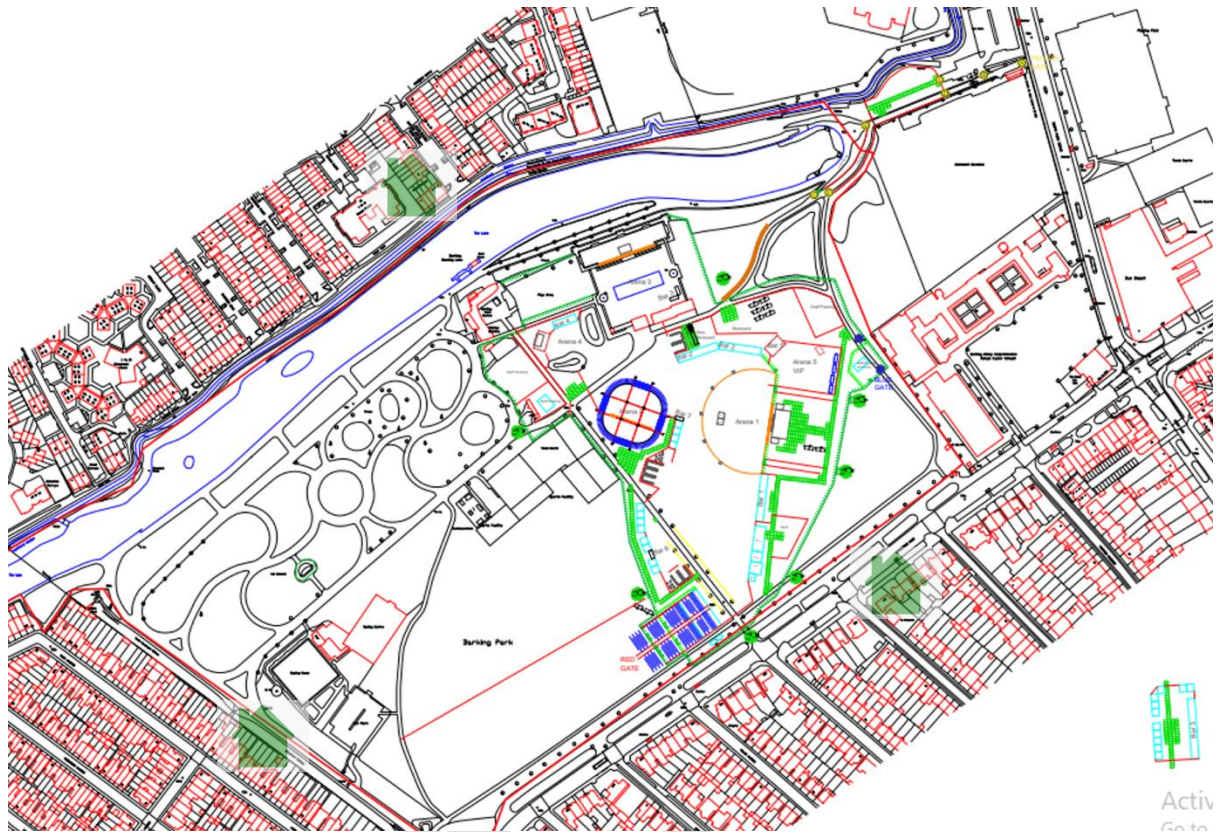


Figure 8.1 – Sound Site Proposals with closest critical receptor positions

The following assumptions have been made in predicting noise levels.

- An orientation correction of between 0db and 15dB is assumed for noise sensitive properties depending on the location relative to the stage location.
- Distance attenuation is based on progressive attenuation under neutral meteorological conditions
- Where appropriate, attenuation has been considered for the effect of barriers between the noise sources and noise sensitive premises. BS5228 Code of Practice for noise and vibration control of construction and open sites (2009) gives a working approximation of the effect of a barrier or other topographical feature. An attenuation of 10dB is assumed when the noise screen completely hides the source from the receiver.

Predicted Receiver Levels

The predicted receiver levels have been determined using a distance attenuation correction of $(L_2=L_1-20\log(r_2/r_1))$. The source levels utilised are based on experience from similar events.

