

**KASABIAN
VICTORIA PARK LEICESTER
JUNE 2020**

NOISE ASSESSMENT & MANAGEMENT PLAN

VC-103174-EN-RP-01

R01

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1. INTRODUCTION

1.1. Vanguardia Ltd has been commissioned by Live Nation to provide a Noise Assessment and Noise Management Plan (NMP) to assist in the monitoring and management of sound from the proposed Kasabian Concert to be held in Victoria Park in Leicester. The event is planned to take place on Saturday 20th June 2020.

1.2. The proposed site schedule is as follows:

June 17th	Production in
June 18th	Production in
June 19 th	Rehearsals
June 20 th	Event
June 21st	Production out

1.3. The purpose of this document is to provide an assessment of the noise impact of the event on nearby residential properties and to describe the sound management and monitoring scheme that will be put in place to manage the music noise levels.

1.4. It is intended that this document is considered a 'live' document which will evolve with ongoing liaison between the event promoter, the licensing authority and local residents.

1.5. A glossary of acoustic terms is shown in Appendix A.

CONSULTANT'S EXPERIENCE

1.6. Vanguardia Ltd is an independent acoustic consultancy specialising in the field of sound, noise and acoustics related to entertainment venues. The team of consultants have many years' experience dealing with some of the largest and most innovative sound and acoustic projects in the UK, including Wembley Stadium, the Millennium Dome, The Millennium Stadium, Wembley Arena and Earls Court.

1.7. The consultants have successfully provided sound management advice, including noise control, at over 1000 concerts during the past 25 years. These concerts have ranged from relatively small scale events at green field sites to major events staged at national stadia and urban parks, providing entertainment for tens of thousands of people.

- 1.8. The company director also sat on the UK Noise Council Working Party which prepared the Code of Practice on Environmental Noise Control at Concerts (1995). They have also managed Government research projects related to sound and noise aspects of the entertainment business.
- 1.9. As well as the provision of sound and acoustic design/management for entertainment venues, the company deals with the whole range of acoustic, noise and vibration issues and our staff have presented expert testimony at planning and licensing hearings, magistrates and high courts, Judicial Reviews and House of Commons and House of Lords Select Committees.

KASABIAN LEICESTER

- 1.10. This event is due to be held in Victoria Park in Leicester in June 2020. Kasabian are an English rock band formed in Leicester. A similar event was staged in 2014 when Vanguardia were also appointed to manage the noise impacts. In 2014 the site was optimised to minimise the noise impact on the offsite locations. The event was successfully managed with no breaches of the music noise level. The 2020 event is proposed to take place in the same location within the park. New predictions of the music noise levels for the forthcoming have been presented using updated computer software.
- 1.11. In 2014 there were no breaches of the licence conditions due to music noise. Measured levels were however contaminated by helicopter noise and, on one occasion, people noise, resulting in higher noise levels being recorded than those prescribed by the licence conditions. The organisers will not authorise the use of helicopters at the 2020 event.

2. ENTERTAINMENT NOISE CRITERIA

- 2.1. This draft NMP is submitted to support the application for a Premises Licence for a one-day event to be held in Victoria Park, Leicester on 20th June 2020.
- 2.2. The Premises licence granted in 2014 for a similar event set a Music Noise Level (MNL) at nearby noise sensitive premises of 70 dB(A) $L_{eq, 15mins}$ for the support acts and 73 dB(A) $L_{eq, 15mins}$ for the headline act, Kasabian. These limits were complied with, although higher noise levels were measured due to contamination by external noise sources.

Noise Council’s Code of Practice on Environmental Noise Control at Concerts (1995)

- 2.3. The established guidance for noise from outdoor music events is contained in the Noise Council’s Code of Practice on Environmental Noise Control at Concerts (1995). The recommended noise limits contained within the Code of Practice for events held between the hours of 09:00 and 23:00 hours are summarised in the following Table 1.

