The Admiral Mann Public House
Hargrave Place, London

NOISE IMPACT
REPORT 22207/NIA Rev 3

For :

Josh Moore

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REPORT 22207/NIA Rev 3

CONTENTS Page

1.0 INTRODUCTION

There are proposals to redevelop the accommodation above the Admiral Mann Public House, Hargrave Place, London. This includes conversion of the existing landlord's accommodation to private dwellings.

Hann Tucker Associates have been appointed to prepare a report to support the planning application as far as reasonably possible, taking into account the proposed building uses and the items listed below in the objectives.

2.0 OBJECTIVES

To prepare a pre-commencement report regarding sound insulation between the public house and proposed dwellings above, in order to address the concerns of London Borough of Camden.

This will include:

- Proposing suitable internal noise criteria for noise transfer from public house to residential areas.
- Proposal for separating floor construction.
- Preliminary limiting noise levels within the public house in order to meet proposed criteria.

To outline suitable sound insulation measures as required for the above.

3.0 SITE DESCRIPTION

3.1 Location

The site is located at 9 Hargrave Place, London, N7 0BP and falls within Camden Borough Council's jurisdiction.

3.2 Description

The site is a three storey building (plus basement). The ground floor comprises the Lord Admiral Mann pub while the remaining floors comprise residential space (originally ancillary accommodation).

We understand it is proposed to convert the existing residential accommodation into residential dwellings, but under separate ownership from the pub. A mansard roof extension is also proposed which provides a further storey of residential accommodation.

4.0 ACOUSTIC TERMINOLOGY

For an explanation of the acoustic terminology used in this report please refer to Appendix A enclosed.

5.0 NOISE IMPACT ASSESSMENT

Current Building Regulations require that airborne sound insulation between residential dwellings is a minimum of 43dB $D_{nT,w} + C_{tr}$ for change of use projects. In addition to this, the Building Regulations require that partitions separating residential premises from commercial premises must achieve the same **or better** than party floors separating residential premises.

In the case of this development, where the commercial premises is a public house, it is most likely the Local Authority will require additional sound insulation measures to be introduced to a level over and above that required by Building Regulations and to also provide limiting noise levels within the pub so as to be reassured that the risk of noise complaint is minimal.

We have been advised that the existing floor construction is likely to comprise;

- Approx. 18-20mm floor boards.
- Assumed 200-250mm joists at 400mm centres.
- Plaster and lath ceiling.

It is likely this floor build up (and flanking arrangement) would not comply with the requirements set out in Approved Document E; as such further measures will need to be proposed.

In order to demonstrate the compatibility of these adjacencies, it will be necessary to:

1) To enhance the sound insulation of the building fabric.

   and;

2) To provide limiting operating noise levels for the public house.

5.1 Proposed Criteria

We would suggest the following criteria for residential dwellings:

Criteria for Pub Noise Transfer to Residential Areas	
Area	**Criterion**
Lounges / Bedrooms	NR10 (NR15 for peak (maximum) noise levels)
Kitchens / Bathrooms / Corridors	NR20
Communal Space	NR20

NR refers to Noise Rating curves as defined in ISO R 1996.

The above should be agreed with the Local Authority.

5.2 Enhanced Sound Insulation

The existing floor construction is described in Section 5.0 of this report.

This floor will need to be upgraded. At the least we would suggest the following;

- Mineral wool (minimum thickness of 100mm and density of at least 10kg/m^3) is laid between the joists.

- Timber floor boards are replaced with a deck which has a minimum mass per unit area of 20kg/m^2.

- A floating (platform) floor should be loosely installed on top of a suitable resilient layer. The platform floor should be made up of 2 layers of material (each being a minimum of 8mm thick, bonded/screwed together with joints staggered) and should have a total mass per unit area of 25kg/m^2.

In addition to this, we would suggest an **independent** ceiling comprising of 2No. layers of 15mm Soundbloc suspended on independent joists with 25mm insulation between joists, separated by a clearance of at least 25mm.

Note: If independent joists are impractical then a compromise would be to suspend the ceiling on acoustic hangers (minimum 25mm deflection), but this should be avoided if possible.

The ceiling described above should not be penetrated. Any penetrations (e.g. spotlights etc.) should be located in a sacrificial ceiling. We would suggest this ceiling has some acoustically absorptive properties, however the exact amount will depend on detailed calculation which falls outside the scope of this report.

In addition to this, we would suggest the external walls of the public house are independently lined with 2No. layers of 12.5mm SoundBloc (or similar) up to the underside of the ceiling described above and sealed with a non-setting mastic. This is to reduce the flanking transmission path that may occur in the existing external walls.