Receptor	Stages	Distance	FOH	Distance				FOH	Level at NSR
				Correction	Directivity	Structure	Barrier		
MP1 - Longbridge Road	Arena 1	161	40	85.9	12	0	5	98	68.9
	Arena 2	253	30	79.5	12	3	5	98	59.5
	Arena 3	340	25	75.3	0	0	5	98	70.3
	Arena 4	353	20	70.1	3	0	5	95	62.1

COMBINED LAEQ 73.2

Receptor	Stages	Distance	FOH	Distance				FOH	Level at NSR
				Correction	Directivity	Structure	Barrier		
MP2 - Park Avenue	Arena 1	499	40	76.1	6	0	5	98	65.1
	Arena 2	408	30	75.3	12	3	5	98	55.3
	Arena 3	422	25	73.5	10	3	5	98	55.5
	Arena 4	481	20	67.4	10	0	5	95	52.4

COMBINED LAEQ 66.1

Receptor	Stages	Distance	FOH	Distance				FOH	Level at NSR
				Correction	Directivity	Structure	Barrier		
MP3 - Alder Walk	Arena 1	325	40	79.8	8	0	5	98	66.8
	Arena 2	251	30	79.5	6	3	5	98	65.5
	Arena 3	145	25	80.8	12	0	5	98	63.8
	Arena 4	153	20	77.3	10	0	5	95	62.3

COMBINED LAEQ 71.0

The calculations are conservative, in that they do not consider any attenuation such as provided for by crowds, ground attenuation, the presence of portable structures on site etc. Neither do they consider the presence of boundary treatments which typically surround residential receptors and offer additional levels of attenuation.

Limitations

It must be noted that noise predictions have several limitations with respect to live sound and whilst providing a relatively accurate indication of noise impact at sensitive premises, final levels can vary during actual operation of the event. Meteorological conditions such as temperature inversions and wind direction may for example have a significant effect and experience suggests that noise levels may be increased by up to 10dB.

9. Sound System Design and Setup

There is significant variation in the directivity of different sound systems provided by the various manufacturers, largely around the horizontal dispersion of the loudspeaker.

Therefore, the sound systems would be designed and set up in such a way as to minimise noise impact at noise sensitive properties. Sound systems would be flown to focus the noise into the audience area, with a requirement for array style systems. Their configuration would also aim to minimise horizontal and vertical dispersion to reduce overspill from the intended coverage areas. To achieve this any hung system would be positioned as low as possible to achieve full audience cover. Consideration would be given to delay speakers to achieve satisfactory audience cover, whilst not using excessive sound power from the stage.

Sub bass systems will also be set up to provide a cardioid dispersion patterns to maximise the directivity of sound systems and minimise low frequency noise levels behind the stages.

During the event any guest engineers or individual acts would have only limited control over the main PA system in their area. The maximum level at sound sites would be directly under the control of the Festival Organiser or its contractors and adjusted only by them.

10. Sound Check and Rehearsals

Sound checks would be conducted immediately before any event for an expected 1hr, these will not take place prior to 10:00. These would be used to calibrate levels both internally within the event site and externally at receiver positions. Such levels would then be used as a guide throughout the event and will be established using music of a similar type. The Local Authority are invited to attend such should they wish.

11. Noise Control Monitoring

Prior to any stage running, the stage manager and sound engineers would be briefed by Joynes Nash on the importance of limiting any off-site disturbance and compliance restrictions.

The engineers would be encouraged to leave some "headroom" early in the event to provide a safety margin to allow for some upward movement of levels, should that be necessary to maintain audience satisfaction or permit headline acts.

The intention would be to initially run the systems at an anticipated audience satisfaction level), based on the audience levels of 95 - 98dB(A) and to modify them should that be necessary following off-site level monitoring throughout the event. Likewise, on site levels would always reflect audience size and dynamics (for example earlier in the day overall levels may be lower to reflect smaller audience size).

Provision would be made for a fixed monitoring position at an appropriate position, either at a mid-way point between the event and receptors or at front of house position(s). This position would be used to continually monitor levels throughout the event and provide a visual reference of levels to engineers and/or consultants. Arrangements will also be made to ensure that front of house levels at each of the individual stages will be periodically monitored during the event.

