Noise Impact Assessment & Mitigation Report

Acoustic assessment concerning noise levels for a late evening bar in 289 Shirley Road, Shirley Southampton, SO15 3HT.

Prepared for:
Attal Wise
289 Shirley Road
Shirley
Southampton
SO15 3HT

Date: 11th September 2023

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SECTION 1: SITE DETAILS

1.1 Site Description

The site is currently trading as a late night bar and is situated on a corner plot of a residential street. It is a 2 storey property, with the bar currently trading on the ground floor only. It has a significant amount of outdoor ground floor space wrapping around 2 sides of the property. The building has large opening patio doors that are clearly left open during the warmer months of the year. The first floor is uninhabited and under the control of the same business. There appears to be residential properties in the neighboring adjourning property on the first floor. See appendix 2.

1.2 Area Description

The site is located on the busy main road in Shirley. The surrounding area comprises of mainly ground-floor commercial premises including shops, late night bars, restaurants and hair dressers, with residential and office space above. The ground-floor premises adjacent to the proposed venue include D&S Furniture and South Coast Electric, both likely with residential premises above. The rear of the property backs onto a residential street. On the opposite side of road the ground floor comprises of Lux Cut Hairdressers with residential properties directly above.

SECTION 2: NOISE GUIDANCE

2.1 Noise Policy Statement for England

The overarching framework for national noise policy is the Noise Policy Statement for England (NPSE). The long-term vision identified in the policy is to:

'Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.'

The aims of the policy are:

Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:

- *avoid significant adverse impacts on health and quality of life;*
- *mitigate and minimise adverse impacts on health and quality of life; and*
- *where possible, contribute to the improvement of health and quality of life.*

2.2 National Planning Policy Framework

The concepts outlined in the NPSE are incorporated into the National Planning Policy Framework (NPPF). Paragraph 123 relates to noise:

Planning policies and decisions should aim to:

- *avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;*
- *mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;*
- *recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and*
- *identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.*

2.3 BS 8233: 2014

BS 8233:2014 provides criteria for the assessment of internal and external noise levels for various uses including dwellings and commercial properties. Criteria for provision of suitable living conditions inside dwellings are provided in Table 4 of BS 8233:2014. The table below reproduces and presents the guidance upper limits for internal noise levels within dwellings that should not be exceeded in new developments.

		Daytime	**Night-Time**
Activity	**Location**	**07:00 - 23:00** $L_{Aeq,\ 16\ hour}$	**23:00 - 07:00** $L_{Aeq,\ 8\ hour}$
Resting	Living Room	35 dB	-
Dining	Dining Room/area	40 dB	-
Sleeping (daytime resting)	Bedroom	35 dB	30 dB

The closest residential property to the proposed venue is the first floor flat located above the adjacent property and assumed to be residential with bedrooms & living rooms towards the front facing façade with a daytime requirement of 35 dB and 30 dB during the night-time. However, due to the direct line of site, the most exposure is likely to be the flats on the opposite side of the road (Lumsden Avenue) on the first floor.

SECTION 3: SURVEY DETAILS

An attended noise survey was carried out over a 2-hour period between 2200-0000 Sunday 2nd July 2023. Measurements were carried out at the perimeter to the property opposite on Lumsden Road. Noise levels are high here due to the proximity to Shirley Road. Measurements were carried out when the proposed venue was operational, and when it was not. Sunday night was chosen as it is likely to be the quietest night.

NTi Audio: XL2 Meter (Serial Number: A2A-12366-E0) - Calibration Due: 10/12/2023

NTi Audio: M4261 Mic (Serial Number: 4181) - Calibration Due: 10/12/2023

NTi CAL 200 Class 1 Calibrator (Serial Number: 12604) - Calibration Due: 10/12/2023

Noise levels were measured by a competent person for environmental noise monitoring, in accordance with BS 7445: 1991 (Description & Measurement of Environmental Noise.

Survey carried out by Oz Jefferies BSc (Hons) Post Dip IOA.

The sound level meter was programmed to record the A-weighted L_{eq}, and L_{max} for the duration of the survey with appropriate reference time intervals of 15 mins.

