



ACOUSTIC
CONSULTANTS LTD

Noise Impact Assessment

**Afan Ales & Fine Wines
Station Road, Port Talbot**

Reference: 11220/JA/AE

Client & Architect

Afan Ales & Fine Wines Limited

Document Control

Version:	Revision Description:	Date:	Author:	Reviewed by:	Approved by:
1.0	First Issue	01/05/2025	Ashton Everitt	James Abbass	Blake Lucas
2.0	Client comments	08/05/2025	Ashton Everitt	James Abbass	Blake Lucas
3.0	Minor text amendments	09/05/2025	James Abbass	Blake Lucas	Blake Lucas
4.0	Floor proposal amendment	13/06/2025	James Abbass	Blake Lucas	Blake Lucas

The report has been prepared in good faith, with all reasonable skill and care, based on information provided or available at the time of its preparation and within the scope of work agreement with the Client. We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above. The report is provided for the sole use of the named Client and is confidential to them and their professional advisors. No responsibility is accepted to other parties.

The report limits itself to addressing solely on the noise, acoustic, and vibration aspects as included in this report. We provide advice only in relation to noise, vibration and acoustics. It is recommended that appropriate expert advice is sought on all the ramifications (e.g. CDM, structural, condensation, fire, legal, etc.) associated with any proposals in this report or as advised and concerning the appointment. It should be noted that noise predictions are based on the current information as we understand it and, on the performances noted in this report. Any modification to these parameters can alter the predicted level. All predictions are in any event subject to a degree of tolerance of normally plus or minus three decibels. If this tolerance is not acceptable, then it would be necessary to consider further measures.

Table of Contents

1.	Introduction	4
2.	Site and Location	5
3.	Assessment Criteria	8
4.	Noise Monitoring	11
5.	Internal Use & Building Evaluation	15
6.	Noise Modelling: Internal Music Use	20
7.	Noise Management Plan Summary	26
8.	Summary and Conclusions	27
9.	Appendix 1 – Glossary of Acoustic Terminology	28

1. Introduction

Afan Ales & Fine Wines Limited have appointed Acoustic Consultants Limited to undertake a noise impact assessment on the proposals for the site to include live music events in relation to a change of use planning application to be submitted to the LPA.

The report provides details on noise control and sound insulation measures that could be undertaken to achieve, as far as feasible, acceptable noise levels at nearby sensitive receivers, within the same building, as well as around the site.

This report identifies relevant planning and assessment criteria in the IOA Good Practice Guide on The Control of Noise from Pubs and Clubs and a noise rating curve. The assessment adopts a noise rating curve assessment to address the impact of noise within dwellings above and adjacent to the site from noise sources within the premises.

Use of the rear beer garden has previously been assessed by a separate consultancy and is out of the scope of this report.

Revision 4 of this report amends the proposed floor/ceiling construction due to restrictions on site. The revision still upholds the protection of the residential dwelling above.

The report has been written in support with a full Member of the Institute of Acoustics (MIOA) with over six years' experience in the field, who has reviewed the work.

2. Site and Location

The site is currently used as a retailer and small bar, proposals within the change of use application include for music to be played within the space.

From discussions with our client, intentions or desires would be to have live bands including drums, bass guitar, guitars, and singers. We consider that the internal use of the premises could last until 23.00 hours.

Preexisting noise climate in the area includes road traffic noise and railway noise from routes connecting to Port Talbot Parkway railway station.

On Friday and Saturday evenings, the noise climate includes nearby clubs and bars located in proximity to Afan Ales & Fine Wines on Station Road, called B2M Nightclub, Murphy's Main Stage, and Jimmy's Bar.

The proposals, as we understand, include hosting live music events inside the store during evenings, including weekdays and weekends.

The nearest noise sensitive receivers (NSR's) are the residential flats located directly above the site.

In addition to these properties, NSRs to the rear of the site on Courtland Place, and Courtland Buildings, are also considered. From our site visit and research, there are no residential receivers directly opposite the application site on Station Road.

The site and nearest noise sensitive receiver (NSR) locations are shown in the figures below.

Figure 1: Site Location

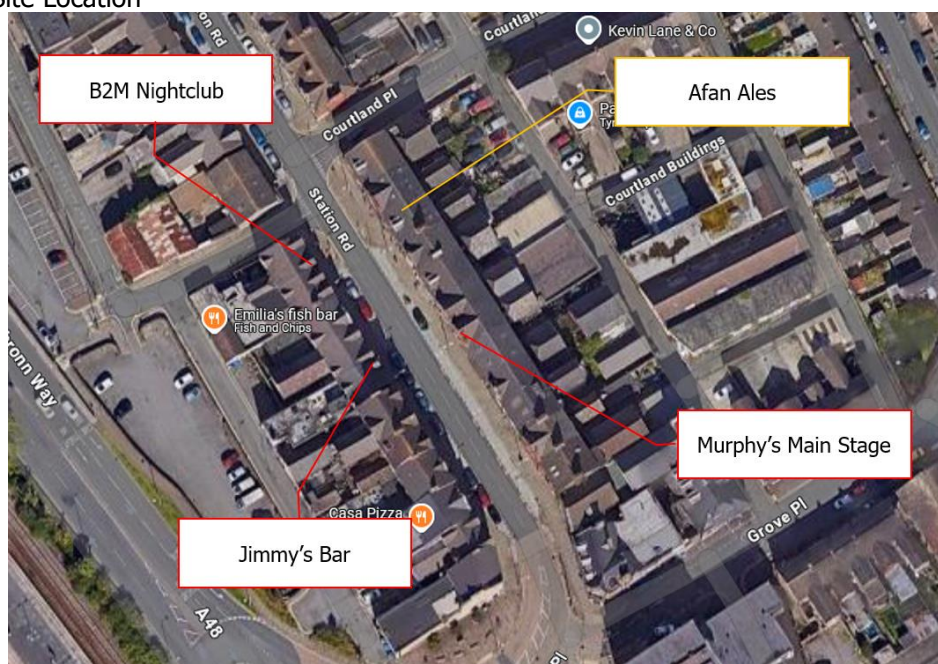
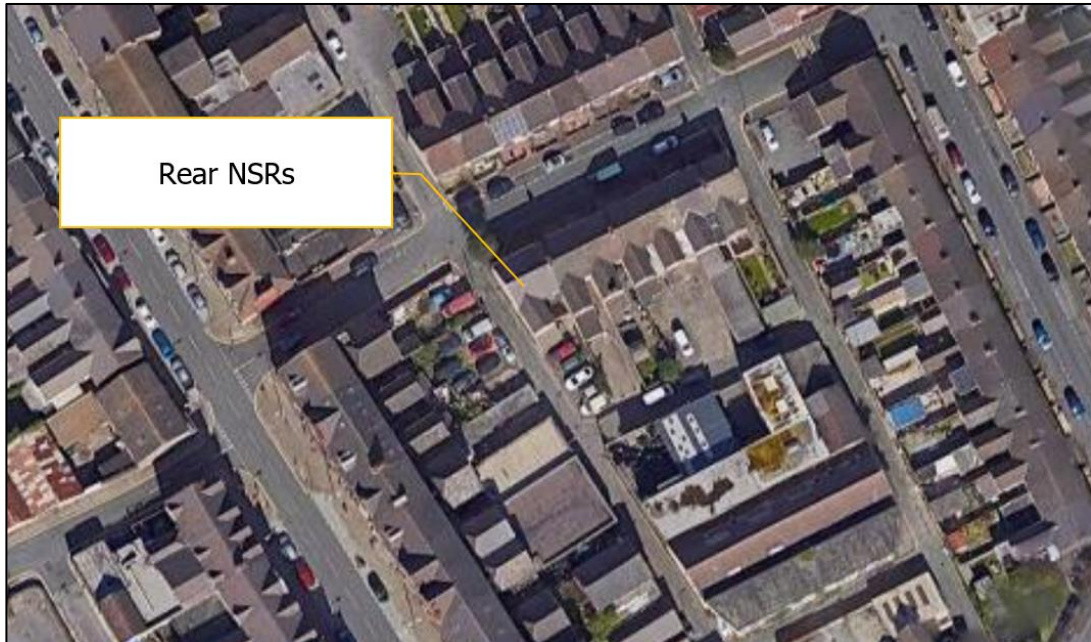


