

# **CARWASH**

# **1 QUAKER STREET, LONDON**

# NOISE ASSESSMENT

12 March 2024

AEC REPORT: P5166/R01a/WJK

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## CONTENTS

|     |                        | Page |
|-----|------------------------|------|
| 1.0 | INTRODUCTION           | 3    |
| 2.0 | SITE AND ITS ENVIRONS  | 3    |
| 3.0 | NOISE ASSESSMENT       | 7    |
| 4.0 | MITIGATION MEASURES    | 12   |
| 5.0 | SUMMARY AND CONCLUSION | 13   |

| APPENDIX A – Acoustic Terminology | 15 |
|-----------------------------------|----|
| A1 ADDENDUM 1 TO ORIGINAL REPORT  | 16 |

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# **1.0 INTRODUCTION**

- 1.1 Acoustic & Engineering Consultants Limited (AEC) have been appointed by the proprietors of Carwash to undertake a noise assessment as part of the premises licence application for the premises located at 1 Quaker Street, London. The premises is located within the Brick Lane Cumulative Impact Zone.
- 1.2 This report provides details of the noise survey undertaken in relation to amplified music noise and customers and an assessment of the potential noise impact as a result of the operation of the premises.
- 1.3 Acoustic terminology used throughout the report is described in Appendix A.

# 2.0 SITE AND ITS ENVIRONS

## **Existing Premises**

- 2.1 The Carwash premises is a 100 capacity event space located on Quaker Street in Shoreditch. The premises is to be used as an event hire space and operate only when a formal booking is made.
- 2.2 There have been 3 events held at the premises under Temporary Event Notices (TENS). It is understood that there were no noise complaints received as a result of these events.
- 2.3 The previous premises licence application was refused in January 2024 due to the potential for public nuisance resulting from noise generated from the premises.
- 2.4 The nearest residential properties are located on Quaker Street, directly to the south and on the corner of Quaker Street and Braithwaite Street to the east and south-east of the premises as shown as 1-3 on Figure 2.1 below.



#### Figure 2.1 – Site Location Plan

Imagery @2024 Google



## **Proposed Conditions**

2.5 Based on the above, the following operating hours and conditions have been proposed for inclusion in the premises licence to promote the licensing objective for the prevention of public nuisance.

### Hours

Sale of Alcohol (on and off): Mon-Sat 1100-2300, Sun 1100-2200

### Opening: Mon-Sat 1100-2330, Sun 1100-2230

### Conditions

- a) The Premises Licence shall be limited to six (6) events in any one calendar month with no carry over. In addition there shall be no more than 3 of 6 events that take place on Fridays and Saturdays in each calendar month.
- b) All events must be pre-booked 14 days in advance. A record of all guests will be held for each event, this record to be retained on the premises for a minimum of 6 months. The booking and guest list shall be available for inspection at the premises by the police or an authorised officer.
- c) Alcohol will only be sold when a pre-booked event takes place at the premises. The sale of alcohol will be ancillary to the event taking place.
- 1. The premises shall install and maintain a comprehensive CCTV system as per the minimum requirements of the Tower Hamlets Police Licensing Team. All entry and exit points will be covered enabling frontal identification of every person entering in any light condition. The CCTV system shall continually record whilst the premises is open for licensable activities and during all times when customers remain on the premises. All recordings shall be stored for a minimum period of 31 days with date and time stamping. Viewing of recordings shall be made available immediately upon the request of Police or authorised officer throughout the entire 31-day period.
- 2. A staff member from the premises who is conversant with the operation of the CCTV system shall be on the premises at all times when the premises are open. This staff member must be able to provide a Police or authorised council officer copies of recent CCTV images or data with the absolute minimum of delay when requested.
- An incident log shall be kept at the premises and be available on request to the Police or З. an authorised officer. It must be completed within 24 hours of any incident and will record the following:
  - a) all crimes reported to the venue;
  - b) all ejections of patrons;
  - any complaints received concerning crime and disorder C)
  - d) any incidents of disorder;
  - all seizures of drugs or offensive weapons; e)