Table 1 Recommended Noise Limits

Concert days per calendar year, per venue	Venue Category	Guideline
1 to 3	Urban Stadia or Arenas	The MNL should not exceed 75 dB(A) over a 15 minute period
1 to 3	Other Urban and Rural Venues	The MNL should not exceed 65 dB(A) over a 15 minute period
4 to 12	All Venues	The MNL should not exceed the background noise level by more than 15 dB(A) over a 15 minute period

- 2.4. Since its publication in 1995, several recommended modifications to the Code have been proposed. One of the criticisms of the Pop Code is that the difference in the L_{Aeq} criteria between those specified for urban stadia or arenas and ‘other venues’ is too high. Furthermore, it is recognised that the range in the number of events with the same L_{Aeq} noise criterion is too large.
- 2.5. Kasabian is planned to be a one-day event where music is the primary source of entertainment, which is planned to finish by 2230hrs.
- 2.6. Taking the guidance from Table 1 above, the suggested criterion is therefore that the Music Noise Level (MNL) would be 65 dB $L_{Aeq, 15min}$ measured at the facade of the nearest residential property. However, there are a number of other factors that should be taken into account.

- 2.7. In 2014 the music noise levels were set at a higher level because the predictions demonstrated that a level of not more than 65 dB(A) $L_{Aeq, 15mins}$ could not be achieved.
- 2.8. Although based on best practice at that time, research (Proc. IOA Vol. 28. Pt.7 2006; Griffiths and Staunton) suggests that Table 1 would benefit from further refinements, in particular noise levels, number of concerts and category. This paper concludes that further consideration should be given to the following:
- The Code's noise limit of 65 dB $L_{Aeq, 15min}$ for the venue category of 'Other Urban and Rural venues' should be reviewed for areas such as parks and other congregational spaces (City Squares, etc.) where limits of 75 dB L_{Aeq} have been successfully adopted.*
- 2.9. There is now considerable evidence and experience, based on concerts at urban stadia and other urban venues, to suggest that higher limits than those recommended by the Code will not lead to undue disturbance providing other noise management protocols are implemented.
- 2.10. The Code of Practice is currently under review. Whilst as yet there is no agreement on the final form for the replacement to Table 1 in the Code, it is likely that a MNL of up to 75 dB(A) $L_{Aeq, 15mins}$ will be recommended for all urban venues for a limited number of events per annum.
- 2.11. It is not unusual to have a noise limit of not more than 75 dB(A) set for similar types of venues.

Licensing Act 2003

- 2.12. In 2003 existing licensing provisions in England and Wales were revised. The Licensing Act 2003 took a more liberal and de-regulatory approach to the previous licensing system. As part of their new responsibilities, local authorities are encouraged to promote cultural activity in their communities.
- 2.13. The Pop Code places emphasis on the need to minimise disturbance and annoyance to the local community. The Licensing Act 2003 introduced the concept of the "Promotion of the Prevention of Public Nuisance" which sets the threshold at a different level. This distinction must now be considered when setting licence conditions for a music event.
- 2.14. The s182 Guidance to the Licensing Act published in 2007 (updated April 2018) is clear. It states (para 2.17) as follows:

'Any conditions appropriate to promote the prevention of public nuisance should be tailored to the type, nature and characteristics of the specific premises and its licensable activities.'

Licensing authorities should avoid inappropriate or disproportionate measures that could deter events that are valuable to the community, such as live music.'

2.15. Under former licensing regimes, the Courts have made clear that it is particularly important that conditions which are difficult for a licence holder to observe should be avoided. Failure to comply with any conditions attached to a licence or certificate is a criminal offence, which on conviction would be punishable by an unlimited fine or up to six months imprisonment or both.

2.16. The guidance document is clear in its advice that it is essential to maintain a balance between the licence holder and the viability of the event and the needs of the local community.

Noise Policy Statement for England.