Figure 2: Site and NSR Location

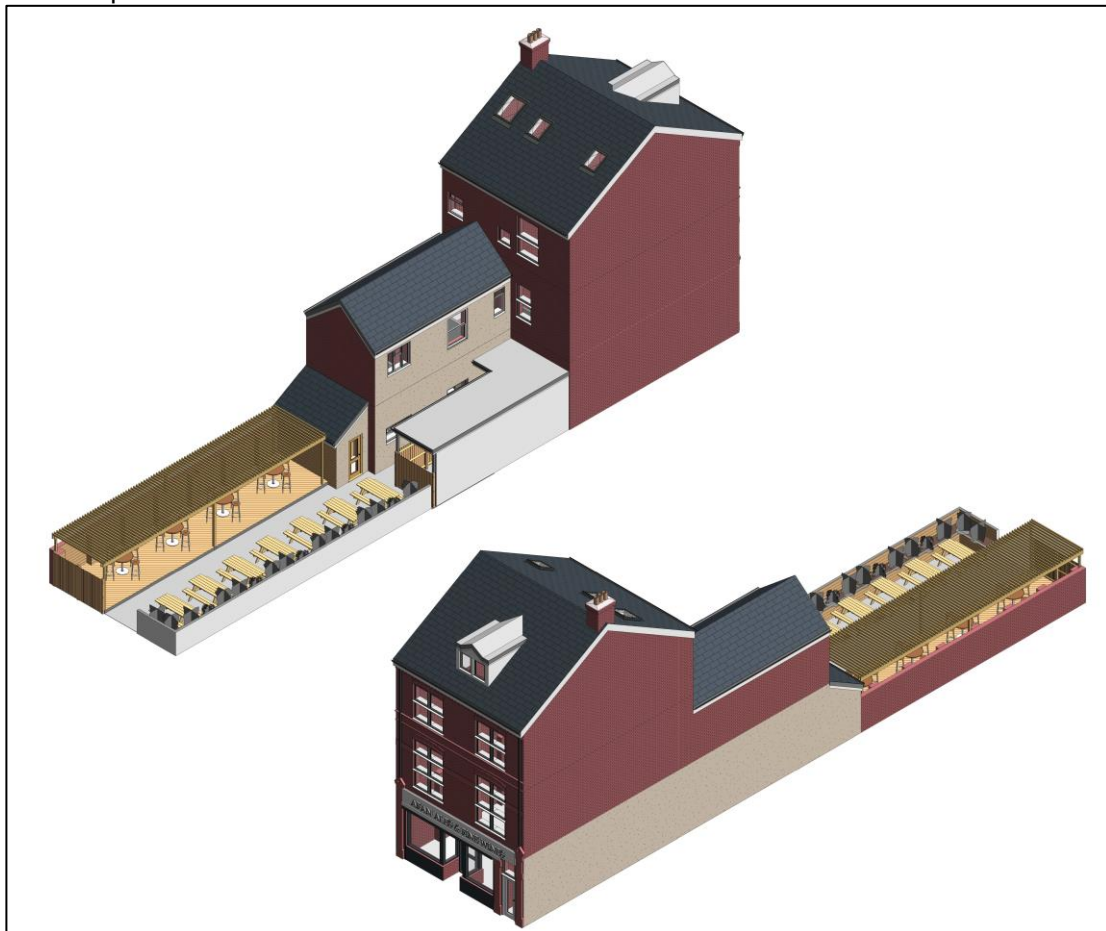


Figure 3: Rear NSRs



Proposed elevations for the site are provided below.

Figure 4: Proposed Elevation



3. Assessment Criteria

The below identifies criteria and guidance deemed relevant to the proposals.

3.1. **IOA Good Practice Guide on The Control of Noise from Pubs & Clubs**

The most relevant guidance is the Institute of Acoustics document "Good Practice Guide on the Control of Noise from Pubs and Clubs" was published in March 2003. This IOA guidelines addresses amplified music, and the more relevant extracts are as follows:

"2. SCOPE

This document provides guidance for the assessment and control of noise affecting noise-sensitive properties, from the public and private use of public houses, clubs, hotels, discotheques, restaurants, cafes, community or village halls and other similar premises. The main noise sources considered are music; singing; public address (PA) systems; children's play areas; beer gardens; people in general; car parks and access roads; deliveries; collections; materials handling; plant and machinery; and skittle alleys. Noise arising from live sporting events held at such premises is not covered by this document.

The purpose of this Guide is to assist local authority officers and venue management and their staff in the prevention of noise disturbance and in the investigation and resolution of noise complaints. It is also intended to assist with the planning and licensing of proposed or existing premises.

The original intention was to include objective noise criteria in this document, or in a separate but related document, that could have been used to assess and control noise from all the main sources of noise that can be present at pubs, clubs and similar premises. However, it has not been possible to subject the new criteria that have been developed and proposed by the working party to a satisfactory validation process.

It is hoped that future research will lead to the publication of criteria that have been fully validated in terms of human response and have been subject to trials which confirm their practicability in terms of measurement, enforcement and use within the planning process. Until such criteria are developed, it is recommended that local authorities and others should devise and apply policies having regard to this guide and taking into account local circumstances and existing licensing and planning policies.

Music, singing and speech, both amplified and non-amplified, are common sources of noise disturbance arising from the premises listed in 2.1 above. As far as these sources are concerned, the purpose of developing the objective noise criteria mentioned in 2.3, should be to attempt to ensure that:

In the absence of the objective criteria mentioned in 2.3, what is "regular" should be determined on a local basis to reflect local expectations and should be incorporated by local authorities in the planning and enforcement policies (see Section 4); and

For premises where entertainment takes place less frequently, music and associated sources should not be audible inside noise-sensitive property between 23.00 and 07.00 hours. For other times, appropriate criteria need to be developed which balance the rights of those seeking and providing entertainment with those who may be disturbed by the noise.

For the purposes of this document, noise may be considered not audible or inaudible when it is at a low enough level such that it is not recognisable as emanating from the source in question and it does not alter the perception of the ambient noise environment that would prevail in the absence of the source in question. A more simplistic explanation of the term "inaudible" is given in Appendix "B".

The determination of "nuisance" is not within the scope of this Guide, however, the Guide may be useful in forming a view on the likelihood that a "nuisance" has occurred, is occurring or could occur.

The Guide should not be used to determine or enforce noise standards for occasional music events of the type covered by the Code of Practice on Environmental Noise control at Concerts [1]."

It is the bass element (low frequencies 250 Hertz and below) from amplified music since that can often be of concern. This element is difficult to objectively quantify, but the subjective effect is expected to be negligible if the equivalent noise level from the music is ten decibels lower than the background sound level (without music), at the low frequency mid-octave bands.

