



The Paris House
21 Western Road, Hove, BN3 1AF
Noise Impact Assessment

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On behalf of: Mr C Hallsworth
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1.0 Qualifications and experience

- 1.1 My name is Richard Vivian. I am the founder and director of Big Sky Acoustics Ltd. Big Sky Acoustics is an independent acoustic consultancy that is engaged by local authorities, private companies, public companies, residents' groups and individuals to provide advice on the assessment and control of noise.
- 1.2 I have a Bachelor of Engineering Degree with Honours from Kingston University, I am a Member of the Institution of Engineering & Technology, the Institute of Acoustics and the Institute of Licensing.
- 1.3 I have over thirty years of experience in the acoustics industry and have been involved in acoustic measurement and assessment throughout my career. I have designed sound insulation schemes for a wide range of residential and commercial buildings, developed operational procedures for the control of noise from licensed premises, and am very skilled in the design, configuration and control of amplified music systems. My professional experience has included the assessment of noise in connection with planning, licensing and environmental protection relating to sites throughout the UK. I have given expert evidence in the courts, in licensing hearings, in planning hearings and at public inquiries on many occasions.

2.0 Introduction

- 2.1 Big Sky Acoustics Ltd was instructed by Mr C Hallsworth of [REDACTED], to carry out an assessment of the existing noise breakout and noise control measures at The Paris House, 21 Western Road, Hove, BN3 1AF.
- 2.2 Mr Hallsworth is the owner of a private house located in [REDACTED] [REDACTED] [REDACTED] The Paris House. Mr Hallsworth has applied for a Review of the premises licence for The Paris House on the grounds of the Prevention of Crime and Disorder and the Prevention of Public Nuisance.
- 2.3 This report was prepared following discussions with my client, an examination of the planning and licensing history for the site, an attempt to engage with the Premises Licence Holder, a visit to the site and attended noise monitoring in the area around the premises until after it had closed and all patrons had dispersed.
- 2.4 The attempt to engage with the Premises Licence Holder prior to my site visit was started on 19th March 2024: I emailed the licensing lawyer for The Paris House and asked if I could meet with his client at a time when live music was scheduled, in order to discuss the sound system configuration and noise controls. I advised that I would like to assess noise breakout from the premises and how that impacts on residents in their homes. I further explained that my aim was to establish the correct sound levels, and other operational controls on noise, that are required for the premises to safely operate without causing a public nuisance, adding that once that is established I would hope that these controls could inform clear and precise

conditions so that all parties may understand what is, and isn't, acceptable. The solicitor for the premises politely and professionally acknowledged my email and said he would take instructions from his client. At the time of completing this report I have had no further contact from the other party.

- 2.5 A glossary of acoustical terms used in this report is provided in Appendix A.
- 2.6 All sound pressure levels in this report are given in dB re: 20µPa.

3.0 Criteria

Licensing Act 2003

- 3.1 The Licensing Act 2003 requires Brighton & Hove City Council, in its role as Licensing Authority, to carry out its various licensing functions to promote the following four licensing objectives:
- The prevention of crime and disorder
 - Public safety
 - The prevention of public nuisance
 - The protection of children from harm
- 3.2 Each objective is of equal importance. It is important to note that there are no other licensing objectives, therefore these four are of paramount importance at all times. The Licensing Authority must base its decisions about determining applications and attaching any conditions to licences, on the promotion of these four licensing objectives.
- 3.3 When it comes to the evaluation of noise under the Licensing Act an understanding of the concept of *public nuisance* is essential. Public nuisance is given a statutory meaning in many pieces of legislation. It is however not narrowly defined in the 2003 Act and retains its broad common law meaning. It may include in appropriate circumstances the reduction of the living and working amenity and environment of other persons living and working in the area of the licensed premises¹.
- 3.4 Once those involved in making licensing decisions are satisfied of the existence of a public nuisance, or its potential to exist, the question is how to address it. The Home Office Guidance is useful in this regard and explains that, in the context of noise nuisance, conditions might be a simple measure such as ensuring that doors and windows are kept closed after a particular time, or persons are not permitted in garden areas of the premises after a certain time, noting that conditions in relation to live or recorded music may not be enforceable in circumstances where the entertainment activity itself is not licensable.
- 3.5 The guidance also states that any appropriate conditions should normally focus on the most sensitive periods. For example, the most sensitive period for people being disturbed by unreasonably loud music is at night and into the early morning when residents in adjacent properties may be attempting to go to sleep or are sleeping.

¹ Paragraph 2.22, Revised Guidance issued under section 182 of the Licensing Act 2003, December 2023

- 3.6 The Licensing Act 2003 further requires the Licensing Authority to publish a Statement of Licensing Policy (SLP) that sets out the policies the Licensing Authority will apply to promote the licensing objectives when making decisions on applications made under the Act. The current SLP took effect on the 4th February 2021. Paragraph 1.1.95 of the SLP states: *"A condition may be imposed on new licences that entertainment noise shall be inaudible in any residence. Noise emanating from within licensed premises should not normally be audible outside."*

Cumulative Impact Zone

- 3.7 The premises sits within the Cumulative Impact Zone (CIZ). The licensing authority, after careful consideration, has determined that the concentration of licensed premises in this area of the city centre is causing problems of crime and disorder and public nuisance and that therefore an approach to 'Cumulative Impact' is necessary as part of its statement of licensing policy. The effect of this special policy is that applications for new premises licences or club premises certificates within the area, or variations which are likely to add to the existing Cumulative Impact, will be refused following relevant representations. This presumption can be rebutted by the applicant if they can show that their application will have no negative Cumulative Impact.