2.17. The second aim of the Noise Policy Statement for England is;

Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government Policy on sustainable development.

The second aim of the NPSE refers to the situation where the impact lies somewhere between LOAEL and SOAEL. It requires all reasonable steps to be taken to mitigate and minimise adverse effects on health and quality of life, while also taking into account the guiding principles of sustainable development (para 1.8). This does not mean that such adverse effects cannot occur and in this instance any effects are very short-lived.

2.18. Research carried out into attitudes to environmental noise from concerts for Defra (Contract no. NANR 292) by Edinburgh Napier University suggested that it may be the level of music and not the type of venue that is significant. The report concluded that this may be linked to the perception of how loud the music must be within a stadium by residents compared to an unenclosed park and that the louder music is believed to be within the event, the more disturbing it is perceived by the resident.

2.19. The research also concluded that a significant percentage of the population will form an opinion of the music's subjective annoyance, irrespective of the actual level of the music.

2.20. Noise predictions are shown in the following section of this report.

3. LICENCE CONDITIONS

3.1. A representation has been submitted to the Licensing Authority by the Environmental Health Dept. The suggested conditions together with comments from Vanguardia are reproduced below.

Proposals for 2020

- *The reduction in the application from 3 to 1 day does offer some mitigation in terms of noise exposure. Of the 3 days originally applied for, Saturday is potentially the best to use, as there should be more issues with traffic on the Friday, and no disturbance on the Sunday, when residents will be preparing to return to work or children are going to school the next day.*

The application is now for one day on Saturday 20th June.

- *The finishing time of 23.00 hours could also potentially be reduced to allow an earlier finish time for music, and this would also lead to the earlier dispersal of the audience. Although from a noise perspective this would not reduce the overall noise levels, it may limit the impact on local residents as any disruption would be finished earlier in the day.*

The finishing time has been revised to 22.30hrs.

- *If the committee were to grant the application for 1 day, results from 2014 show how difficult achieving 73 dB(A) was at the Victoria Park Road facade. The only option would be to allow a level of 75 dB(A) for the headline act and 70 dB(A) for all support acts. Although this would be not be in compliance with the Noise Council Code of Practice, it would be at an Urban Stadia or Arena level.*

It is proposed that the 2014 noise limits should be applied.

- *A dedicated complaints line to be operated by the applicant, to be set up prior to the event and operational throughout the event. All complaints to be passed to the consultants noise monitoring team who will visit the complainants at the time.*

This is agreed subject to resources being available.

- *Sound propagation testing either to be carried out in the early evening of the Thursday 18th June 2020 (ideally during rush hour) or after 10.00 on Friday 19th June 2020.*

This is agreed and the timing of the propagation test will be agreed with the local authority.

- *Sound checks to be kept to a minimum and not operated at full volume, with time controls imposed by the organisers.*

This is agreed.

4 . P R E D I C T E D N O I S E L E V E L S

4.1. Noise predictions have been carried out at the nearest representative noise sensitive locations and are based on the information supplied by the event promoter for the main sound sources on site. The nearest noise sensitive properties are based on those agreed in 2014 and are as below in Table 2.

Table 2 Predicted noise levels at nearest noise sensitive properties (all figures shown as dB(A) rounded).

dB(A)	
FOH	98
Victoria Park Road North	69
Victoria Park Road South	68
St James' Road	69
Granville Road	71
Evington Road	65
Knighton Road Park	66
London Road	65
Regent Road	73

- 4.2. A plan showing the nearest noise sensitive properties is shown in Appendix B.
- 4.3. The predicted levels are shown as a contour plot in Appendix C.
- 4.4. Careful consideration has been given to the site design to find the most appropriate layout and maximise entertainment noise levels on site, whilst minimising the noise impact at the nearest noise sensitive properties surrounding the venue. The site optimisation was completed in 2014.
- 4.5. The following assumptions have been made in predicting noise levels at the nearest noise sensitive locations:

- Noise predictions have been made based on the intended coverage of the sound system and data from similar events to achieve a music noise level of 98dB(A) at the mixing desk position.
- An orientation correction of between 0dB (on-axis to the PA) and 18dB (directly behind the PA) is assumed for noise sensitive properties depending on their location relative to the stage and is based on our experience from sound system data.
- Distance attenuation is based on progressive attenuation rate under neutral meteorological conditions.
- It has been assumed that the venue will have steel shield perimeter fencing.

