Events Marquee
Stanley House
Further Lane
Mellor, Blackburn

Acoustic Assessment Report
1064/AAR1

31 March 2023

For:

AF Events Blackburn Limited
Trust House
St James Park
Bradford
BD1 5LL

2nd Floor 3 Hardman Square
Spinningfields Manchester M3 3EB

[redacted]

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Appendices

Lighthouse Acoustics is the trading name of Lighthouse Enterprises UK Limited
Registered Office: 2nd Floor 3 Hardman Square Spinningfields Manchester M3 3EB
Registered in England and Wales Company No. 09085491

1.0 Introduction

Lighthouse Acoustics has been appointed by AF Events Blackburn Limited to visit site during an event in the Events Marquee in order to undertake measurements of operational noise levels both within the venue grounds and at the nearest noise sensitive receptors along with an assessment of operational noise.

The measurement methodology, results and assessment are presented in this report.

2.0 Objectives

To visit site during an event in the Events Marquee in order to undertake measurements of operational noise levels both within the venue grounds and at the nearest noise sensitive receptors.

To undertake an assessment of operational noise levels from the venue to the nearest noise sensitive receptors and provide comments on the likely acceptability.

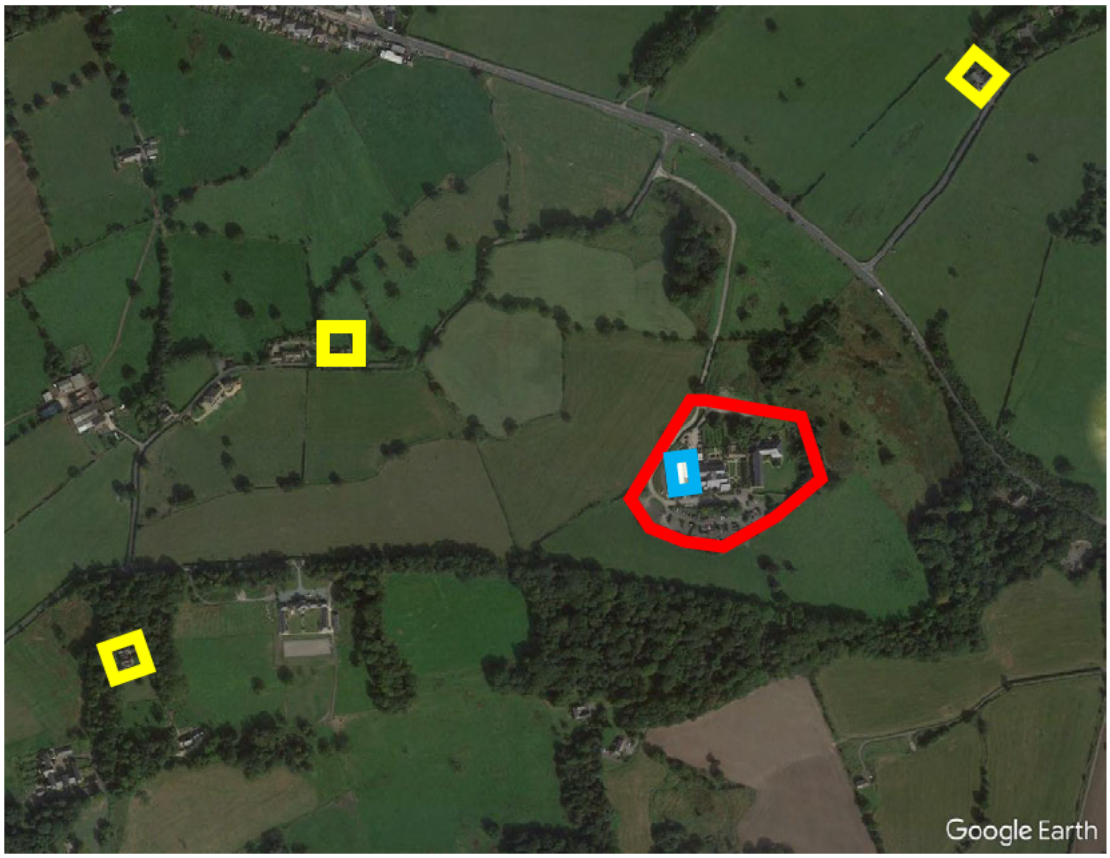
If required, to propose mitigation measures in order to minimise operational noise levels from the venue to the nearest noise sensitive receptors.