If the music equivalent noise level is between 5 and 10 decibels lower than baseline noise levels, then the music may be audible ($L_{Aeq,T}$ depending on the baseline noise source). If the music equivalent noise level is equal to the baseline noise level, then the sounds are expected to be clearly audible.

3.2. Noise Rating Curve

There are no specific noise limits for noise from amplified music from licensed premises. However, many local authorities throughout the UK, including SRS, Bristol, Basingstoke, Sheffield, and Edinburgh apply NR curve criteria for amplified music.

The NR criterion approach places emphasis on low frequency noise, which is often the prominent aspect of amplified music.

We would therefore consider this a suitable internal criterion for habitable dwellings in the vicinity of the proposals. This approach is also used in other local authorities including Carmarthenshire and Bristol.

NR25 sound pressure levels should not exceed the following octave band criteria inside the NSR.

Table 1: NR25 Octave Band Sound Pressure Levels

Octave Frequency Band (Hz)	NR25 Sound Pressure Level Limit (dBA)
63	55
125	44
250	35
500	29
1000	25
2000	22
4000	20
8000	18

3.3. Assessment Approach

Based on the above, the assessments will be based as follows:

- Dwellings above/immediately adjacent to the premises:
 - NR25 assessment
- Dwellings to the rear of the premises (music):
 - IOA Good Practice assessment

4. Noise Monitoring

Partially attended baseline noise monitoring was undertaken at the site between Friday the 7th of March and Tuesday the 11th of March 2025

4.1. Monitoring Equipment

Sound Pressure Levels were measured using a Class 1 sound level meter with a half-inch condenser microphone, using the 'fast' setting. The equipment is checked regularly using a Quality System meeting the requirements of British Standard EN ISO/IEC 17025:2017 "General requirements for the competence of testing and calibration laboratories"; in accordance with British Standard EN 10012:2003 "Measurement management systems. Requirements for measurement processes and measuring equipment"; and traceable to the National Standards.

This equipment was checked and calibrated as noted below and the certificates are available for inspection.

Table 2: Monitoring Equipment

Equipment Description	Serial Number	Date of Calibration	Calibration Certification Number
SLM, NTI, XL2	A2A-11053-E0	14/05/2024	1508623-1
Pre-Amp, NTI, MA220	5871	14/05/2024	1508623-1
Microphone, NTI, MC230A	9276	14/05/2024	1508623-1
Calibrator, Nor-1251	35227	27/02/2025	1511387-1
SLM, Svantek, 959	14784	05/04/2024	1508264-1
Pre-Amplifier, Svantek, SV12L	18685	05/04/2024	1508264-1
Microphone, GRAS, 40AE	183810	05/04/2024	1508264-1
Calibrator, SV 36	166451	19/12/2024	SV36166451

The measuring systems were checked for calibration before and after the tests and no significant drift was detected.

4.2. Weather Conditions

Below are the weather conditions over the duration of the survey. Weather conditions during the survey period, are not expected to have had an adverse effect on the collected data.

Rain and strong winds were recorded over short periods of the survey duration. These periods have been excluded from the assessment dataset.

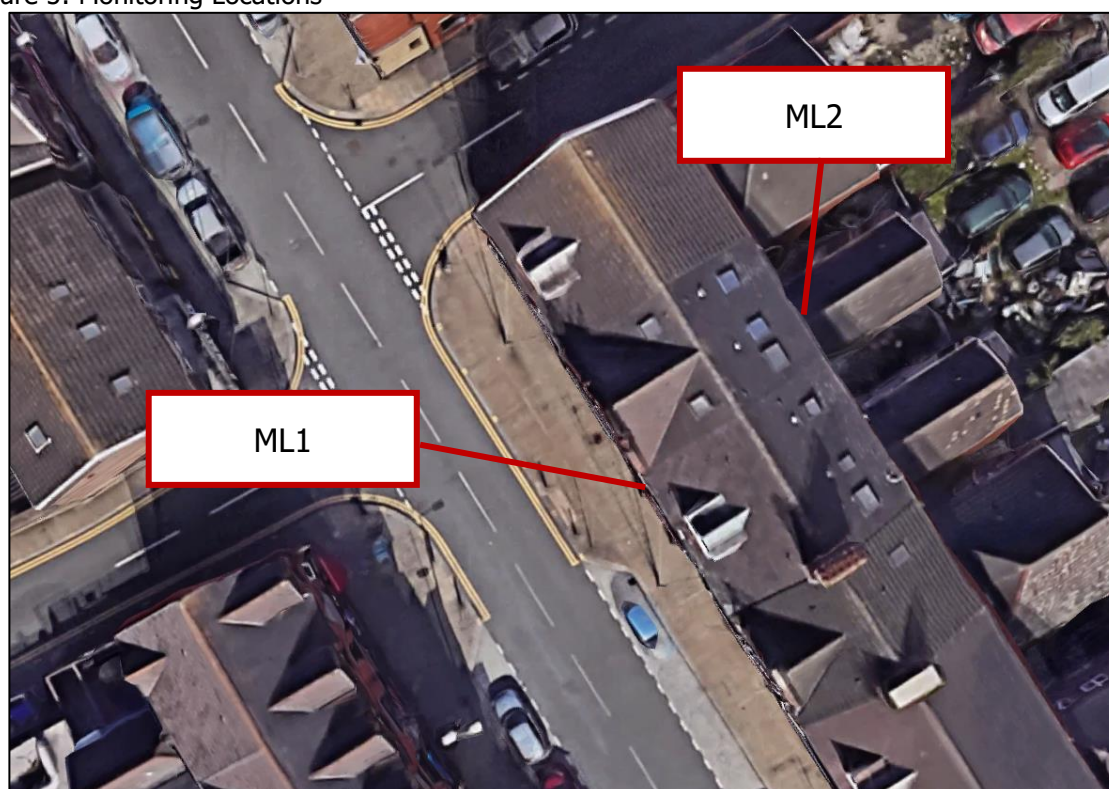
Table 3: Weather Conditions over the Survey Period

Date	Wind Speed (m/s)	Wind Direction	Temperature (°C)	Precipitation Time (hrs)	Cloud cover (%)
07/03/25	4-6	NW	10-13	2	~75
08/03/25	4-8	NW	11-14	0	~25
09/03/25	2-6	W	8-16	0	~50
10/03/25	2-5	W	9-14	6	~50
11/03/25	1-9	SW	1-8	0	~25

4.3. Monitoring Procedure

Two monitoring locations were selected at the front and rear facades of the flats above the site, as shown in the figure below.

Figure 5: Monitoring Locations



A long-term noise monitoring exercise was installed at ML1 between Friday the 7th of March and Tuesday the 11th of March 2025. An additional background noise measurement was taken at ML2 on Friday the 7th of March 2025.