Throughout the event consultants would remain responsible for proactively monitoring noise. This would be done through conducting measurements at predetermined locations both internally and externally of the arena. Such positions would be dependent on final site layout, weather conditions etc.

Typically, we'd expect measurements to be conducted over a 15 minute period, albeit shorter measurement periods may be undertaken to determine compliance in line with the code of practice (i.e. it is typical that 5 minute measurements give a good indication of compliance over 15 minutes). All measurements would be recorded and be available for inspection at any time by the local Authority during the course of any event.

The sound monitoring team will be in contact with event control should any action need to be taken during the event and have authority to instruct the sound engineers to adjust sound levels.

12. Procedure for Responding to and Dealing with complaints

Good Public relations is a key pre-requisite of any work conducted by either Joynes Nash or the organisers as it has been repeatedly proven that prior awareness of a festival is important in managing resident's expectations and allaying concerns. Research by DEFRA supports the fact that as prior awareness of an event increases, the likelihood of being annoyed by noise falls.

The promoters would therefore ensure that an appropriate form of communication will be made with local residents, such as by letter or newspaper advertisement prior to the event; informing them of the details and including start and finish times of both the event and any sound checks. The form of communication will also include a dedicated number for noise complaints.

A telephone complaints line would be available for the duration of the event. Should any noise complaints be received, a consultant would investigate the complaint and if noise levels are deemed unacceptable, immediate action would be taken to reduce the levels of the noise source.

A complaints log would be maintained throughout the event, detailing addresses of complaints, times and actions. Such would also be available to the Local Authority on request along with actions taken, etc. The consultant would be contactable by officers of the Local Authority and available to deal with any matters arising at all times throughout the event.

13. Noise Management Resource

The size of any team deployed would allow for sufficient persons to conduct off-site measurements and on-site measurements to facilitate any reduction in noise levels.

All sound level meters used for the purposes of environmental monitoring would be integrating meters to Class 1 specification and subject to current calibration. At least one meter will be capable of real-time octave and/or one third octave band analyses.

Measurements within the sound sites would be made from fixed datum locations to provide representative levels against which changes can be made and measured. Where practical, meters and displays will be set up at Front of House positions with A weighted rolling 5 min $L_{Eq's}$ as well as SPL to provide a reference points for sound engineers. All measurements will be logged.

14. Local Authority Liaison

The Local Authority will be provided with contact details of those responsible.

Acoustic Consultants would work closely with the Local Authority, agreeing any changes to off-site monitoring positions, sharing noise data observations and other information wherever possible. The role performed by consultants is to ensure that any requests by the Local Authority are actioned by the festival organisers. All requests relating to noise would be routed through them to ensure that any noise issues are properly managed and dealt with as soon as possible. Results of any investigations and actions will be fed back to the Local Authority as soon as practicable or as agreed.

References to contact with Local Authority Officers are obviously dependent upon whether they wish to attend the event and does not infer any commitment on the part of any Authority.

15. Post Event Reporting

Following completion of the event, a report would be made available to the Local Authority within 10 working days of the event, detailing the findings during the event and any recommendations for future events.

16. Setting Up, Dismantling of Venues

During any event set up and dismantling, all works which would be likely to cause disturbance at residential properties would be conducted between the hours of 08:00 and 20.00hrs. Within these times and as so far as reasonably practicable, all measures to minimise noise would be undertaken to ensure that no undue noise disturbance is caused to residential premises.

Deliveries of goods and equipment will only be carried out between 08.00 and 20.00hrs.

17. People and Crowd Noise

Whilst there is no formal mechanism for evaluating or controlling crowd noise, consideration would be given to minimising such as critical points such as during arrival and dispersal from the event. This would generally be done by ensuring that queuing where possible would be

conducted internally rather than externally of the venue. Likewise, appropriate mechanisms to stagger arrival and departure, temporary screening, marshalling and signage etc. would be considered for any event.