3.0 Site Description

Stanley House hotel and spa is situated off Further Lane, Mellor, Blackburn. The site comprises numerous hotel and spa buildings and car park along with an Events Marquee. The site is bound by fields in all directions and is situated to the south of Preston New Road (A677).

The nearest noise sensitive receptors are understood to be residential properties situated to the north east along Mire Ash Brow, to the south west off Further Lane and to the north west along Further Lane.

The site plan overleaf indicates the site boundary, nearest noise sensitive receptors and the surrounding environment.



Site plan indicating the site boundary, nearest noise sensitive receptors and the surrounding environment

4.0 Local Authority Requirements

Ribble Valley Borough Council have requested that a noise impact assessment is commissioned by the applicant from an independent suitably qualified and competent person.

5.0 Qualifications

The survey, assessment and report has been undertaken by Robin Wood of Lighthouse Acoustics who has over 20 years experience in acoustic consultancy. Qualifications include BEng (Hons) in Electroacoustics, Member of the Institute of Acoustics (MIOA), Member of the Association of Noise Consultants (ANC) and Member of the ANC Pre-Completion Testing Registration Scheme.

6.0 Venue History

It is understood that complaints have been received from the residents of the nearest noise sensitive receptors regarding operational noise levels from the Events Marquee late in the evening. This is understood to have been prior to the current management strategy being implemented at the start of the year.

Since then it is understood that the following measures have been undertaken to the Events Marquee in order to minimise operational noise level breakout:

- All new event bookings are scheduled to finish at 23:00 hours;
- A temporary foyer area has been added to create a lobbied door area in order to reduce noise breakout;
- The roof has recently been upgraded to a thicker material in order to reduce noise breakout;
- A bespoke capping system has been installed to fill the gaps on all sides in order to reduce noise breakout;
- Thick remote operated blinds have been installed in order to reduce noise breakout;
- Wherever possible windows and doors are kept closed during events in order to reduce noise breakout.

Since the implementation of the above measures it is understood that no further noise complaints have been received from the residents of the nearest noise sensitive receptors.

7.0 Operational Noise Measurements

7.1 Measurements

Lighthouse Acoustics visited site between 18:00 and 23:00 hours on Friday 10 March 2023 to undertake measurements of operational noise levels both within the venue grounds and at the nearest noise sensitive receptors. The L_{Amax}, L_{Aeq} and L_{A90} sound levels were measured over 5 minute periods.

It is understood that the event taking place was a graduation type ceremony with speeches, singing and music with approximately 225 guests present. The event commenced at approximately 19:00 hours and finished at approximately 22:30 hours.

7.2 Weather Conditions

During the survey period the wind conditions were calm (<1m/s) and the sky was clear. There was no rainfall and road surfaces were dry. The temperature was approximately 1°C.