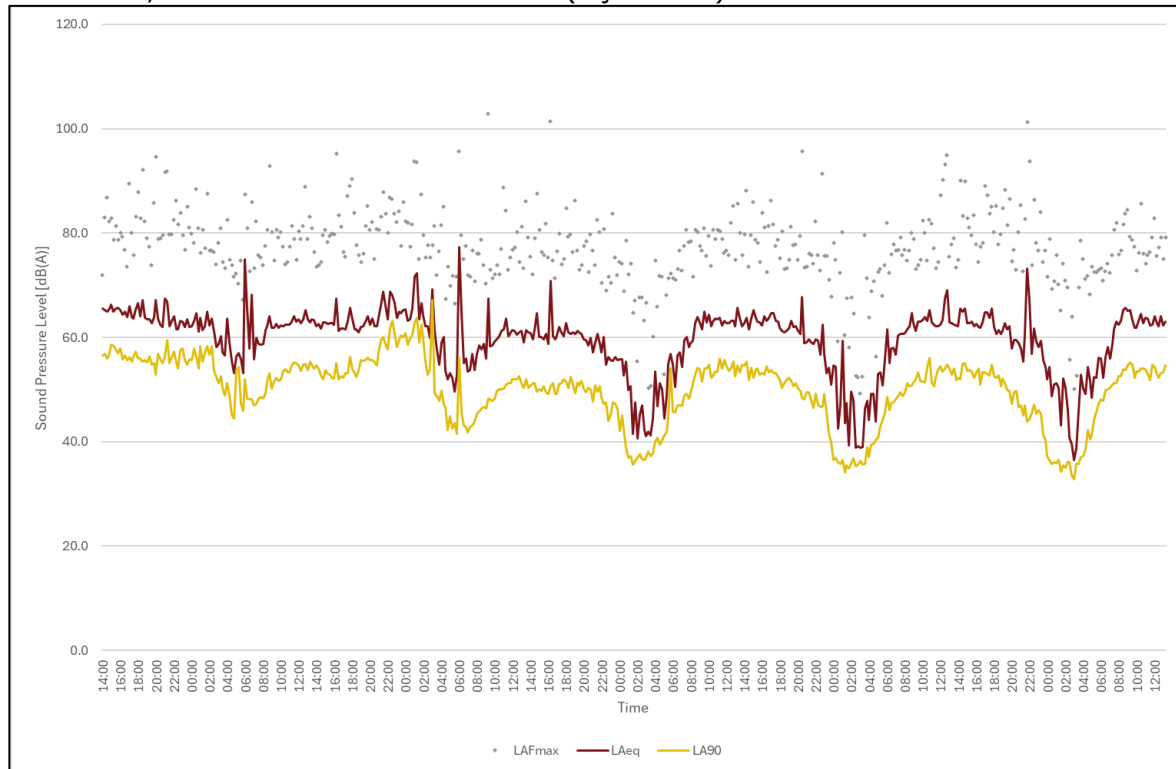
Both microphones were positioned out of the window of the flats and were in a façade level environment.

4.4. Measured Noise Levels

4.4.1. ML1

A chart detailing the measured maximum (L_{AFmax}), equivalent (L_{Aeq}) and background (L_{A90}) noise levels over the duration of the survey period is provided below.

Chart 1: ML1, Measured Noise Levels over Time (façade level)



The calculations that follow include a -3dB correction to convert from façade to free-field levels.

Considering a curfew of 23:00 based on current opening hours, the measured equivalent noise levels at ML1 during the worst-case assessment period [22:00-23:00] are shown in the table below.

Table 4: Measured Equivalent Noise Levels at ML1, from 22:00-23:00 (free-field)

Date	Worst-Case Measured Equivalent Level (dB $L_{Aeq,1hour}$)
07/03/25	60
08/03/25	64
09/03/25	55
10/03/25	57
11/03/25	60

Based on the table above, the measured octave band noise spectra for the most noise-sensitive proposed hour of use (Sunday 22:00-23:00) is provided below. This will form part of the IOA assessment noted above.

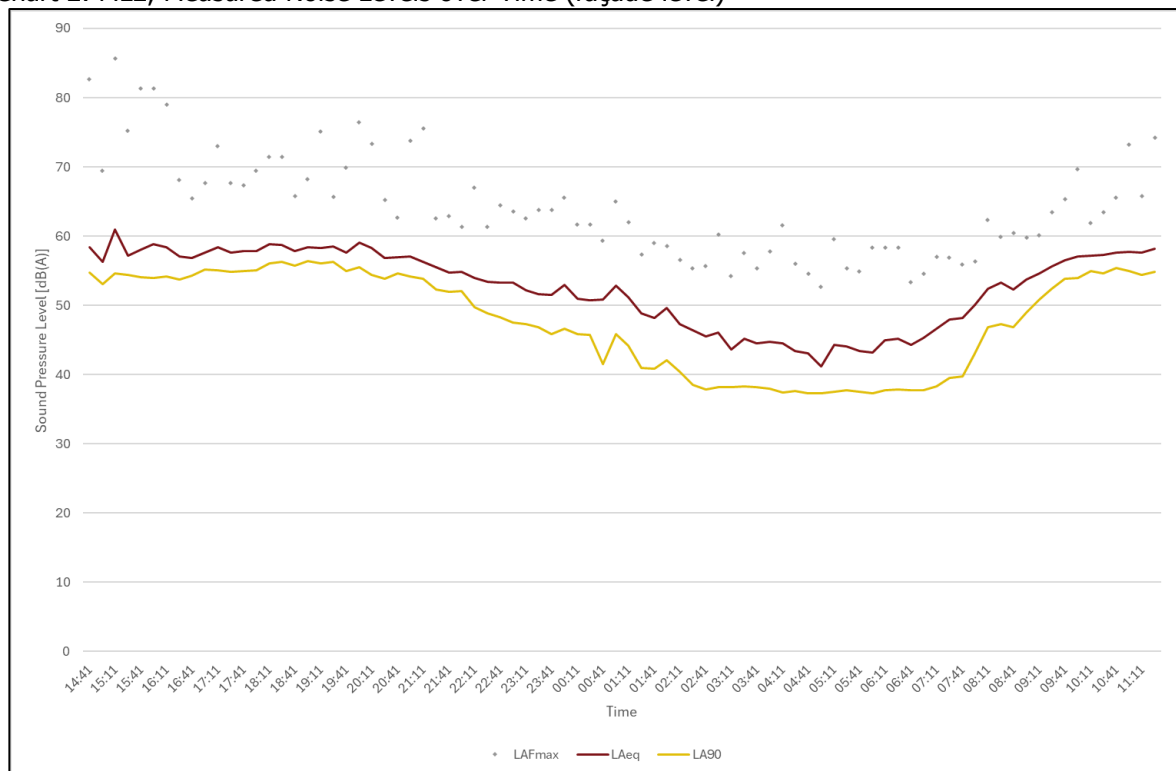
Table 5: Measured Spectral Equivalent Noise Levels for Worst Case Assessment Period at ML1 (free-field)

Date and Time	Leq (dB) per Octave Band (Hz)								dB(A)
	63	125	250	500	1000	2000	4000	8000	
Sunday 9 th March 2025 22:00-23:00	61	55	50	50	51	47	41	37	55

4.4.2. ML2

A chart detailing the measured maximum (L_{AFmax}), equivalent (L_{Aeq}) and background (L_{A90}) noise levels over the duration of the survey period is provided below.

Chart 2: ML2, Measured Noise Levels over Time (façade level)



The measured octave band noise spectra for the most noise-sensitive proposed hour of use (22:00-23:00) is provided below. This will form part of the IOA assessment noted above.

Table 6: Measured Spectral Equivalent Noise Levels for Worst Case Assessment Period at ML2 (free-field)

Date and Time	Leq (dB) per Octave Band (Hz)								dB(A)
	63	125	250	500	1000	2000	4000	8000	
Friday 7 th March 2025 22:00-23:00	53	50	44	44	48	40	23	14	50

5. Internal Use & Building Evaluation

From initial assessment it is advised that no significant level of amplified music is used within the premises. Our initial assessment indicated that live bands to the extent of our client's initial intentions (e.g., including drums, bass guitar etc.) would not be suitably controlled for comfortable living environments in the dwelling directly above the Afan Ales premises.

Unfortunately, there is no physical measure around this. The presented noise impact assessment aims to provide the best compromise between assisting such a venue to host music events, whilst maintaining good acoustic conditions within the existing residential dwellings that do not impact upon health and wellbeing.