Marshals would marshal and monitor the entrance and egress from the premises including the behaviour of those within the vicinity of the premises. This would help achieve orderly arrival and departure of persons and will reduce the risk of nuisance occurring.

18. Conclusion

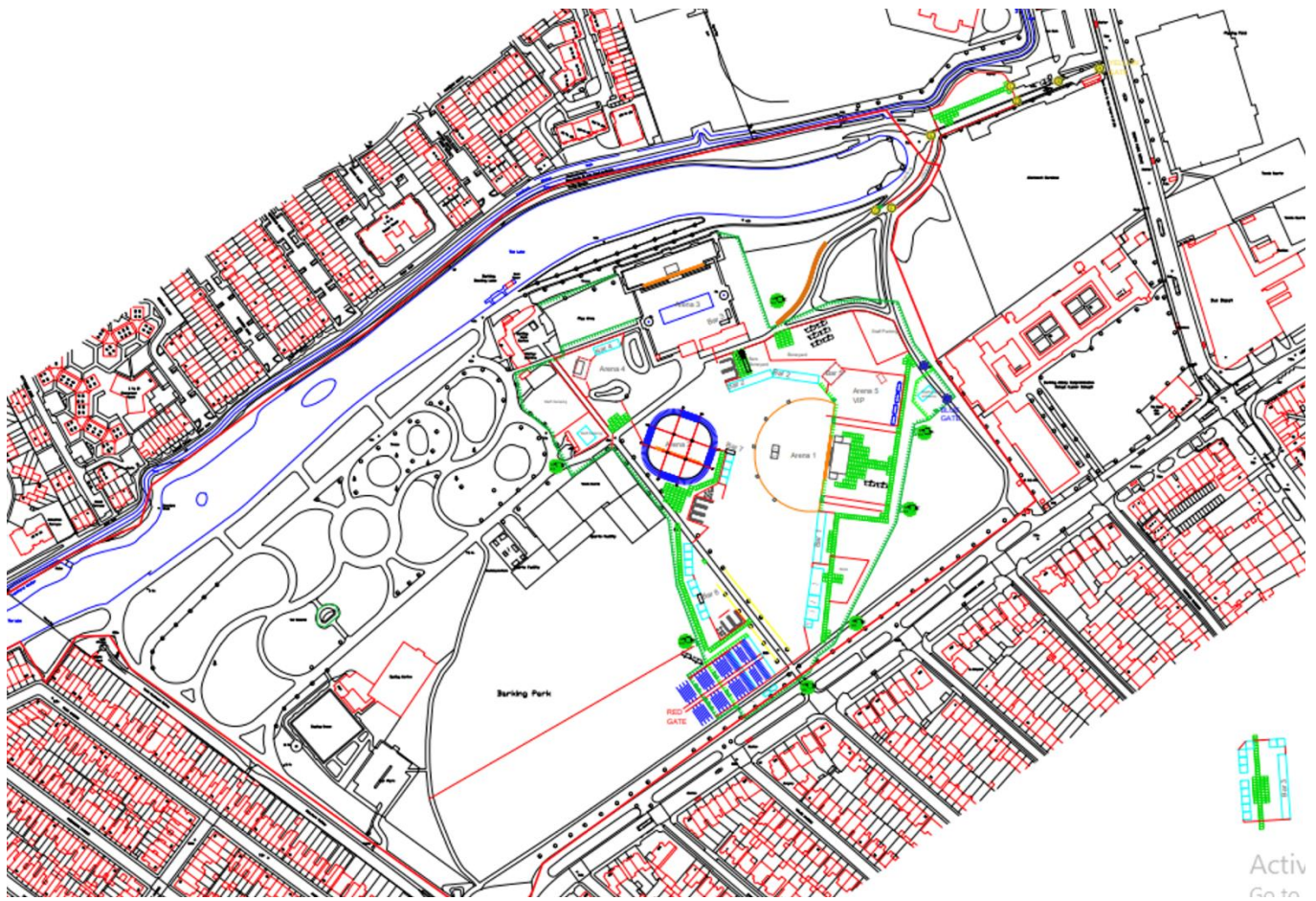
The United Kingdom has a diverse and vibrant music festival sector, which has been established for many years at numerous sites throughout the Country. The team behind this proposal have chosen to fulfil their ambitions to bring this event to a new venue and accept all the challenges that go with such.