- f) any faults in the CCTV system, searching equipment or scanning equipment;
- g) any refusal of the sale of alcohol;
- h) any visit by a relevant authority or emergency service.
- 4. In the event that a serious assault is committed on the premises (or appears to have been committed) the management will immediately ensure that:
  - a) the police (and, where appropriate, the London Ambulance Service) are called without delay;
  - b) all measures that are reasonably practicable are taken to apprehend any suspects pending the arrival of the police;
  - c) the crime scene is preserved so as to enable a full forensic investigation to be carried out by the police; and
  - d) such other measures are taken (as appropriate) to fully protect the safety of all persons present on the premises.
- 5. A record shall be kept detailing all refused sales of alcohol. The record should include the date and time of the refused sale and the name of the member of staff who refused the sale. The record must show the outcome of the person who was intoxicated. The record shall be available for inspection at the premises by the police or an authorised officer at all times whilst the premises is open.
- 6. A written dispersal policy shall be in place and implemented at the premises to move customers from the premises and the immediate vicinity in such a way as to cause minimum disturbance or nuisance to neighbours.
- 7. The premises shall risk assess all events taking place at the venue. The assessment shall look at all potential risks including but not limited to violence, intoxication, underage drinking and drug use. This assessment shall be written down and stored for 1 year and made available to Police upon request.
- 8. The premises must have a detailed documented security plan, that must include an ejections policy, search policy, anti-theft policy, and SIA numbers, The security plan will be made available to police upon request.
- 9. In relation to off sales of alcohol from the premises, this can only be sold in sealed containers. Patrons are not permitted to remove open bottles/glasses or other open vessels from the licensed premises.
- 10. The number of persons permitted in the premises at any one time (including staff) shall not exceed 100 persons.
- 11. A noise limiter must be fitted to the musical amplification system set at a level determined by and to the satisfaction of an authorised officer of the Environmental Health Service, so as to ensure that no noise nuisance is caused to local residents or businesses. The operational panel of the noise limiter shall then be secured by key or password to the satisfaction of officers from the Environmental Health Service and access shall only be by persons authorised by the Premises Licence holder. The limiter

AEC P5166/R01/WJK

shall not be altered without prior agreement with the Environmental Health Service. No alteration or modification to any existing sound system(s) should be effected without prior knowledge of an authorised Officer of the Environmental Health Service. No additional sound generating equipment shall be used on the premises without being routed through the sound limiter device.

- 12. The licence holder shall enter into an agreement with a hackney carriage and/or private carriage firm to provide transport for customers, with contact numbers made readily available to customers who will be encouraged to use such services.
- 13. Notices shall be prominently displayed at all exits requesting patrons to respect the needs of local residents and businesses and leave the area quietly.
- 14. Notices shall be prominently displayed at any area used for smoking requesting patrons to respect the needs of local residents and use the area quietly.
- 15. A direct telephone number for the manager at the premises shall be publicly available at all times the premises is open. This telephone number is to be made available to residents and businesses in the vicinity.
- 16. No waste or recyclable materials, including bottles, shall be moved, removed from or placed in outside areas between 21:00 hours and 07:00 hours on the following day.
- 17. No collections of waste or recycling materials (including bottles) from the premises shall take place between 21:00 hours and 07:00 on the following day.
- 18. Challenge 25 proof of age scheme shall be operated at the premises where the only acceptable forms of identification are recognised photographic identification cards, such as a driving licence, passport or proof of age card with the PASS Hologram.
- 19. All staff whose duties include the serving of alcohol must be trained in the requirements of this scheme including the importance of recording any refusals.
- 20. Entry by children under the age of 18 is prohibited unless accompanied by an adult over the age of 18.
- 2.6 In addition to the above, the following restrictions on events with amplified music should be proposed as further control measures:
  - Of the 6 events per month being applied for, 3 of them would have amplified music as the primary source of entertainment. No more than 1 of these events per month would be a live band.
  - Events where amplified music is the primary source of entertainment would be limited to Thursdays, Fridays and Saturdays between the hours 1800 and 2200.

### Licensing Act 2003

- 2.7 The guidance issued under Section 182 of the Licensing Act 2003 dated April 2018 is provided to licensing authorities in relation to the carrying out of their functions under the 2003 legislation in the promotion of the four licensing objectives.
- 2.8 The legislation supports a number of key aims and purposes relating to noise, including:



- Protecting the public and local residents from crime, anti-social behaviour and noise nuisance caused by irresponsible licensed premises.
- Recognising the important role which pubs and other licensed premises play in our local • communities by minimising the regulatory burden on business, encouraging innovation and supporting responsible premises.
- 2.9 The guidance offers a number of general principles in setting parameters within which premises can lawfully operate, including:
  - Must be precise and enforceable.
  - Must be tailored to the individual type, location and characteristics of the premises and events concerned.
  - Should be proportionate, justifiable and capable of being met.
- 2.10 In addition to the above, the guidance states that:

'Each application must be considered on its own merits..... Conditions attached to licenses and certificates must be tailored to the individual type, location and characteristics of the premises and events concerned. This is essential to avoid the imposition of disproportionate and overly burdensome conditions on premises where there is no need for such conditions."