The following sections provide alternative solutions of music levels that could be accommodated whilst achieving a low level of impact (NR25) at neighbouring premises.

We provide noise limits that could be implemented at the site to accommodate the proposed use and residential dwellings above.

5.1. Internal Music Noise Levels

An assessment of internal music noise levels has been undertaken from within the proposed space. The music noise levels used in the assessment are based on achieving, as far as feasible, acceptable levels within the residential space above, along with providing our client with an effective business use within the ground floor.

The following dataset is taken from ACL's in-house library of numerous previous projects of a similar nature.

The following dataset is based on recorded music amplified through loudspeakers within a pub. These levels, considered within the reverberant space at the application site, could be translated into other types of performance such as (but not limited to):

- Acoustic guitar and singer
- Piano/keyboard and singer
- Poetry

Table 7: Internal Music Noise Levels

Internal SPL (dB) per Octave Band (Hz)								dBA
63	125	250	500	1k	2k	4k	8k	
72	77	78	76	74	75	74	72	81

The following assessment is based on these music noise levels within the ground floor space. It will be down to our client to ensure that these noise levels are not exceeded.

Where speakers are to be mounted to the building structure, this should be undertaken with resilient fixings and hangers. Any gaps should be filled with a dense, flexible mastic, (NOT EXPANDING FOAM).

5.2. Building Construction for Modelling

The sections below detail the identified building envelope elements, and the expected and required sound reduction indices (SRIs) based on reasonable considerations of element constructions.

Please advise of any discrepancies in the determination of the below. The client should confirm the constructions are representative of the in-situ and proposed constructions.

5.2.1. External Walls

We consider the external walls to be standard plastered solid brickwork, with a mass of at least 260 kg/m².

This construction is expected to achieve the following sound reduction indices.

Table 8: Predicted SRI of External Wall

Element	SRI (dB) per Octave Band (Hz)								R _w
	63	125	250	500	1k	2k	4k	8k	
Ext Wall	31	36	41	42	47	51	51	51	47

There must be no gaps, or unattenuated penetrations in any external wall.

Any existing gaps between block/brickwork must be filled with dense mortar, or a dense, non-setting mastic (EXPANDING FOAM MUST NOT BE USED FOR NOISE CONTROL MEASURES).

5.2.2. Glazing

We consider the existing windows to be at least 6mm of single glazing in a timber frame.

The above construction must achieve the following minimum sound reduction index.

Table 9: Predicted SRI of Glazing

Element	SRI (dB) per Octave Band (Hz)								R _w
	63	125	250	500	1k	2k	4k	8k	
Glazing	18	23	26	31	33	26	33	33	31

The glazing at the front external door can remain, as long as the glazing type is consistent with the windows, achieving the above SRI. The client should confirm this is achievable.

5.2.3. External Doors

The external door has been modelled as a plywood, hollow core door with a minimum surface mass of 10 kg/m².

The above construction must achieve the following minimum sound reduction index.

Table 10: Predicted SRI of External Doors

Element	SRI (dB) per Octave Band (Hz)								R _w
	63	125	250	500	1k	2k	4k	8k	
External Doors	8	12	11	14	17	16	16	16	16

All doors must be fitted with acoustic perimeter seals which should be inspected regularly and replaced when worn.

The doors should be closed at all times except for emergency use or access. It is advised that all doors are fitted with self-closing arm-leavers.

The doors must be well fitted, and all gaps between the doors and frames / floor must be closed with acoustic seals.

All gaps between the frames and walls / door openings must be well sealed with a dense, flexible mastic, (NOT EXPANDING FOAM).

5.2.4. Internal Doors

The assessment is based on the current layout of the building which we understand has no connecting internal doors to the dwellings above. If this were to change in the future, internal doors would need to be assessed.

5.2.5. Wall Linings

All internal and external walls *that traverse the whole building vertically* from the ground floor venue space will need to be lined with an independent wall lining system, comprising:

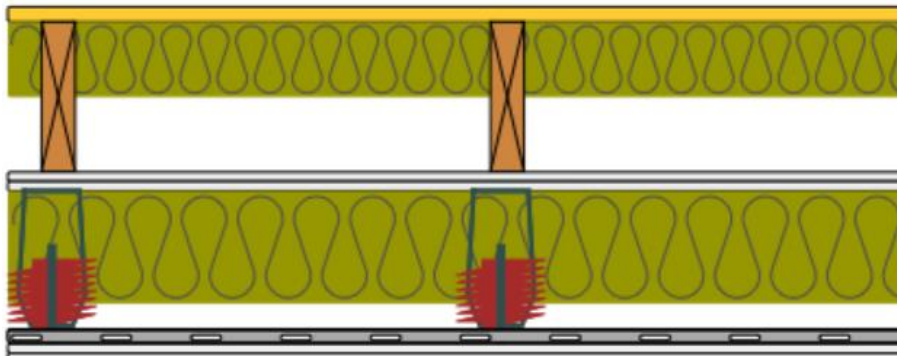
- Independent frame on resilient head and base tracks
- Minimum 50mm cavity from external wall
- Minimum 25mm mineral wool (minimum density 10 kg/m³)
- 3x layers of 12.5mm plasterboard (minimum mass per board 10 kg/m²), staggered and fully sealed with dense, flexible mastic (NOT EXPANDING FOAM)

5.2.6. Ceilings & Residential Floor Above

The noise modelling and assessment considers the following construction implemented into the ceiling/residential floor above the ground floor space as a minimum.

- Existing floorboards to first floor flat (gaps between board to be filled with dense, non-setting mastic)
- Mineral wool to be installed between joists – minimum 10kg/m³ density, and minimum 100mm thick
- 2x layers of 12.5mm plasterboard. For example, British Gypsum Soundbloc. But the two boards just need to have a minimum mass of 10kg/m² per board. The boards must be staggered and fully sealed with dense, non-setting mastic.
- The next frame is set on Steel Spring Hangers with Neoprene inserts, creating a void of at least 200mm with mineral wool to be installed within the cavity created – minimum 10kg/m³ density, and minimum 150mm thick
- Hung from the spring hangers - 2x layers of 12.5mm plasterboard. For example, British Gypsum Soundbloc. But the two boards just need to have a minimum mass of 10kg/m² per board. The boards must be staggered and fully sealed with dense, non-setting mastic.

Figure 6: Proposed Suspended Ceiling



The above construction is based on the modelling software, Insul, from Marshall Day Acoustics. The predicted sound reduction index for the construction is provided below. The final performance of the floor could differ to that noted based on installation and flanking paths for example. High quality of workmanship would be paramount to ensure acoustic integrity.

Table 11: Predicted SRI of Ceiling Upgrades

Element	R per Octave Band Frequency (dB / Hz)								R _w
	63	125	250	500	1000	2000	4000	8000	
Separating Ceiling	26	48	52	56	58	60	60	60	58

5.3. **Closed Windows & Doors**

The assessment is based on all openings, doors and windows, to be closed at all times during an amplified event, other than for access and emergency.

5.4. **Ventilation**

We are not aware of any ventilation system proposed to serve the premises. However, if such a system were deemed necessary to effectively ventilated the internal space, the system should be suitably designed to ensure music and commercial noise does not adversely affect the nearby residents.

This would need to be addressed at a later detailed design stage but will require a fully attenuated mechanical ventilation system.

6. Noise Modelling: Internal Music Use

The following sections assess the impact of internal use on the dwellings as noted above. The assessments are provided separately to account for differing criteria required.