The Matrix Approach to Hours

- 3.8 The Licensing Authority takes a matrix approach to licensing decisions and provides a framework of what the licensing authority would like to see within its area in terms of hours of operation. For a new premises licence application for a pub in the CIZ the presumption would be refusal. Outside the CIZ, but in the wider Special Stress Area (SSA), pubs should close at 23:00hrs, and in other areas pubs should close at midnight. Departure from the matrix policy is expected only in exceptional circumstances.

Reviews

- 3.9 Reviews represent a key protection for the community. Where the licensing authority considers action necessary under its statutory powers it will take necessary steps to support the licensing objectives. Action following review will be informed by licensing enforcement policy.
- 3.10 Where licensed premises are found to cause nuisance or be associated with disorder or unreasonable disturbance, the review process may be invoked, and powers of revocation or the imposition of conditions may be considered. Conditions may include use of closed-circuit television, licensed door supervisors and earlier closing times. Such action to restrict the operation may be taken for trial periods to allow businesses an opportunity to remedy existing disorder, nuisance or disturbance.

Conditions

- 3.11 The current premises licence for The Paris House² includes the following conditions for the prevention of public nuisance:
1. The Licence holder and staff must undertake regular inspections inside and outside the premises in order to monitor noise levels and ensure that both ambient sound and sound generated by recorded or live entertainment is at a level that does not constitute a nuisance.
 2. Service to customers occupying the external seating area must cease at midnight.
 3. The licence holder shall ensure that prominent, clear and legible notices are displayed at all exits requesting the public to respect the needs of local residents and to leave the premises and the area quietly. This will also be communicated verbally.
 4. All reasonable steps will be taken to ensure that the accumulation of the public awaiting entry to the premises will occur for the minimum time possible with the minimum amount of noise.
 5. An additional method of ventilation will be installed to allow for the doors and windows of the pub to remain shut during live music and DJ operated music.
- 3.12 Further conditions were attached after a hearing by the licensing authority:
1. The outside area shall be closed and cleared by 23.00 hours.
 2. On any day, the provision of live music shall be limited to 10.00 – 23.00 hours.
 3. All external doors and windows shall be kept shut after 23.00 hours, except for access and egress.
 4. The sound attenuator shall be set at a level approved by the licensing authority.
 5. The licence holder shall ensure that prominent, clear and legible notices are displayed at all exits requesting the public to respect the needs of local residents and to leave the premises and the area quietly.

4.0 Site visit

- 4.1 The premises, currently known as The Paris House and previously known as The Jugglers, is on the corner of Western Road and Brunswick Street East. The premises sits within the Cumulative Impact Zone³.
- 4.2 During my recent site visit on Saturday 20th April I arrived at approximately 16:00hrs. I walked around the area, which I was already familiar with, and remained in the immediate area of the premises until 01:45hrs on Sunday morning.
- 4.3 Western Road is in mixed-use with primarily retail uses at street level and a mix of uses, including residential, on upper floors. Brunswick Street East to the south of the premises is primarily residential and this is the location of Old Market Cottages at approximately 30 metres from The Paris House. Cambridge Road, to the north, is almost exclusively residential, with the exception of St Patrick's Church.

² Premises Licence Reference 1445/3/2024/00466

³ Brighton & Hove City Council's Statement of Licensing Policy, January 2021 Cumulative Impact Zone.