## 3.0 NOISE ASSESSMENT

- 3.1 Attended noise measurements were undertaken by AEC between 1900h and 2200h on the evening of Friday 1 March 2024 during an event at the venue, during which were a number of short performances from a mixture of DJ's, vocalists and live bands. The stage and sound system was located on the eastern elevation of the premises, orientated towards the west.
- Sample noise measurements were recorded inside the venue during performances and at 3.2 ground floor level of the nearest noise sensitive properties in order to establish a correlation between internal and external areas.
- 3.3 Sample baseline noise levels were then carried out in order to determine the prevailing noise climate after the venue had closed.
- 3.4 All measurements were undertaken in general accordance with BS7445-1: 2003 'Description and measurement of environmental noise. Guide to quantities and procedures'.

### Measured Noise Levels During Event

3.5 A summary of the measured noise levels during the event is shown in the following Table 3.1.



# Carwash 1 Quaker Street – Noise Assessment

| Table 3.1 – Measured Noise Levels |            |          |              |  |
|-----------------------------------|------------|----------|--------------|--|
| Act                               | Location   | Time     | Duration     | L <sub>Aeq</sub> (dB)  |
|                                   |            | 19:26:35 | 00:01:00.0   | 93   |
|                                   | Venue      | 19:27:35 | 00:01:00.0   | 91   |
|                                   | Venue      | 19:28:35 | 00:01:00.0   | 89   |
|                                   |            | 19:29:35 | 00:01:00.0   | 92   |
|                                   | Average    |          |              | 91   |
|                                   |            | 19:33:00 | 00:01:00.0   | 71   |
| MC & DJ                           | Location 1 | 19:34:00 | 00:01:00.0   | 73   |
|                                   |            | 19:35:00 | 00:01:00.0   | 72   |
|                                   | Average    |          |              | 72   |
|                                   |            | 19:37:47 | 00:01:00.0   | 65   |
|                                   | Location 2 | 19:38:47 | 00:01:00.0   | 67   |
|                                   |            | 19:39:47 | 00:01:00.0   | 66   |
|                                   | Average    |          |              | 66   |
|                                   | Venue      | 19:42:16 | 00:01:00.0   | 89   |
| DJ                                | Venue      | 19:43:16 | 00:01:00.0   | 89   |
|                                   | Average    |          |              | 89   |
|                                   | Manua      | 19:50:11 | 00:01:00.0   | 91   |
|                                   | Venue      | 19:51:11 | 00:01:00.0   | 90   |
|                                   | Average    |          |              | 91   |
|                                   | Loootion 2 | 19:55:08 | 00:01:00.0   | 65   |
|                                   | Location 3 | 19:56:08 | 00:01:00.0   | 64   |
|                                   | Average    |          |              | 65   |
|                                   | Location 2 | 19:58:21 | 00:01:00.0   | 63   |
| DJ & Vocalist                     | Location 2 | 19:59:21 | 00:01:00.0   | 63   |
|                                   | Average    |          |              | 63   |
|                                   | Looptice 1 | 20:01:04 | 00:01:00.0   | 91<br>71<br>73<br>72<br>65<br>67<br>66<br>66<br>89<br>89<br>89<br>89<br>89<br>91<br>90<br>91<br>90<br>91<br>65<br>64<br>65<br>64<br>65<br>63<br>63<br>63 |
|                                   | Location 1 | 20:03:04 | 00:01:00.0   | 66   |
|                                   | Average    |          |              | 68   |
|                                   | 1/07:10    | 20:04:44 | 00:01:00.0   | 86   |
|                                   | Venue      | 20:05:44 | 00:01:00.0   | 89   |
|                                   | Average    |          |              | 88   |
|                                   | Manua      | 20:19:49 | 00:01:00.0   | 90   |
|                                   | Venue      | 20:20:49 | 00:01:00.0 9 | 91   |
|                                   | Average    |          |              | 91   |
| DJ                                |            | 20:23:03 | 00:01:00.0   | 65   |
|                                   | Location 2 | 20:24:03 | 00:01:00.0   | 66   |
|                                   |            | 20:25:03 | 00:01:00.0   | 66   |
|                                   | Average    |          |              | 66   |