LIMITATIONS OF NOISE PREDICTIONS

4.6. Whilst noise predictions provide a relatively accurate indication of the noise impact at noise sensitive properties, it can in no way guarantee the actual operational noise levels at an event. Meteorological conditions such as temperature inversions and wind direction may have a significant effect (typically 10-15dB) on noise levels at noise sensitive properties during an event, the effect of which cannot be predicted accurately. The predictions are performed in accordance with the current version of ISO 9613-2:1996 Acoustics — Attenuation of sound during propagation outdoors — Part 2: General method of calculation

5. NOISE ASSESSMENT

- 5.1. The guidance from the Code of Practice advises that for 'other urban and rural venues' used for 1-3 events per calendar year, a music noise level (MNL) of 65 dB(A) over a fifteen-minute period at the nearest noise sensitive premises is recommended for events finishing no later than 2300hrs.
- 5.2. It is generally accepted that properties in the vicinity of a large-scale music event will be able to hear music noise. It is again a matter of balancing the needs of the local community who may be inconvenienced for a few days with the enjoyment of thousands of people.
- 5.3. During discussions with the Council it has been suggested that an offsite noise limit of 70 to 73 dB(A) as measured at the nearest noise sensitive premises would be appropriate. It should however be noted that the offsite noise limit is never treated as a target and if the event can be run at a lower level it will be.

6 . NOISE MANAGEMENT PLAN

- 6.1. Careful consideration will be given to implementing and exercising a noise management programme during sound checks and event to manage entertainment noise from the venue.
- 6.2. The sound management programme fundamentally follows the procedures that have been successfully adopted at outdoor concerts and festivals over the past 20 years throughout the UK and are detailed below:

MITIGATION MEASURES

Plant Noise

- 6.3. All plant noise associated with the event (generators, chillers, etc.) will be located as far away from noise sensitive properties as possible. Where required, appropriate mitigation measures will be considered.

SITE DESIGN

- 6.4. Vanguardia consultants have liaised with the production company, sound system supplier and local authority to find the most appropriate site layout that would minimise the noise impact at off-site locations. The 2014 site layout has been adopted.

SOUND SYSTEMS

- 6.5. The sound system suppliers will be informed of the requirements of strict noise management and the type and location/orientation of their systems. Their contract of hire will also specify that the overall control of sound levels will be set by the Promoter and/or their appointed agent (acoustic consultants).
- 6.6. The sound system should be set up in such a way as to minimise the noise impact at noise sensitive properties. Where possible, sound systems should be 'line-arrays' which provide improved sound coverage and reduced overspill to intended coverage areas. It is recommended that the sound system is hung as low as possible in order to take advantage of any barriers provided around the event arena and minimise the distance between the sound sources and audience areas. The loudspeakers should have as narrow horizontal dispersion as possible and

be directed inwards to reduce overspill from the intended coverage area. Sub-bass loudspeaker units should be set up and configured in a cardioid arrangement in order to take advantage of phase cancellation at the backs and sides of the loudspeaker stacks. The low frequency noise levels will also be subject to further control. Careful and detailed alignment of the system will be ensured to optimise the coverage throughout the audience areas and balance this against the off-site environmental noise impact.