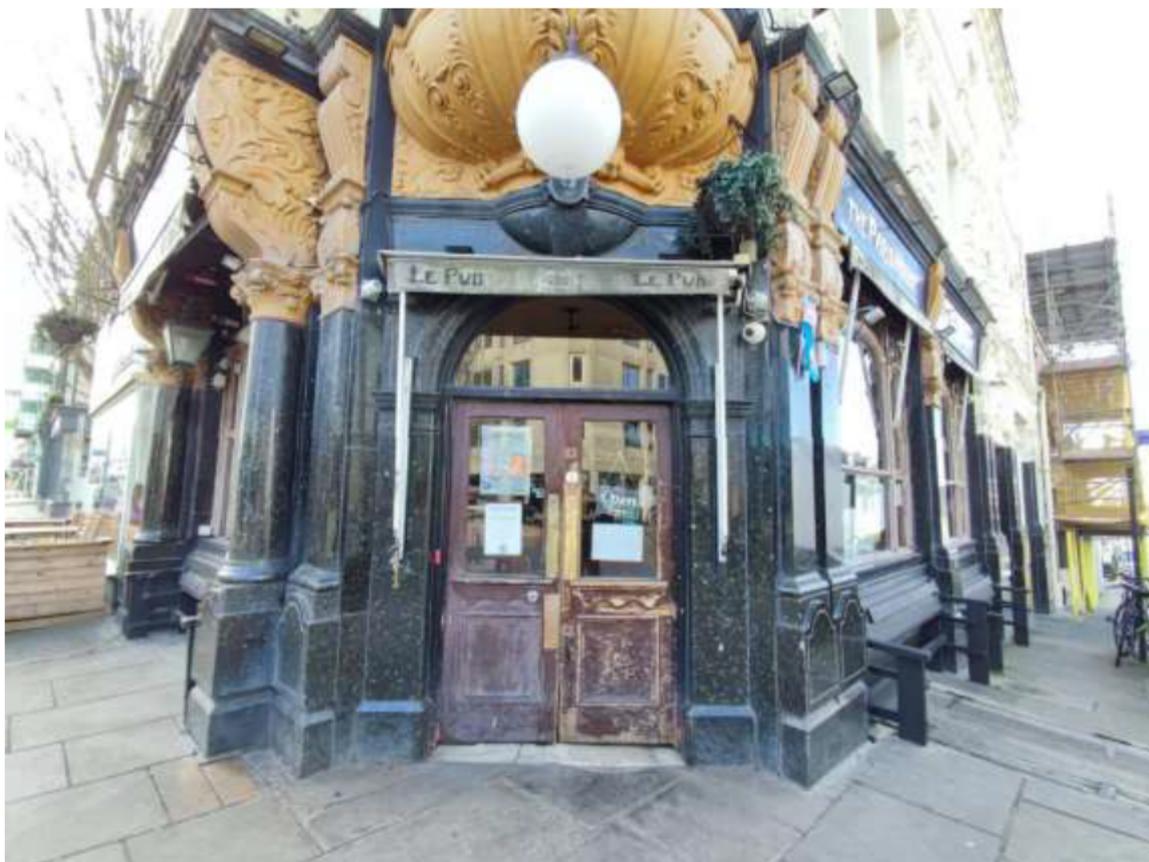


Figure 1: The Paris House, also branded "Le Pub", on the corner of Western Road and Brunswick Street East

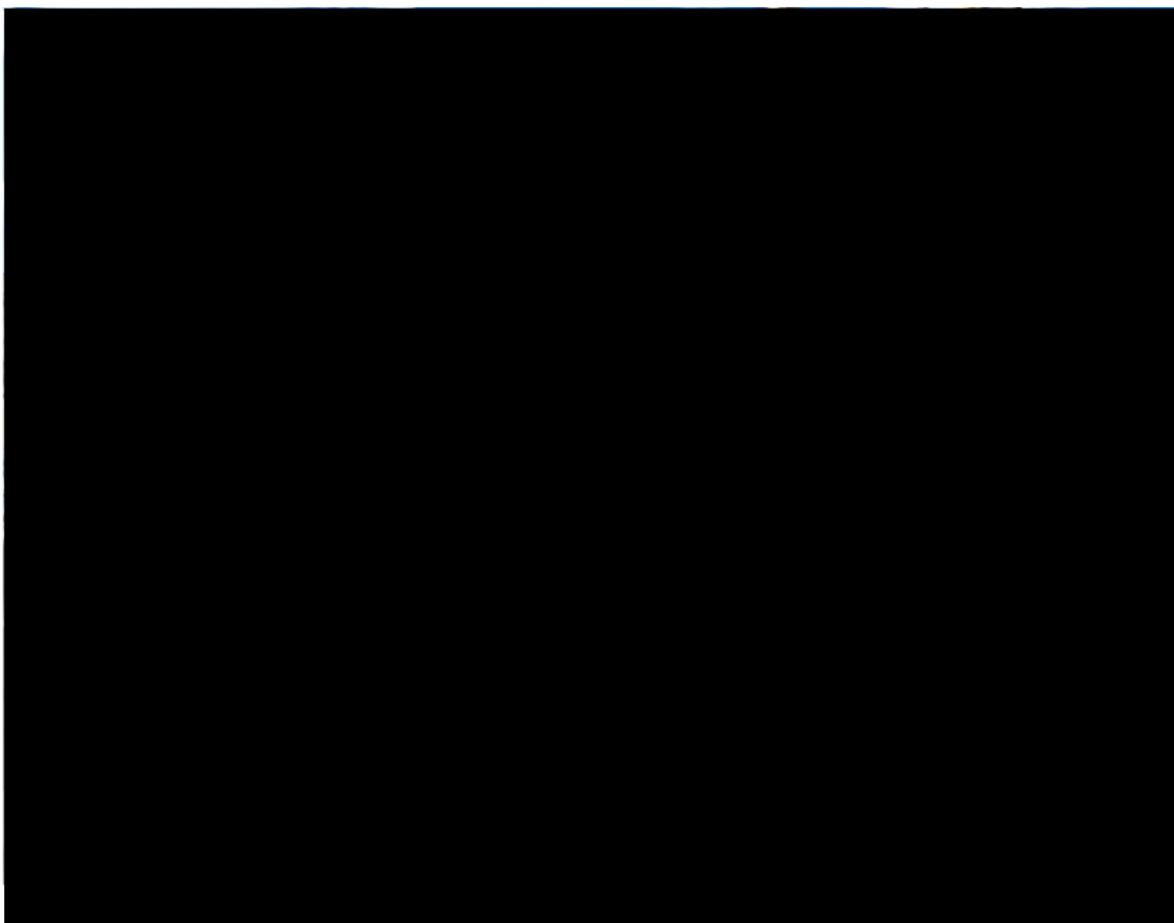




Figure 4: [REDACTED] is a residential street with the closest properties approx 35m from Paris House

- 4.4 During the survey noise measurements were made in continuous samples of 1-second intervals. Measurements included the L_{Aeq} , L_{A90} and L_{Amax} indices which are used to indicate the average noise level sampled over a period, the background noise level, and the maximum noise level respectively. Simultaneous octave and third-octave frequency spectra were also obtained during the survey and low-frequency (bass) measurements are provided in this report to assist in the assessment of music noise. Measurements were taken at 1.5 m above grade level. Measurement duration was typically 5 minutes per sample. Throughout the course of the survey an outdoor microphone wind-shield was used.
- 4.5 Measurements were made in accordance with BS7445-2:1991 'Description and measurement of environmental noise. Guide to the acquisition of data pertinent to land use'.