### Table 3.1 – Measured Noise Levels



# Carwash 1 Quaker Street – Noise Assessment

| Act                                      | Location   | Time     | Duration   | L <sub>Aeq</sub> (dB) |
|--|------------|----------|------------|-----------------------|
|  |            | 20:35:15 | 00:01:00.0 | 92                    |
|  | Venue      | 20:36:15 | 00:01:00.0 | 93                    |
|  |            | 20:37:15 | 00:01:00.0 | 93                    |
|  | Average    |          |            | 93                    |
|  | Location 3 | 20:40:09 | 00:01:00.0 | 71                    |
|  | Location o | 20:41:09 | 00:01:00.0 | 71                    |
|  | Average    |          |            | 71                    |
| Band                                     | Location 2 | 20:42:36 | 00:01:00.0 | 69                    |
| Band                                     | Location 2 | 20:43:36 | 00:01:00.0 | 70                    |
|  | Average    |          |            | 70                    |
|  | Location 1 | 20:45:17 | 00:01:00.0 | 75                    |
|  | Location   | 20:46:17 | 00:01:00.0 | 76                    |
|  | Average    |          |            | 75                    |
|  | Venue      | 20:47:41 | 00:01:00.0 | 96                    |
|  | venue      | 20:48:41 | 00:01:00.0 | 92                    |
|  | Average    |          |            | 94                    |
|  | Venue      | 21:07:33 | 00:01:00.0 | 93                    |
|  | venue      | 21:08:33 | 00:01:00.0 | 94                    |
|  | Average    |          |            | 93                    |
|  | Location 1 | 21:09:59 | 00:01:00.0 | 74                    |
|  | Location   | 21:10:59 | 00:01:00.0 | 74                    |
|  | Average    |          |            | 74                    |
|  | Location 2 | 21:12:50 | 00:01:00.0 | 72                    |
| Vocals, Guitar,<br>Playback              | Location 2 | 21:13:50 | 00:01:00.0 | 70                    |
| <b>,</b> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | Average    |          |            | 71                    |
|  | Location 3 | 21:15:44 | 00:01:00.0 | 72                    |
|  | Location 5 | 21:16:44 | 00:01:00.0 | 71                    |
|  | Average    |          | 72         |                       |
|  | Venue      | 21:18:36 | 00:01:00.0 | 94                    |
|  | venue      | 21:19:36 | 00:01:00.0 | 94                    |
|  | Average    |          |            | 94                    |
|  | Venue      | 21:28:13 | 00:01:00.0 | 91                    |
|  |            | 21:29:13 | 00:01:00.0 | 91                    |
|  | Average    |          |            | 91                    |
| DJ                                       | Location 1 | 21:31:31 | 00:01:00.0 | 72                    |
|  | Location 1 | 21:32:31 | 00:01:00.0 | 70                    |
|  | Average    |          |            | 71                    |
|  | Location 2 | 21:33:42 | 00:01:00.0 | 68                    |



#### Carwash 1 Quaker Street – Noise Assessment

| Act            | Location    | Time                | Duration   | L <sub>Aeq</sub> (dB) |
|----------------|-------------|---------------------|------------|-----------------------|
|                |             | 21:34:42            | 00:01:00.0 | 70                    |
|                | Average     |                     |            | 69                    |
|                | Location 3  | 21:36:42            | 00:01:00.0 | 71                    |
|                | Elocation 5 | 21:37:42            | 00:01:00.0 | 70                    |
|                | Average     |                     |            | 71                    |
|                | Venue       | 21:39:23            | 00:01:00.0 | 92                    |
|                | Venue       | 21:40:23            | 00:01:00.0 | 91                    |
|                | Average     |                     |            | 91                    |
|                | Venue       | 21:48:29            | 00:01:00.0 | 85                    |
|                | venue       | 21:49:29            | 00:01:00.0 | 86                    |
|                | Average     |                     |            | 86                    |
|                |             | 21:50:40            | 00:01:00.0 | 69                    |
|                | Location 1  | 21:51:40 00:01:00.0 | 00:01:00.0 | 67                    |
|                |             | 21:52:40            | 00:01:00.0 | 66                    |
|                | Average     |                     |            | 67                    |
| Vocal & Guitar | Location 2  | 21:54:04            | 00:01:00.0 | 63                    |
|                | Average     |                     |            | 63                    |
|                | Location 3  | 21:56:50            | 00:01:00.0 | 68                    |
|                |             | 21:57:50            | 00:01:00.0 | 68                    |
|                | Average     |                     |            | 68                    |
|                | Venue       | 22:00:34            | 00:01:00.0 | 87                    |
|                | Venue       | 22:01:34            | 00:01:00.0 | 87                    |
|                | Average     |                     |            | 87                    |