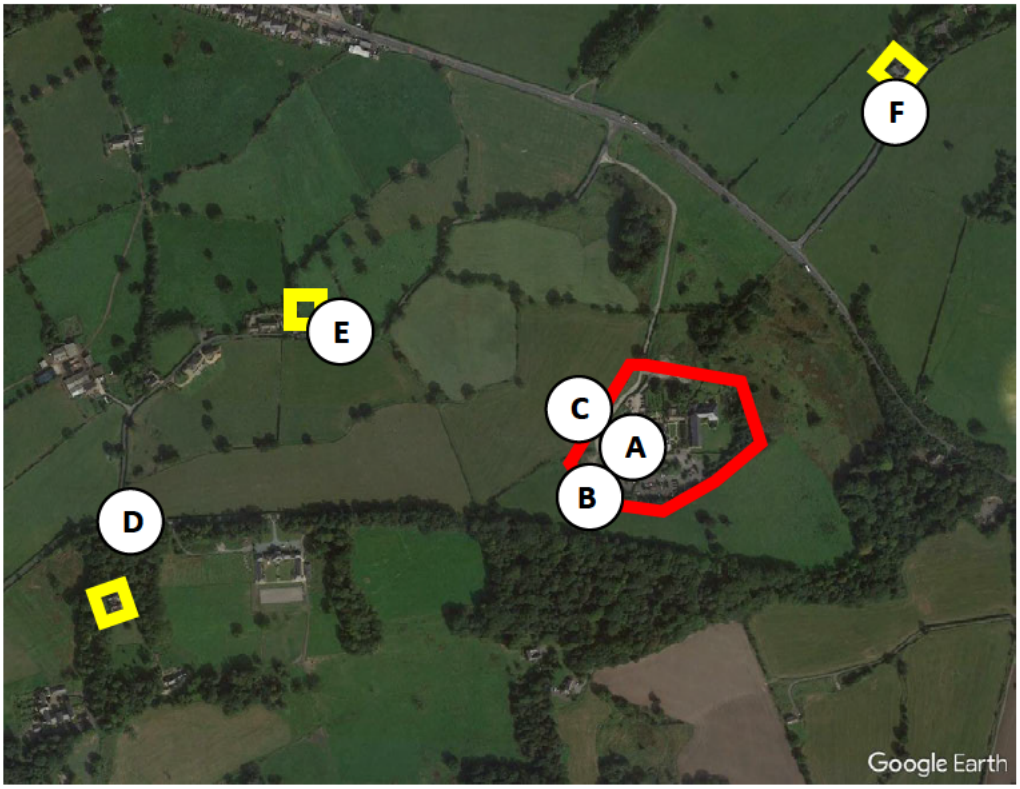
The weather conditions during the survey period are therefore considered to be suitable for undertaking measurements of sound levels.

7.3 Measurement Positions

Operational noise levels were measured at 3No. positions within the venue grounds and at the 3No. nearest noise sensitive receptors as described in the table below.

Position	Description
A	Automated continuous measurements within the Events Marquee with microphone situated at least 3m from any reflective surfaces and at 2.5m above floor level.
B	Automated continuous measurements on the south western boundary of the venue (approx. 60m from Events Marquee) with microphone in free field measurement conditions at 1.2m above ground level.
C	Manned measurements on the western boundary of the venue (approx. 30m from Events Marquee) with microphone in free field measurement conditions at 1.2m above ground level.
D	Manned measurements at the entrance gate to the nearest noise sensitive receptor to the south west of the site (approx. 690m from Events Marquee) with microphone in free field measurement conditions at 1.2m above ground level.
E	Manned measurements at the nearest noise sensitive receptor to the north west of the site (approx. 420m from Events Marquee) with microphone in free field measurement conditions at 1.2m above ground level.
F	Manned measurements at the nearest noise sensitive receptor to the north east of the site (approx. 600m from Events Marquee) with microphone in free field measurement conditions at 1.2m above ground level.

The measurement positions are shown on the site plan below.



Site plan showing measurement positions

It should be noted that manned measurements at Positions D, E and F were paused during individual vehicle passby's on the local road adjacent to the measurement position in order to minimise any influence on the measurements of operational noise levels.

7.4 Equipment

The following equipment was used to undertake the operational noise measurements.

Equipment	Manufacturer	Model	Serial No.	Calibration Date
Class 1 Sound Level Meter	Bruel & Kjaer	2250	2626230	27/10/2022
Preamplifier	Bruel & Kjaer	ZC-0032	21309	27/10/2022
Microphone	Bruel & Kjaer	4189	2621208	27/10/2022
Class 1 Sound Level Meter	Casella	633C	0721320	28/09/2021
Preamplifier	Casella	495	001414	28/09/2021
Microphone	Casella	251	1025	28/09/2021
Class 1 Sound Level Meter	Casella	633C	0721319	28/09/2021
Preamplifier	Casella	495	001446	28/09/2021
Microphone	Casella	251	1996	28/09/2021
Class 1 Sound Calibrator	Casella	120/1	3864878	27/10/2022

Field calibration checks were performed on the sound level meters prior to and on completion of the survey and were found to be within acceptable tolerance limits.