The first section addresses noise impact due to internal use at nearby dwellings externally to the application site. The second part addresses noise impact due to internal use, at the dwellings set within the same building.

The assessments are provided after the informative sections.

6.1. External Noise Modelling

To determine noise levels externally to the flats and neighbours, noise modelling has been undertaken using computer modelling package Cadna:A by DataKustik.

The modelling software calculates sound levels based on the inputted sound emission values, source and receiver locations, and distance, barrier, and ground attenuation. Calculations are undertaken using the General Method of Calculation from ISO 9613.

6.1.1. Modelling Parameters

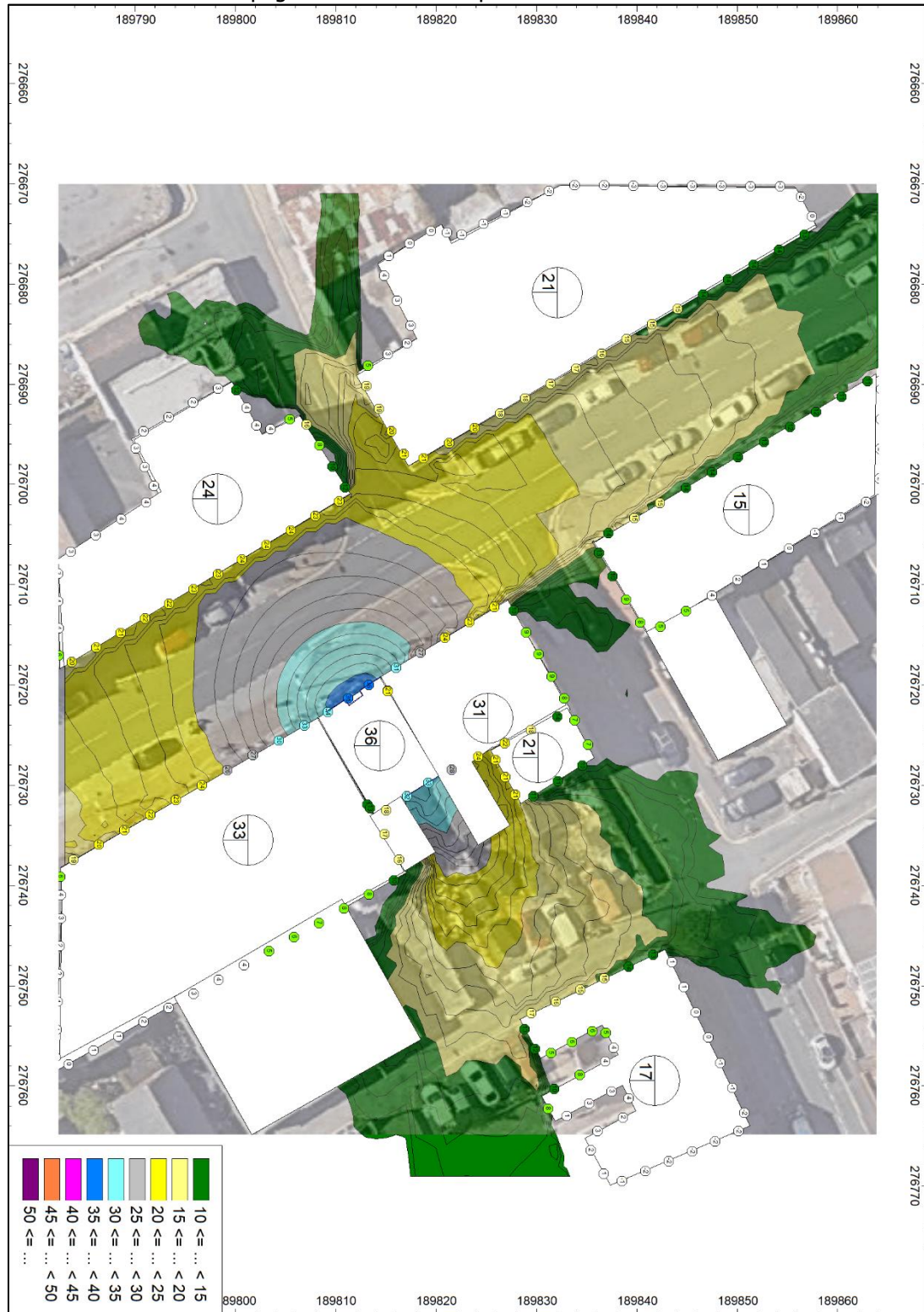
The parameters within the Cadna:A model are as follows and are considered reasonable considerations.

- The building heights on and around the site are based on Google Street View imagery, provided drawings and on-site observations.
- The order of reflections is 3, and all buildings are considered reflective.
- The topography of the site is based on open-source LiDAR data from DataMapWales
- Building elements have been modelled as area and vertical area sources with the respective internal noise levels and sound reduction indices detailed in sections above.
- The model considers all internal & external windows and doors to be closed.
- Residential receivers above Afan Ales and neighbouring commercial properties have been modelled at 4.5m height
- Noise propagation across the site is detailed as a 2x2 metre grid at a height of 4.5 metres.
- Noise impacting upon building façades is detailed as the maximum level per façade.

6.1.2. Modelling Results

The figure below details the predicted propagation of noise as a result of amplified music at the venue.

Figure 7: Predicted Noise Propagation from Venue Space



Spectral noise levels have been calculated at the façade of the NSR to the rear of the site, as below.

Table 12: Predicted Spectral External Noise Levels – NSR to Rear

Predicted Spectral External Noise Level (dB / Hz)								dBA
63	125	250	500	1000	2000	4000	8000	
18	18	17	10	6	14	5	1	17

Additionally, spectral noise levels have been calculated at the front and rear façade of at the dwellings set within the same building, as below.

Table 13: Predicted Spectral External Noise Levels – Flats Above Venue

Facade	Predicted Spectral External Noise Level (dB / Hz)								dBA
	63	125	250	500	1000	2000	4000	8000	
Front	38	37	35	29	25	32	24	22	36
Rear	35	35	33	27	22	30	22	20	34

6.2. Internal Noise Impact

The following addresses the predicted noise levels within the apartments on the upper floors of the application building.

6.2.1. Noise Transmission via Structure

Based on the above information, room to room predictions have been undertaken using the floor plans provided for both the proposed areas and the residential dwellings above.

Internal noise level calculations are based on the dimensions of a typical bedroom and a typical reverberation time T_{mf} of 0.5s.

The predicted internal noise level within the first-floor apartments is provided below.

Table 14: Predicted Internal Noise through Internal Building Structure

Level per Frequency Octave Band (dB / Hz)								dB(A)
63	125	250	500	1000	2000	4000	8000	
53	43	34	28	24	20	18	16	33

Please note that the on-site resultant level may differ from that provided above, with flanking and in-situ performances considered. Only testing at completion will determine the level of performance through the floor and flanking elements.

6.2.2. Cumulative Indoor Noise

External noise levels from Table 13 have been corrected by -15 dB for open window, based on guidance from the World Health Organisation. This is considered an appropriate correction to consider natural ventilation at the flat above.

Based on the above, the cumulative impact of noise via the internal building elements, along with the noise through the external façade are considered to the worst-case flat above the Afan Ales premises.