### Measured Noise Levels After Venue Closed

3.6 The measured ambient L<sub>Aeq</sub> and background L<sub>A90</sub> noise levels at the nearest noise sensitive properties after the venue closed are provided in the following Table 3.2.

| Location | Time     | Duration   | L <sub>Aeq</sub> (dB) | L <sub>A90</sub> (dB) | Comments             |
|----------|----------|------------|-----------------------|-----------------------|----------------------|
| 2        | 22:27:50 | 00:05:00.0 | 61                    | 54                    | Trains, road traffic |
| 3        | 22:36:06 | 00:05:00.0 | 64                    | 55                    | Road traffic         |
| 1        | 22:44:59 | 00:05:00.0 | 59                    | 55                    | Trains, road traffic |

Table 3.2 – Measured Noise Levels

### Summary of Noise Levels

3.7 The noise levels during and immediately after the event at the premises indicated the following:

- DJ's with and without vocalists were typically around 89-91dBA inside the premises.
- Live bands were typically around 4-5dB higher inside the premises.
- At location 1 at ground floor level, there was an approximate reduction from internal to external noise levels of around 20dB.
- At location 2, the noise level reduction from inside to outside was up to around 26-27dB when DJ's were performing. This difference reduced when live bands were on stage, most likely as a result of monitor speakers on the stage facing the measurement location.
- At location 3, there was a similar reduction in noise levels from inside to outside. As for location 2, music noise levels were also affected by monitor speakers on the stage.
- As a worst case, noise from amplified music when was around 16dB higher during performances by live bands and 13dB higher for DJ's than the prevailing ambient noise level without an event at location 1.
- At location 2, noise from amplified music during live band performances was around 10dB higher than the prevailing ambient noise levels and around 7dB higher during DJ sets. However, during some of the sets, music noise levels were 2dB higher than the ambient noise level when the event had ended.
- At location 3, noise levels from live bands was up to 8dB higher than the ambient noise level during the period directly after the event and up to 7dB during a DJ performance. During one performance by a DJ and vocalist, noise from amplified music was only 1dB higher than the prevailing ambient noise level. This further indicates that music noise levels at this location was affected by stage monitor speakers.

### **Noise Levels from Patrons**

- 3.8 During the event, noise from people inside the venue was only audible when they cheered after a song. When the DJ was playing between acts, noise from patrons was not audible.
- 3.9 In order to provide an assessment of noise from quests for events without live music performances, noise levels have been determined using the data and concept of group size presented in the J.H. Rindel, C.I Christensen, A.C. Grade research paper: 'Dynamic sound source for simulating the Lombard effect in room acoustic modelling software' (Proceedings of Inter-Noise 2012, New York, USA, (2012)). The sound power level of a person speaking in a normal voice is approximately equal to 68dBL<sub>wA</sub> (ref. ANSI 3.5).
- 3.10 Based on the venue capacity of 100, the number of speaking persons (NS) at any one time, where N is the total number of persons (4) and G is the assumed group size (in this case assumed to be 4 people per group) is obtained as follows:

Number of speaking persons (NS) = N/G



- 3.11 In this scenario, this equates to 25 people speaking (100/4). Taking into account the number of people speaking and the sound power level of normal conversation (68dBL<sub>wA</sub>) the resultant sound power level would be around 82dBL<sub>wA</sub>.
- 3.12 Based on a sound power level of 82dBL<sub>wA</sub>, distance attenuation (15m to the nearest noise sensitive properties) and a conservative estimate of the attenuation provided by the existing premises envelope (5dB), the predicted ambient noise level external to the nearest proposed residential properties is <u>45dBL<sub>Aeq.T</sub></u>.
- 3.13 The predicted noise level from patrons is at least 9dB below the prevailing background noise level at the nearest noise sensitive properties. This would approximately equate to an inaudible condition externally, which supports the observations made during the event.