The above is on the basis of typical pub noise levels of approximately 75 dB L_{Aeq} which is commensurate with data previously measured in public houses that have no live or amplified music; an example taken from a previous measurement in a national chain pub is shown below:

	Previously Measured Public House Noise Levels (dB) at Octave Band Centre Frequency (Hz)						**dBA**
	125	**250**	**500**	**1k**	**2k**	**4k**	
L_{Aeq}	69	65	67	63	59	53	68
L_{Amax}	76	73	76	77	71	70	80

A further example is a similar data set taken from a noisy national chain restaurant for further comparison:

	Previously Measured Restaurant Noise Levels (dB) at Octave Band Centre Frequency (Hz)						dBA
	125	250	500	1k	2k	4k	
L_{Aeq}	63	65	65	64	61	57	68
L_{Amax}	77	79	79	77	76	74	83

5.3 Public House Operations

With the floor, ceiling and wall constructions detailed in Section 5.2 (above), we would expect the noise generated in the pub to be such that our assumed future noise levels are not exceeded.

In order to achieve the standard criterion of NR10 for bedrooms and living rooms, our calculations indicate that using the constructions stated in Section 5.2, the noise from normal public house activities should not exceed the maximum noise levels in the table below:

Standard (L_{Aeq})Limiting Noise Levels (dB) at Octave Band Centre Frequency (Hz)						dBA
125	250	500	1k	2k	4k	
68	71	72	71	68	66	76

Or to achieve the above criterion of NR15 for peak (maximum), our calculations indicate that using the constructions stated in Section 5.2, the noise from normal public house activities should not exceed the maximum noise levels in the table below:

Maximum (L_{Amax}) Limiting Noise Levels (dB) at Octave Band Centre Frequency (Hz)						dBA
125	250	500	1k	2k	4k	
73	76	77	76	73	71	81

In order to comply with these noise levels, amplified music and speech reinforcement should only be used at a low level – up to the limiting levels above.

The noise levels stated above are commensurate with those considered to be typical of a public house.

We would expect the imposition of a condition on any permission but so long as the floor construction in Section 5.2 is built to a high standard of workmanship and the noise from the pub is within the limitations set in the table above, there should be no acoustic reason for any noise complaints; this is based on the pub operating up to 23:00 hours.

Noise generated from outside the pub (i.e. smoking areas, human traffic etc. relating to the pub) is outside the scope of this report as it a matter dealt with under the mandatory conditions of a premises licence.

It should be noted that our calculations are based on the following assumptions;

- Habitable rooms have typical soft furnishings, i.e. bed/sofa, carpet, curtains etc.
- Habitable room is at least 14m^2 floor area (bedroom)

It will therefore be imperative that a full design report is carried out during the design stage. This assessment will need to incorporate the exact proposals as this will affect the required limiting noise level in the public house and/or the required sound reduction of the partition between the dwelling and the public house.

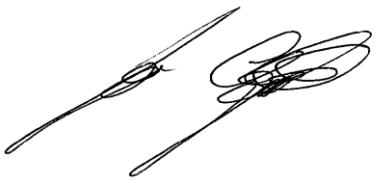
6.0 CONCLUSIONS

We have proposed suitable criteria for noise transfer between the pub and residential dwellings.

We have reviewed the existing floor construction with respect to its suitability for meeting the requirements of Approved Document E and our proposed criteria.

In order to achieve the proposed criteria we have proposed mitigation measures in the form of an enhanced floor and ceiling construction (Section 5.2) and limiting noise levels for public house operations (Section 5.3).

Based on the predicted sound reduction index of the proposed floor construction, maximum limiting noise levels have been proposed for the pub, using the peak (maximum) NR15 criteria (approximately 20dBA) stated in Section 5.1.



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Appendix A

The acoustic terms used in this report are explained below:

dB : Decibel - Used as a measurement of sound pressure level. It is the logarithmic ratio of the noise being assessed to a standard reference level.

dBA : The human ear is more susceptible to mid-frequency noise than the high and low frequencies. To take account of this when measuring noise, the 'A' weighting scale is used so that the measured noise corresponds roughly to the overall level of noise that is discerned by the average human. It is also possible to calculate the 'A' weighted noise level by applying certain corrections to an un-weighted spectrum. The measured or calculated 'A' weighted noise level is known as the dBA level.

Because of being a logarithmic scale noise levels in dBA do not have a linear relationship to each other. For similar noises, a change in noise level of 10dBA represents a doubling or halving of subjective loudness. A change of 3dBA is just perceptible.

L_{10} & L_{90}: If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The Ln indices are used for this purpose, and the term refers to the level exceeded for n% of the time, hence L_{10} is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L_{90} is the average minimum level and is often used to describe the background noise.

It is common practice to use the L_{10} index to describe traffic noise, as being a high average, it takes into account the increased annoyance that results from the non-steady nature of traffic noise.

L_{eq} : The concept of L_{eq} (equivalent continuous sound level) has up to recently been primarily used in assessing noise in industry but seems now to be finding use in defining many other types of noise, such as aircraft noise, environmental noise and construction noise.

L_{eq} is defined as a notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (e.g. 1 hour).

The use of digital technology in sound level meters now makes the measurement of L_{eq} very straightforward.

L_{max} : L_{max} is the maximum sound pressure level recorded over the period stated. L_{max} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the L_{eq} noise level.