The sound level meter was calibrated to 94 dB before and after the survey. No significant change (+/-0.1 dB) in the calibration was noted.

For the survey, the microphone was positioned at the façade at ground - floor level. This location was capable of measuring all noise sources from the surrounding area including the dominant Triangle traffic noise from Shirley Road.

Weather Conditions
No cloud cover; temperature variable 15 °C. Wind: None

3.1 Measured Noise Levels

	Time	Duration	L_{Aeq} (dB)	L_{AFmax} (dB)
Sunday	22:00 – 22:15	15:00:00	61.7	70.9
Sunday	22:15 – 22:30	15:00:00	63.5	81.6
Sunday	22:30 – 22:45	15:00:00	62.3	80.1
Sunday	22:45 – 23:00	15:00:00	63.2	89.4
Sunday	23:00 – 23:15	15:00:00	67.6	93.2
Sunday	23:15 – 23:30	15:00:00	60.5	84.9
Sunday	23:30 – 23:45	15:00:00	64.2	81.4
Sunday	23:45 – 0000	15:00:00	63.3	85.6

The south-east facing façades of the closest first-floor residential properties will likely comprise of living rooms & bedrooms with a BS 8233 internal noise requirement of 35 dB during the daytime and 30 dB during the night (45 dB max)

	L_{Aeq} (dB)	BS 8233 Internal Criteria (dB)
Day	62.68	35
Night	63.9	30
Night (max)	93.2	45

The WHO 'Guidelines for Community Noise' offers advice with regard to setting noise criteria applicable to sleep disturbance.

"If the noise is not continuous, L_{Amax} is used to indicate the probability of noise induced awakenings"

'For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB L_{Amax} more than 10–15 times per night

"At night, sound pressure levels at the outside façades of the living spaces should not exceed 45 dB L_{Aeq} and 60 dB L_{Amax} so that people may sleep with bedroom windows open. These values have been obtained by assuming that the noise reduction from outside to inside with the window partly open is 15 dB." The sound insulation performance of 15 dB for a façade containing a partially open window accords with the guidance offered in BS 8233 (2014). The windows and any trickle ventilators are usually the acoustic weak point of a brick and block façade. In relation to acoustically treated ventilation, the World Health Organisation (WHO) considers that "it should be possible to sleep with a bedroom window slightly open (a reduction from outside to inside of 15 dB)." The implication of this statement is that if external L_{Aeq} night-time levels exceed 45 dB (30 dB internal level plus 15 dB reduction for a partially open window), or if daytime average levels exceed L_{Aeq} 50 dB, then an alternative ventilation strategy is required"

The above results indicate that the required internal criteria will not be met with partially open windows at the facades of the existing residential development, without any contribution from the proposed venue.

Naturally if windows are opened to provide over and above background ventilation the internal noise levels would expectedly increase, and generally temperature versus noise comfort levels would be based on the resident's preference.

The exact specification of glazing on the existing first-floor residential accommodation on the opposite side of the road is unknown but they are double glazed units such as 4mm /(6-16mm)/ 4mm with an R_w value of likely 29 dB or higher and not a significant difference to the 34 dB minimum sound reduction required to avoid sleep disturbance as above.

3.2 BS 4142

BS 4142 (2014) compares the proposed source levels against the underlying background noise levels and gives an indication on the likelihood of complaints. Background Noise Levels are established as the underlying noise levels against which the assessment of the specific source can be made. The background noise levels are measured at the assessment position which is located externally at the nearest noise sensitive façade. BS4142 references tonality, Impulsivity, intermittency and other sound characteristics.

BS 4142 is not suitable for this assessment as there is no mechanical equipment involved.

The Licensing Act, Prevention of a Public Nuisance, is likely the best method of ensuring the venue is compliant with the license.

As the background noise level is so high, if the music level in the bar is set to a suitable level, the most likely cause of public disturbance is perceivable bass beat and the low frequencies will be the disturbance factor. Therefore, following processes to mitigate and obfuscate the low frequency noise is the most effective method of ensuring there is no public nuisance from the venue.