# 4.0 MITIGATION MEASURES

4.1 In order to minimise the noise impact from events at the venue, the following additional noise mitigation measures should be considered:

## **Mitigation Measures**

- Install a (semi-)permanent in-house sound system in the venue that performers would plug their equipment into. The sound system should comprise of a number of highly directional loudspeakers with as narrow horizontal dispersion as possible, positioned down the sides of the venue, in order to minimise the distances between the source and audience areas and provide an even sound coverage throughout the venue The sound system should include a limiter, multi-band compressor and graphic equaliser to provide additional control over the output of the sound system. Sound systems provided by third parties would not be permitted. The noise limiter would be set at the level agreed with the London Borough of Tower Hamlets.
- Construct an enclosure around the sides and top of any stage area. The structure should be constructed of materials of as high mass and density as possible. It is essential that there are no gaps in the construction in order for it to retain its acoustic integrity. BS 5228 Code of Practice for noise and vibration control on open sites (2009) gives a working approximation of the effect of a barrier between the source and receiving position. An attenuation of -10dB is assumed when a noise screen completely hides the source from the receiver. An attenuation of -5dB is assumed when the top of the source is just visible to the receiver over the top of the noise barrier. It is therefore anticipated that the barrier would provide a minimum -10dB attenuation at the noise sensitive properties behind the stage and -5dB directly to the south of the premises.

### **Event Noise Levels**

• With the exception of the 1 live band per month proposed, restrict the type of events that could be booked at the venue. Considering the prevailing noise levels without an event, the mitigation measures discussed above and the noise levels measured during an event, a venue noise level of around 84dBA would equate to a noise level that is comparable to the prevailing ambient noise level at location 1 of around 59dBL<sub>Aeq,T</sub>. At locations 2 and 3, noise from amplified music would be below the ambient noise level as a result of the effect of the barrier around the stage.

AEC P5166/R01/WJK

- An entertainment noise level of 84dBA would be suitable for a number of different types of events including acoustic performances, comedy, sports screenings and events with incidental music.
- 4.2 In addition to the above, a noise management plan should be developed and implemented. The following measures should be considered as part of the noise management plan but not limited to:
  - Provide residents in the local area regular information in relation to all events where • music is to be played at the venue, including start and finish times and a means by which noise complaints can be made directly to the premises so that they can be dealt with quickly and efficiently.
  - Should a noise complaint be received, it should be investigated and if noise levels • are above those agreed, immediate action would be taken to reduce the noise at source. A complaints log should be kept, detailing the time of complaint, address and any actions taken.
  - Clear and legible signage should be provided at customer exit points, requesting that they respect the local neighbourhood and keep noise to a minimum by refraining from shouting. As far as is reasonably practicable, door staff and management will encourage customers leaving the premises to do so quickly and quietly and act responsibly.
  - Manage and restrict the number of people in external areas. Practical measures may include preventing customers from taking drinks out of the venue and as far as reasonably practical, encourage customers to keep noise to a minimum.
- 4.3 It is anticipated that the mitigation measures discussed above would reduce the noise impact at noise sensitive properties, so that noise associated with the operation of the premises does not contribute to the prevailing ambient and background noise levels in the area. This is considered a reasonable approach given the proposed timings and durations of events at the premises.

# 5.0 SUMMARY AND CONCLUSION

- 5.1 Acoustic & Engineering Consultants Limited (AEC) has undertaken an assessment of the noise impact of events at the Carwash premises at Qaker Street, London as part of an application for a premises licence.
- 5.2 An assessment of noise levels from the venue has been carried out based on noise levels measured at the closest noise sensitive properties during and after an event.
- 5.3 A number of mitigation measures have been recommended to minimise the noise impact at residential properties. Given the proposed restrictions outlined in the proposed conditions on types of events, timings and durations, it is considered that a reasonable approach would be to control entertainment noise levels so that they do not contribute to the prevailing ambient and background noise levels.