- 4.6 A large amount of noise data were gathered during the survey which is simplified and summarised in this report and in the table below.
- 4.7 The instrumentation used to carry out the noise measurements is detailed in Appendix C. The calibration of the measuring equipment was checked prior to and immediately following the tests and no signal variation occurred. Calibration of equipment is traceable to national standards.
- 4.8 The weather conditions during the survey are reported in Appendix D.

Date	Time	Location	L _{Aeq}	L _{Ceq}	L _{A F90}	L _{eq,6.3 Hz}	L _{eq,1.25 Hz}	Observations
20/04/2024	17:27	██████████	46	52	46	45	41	Top floor bedroom with window open. Sounds of people talking, very low level music.
20/04/2024	17:28	██████████	47	55	47	51	45	Top floor bedroom with window open. Sounds of people talking. Music more dominant as door opens; jazz with female vocals and upright bass.
20/04/2024	18:25	██████████	43	55	45	49	38	First floor living room with window open. People noise, very distant music.
20/04/2024	18:27	██████████	50	59	49	55	50	First floor living room with window open. People noise, obvious drums and bass.
20/04/2024	18:42	██████████	45	51	37	42	38	Sitting in kitchen with windows closed, music noticeable during conversation.
21/04/2024	1 00	██████████	45	55	41	50	53	First floor bedroom, window open. Minimal people noise but regular bass beat and high-hat noticeable

Figure 5: Attended measurement noise data and commentary. All sound pressure levels in dB re: 20µPa.

4.9 The average background noise level during the survey period in the rear courtyard of ██████████ was continuously monitored and ranged from 45dB L_{A90} to 39dB L_{A90}. These are typical levels for a suburban garden. The background noise profile here is influenced by plant, typically domestic plant such as central heating boilers, and distant road traffic.

5.0 Discussion

- 5.1 Both measurement and subjective observation demonstrate that music noise from The Paris House is not well-controlled. Music noise breakout from the premises was noticeable inside residential properties and noise levels significantly increase when the doors to The Paris House are opened as customers enter and leave. It is clear that noise from the premises does not meet the inaudibility criterion⁴ of the SLP.
- 5.2 In the afternoon and early evening music noise was relatively laid-back jazz/swing and the general feeling amongst the residents I spoke to was that at this time of the day, it was tolerable. However, music noise continued late into the night as the premises morphed from a relatively low-key live music venue to a club with a DJ playing mainstream music over an additional PA system set up near the door. I was able to identify various tracks from the DJs repertoire of primarily seventies and

⁴ Entertainment noise shall be inaudible in any residence. Noise emanating from within licensed premises should not normally be audible outside.

early eighties pop records. By way of example at 23:36hrs "Le Freak" by Chic was very clearly noticeable from halfway up [REDACTED]. Later in the evening I was in the upper part of [REDACTED], just north of The Vicarage, when I heard, at an even louder level, "Heart of Glass" by Blondie. The separation distance from The Paris House to my observation point would have been around 150m and the song, with clear vocals, was loud and instantly recognisable. At this noise level it would have impacted on multiple properties, even with windows closed.

- 5.3 The Heart of Glass incident started at 01:27hrs and so I walked down Cambridge Street towards the premises to see what was happening. By the time I arrived the track was coming to an end and I realised this was the DJ's finale. It appears the DJ had taken the decision to really turn things up⁵ and this may have coincided with the single set of doors being open for customers to leave.
- 5.4 I observed customers leaving the premises in what was generally a well-behaved fashion and by 01:45hrs it looked as if it was only staff left inside the premises clearing down, and the DJ packing his loudspeakers away.



Figure 6: View of premises at 23:39. No door supervisor at this time but he was present earlier. One smoker on the [REDACTED] façade behind chairs stacked on the pavement

- 5.5 For some of the evening I did notice there was a person on the door wearing an SIA badge. I observed him talking to customers and generally managing the area

⁵ The control of the sound system should not be in the hands of a DJ, the premises licence requires there is a limiter that is set and locked at a level that does not cause a nuisance.

outside. He directed some smokers to the Brunswick Street East façade of the premises.

- 5.6 It is my opinion that the music noise witnessed inside the [REDACTED] I visited amounts to a nuisance, particularly when it occurs later at night. If the music noise stopped at 23:00hrs I expect some local authority officers would take a lighter touch and simply require a more robust approach to limiter settings on the sound system as well as some operational controls for managing the outside areas. However, it is the combination of an unsuitable building, a failure to control amplified music levels, and the later night operation that combine to create unacceptable noise levels and the need for more effective controls.
- 5.7 In researching the recent history of The Paris House operation I read a newspaper article which, most succinctly, summarises the problem with the premises: The article in The Argus⁶ dated 7th March 2024 includes a quote from a Tom Burris who is a resident and avid supporter of the premises. Mr Burris says *"The Paris House is literally the reason I live in [REDACTED] It's my dad's favourite pub. I can hear it from my bedroom and it makes me think of how lucky I am to live in such a brilliant city thriving with culture, talent and amazing people"*.
- 5.8 [REDACTED] bedroom is approximately 80m from the premises at a location that has no clear line-of-sight to The Paris House and yet he states that he can hear the noise, from The Paris House, in his bedroom.

