

**New Century Hall
34 Hanover St
Manchester
M4 4AH**

March 8, 2023

Our Ref: CSGA-C2091-T2

Re: Noise Limiter Settings – New Century Hall

This letter presents the results of the noise limiter setting exercise undertaken inside the main concert space at New Century Hall site on Monday 6th March 2023. The intention of this letter is to provide the acoustic data only, and therefore it does not include discussion/interpretation but does provide a comparison against the planning obligations of the site.

It is our view that the Limiter has been set professionally and meets the requirements of the Planning obligations of the site.

Yours Sincerely,



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1 Noise Limiter

An image of the noise limiter is presented in Figure 1 below. The limiter was installed by Chris Snow of Bandwidth Production Ltd. More information on the set-up can be found in the technical document (BPL C1937 issue 1) appended to this report.

Figure 1 – Installed Limiter



2 Noise Measurements

Noise measurements were undertaken within the space at New Century Hall on Monday the 6th March 2023. The space was empty during measurements apart from the attendance of Daniel Pratley (BSc MIOA representing CSG Acoustics Ltd) and Chris Snow (BSc MIOA representing Bandwidth Production Ltd).

The noise measurement set-up and calibration details are presented in the table below.

Table 1: Sound Measurement Equipment

Equipment	Model	Serial No.	Certificate No.	Calibration Date
Class 1 SLM	01dB FUSION	10816	05231/1	21/04/2021
Microphone	GRAS 1/2" – 40CD	383040		
Preamplifier	01dB – PRE22	10959		
Calibrator	Cirrus – 511E	33927	05872/1	10/08/2022

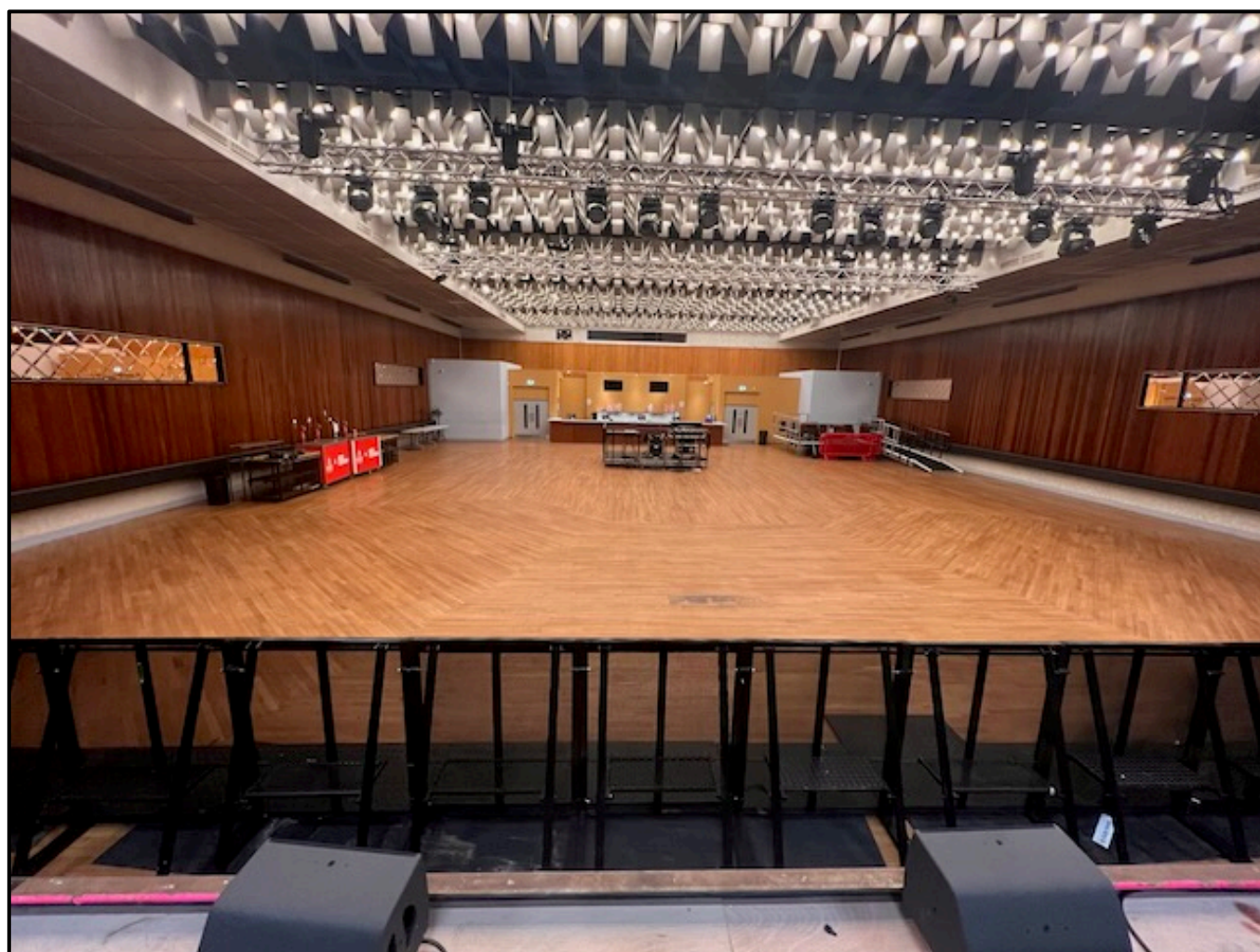
3 Reverberation Characteristics of the Space

Figure 2 below shows the space during the testing. Table 2 presents the measured reverberation time, which is an average of six measurements within the space.