Table 15: Predicted Cumulative Indoor Noise Levels

Level per Frequency Octave Band (dB / Hz)								dBA
63	125	250	500	1000	2000	4000	8000	
53	43	34	28	24	22	18	16	33

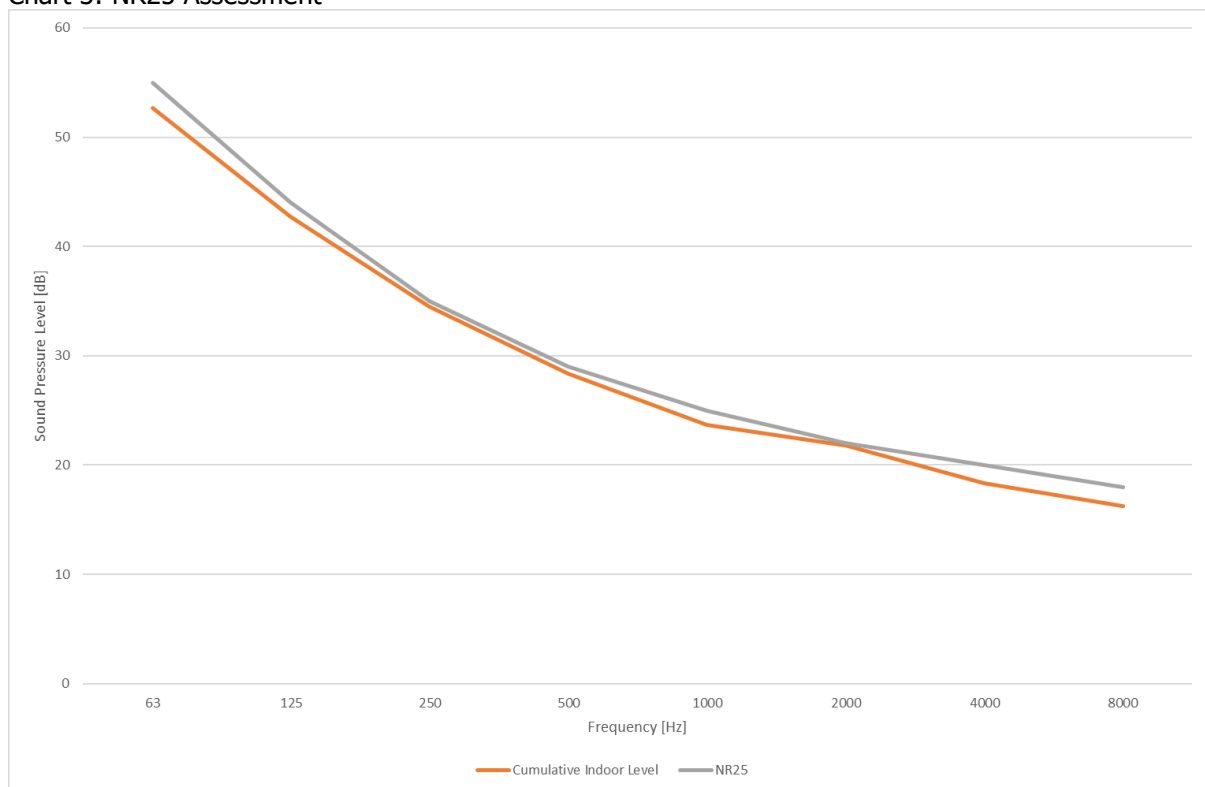
6.3. Amplified Music Noise Assessment

6.3.1. Noise Rating Assessment

The following is provided for assessment to the flats directly above the Afan Ales store.

Based on the modelling above, and the indoor noise level predictions provided in Table 15, the worst-case assessment to NR25 criteria is provided below.

Chart 3: NR25 Assessment



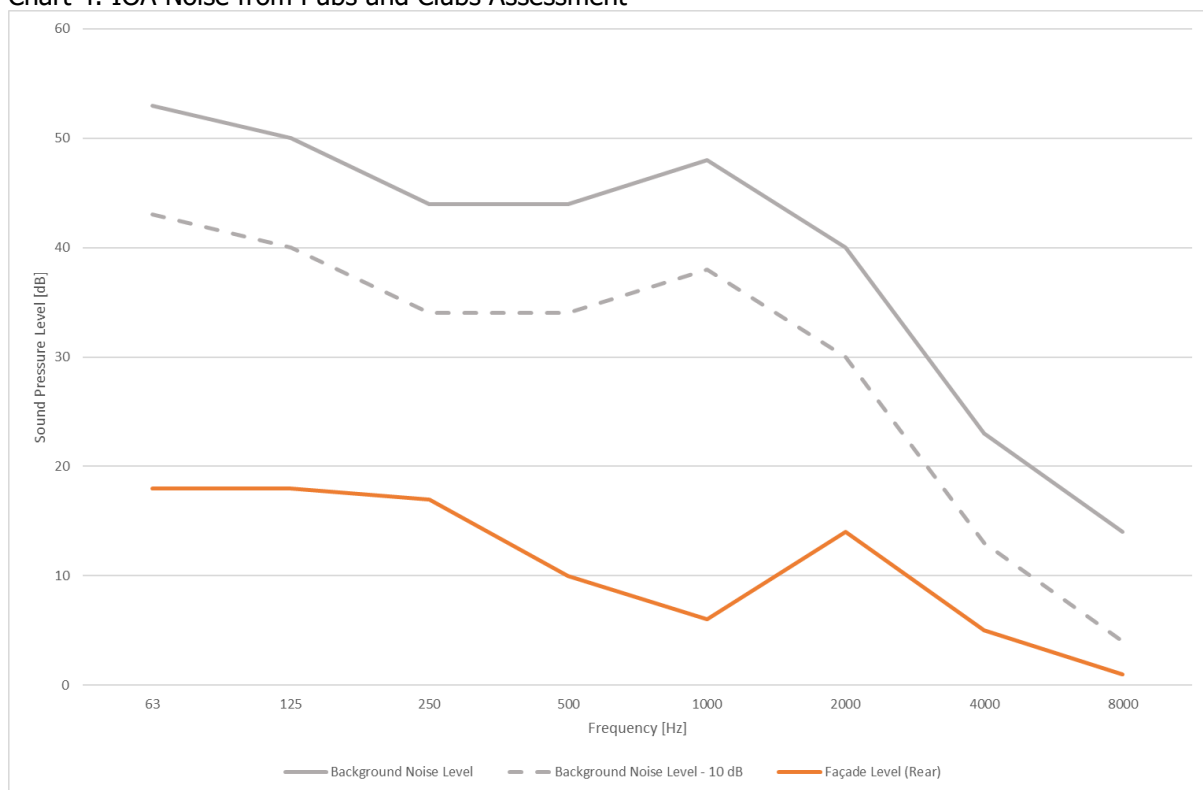
The chart above indicates that the NR25 criteria could be achieved subject to all noise control measures being effectively implemented, and there are no significant direct or flanking sound transmission paths.

6.3.2. IOA Noise from Pubs & Clubs Assessment

This assessment address external noise impact to surrounding dwellings in the area only.

The charts below show the noise modelling results of from above against the measured background noise levels shown in Table 6.

Chart 4: IOA Noise from Pubs and Clubs Assessment



The assessment above demonstrates that amplified music noise levels are likely to fall at least 10 dB below the existing baseline noise climate in each octave band.

This is based on all noise control measures noted above followed and installed with a high level of workmanship.

When access doors are opened to let patrons in/out of the building, noise from the premises will likely be heard in the immediate vicinity. However, this would be for a short duration with the closed door and window policy and would be no more significant than noise from other bars and clubs in the area.

Noise is not expected to reach the dwellings in this area with a significant level of impact that would be detrimental to the health and wellbeing of occupants.

6.3.3. **Amplified Music Noise Assessment Summary**

An assessment of noise impact has been carried out to the dwellings on the upper floors of the application building; this is the most onerous assessment location to control music noise to.