Section 5, implementation, outlines methods to mitigate and obfuscate the low frequencies, if these are followed this will remove the likelihood of public nuisance.

Appendix 4 also shows the recommended music levels within the venue, which can be adhered to with an attended measurement and a sound limiter set.

SECTION 4: ACOUSTIC DESIGN AND MITIGATION

4.1 Front elevation

At the time of writing, the front elevation of the premises had all the glazed door units which were wide open, and the front door was also wide open, offering little acoustic treatment. It is my understanding there is no plan to change this, so it will be assumed this to always be the case.

4.2 Doors

The front of the building comprises of standard size front door, and the windows are large double glazed concertina style patio door. The concertina doors were open at all times during the measurement period. It will have to be assumed that these doors could be left open at all times, therefore reducing the acoustic properties of the building.

4.3 Mechanical Services

It is understood that the ventilation or ducting services are not causing an issue.

Noise levels from any building services must be sufficiently controlled with any proposed mechanical plant and associated ductwork/pipework are suitably isolated from the building structure through the use of anti-vibration mounts and flexible connections.

4.4 Outdoor Speakers

The use of outdoor speakers should be at a level that does not contribute or increase the impact at the closest noise receptor. I would recommend that this speaker is automatically turned off at 2300.

4.5 Internal Speakers

It is recommended that the location of any speakers is carefully controlled with a noise limiter. The control of low frequency noise, in particular 63Hz & 125 Hz is important so that bass beats are not perceivable at the closest noise receptor. The number of speakers in the bar area should be high (minimum 4) to increase distribution therefore reducing the sound level pressure inside the premises.

I would recommend the installation of full range speakers in place of any dedicated bass cabinets to reduce low frequency propagation.

A suggested speaker plan to shown in appendix 3.

SECTION 5: IMPLIMENTATION

5.1 A further noise measurement should be taken to set the noise level so that the music level from the venue does not contribute to the overall noise level at the closest noise receptor. The works suggested above are not essential but will help increase the music levels inside the venue likely to that of a normal operating bar. The measured noise level at the perimeter of the properties opposite on Lumsden Road should not exceed 63 $L_{Aeq15mins}$.

Perceivable bass beats should not be audible, this will be helped by the distributed speaker system and the removal of the dedicated bass cabinets, and control of the 63Hz and 125Hz bands.

The noise management plan should be implemented into the training procedure of all staff, new and existing, which provides for the running of the audio system procedures but most importantly that no external sound equipment which have not been calibrated to the venue should be used.

The outdoor speaker should have no impact on any measurement location.

5.2 A model has been created, which can be seen in appendix 4, using the SPL track modelling software. This software predicts normally to within 2 dB accuracy of the likely noise level achievable in the venue. It also shows the predicted noise levels in the surrounding areas and within the properties of the residential properties.

SECTION 6: ACOUSTIC TERMINOLOGY

Decibel (dB): a unit of level derived from the logarithm of the ratio between the value of a quantity and a reference value. It is used to describe the level of many different quantities. For sound pressure level the reference quantity is 20 Pa, the threshold of normal hearing is in the region of 0 dB, and 140 dB is the threshold of pain. A change of 1 dB is only perceptible under controlled conditions.

dB(A): decibels measured on a sound level meter incorporating a frequency weighting (A weighting) which differentiates between sounds of different frequency (pitch) in a similar way to the human ear. Measurements in dB(A) broadly agree with people's assessment of loudness. A change of 3 dB(A) is the minimum perceptible under normal conditions, and a change of 10 dB(A) corresponds roughly to halving or doubling the loudness of a sound. The background noise level in a living room may be about 30 dB(A); normal conversation about 60 dB(A) at 1 metre; heavy road traffic about 80 dB(A) at 10 metres; the level near a pneumatic drill about 100 dB(A).

$L_{Aeq,T}$: the equivalent continuous sound level -the sound level of a notionally steady sound having the same energy as a fluctuating sound over a specified measurement period (T). $L_{Aeq,T}$ is used to describe many types of noise and can be measured directly with an integrating sound level meter.