- 6.7. In addition, delay speakers are to be used in the main arena in order to distribute the sound evenly and provide coverage to smaller areas. This type of configuration effectively means that the sound system does not need to operate at as high levels to provide even coverage to the intended audience area at the back of the arena.
- 6.8. Vanguardia will review the sound system and work with the promoter and the Council to minimise noise disturbance.

PRE-EVENT INFORMATION

- 6.9. Vanguardia will set up a direct means of communication with all parties.
- 6.10. A letter or newspaper advertisement should be circulated to local residents at least 2 weeks prior to the event, informing them of the details of the event and including start and finish times of both the event and any sound-checks. The advertisement should also include a dedicated telephone number for noise complaints.
- 6.11. A telephone complaints line should be made available for the duration of the event. Should any noise complaints be received, subject to resources being available, a consultant will investigate the complaint and if noise levels are above those specified in the licence conditions, immediate action would be taken to reduce the levels at the noise source. A complaints log should be maintained throughout the event, detailing addresses of complaints, times and actions. The promoter will advise the Environmental Health Department of the likely times of the propagation test, rehearsals and sound-checks, although this is unlikely to be known until very near the production set up. The promoter will also agree timings for production set up.
- 6.12. A permanent noise monitor will be provided at the mixer desk position of the main sound source on site.
- 6.13. All noise meters will comply with the required standards and be calibrated.

- 6.14. Vanguardia will liaise with the Council and comply with their complaint procedures.
- 6.15. The event production team and Vanguardia will comply with any reasonable instructions given by the licensing authority.
- 6.16. The communications protocol will be agreed with the local authority and reviewed to ensure effective and responsive communication channels are established and maintained between all relevant parties throughout the event.

SOUND MANAGEMENT PROCEDURES

Sound Propagation Tests

- 6.17. Prior to the event, the production team should carry out short sound checks and as part of this process, acoustic consultants will undertake sound propagation tests to correlate the music noise levels at the mixing desk with those observed at the most sensitive sound control positions. The results of these tests will be used to 'fine tune' the sound system in order to maximise the containment of music and set an appropriate sound limit at the mixer positions.

Sound Monitoring Within the Venue

- 6.18. The music sound levels at the mixing desk positions will be continuously monitored in terms of 15-minute and 1-minute L_{Aeq} values. The noise limit will be set in 15-minute intervals but the 1-minute values provide acoustic consultants with immediate information of the music noise levels.
- 6.19. As part of the managerial process, the sound engineers of any individual artistes appearing at the event will be informed prior to arriving at the mixer of the need to adhere to the sound limits and instructions issued to them in relation to sound management.
- 6.20. A routine inspection of any peripheral activities associated with the event will be carried out to ensure that any PA systems are turned off and remain off after the advertised finish time.