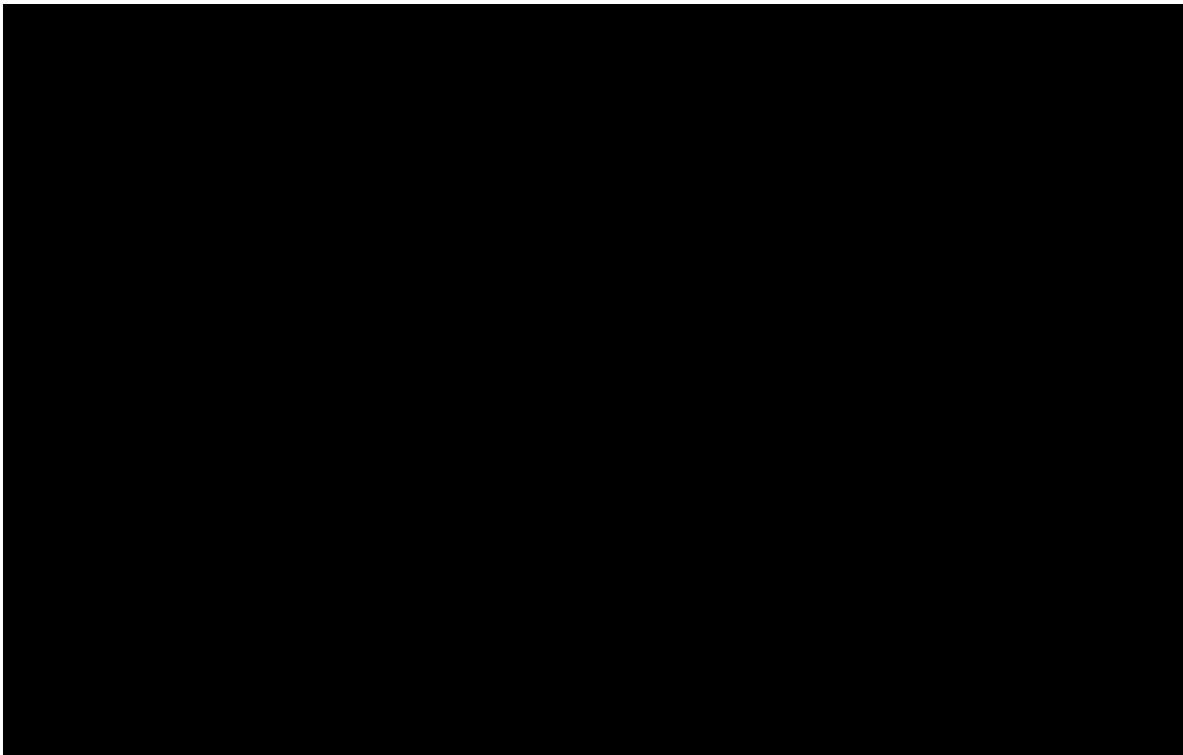


Figure 7: A resident that supports the premises claims that music from The Paris House can be heard in his bedroom on [REDACTED]

⁶ <https://www.theargus.co.uk/news/24167435.letter-neighbours-paris-house-license-review/>

5.9 Whilst being able to hear music from The Paris House may be a source of pleasure for ██████ the fact that he can hear music inside his home, ██████, at a location that has no clear line-of-sight to The Paris House, is a reasonable indication that many other residents at a similar separation distance and living in similarly constructed properties will also be able to hear music from The Paris House inside their homes. Those residents who do have line-of-sight to the premises, particularly those on ██████ and ██████, are likely to experience noise at even higher levels than ██████.

6.0 The suitability of the building for amplified music

6.1 21 Western Road Hove is locally listed⁷ as a historic building. It is described as a *"4-storey late Victorian corner building, originally The Western Hotel with public house frontage to the ground floor, rendered above. Elaborate detailing to both Western Road and Brunswick Street East. Windows have been replaced. The roof is largely hidden behind the parapet, with a distinctive skyline incorporating finials, pediments and a dome to the corner"*.

6.2 There is only one set of doors for customers which are on the corner of Western Road and Brunswick Street East. When opened noise breakout directly affects ██████ opposite and Brunswick Street East to the side, as well as the wider area. The doors are old and damaged in places. Bands and DJs are located very close to this entrance and there is no lobby to contain sound.



Figure 8: The entrance doors are in a poor state of repair and there is no lobby to reduce noise breakout

⁷ Local Listing Reference LLHA0243



Figure 9: Glazing on Western Road façade. Frames are damaged and gaps are roughly patched silicon



Figure 10: Glazing on Brunswick Street East façade is cracked

- 6.3 The glazing to both the Western Road façade and the Brunswick Street façade is only single glazing and is in a poor state of repair.
- 6.4 Without a lobby door system, secondary glazing, and alternative means of ventilation for the building, and with bands and DJs located right next to the only entrance door, this building is not suitable for loud amplified music.
- 6.5 Customers drink, and smoke, outside the premises. Although the pavement on Western Road is wide I observed smokers, and before 23:00hrs drinkers, congregating on the very much narrower Brunswick Street East pavement. Later at night the SIA door supervisor appeared to direct smokers to the Brunswick Street East side.
- 6.6 Benches have been installed at both the building façades and these further reduce the pavement width although because the pavement is wide on the Western Road façade that is not a significant concern for obstruction. During my assessment I paced out the gap shown in Figure 11 below and estimate it to be around 70cm, noting that this is with the benches folded up. Pedestrians were unable to pass when this space was in use and were forced to walk in the road. On the opposite side of Brunswick Street East the pavement is even narrower, and sloped, so there is no safe pedestrian route from Brunswick Street East to Western Road.