R_w: The single figure rating method is the rating used for laboratory airborne sound insulation tests. The figure indicates the amount of sound energy being stopped by a separating building element when tested in isolation in the absence of any flanking paths. (The higher the figure the better the sound insulation).

L_{AFmax} : A-weighted, fast, maximum sound level

SECTION 7: APPENDIX

APPENDIX 1: NOISE MANAGEMENT PLAN:

NOISE MANAGEMENT PLAN

August 2023

SITE DESCRIPTION

The premises is known as 'Rio's' of Shirley Road, Shirley, a suburb of Southampton, England.

INTENDED USE OF THE PREMISES

It is anticipated that the premises will be operated as a Bar and will be licensed to sell alcohol.

AGREED POLICIES TO CONTROL NOISE

A) INTRODUCTION

The venue is committed to develop and maintain good relations with local residents, neighbours and local authority. The objective of this policy is to minimise disturbance to local residents and to ensure that any licensing objectives or other controls at the venue are being upheld. This policy sets out the measures which have been considered and will be adopted.

B) GENERAL

The premises will be open to the public between the hours of 12:00 and 00:00 Monday to Friday, and 12:00 - 23:00 Sundays.

Customers will not be admitted to premises outside of opening hours.

The license holder shall make available and regularly promote a contact number for local residents to contact the premises to discuss any specific incidents or concerns either during or after opening hours. The contact number will be posted to all nearby residents, and displayed in the window at the front of the premises. The number will be manned at all times and any action taken as a result of the complaint should be recorded and kept.

The use of speakers or amplified equipment other than the venues will not be permitted at any point. The staff will ensure that this is policed, and that no equipment be used on the premises that is not part of the venues installed and limited equipment.

The staff will ensure that no amplified music is played outside of licenses hours.

C) DISPERSAL OF CUSTOMERS

Staff will actively encourage the gradual dispersal of customers to minimise nuisance.

During the last 20 minutes of trading the following strategies will be implemented to encourage the gradual dispersal of customers. These include the gradual increase in ambient lighting levels and playing of music of slower content and reduced volume. Music will stop playing 5 minutes before the closure of the premises.

A member of staff will be positioned in an area close to the main exit to oversee the end of night departure period. Customers will be encouraged to be considerate upon leaving the premises.

Customers will be asked not to stand around loudly talking in the street outside the premises.

Communication will be made with taxi companies regarding the use of horns and slamming of doors.

D) MONITORING

Routine monitoring will be regularly conducted around the perimeter of the premises during opening hours.

E) TRAINING

All staff will be made fully aware of the noise management policy and procedures.

Training will be provided, with continued refreshers periodically.

F) PROVISION OF INFORMATION

Notices will inform customers of our commitment to local concerns.

Prominent, clear and legible notices will be displayed at the exits requesting the public to respect residents and to leave the premises and the area quietly.

G) WASTE MANAGEMENT

The movement of bins and rubbish outside the premises will be kept to a minimum after 21.00hrs and before 09.00hrs.

The removal of empty kegs or bottles to external areas shall not be permitted between the hours of 21.00hrs and 09.00hrs.

Refuse collections will only be permitted by external companies between the hours of 08.00 and 21.00hrs.

H) MANAGEMENT OF DELIVERIES

Deliveries of goods necessary for the operation of the business will be carried out at such a time or in such a manner as to avoid causing disturbance to nearby residents.

Deliveries shall not be permitted outside the hours of 08.00 and 21.00hrs

I) PREMISES

The premise has been designed appropriately and detailed consideration has been given to its ability to operate in a manner which does not give rise to disturbance. The controls and limitations of the venue are reflected in this noise management plan.

No significant structural alterations shall be made to the premises without due consideration of its potential impact on noise management.