The key as always is to also engage with all stakeholders throughout the lifecycle of the event, manage their expectations and listen and learn for future years. The team are committed to making this work and would engage in a P.R campaign prior to the event and conduct a review process after the event to review the outcomes.

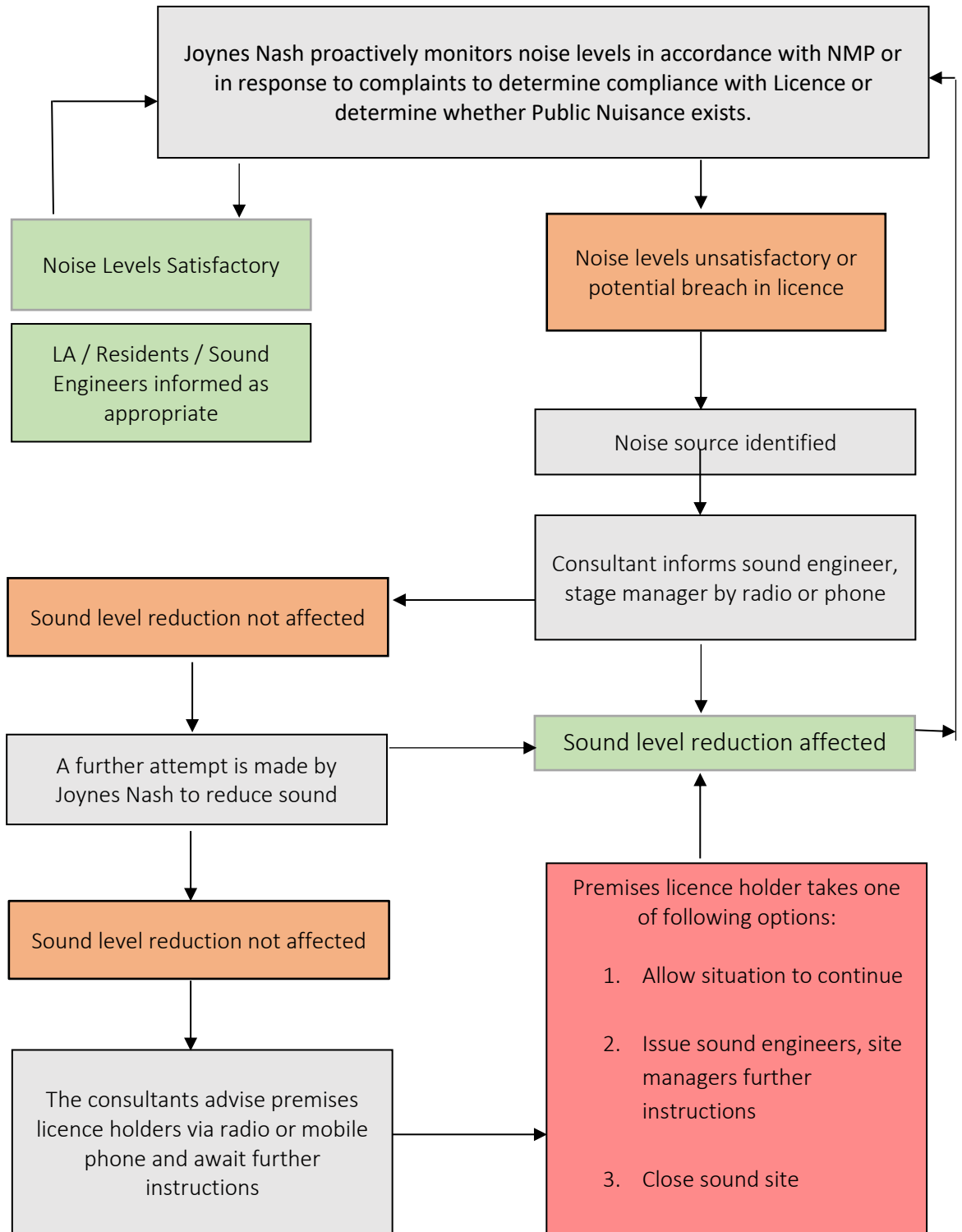
The noise management plan presented above aims to address all the challenges and look to ensure that an acceptable balance is maintained between the needs of the event organisers and the local residents.