Table 2: Measured Reverberation Time

Description	T,60 Reverberation Time in Seconds					
	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz
Average RT	1.1	1.5	1.8	2.0	2.0	1.7

Figure 2 - Image of Tested Space



4 Limiting Noise Levels Within the Space

Table 3 below presents the measured sound levels, an average of five, one-minute measurements at various locations fanning out from the central control desk, using a steady pink noise sound source. The limiter was set to ensure that the levels measured using a steady pink noise source were below the planning limits between the frequencies of 63Hz and 4 KHz.

The limiter setting was then used to 'limit' three separate audio tracks that represents typical types of sound signals in the space, i.e. pop / rock.

The third row presents the limit that was presented in the Hann Tucker report.

Table 3: Measured Limiting Noise Levels, dB

Description	Octave Band Centre Frequency, dB						
	63Hz	125Hz	250Hz	500Hz	1KHz	2KHz	4KHz
Pink Noise	108	104	98	94	94	91	91
Music	108	103	100	96	92	88	89
Planning	108	106	101	97	96	91	91

It can be seen from the results table above that the Pink Noise limiter settings have ensured that the limiting of music sound levels in the space are below the planning requirements at the stated frequencies.



Technical Memorandum:

Proposed Noise Limiter installation, New Century Hall, Mayes Street, Manchester

Prepared by	Chris Snow BSc MSc MIOA
Date	10 February 2023
Reference	BPL C1937
Issue	1
Revision	0

CONTENTS

1. INTRODUCTION.....	3
2. BACKGROUND	3
3. INSTALLATION OF NOISE LIMITER.....	4
4. SUMMARY	5

1. INTRODUCTION

- 1.01 This technical memorandum is issued with respect to the Event Space at New Century Hall, Mayes Street, Manchester M60 4ES.
- 1.02 The purpose of this memorandum is to propose Noise limiting equipment to fulfil the requirements of the Planning Permission and Notices Of Consent, and the Premises Licence.

2. BACKGROUND

- 2.01 The Premises Licence for the Event Space, Annex 2, condition 15, states that

"15. Noise from amplified music or voices shall not be such as to cause a nuisance to occupants of nearby premises."

- 2.02 Condition 11 of the planning permission for the event space states:

"... the L_{Aeq} (entertainment noise) shall be controlled to 10dB below the L_{A90} (without entertainment noise) in each octave band at the façade of the nearest noise sensitive location."

- 2.03 By meeting the defined conditions of the planning permission (2.02), the requirements of the premises licence in item 2.01 will also be discharged.
- 2.04 Acoustic Consultants Hann Tucker issued a Noise Impact Assessment, dated 26 July 2019 outlining the predicted noise impact on the nearest noise sensitive receptors. (HT 26658 / NIA1)
- 2.05 Hann Tucker followed this report with a commissioning note dated 22 June 2022. This contained results of a noise propagation test within the venue, to evaluate their 2019 predictions. (HT 26658 / PTM1)
- 2.06 There were limitations to their testing as the building envelope was not completed.
- 2.07 The reports referred to in paragraphs 2.04 and 2.05 state and validate reverberant noise levels to be met within the room to result in no impact upon the nearest noise sensitive receptor.
- 2.08 Hann Tucker proposed that the completion of the building envelope would further increase protection for residents, by closing holes and increasing wall build-ups.

3. INSTALLATION OF NOISE LIMITER

- 3.01 Hann Tucker's previous reports suggest internal sound levels within the hall that meet the conditions of the Planning Permission Decision Notice, condition 11.
- 3.02 An Electronic Limiter shall be installed to stop signals to the PA system amplifiers exceeding the internal noise levels proposed by the Hann Tucker reports.
- 3.03 The Limiter can control the levels to the Sub-bass speakers and the main PA system.
- 3.04 It should be noted that limiting per octave band is not possible: However, Hann Tucker's measurement observations note that the only audible octave bands external to the venue were 63Hz and 125Hz. As such, a limiter controlling the sub bass speakers will mitigate this risk.
- 3.05 A limit for the sub bass speakers will be set to accord with the low frequency octave band requirements of the report
- 3.06 Subsequently a limit for the whole system will be set to accord with the A-weighted (Broadband) noise limit.
- 3.07 The limiter will have no controls visible or adjustable to staff, and be fitted within a locked area.
- 3.08 A Class 1 Sound level meter will be used to commission the limiter by measuring the reverberant noise level within the room.
- 3.09 A commissioning note will be issued to confirm correct operation.

4. SUMMARY

- 4.01 The installation of an Electronic Limiter will satisfy the requirements of Manchester City Council's Planning Condition 11.
- 4.02 Fulfilment of Planning Condition 11 also discharges the requirements of Manchester City Council's Premises Licence, Annex 2, condition 15.
- 4.03 The limiter will control low frequency and broadband levels.
- 4.04 The limiter will be calibrated and commissioned using a Class 1 Sound Level Meter, and the settings secured against tampering.