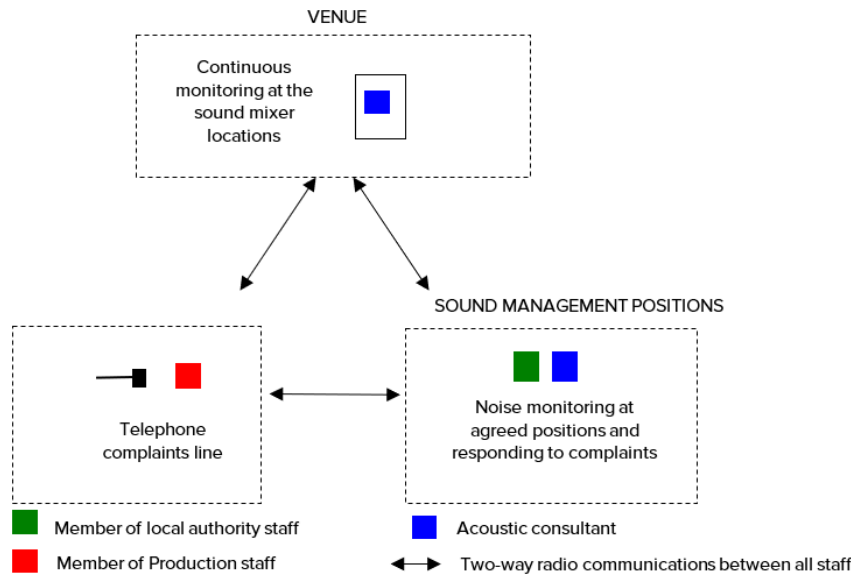
Sound Monitoring Outside of the Venue

- 6.21. Noise measurements outside of the site will be monitored at the most sensitive locations (subject to prevailing weather conditions) and in response to any complaints that may be received. The data from these will be accessible in Event Control. The levels will be checked for compliance with the agreed offsite noise limits. A permanent noise monitor will be situated on the park

boundary at a location to be agreed with the local authority, subject to a suitably secure location being available.

6.22. The telephone complaints line will be confirmed prior to the event.

6.23. A schematic of the management communication protocol is provided below:



SUMMARY REPORTING

6.24. A summary report will be produced after the event which will include all noise measurements made at each position and details of any complaints received. This will be made available to the local authority after the event.

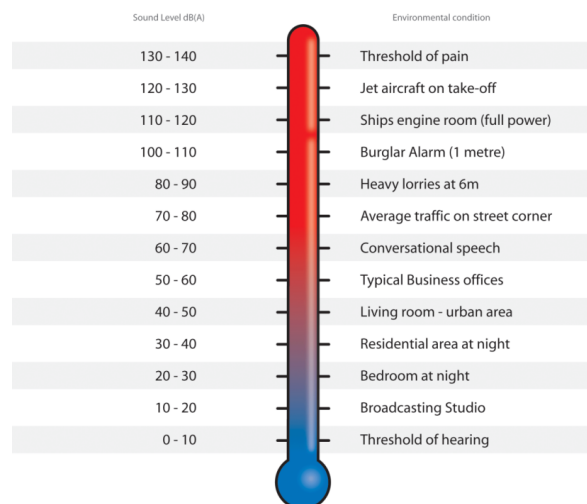
APPENDIX A / GLOSSARY OF TERMS

Noise is defined as unwanted sound. The range of audible sound is from 0 dB to 140 dB, which is taken to be the threshold of pain. The sound pressure detected by the human ear covers an extremely wide range. The decibel (dB) is used to condense this range into a manageable scale by taking the logarithm of the ratio of the sound pressure and a reference sound pressure.

The frequency response of the ear is usually taken to be about 18 Hz (number of oscillations per second) to 18,000 Hz. The ear does not respond equally to different frequencies at the same level. It is more sensitive in the mid-frequency range than at the lower and higher frequencies, and because of this, the low and high frequency component of a sound are reduced in importance by applying a weighting (filtering) circuit to the noise measuring instrument. The weighting which is most used and which correlates best with the subjective response to noise is the dB(A) weighting. This is an internationally accepted standard for noise measurements.

The ear can just distinguish a difference in loudness between two noise sources when there is a 3dB(A) difference between them. Also when two sound sources of the same noise level are combined the resultant level is 3 dB(A) higher than the single source. When two sounds differ by 10dB(A) one is said to be twice as loud as the other.