Finally, well organised festivals and events are recognised for their ability to produce benefits for the local economy, bring life to an area and create interest in an area. It is hoped that in principle that the controls stated in this strategy can be agreed with the Local Authority.

Appendix A – Site Plan



Appendix B –Indicative Noise Response Flowchart



Appendix C - Contact Numbers and Responsibilities

Event Hotline Number

TBC

Licence Holders

TBC

Event Management

TBC

Noise Consultants

Simon Joynes Director

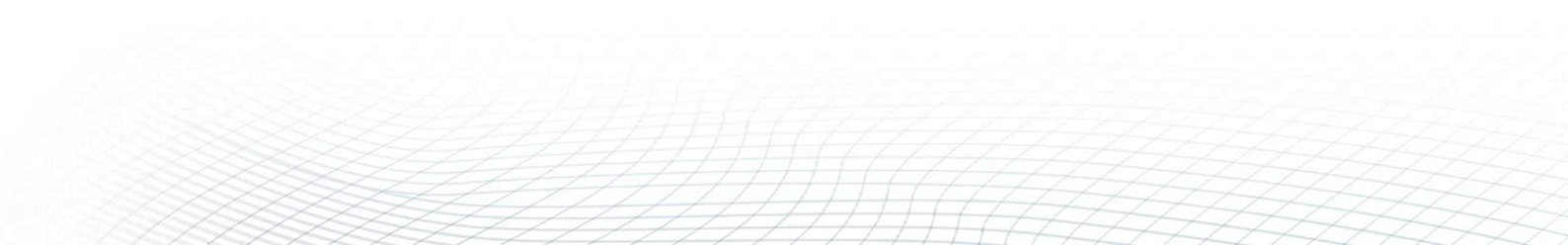
Joynes Nash

07870 508492

Peter Nash Director

Joynes Nash

07769 202073



Appendix D – Noise Units

1. Noise is defined as unwanted sound. The range of audible sound is from 0 dB to 140 dB. The frequency response of the ear is usually taken to be about 18 Hz (number of oscillations per second) to 18000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than the lower and higher frequencies and because of this, the low and high frequency components of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most widely used and which correlates best with subjective response to noise is the dB(A) weighting. This is an internationally accepted standard for noise measurements.
2. For variable noise sources such as traffic, a difference of 3 dB(A) is just distinguishable. In addition, a doubling of a noise source would increase the overall noise by 3 dB(A). For example, if one item of machinery results in noise levels of 30 dB(A) at 10 m, then two identical items of machinery adjacent to one another would result in noise levels of 33 dB(A) at 10 m. The 'loudness' of a noise is a purely subjective parameter but it is generally accepted that an increase/decrease of 10 dB(A) corresponds to a doubling/halving in perceived loudness.
3. External noise levels are rarely steady but rise and fall according to activities within an area. In an attempt to produce a figure that relates this variable noise level to subjective response, a number of noise metrics have been developed. These include:

LAeq noise level - This is the 'equivalent continuous A-weighted sound pressure level, in decibels' and is defined in BS 7445 [1] as the 'value of the A-weighted sound pressure level of a continuous, steady sound that, within a specified time interval, T, has the same mean square sound pressure as a sound under consideration whose level varies with time'. It is a unit commonly used to describe community response plus, construction noise and noise from industrial premises and is the most suitable unit for the description of other forms of environmental noise. In more straightforward terms, it is a measure of energy within the varying noise.

LA90 noise level - This is the noise level that is exceeded for 90% of the measurement period and gives an indication of the noise level during quieter periods. It is often referred to as the background noise level and issued in the assessment of disturbance from industrial noise.

LA10 noise level - This is the noise level that is exceeded for 10% of the measurement period and gives an indication of the noisier levels. It is a unit that has been used over many years for the measurement and assessment of road traffic noise.