Based on the above approach and the implementation of mitigation measures and noise management plan, a venue noise level suitable for a number of different types of events has been proposed. 5.4



## APPENDIX A – Acoustic Terminology

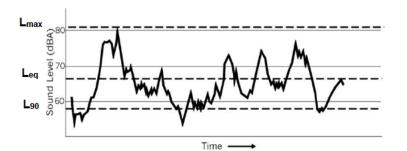
#### General

Sound is produced by mechanical vibration of a surface, which sets up rapid pressure fluctuations in the surrounding air. The rate at which the pressure fluctuations occur determines the pitch or frequency of the sound. The frequency is expressed in Hertz (Hz), that is, cycles per second. The human ear is sensitive to sounds from about 20 Hertz to 20,000 Hertz. Although sound can be of one discreet frequency - a 'pure tone' most noise is made up of many different frequencies.

The human ear is more sensitive to some frequencies than others, and modern instruments can measure sound in the same subjective way. This is the basis of the A-weighted sound pressure level dBA, normally used to assess the effect of noise on people. The dBA weighting emphasizes or reduces the importance of certain frequencies within the audible range

#### Sound / Noise Units

The figure below shows an example of sound level varying with time. Because of this variation over time the same period of noise can be described by several different levels. The most common of these are described below.



#### **Commonly Used Descriptors for Sound / Noise**

| LAmax,F/S   | The maximum (A-weighted) sound level measured during a given time. 'Fast' or 'Slow' meter response should be cited.   |
|---|---|
| L <sub>Aeq,T</sub> The equivalent continuous (A-weighted) sound level. It may be thought of as<br>"average" sound level over a given time, T. It is used for assessing noise from<br>sources: industrial and commercial premises, construction sites, railways and<br>intermittent noises. It can be considered as the "ambient" noise level. |   |
| L <sub>A90,T</sub> The (A-weighted) sound level exceeded for 90% of a measurement period. It is value often used to describe the "background" noise.  |   |
| L <sub>A10,T</sub> The (A-weighted) sound level exceeded for 10% of a measurement period. It often used to describe traffic noise.  |   |
| Free-field Level  | This refers to the sound level measured outside, away from reflecting surfaces.   |
| Rw  | Single number rating used to describe the <u>laboratory</u> airborne sound insulation properties of a material or building element over a range of frequencies, typically 100-3150Hz. |
| R'w Apparent sound reduction index - Single number rating used to describe the sound reduction index of an on-site construction over a range of frequencies, typically 10 3150Hz.   |   |
| D <sub>n,e,w</sub> Element normalised level difference. Single number rating used to describe the insulation performance of small elements  |   |



# A1 ADDENDUM 1 TO ORIGINAL REPORT

A1.1 This addendum provides additional information relating to noise levels at the residential properties at Wheeler House on Quaker Street and Folgate Street.

### Wheeler House

- A1.2 In addition to the noise assessment undertaken at the nearest noise sensitive properties on Quaker Street and Braithwaite Street, consideration has also been given to the residential properties at Wheeler House, to the east of the premises along Quaker Street.
- A1.3 Based on an entertainment noise level of 84dBA inside the premises and the effect of the barrier constructed around the stage, this would result in a noise level of around 48dBA at the noise sensitive properties on the corner of Quaker Street and Braithwaite Street, approximately 7dB below the measured sample background noise level. For reference, a noise level of 5dB below the prevailing background noise level would equate to a barely audible condition outside the nearest noise sensitive properties. The Noise Council's Code of Practice on Environmental Noise Control at Concerts advises that provided music noise is controlled so that it is barely audible externally, it will generally be inaudible with windows open
- A1.4 Taking into account distance attenuation, the noise level at the properties at Wheeler House would be around 34dBA, around 20dB below the prevailing background noise level. This would equate to an inaudible condition outside the closest properties at Wheeler House.

## Folgate Street

- A1.5 Folgate Street is located approximately 180m to the south-west, with no clear line of sight to the premises.
- A1.6 Based on an entertainment noise level of 84dBA inside the premises, the approximate attenuation provided by the existing premises (around 20dB at 20m from the sound source measured during the event), distance attenuation and the effective barrier provided by the existing buildings between the premises and the receiver (-10dB), the predicted resultant noise level would be around 45dBA. This is considered to be conservative estimate, as in reality the buildings between the premises and the receiver are likely to provide more than 10dB attenuation.
- A1.7 Assuming that the background noise level at Folgate Street is comparable to that measured around Quaker Street, the predicted noise level is 10dB lower than the background noise level, which would equate to an inaudible condition externally.