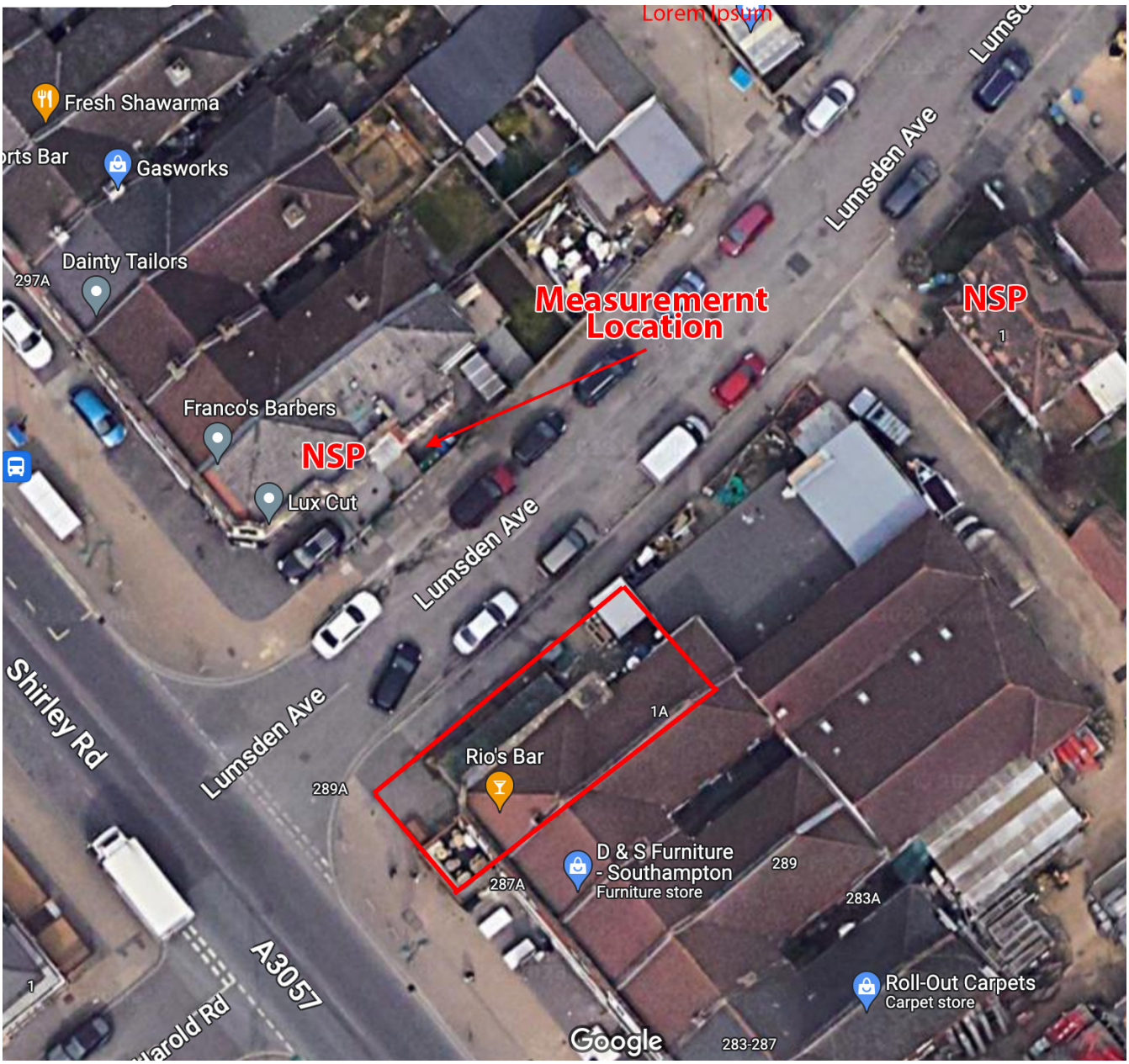
J) PROCEDURAL

The noise management plan will be reviewed at least annually or as agreed appropriate to ensure that it is streamlined and effective. New and innovative approaches to problem solving or incidents and any lessons learnt will be incorporated accordingly. We should consider this a live document which evolves by experience in agreement with the Authority