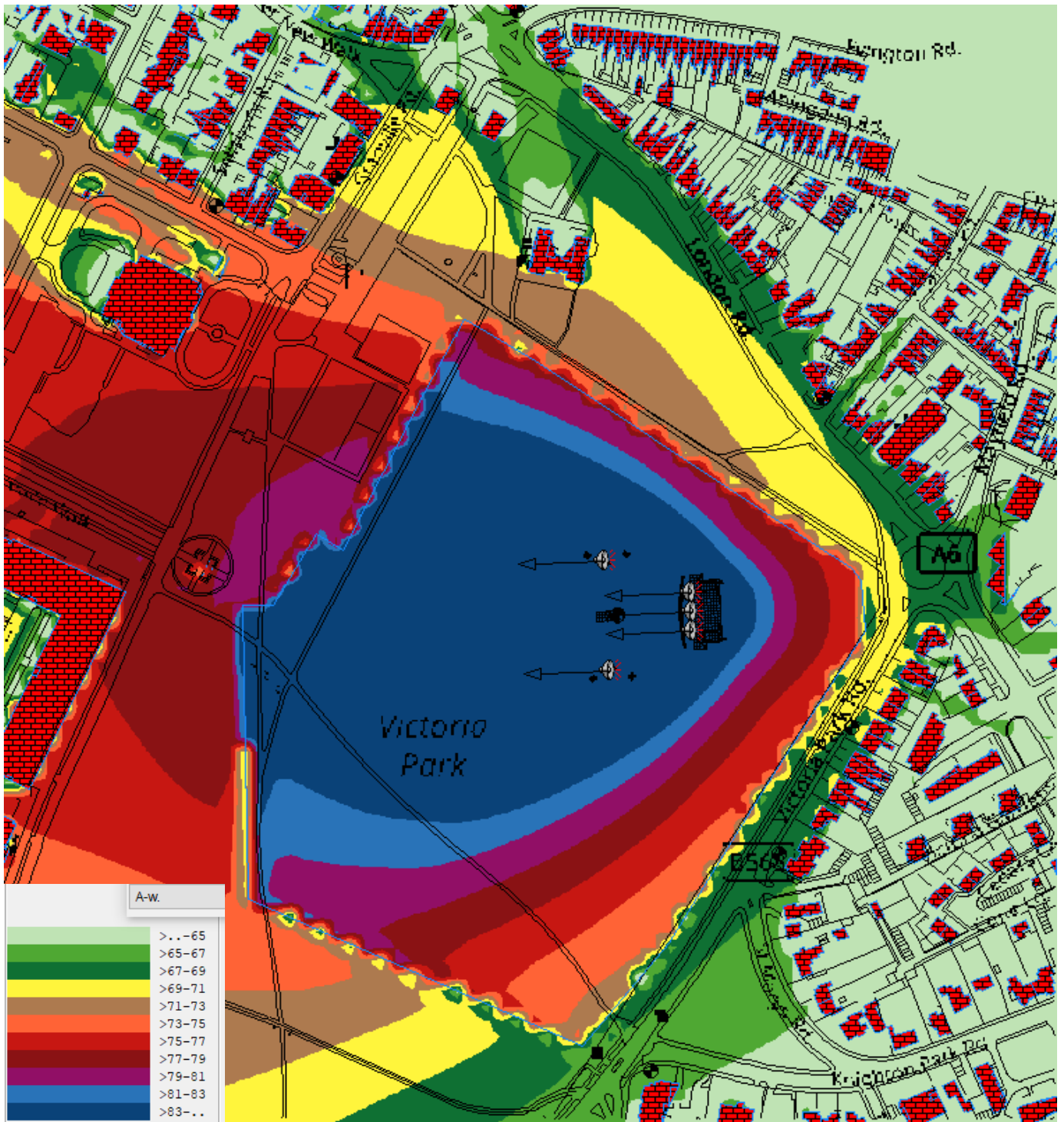
The subjective response to a noise is dependent not only upon the sound pressure level and its frequency, but also its intermittency. Various indices have been developed to try and correlate annoyances with the noise level and its fluctuations. The parameter used for this measure is Equivalent Continuous Sound Pressure Level (L_{Aeq}). The A-weighted sound pressure level of a steady sound that has, over a given period, the same energy as the fluctuating sound under investigation. It is in effect the energy average level over the specified measurement period (T) and is the most widely used indicator for environmental noise. A few examples of noise of various levels are given right:



APPENDIX B / NOISE PREDICTION LOCATIONS



APPENDIX C / CONTOUR PLOT





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