Figure 11: Unoccupied benches reduce the width of the pavement. When the area is in use by patrons of the Paris House pedestrians, including me, have to walk in the road.

7.0 Recommendations

Remedial works to the building

- 7.1 In its current state the building is not suitable for amplified music and this has been shown to be particularly problematic later at night. Until a scheme of appropriate remedial works is carried out to the building it is recommended that no regulated entertainment is permitted after 23:00hrs.
- 7.2 It is also noted that SLP considers that pubs in stress areas should close no later than 23:00hrs, and in other areas no later than midnight, and that recommendation is regardless of the integrity of the building to contain noise. 23:00hrs is therefore the appropriate time to close the premises.

Control of music levels

- 7.3 Despite having a limiter condition imposed on the current premises licence, additional equipment has been witnessed being used in the premises and rendering any limiter controls on the installed sound system ineffective.
- 7.4 At any time of the day, or evening, there should be appropriate controls to limit the maximum level of amplified music but previous attempts to control music level or set limiters have not been successful. This may be because of a misunderstanding as to how the sound system is configured and how the limiter equipment is set and locked, but it is also obvious that additional equipment is being brought into the premises that bypasses the limiter altogether. A new limiter condition is therefore proposed that addresses the shortcomings of the current condition.
- 7.5 It is also noted that some instruments, such as drum kits, brass and other musical instruments that generate their own sound, require very specific controls. Therefore ceasing live music earlier in the evening at 19:00hrs, as occurred during my site visit, is welcomed as an appropriate method of control for live music in this building in its current state.
- 7.6 Section 177a of the Licensing Act 2003 deregulates the provision of entertainment consisting of the performance of live music and recorded music provided that there is an audience of no more than 500 patrons, and the music takes place between 08:00hrs and 23:00hrs on the same day. However, this deregulation can be removed and therefore an additional condition is required to ensure that the proposed noise control conditions above relating to regulated entertainment can be enforced.

Use of outside areas

- 7.7 Customers using the outside areas are causing noise, and obstruction when they stand or sit on the Brunswick Street East façade. Therefore all customers should be directed to the Western Road façade. This area should be monitored by staff to ensure the pavement is not obstructed. No drinks should be allowed outside beyond 21:00hrs when the area should just be for smokers.

8.0 Proposed conditions

- 8.1 Regulated entertainment is not permitted beyond 23:00hrs.
- 8.2 Performances of live music, using instruments that are not routed entirely through a limiting device, is not permitted after 19:00hrs.
- 8.3 A noise limiter must be fitted to the installed sound system and maintained in accordance with the following criteria:
 - (a) the limiter must be set at a level determined by and to the satisfaction⁸ of an authorised Environmental Health Officer, so as to ensure that no noise nuisance is caused to local residents or businesses;
 - (b) the operational panel of the noise limiter shall then be secured by key or password and access shall only be by persons authorised by the Premises Licence holder;
 - (c) The limiter shall not be altered without prior written agreement from the Environmental Health Team;
 - (d) No alteration or modification to any existing sound system(s) should be affected without prior knowledge of the Environmental Health Team; and
 - (e) No additional sound generating equipment shall be used on the premises without being routed through the sound limiter device.
- 8.4 No noise generated on the premises, or by its associated plant or equipment, shall emanate from the premises nor vibration be transmitted through the structure of the premises which gives rise to a nuisance.
- 8.5 The effect of the de-regulation provided by section 177A of the Licensing Act 2003 does not apply to these premises. All conditions relating to live music and recorded music shall apply at all times the premises is open to the public.
- 8.6 The premises licence holder shall ensure that any patrons drinking and/or smoking outside the premises do so in an orderly manner and are properly supervised by staff so as to ensure that there is no public nuisance or obstruction of the public highway. Customers must only use the outside area on the Western Road façade and must not congregate on the Brunswick Road East pavement. No drinks should be taken from the premises in open containers beyond 21:00hrs.

⁸ The SLP implies that entertainment noise shall be inaudible in any residence and that noise emanating from within licensed premises should not normally be audible outside. Should officers require I can provide specific criteria for measureable limit levels at noise sensitive properties.