The predictions indicate that the adopted NR25 and IOA criteria could be achieved following the advice provided above.

This is based on the music noise levels noted above, building construction including suspended ceiling and wall linings as in section 5.2, and the noise management plan outlined in the section below. It will be down to the operators of Afan Ales to ensure that the above are all adhered to.

7. Noise Management Plan Summary

Based on the above, it is advised the client develops a noise management plan, including the following:

1. All staff working at Afan Ales should be made aware of a noise management plan and noise limiting procedures
2. Music noise levels inside the premises do not exceed those noted in Table 7
3. Music must abide by a curfew of 23:00 hours
4. Any speakers within all areas to be mounted with resilient fixings
5. All windows and doors to be closed when operating
6. Patrons leaving the premises to be reminded that residents are located directly above the venue – clear signs could be placed near to, and at the exits
7. It will be down to site management to ensure that all the above points are adhered to in the operation of the proposals

8. Summary and Conclusions

Afan Ales & Fine Wines Limited have appointed Acoustic Consultants Limited to undertake a noise impact assessment on the proposed change of use at the application site which includes for live music events. Assessment of the rear beer garden is out of the scope of this report, and as we understand, has already been completed.

The report provides details on measures in accordance with the planning and assessment criteria in the IOA Good Practice Guide on The Control of Noise from Pubs and Clubs, and a noise rating (NR) curve.

Our initial discussions with our client detailed the difficulties in controlling noise of typical live bands (a 4-piece band for example). We discussed at the beginning of our appointment, and have included above, that ACL would always attempt to find a solution that would be acceptable in terms of residential amenity at nearby sensitive receivers, whilst balancing the commercial need for such events as noted above.

The initial noise modelling clearly indicated that the level of a typical band would not be acceptable in terms of noise transmission into the residential dwelling above. On the other hand, enforcing strict noise limits onto a typical 4-piece band would not be feasible for the performing artists in this space.

Therefore, our proposals aim to provide alternative methods of providing live events that are at a lower internal noise level than a typical 4-piece band. This is noted above in Section 5.1.

A full outline of noise control measures has been provided in Section 5, and a noise management plan is outlined in Section 7.

Once all noise management measures are considered, including a suspended ceiling below the flats and independent wall linings, it is considered that the proposals of music inside the premises will be acceptable to the adopted NR criteria to the dwellings above, and to the dwellings to the rear.

It will be down to the operators / management of Afan Ales to ensure that the internal music noise levels are achieved.

9. Appendix 1 – Glossary of Acoustic Terminology

A-weighted sound pressure p_A – value of overall sound pressure, measured in pascals (Pa), after the electrical signal derived from a microphone has been passed through an A-weighting network.

A-weighted sound pressure level, L_{pA} – quantity of A-weighted sound pressure given by the following formula in decibels (dBA)

$$L_{pA} = 10 \log_{10} (p_A/p_0)^2$$

where:

p_A is the A-weighted sound pressure in pascals (Pa);
 p_0 is the reference sound pressure (20 μ Pa)

Background sound level, $L_{A90,T}$ – A-weighted sound pressure level that is exceeded by the residual sound assessment location for 90% of a given time interval, T, measured using weighting F and quoted to the nearest whole number of decibels

Break-in - noise transmission into a structure from outside.

Decibel (dB) – The decibel is the unit used to quantify sound pressure levels. The human ear has an approximately logarithmic response to acoustic pressure over a very large dynamic range (typically 20 micro-Pascals to 100 Pascals). Therefore, a logarithmic scale is used to describe sound pressure levels and also sound intensity and power levels. The logarithms are taken to base 10. Hence an increase of 10 dB in sound pressure level is equivalent to an increase by a factor of 10 in the sound pressure level (measured in Pascals). Subjectively, this increase would correspond to a doubling of the perceived loudness of sound.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq,T}$ – value of the A-weighted sound pressure level in decibels of continuous steady sound that, within a specified time interval, T = t₂ – t₁, has the same mean-squared sound pressure as a sound that varies with time, and is given by the following equation:

$$L_{Aeq,T} = 10 \log_{10} \left\{ (1/T) \int_{t_1}^{t_2} [p_A(t)^2/p_0^2] dt \right\} \quad (1)$$

where:

p_0 is the reference sound pressure (20 μ Pa); and
 $p_A(t)$ is the instantaneous A-weighted sound pressure (Pa) at time t

NOTE The equivalent continuous A-weighted sound pressure level is quoted to the nearest whole number of decibels.

Facade level – sound pressure level 1 m in front of the façade. Facade level measurements of L_{pA} are typically 1 dB to 3 dB higher than corresponding free-field measurements because of the reflection from the facade.

Free-field level – sound pressure level away from reflecting surfaces. Measurements made 1.2 m to 1.5 m above the ground and at least 3.5 m away from other reflecting surfaces are usually regarded as free-field. To minimize the effect of reflections the measuring position has to be at least 3.5 m to the side of the reflecting surface (i.e. not 3.5 m from the reflecting surface in the direction of the source).

Octave and Third Octave Bands – The human ear is sensitive to sound over a range of frequencies between approximately 20 Hz to 20 kHz and is generally more sensitive to medium and high frequencies than to low frequencies within the range. There are many methods of describing the frequency content of a noise. The most common methods split the frequency range into defined bands, in which the mid-frequency is used as the band descriptor and in the case of octave bands is double that of the band lower. For example, two adjacent octave bands are 250 Hz and 500 Hz. Third octave bands provide a fine resolution by dividing each octave band into three bands. For example, third octave bands would be 160 Hz, 250 Hz, 315 Hz for the same 250 Hz octave band.

Sound pressure level – Sound pressure level is stated on many of the charts. It is the amplitude of the acoustic pressure fluctuations in a sound wave, fundamentally measured in Pascals (Pa), typically from 20 micro-Pascals to 100 Pascals, but commonly simplified onto the decibel scale.

Sound reduction index, R – laboratory measure of the sound insulating properties of a material or building element in a stated frequency band.

Specific sound level, $L_s = L_{Aeq,Tr}$ – equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, T_r .

Structure-borne noise – audible noise caused by the vibration of elements of a structure, the source of which is within a building or structure with common elements.

Rating level, $L_{Ar,Tr}$ – Specific sound level plus any adjustment for the characteristic features of the sound.

Reverberation Time, T – The reverberation time is defined as the time taken for a noise level in an enclosed space to decay by 60 dB from a steady level once the noise source has stopped. It is measured in seconds. Often a 60 dB decay cannot be measured so the reverberation time is measured over a lesser range and corrected back to the time for a 60 dB drop assuming a constant decay rate. Common parameters are T20 (time taken for a 20 dB decay multiplied by three) and T30 (time taken for a 30 dB decay multiplied by two).

Vibration Dose Value, VDV – measure of the total vibration experienced over a specified period of time.

Estimated Vibration Dose Value, $eVDV$ – estimation of the total vibration experienced over a specified period of time. This is usually based on the number of events and shortened measurement data.

Weighted sound reduction index, R_w – Single-number quantity which characterizes the airborne sound insulating properties of a material or building element over a range of frequencies. The weighted sound reduction index is used to characterize the insulation of a material or product that has been measured in a laboratory (see BS EN ISO 717-1).



ACOUSTIC
CONSULTANTS LTD

Head Office: 194 West Street, Bedminster, Bristol, BS3 3NB
T: 0117 986 2956

www.acoustic-ltd.co.uk

Registered Office: 194 West St, Bristol, BS3 3NB Registered No: 8544901