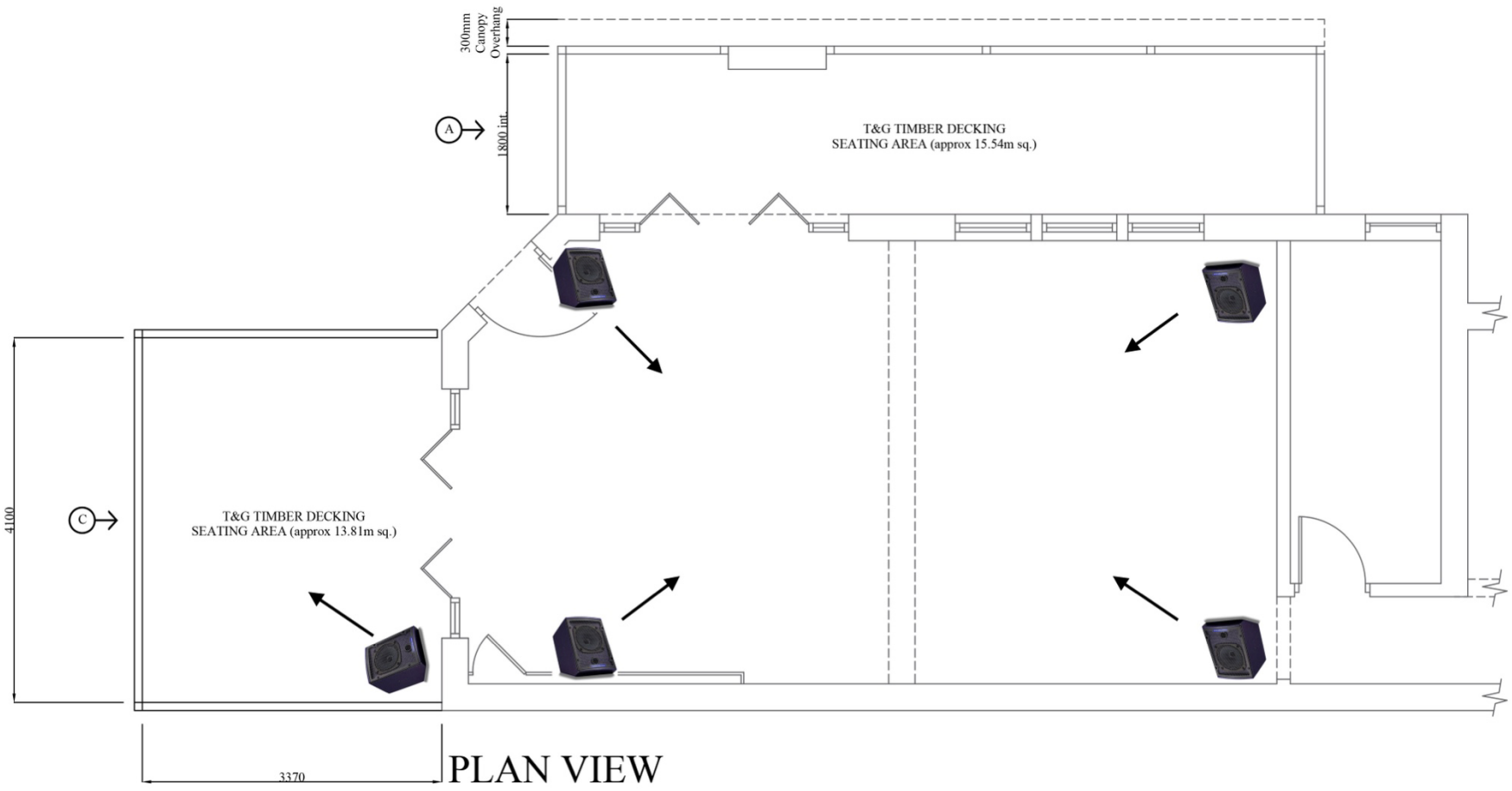
COMMITMENT

We the management commit to ensuring this noise management plan is implemented and maintained at all times for the duration of operation of our premises. We understand that it forms a key part of our Licence to operate, and that departure from it could lead to curtailment or loss of said operating Licence:

APPENDIX 2: SITE MAP AND MEASUREMENT POSITION



APPENDIX 3: PROPOSED FULL RANGE SPEAKER PLAN



APPENDIX 4: MODEL