9.0 Conclusions

- 9.1 Big Sky Acoustics Ltd was instructed by Mr C Hallsworth to carry out an assessment of the existing noise breakout and noise control measures at The Paris House, 21 Western Road, Hove, BN3 1AF.
- 9.2 Noise from The Paris House was noticeable, and measurable during the assessment at levels that amount to a nuisance for multiple properties. This correlates with the complaint history for the site.
- 9.3 I have made recommendations for precise and enforceable conditions to be added to the premises licence to align the hours of operation to those in the Statement of Licensing Policy for a pub; to include a robust limiter condition requiring that a sound system limiter is set at a level that ensures there is not a nuisance due to noise from amplified music; and to improve the management of the outside space to reduce the risks of obstruction of the highway.
- 9.4 The testing, setting and locking of the limiter still requires officers with technical skills to visit the premises and to assess noise levels within residential properties. If these resources are not available then the condition could be worded so that the limiter needs to be set and locked by an appropriately qualified person and a limiter calibration certificate for the sound system periodically measured.
- 9.5 The operation of The Paris House has resulted in multiple complaints about public nuisance over an extended period of time. With the correct works in place, and following the recommendations in this report, the premises would still have the ability to host small live music performances and will be able to continue its live music offering in a very similar style to that witnessed during my assessment. However stricter controls are essential on DJs and associated sound equipment later in the evening, as well as on the management of patrons outside.



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Appendix A - Terminology

Sound Pressure Level and the decibel (dB)

A sound wave is a small fluctuation of atmospheric pressure. The human ear responds to these variations in pressure, producing the sensation of hearing. The ear can detect a very wide range of pressure variations. In order to cope with this wide range of pressure variations, a logarithmic scale is used to convert the values into manageable numbers. Although it might seem unusual to use a logarithmic scale to measure a physical phenomenon, it has been found that human hearing also responds to sound in an approximately logarithmic fashion. The dB (decibel) is the logarithmic unit used to describe sound (or noise) levels. The usual range of sound pressure levels is from 0 dB (threshold of hearing) to 140 dB (threshold of pain).

Frequency and Hertz (Hz)

As well as the loudness of a sound, the frequency content of a sound is also very important. Frequency is a measure of the rate of fluctuation of a sound wave. The unit used is cycles per second, or hertz (Hz). Sometimes large frequency values are written as kilohertz (kHz), where 1 kHz = 1000 Hz. Young people with normal hearing can hear frequencies in the range 20 Hz to 20,000 Hz. However, the upper frequency limit gradually reduces as a person gets older.

A-weighting

The ear does not respond equally to sound at all frequencies. It is less sensitive to sound at low and very high frequencies, compared with the frequencies in between. Therefore, when measuring a sound made up of different frequencies, it is often useful to 'weight' each frequency appropriately, so that the measurement correlates better with what a person would actually hear. This is usually achieved by using an electronic filter called the 'A' weighting, which is built into sound level meters. Noise levels measured using the 'A' weighting are denoted dBA. A change of 3dBA is the minimum perceptible under normal everyday conditions, and a change of 10dBA corresponds roughly to doubling or halving the loudness of sound.

C-weighting

The C-weighting curve has a broader spectrum than the A-weighting curve and includes low frequencies (bass) so it can be a more useful indicator of changes to bass levels in amplified music systems.

Noise Indices

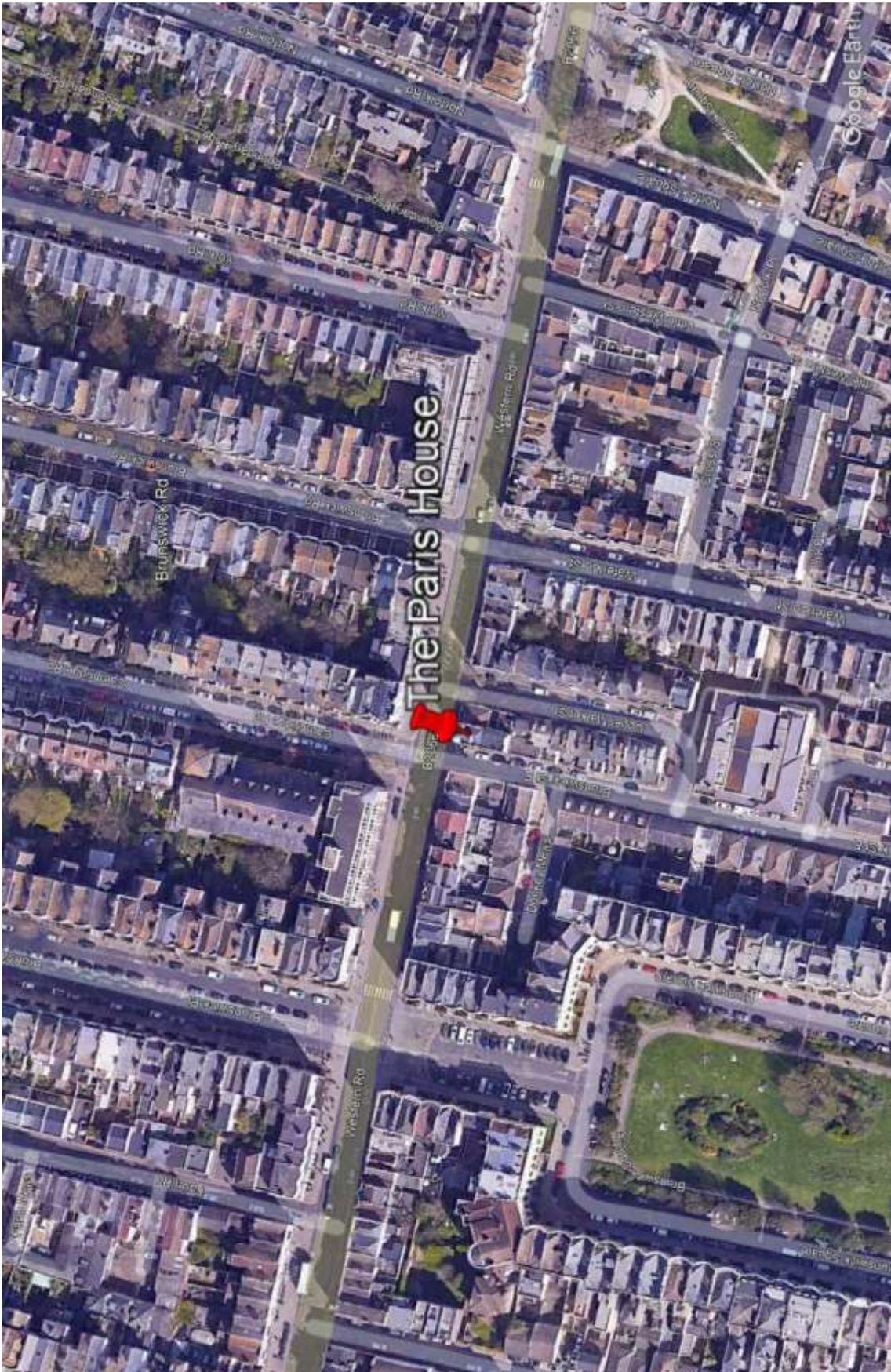
When a noise level is constant and does not fluctuate over time, it can be described adequately by measuring the dB level. However, when the noise level varies with time, the measured dB level will vary as well. In this case it is therefore not possible to represent the noise level with a simple dB value. In order to describe noise where the level is continuously varying, a number of other indices are used. The indices used in this report are described below.

- L_{eq}** The equivalent continuous sound pressure level which is normally used to measure intermittent noise. It is defined as the equivalent steady noise level that would contain the same acoustic energy as the varying noise. Because the averaging process used is logarithmic the L_{eq} is dominated by the higher noise levels measured.
- L_{Aeq}** The A-weighted equivalent continuous sound pressure level. This is increasingly being used as the preferred parameter for all forms of environmental noise.
- L_{Ceq}** The C-weighted equivalent continuous sound pressure level includes low frequencies and is used for assessment of amplified music systems.
- L_{eq,63Hz}** The equivalent continuous sound pressure level in the octave band centred on 63Hz. This can be considered the lower bass octave in music as it covers the frequency range of 44-88Hz.
- L_{eq,125Hz}** The equivalent continuous sound pressure level in the octave band centred on 125Hz. This can be considered the upper bass octave in music covering the range of 88-177Hz.
- L_{Amax}** is the maximum A-weighted sound pressure level during the monitoring period. If fast-weighted it is averaged over 125 ms, and if slow-weighted it is averaged over 1 second. Fast-weighted measurements are therefore higher for typical time-varying sources than slow-weighted measurements.
- L_{A90}** is the A-weighted sound pressure level exceeded for 90% of the time period. The L_{A90} is used as a measure of background noise.

Sound insulation terminology

- D_{nT,w}** Weighted standardised level difference, a single figure generated by comparing the D_{nT} with a reference curve. The reference curve is shifted in 1dB steps until the sum of adverse deviation of the test curve, compared to the reference curve, is as large as possible, but no more than 32.0 dB. The value of the shifted reference curve at 500Hz is taken as the D_{nT,w}. N.B. As D_{nT,w} for airborne transmission represents a level difference, an improvement generates a larger figure.
- G_{tr}** A 'spectrum adaptation term' used to correct the D_{nT,w} in order to reflect low frequency performance of the wall or floor tested.

Appendix B - Site location



Appendix C - Instrumentation

All attended measurements were carried out using a Cirrus type CR:171B integrating-averaging sound level meter with real-time 1:1 & 1:3 Octave band filters and audio recording conforming to the following standards: IEC 61672-1:2002 Class 1, IEC 60651:2001 Type 1 I, IEC 60804:2000 Type 1, IEC 61252:1993 Personal Sound Exposure Meters, ANSI S1.4-1983 (R2006), ANSI S1.43-1997 (R2007), ANSI S1.25:1991. 1:1 & 1:3 Octave Band Filters to IEC 61260 & ANSI S1.11-2004.

Unattended measurements were carried out using a Casella type CEL-633C1 integrating-averaging sound level meter with real-time 1:1 & 1:3 octave band filters conforming to the following standards: IEC 61672-1:2013 Class 1, IEC 60651:1979 Type 1, IEC 60804:2000 Type 1, ANSI S1.4-1983, ANSI S1.43-1997 (R2007). 1:1 & 1:3 octave band filters comply with EN 61260:1996, Class 0 & ANSI S1.11-1986, Order-3 Type 0C.

Description	
Cirrus sound level meter	type CR:171B
Cirrus pre-polarized free-field microphone	type MK:224
Cirrus microphone pre-amplifier	type MV:200E
Cirrus class 1 acoustic calibrator	type CR:515
Casella sound level meter	type CEL-633C1
Casella pre-polarized free-field microphone	type CEL-251
Casella microphone pre-amplifier	type CEL-495
Casella class 1 acoustic calibrator	type CEL-110/1

The calibration of the measuring equipment was checked prior to and immediately following the tests and no signal variation occurred. Calibration of equipment is traceable to national standards.

Appendix D - Meteorology

	Temperature	Wind speed	Precipitation
At start	11°C	2ms ⁻¹	none
During assessment	7°C	0-2ms ⁻¹	none
At finish	5°C	0ms ⁻¹	none
<i>Additional comments:</i> none			