7.5 Results

7.5.1 Automated Continuous Measurements

The results of the automated continuous measurements are presented on Time History Graphs 1064/THG1 and 1064/THG2 enclosed at the rear of the report. The Time History Graphs also note the periods when the manned measurements were undertaken at manned Positions C, D, E and F.

7.5.2 Manned Measurements

The results of the manned measurements are detailed in the table below.

Position	Time	$L_{Amax,5min}$ (dB)	$L_{Aeq,5min}$ (dB)	$L_{A90,5min}$ (dB)	Notes
D	19:10	53	41	39	No operational noise breakout audible
E	19:20	46	42	40	No operational noise breakout audible
F	19:30	56	48	46	No operational noise breakout audible
C	19:50	50	42	41	Amplified music audible
D	20:00	47	41	39	No operational noise breakout audible
E	20:10	54	41	38	No operational noise breakout audible
F	20:20	57	48	45	Amplified speech just audible
C	20:30	62	51	40	Amplified speech audible
C	20:55	50	45	43	Amplified music audible
D	21:05	41	38	36	No operational noise breakout audible
E	21:15	47	42	38	No operational noise breakout audible
F	21:25	54	46	42	Amplified speech just audible
D	22:00	48	39	37	No operational noise breakout audible
E	22:10	53	42	38	No operational noise breakout audible
F	22:20	53	47	42	Amplified speech just audible

7.6 Discussion of Results

At Position A, the dominant sound sources were noted to include amplified speech, amplified music and guest conversation. As can be seen on Time History Graph 1064/THG1, operational noise levels within the Events Marquee varied throughout the evening.

At Position B, the dominant sound sources were noted to be low level operational noise breakout from the Events Marquee and occasional vehicle noise from the adjacent car park. During lulls in operational noise breakout, distant road traffic contributed towards the measured sound climate. As can be seen on Time History Graph 1064/THG2, there is a broad correlation between the operational noise levels within the Events Marquee as seen on Time History Graph 1064/THG1.

At Position C, the dominant sound source was noted to be low level operational noise breakout from the Events Marquee. During lulls in operational noise breakout, distant road traffic contributed towards the measured sound climate.

At Position D, the dominant sound source was noted to be constant road traffic from Preston New Road (A677) to the north. Occasional individual vehicle passby's were noted along Further Lane but these were excluded from the measurements. Operational noise breakout from the Events Marquee was subjectively inaudible during the manned measurements at Position D.

At Position E, the dominant sound source was noted to be constant road traffic from Preston New Road (A677) to the north. Occasional individual vehicle passby's were noted along Further Lane but these were excluded from the measurements. Operational noise breakout from the Events Marquee was subjectively inaudible during the manned measurements at Position E.

At Position F, the dominant sound source was noted to be constant road traffic from Preston New Road (A677) to the south west. Occasional individual vehicle passby's were noted along Mire Ash Brow but these were excluded from the measurements. Operational noise breakout from the Events Marquee was subjectively 'just' audible in the form of amplified speech during the manned measurements at Position F at 20:20, 21:25 and 22:20 hours.

8.0 Assessment

8.1 Environmental Sound Climate

Due to the prevailing environmental sound climate at the nearest noise sensitive receptors being dominated by constant road traffic from Preston New Road (A677) it was not possible to measure the operational noise breakout levels in isolation.

As such, limiting operational noise levels within the Events Marquee will be calculated using the sound attenuation provided by the Event Marquee, distance loss to the nearest noise sensitive receptors and the lowest measured background sound levels at the nearest noise sensitive receptors.

8.2 Event Marquee Sound Attenuation

Based on the measurements undertaken at Positions A and B it is possible to determine the approximate sound attenuation level provided by the Event Marquee.

Comparing the automated measurements at Positions A and B throughout the evening an approximate sound attenuation level of 36dB is provided at a distance of 60m.

8.3 Distance Loss to Receptors

The total loss to the nearest noise sensitive receptors is presented in the table below.

Receptor	Distance (m)	Loss from 60m to Receptor (dB)	Loss at 60m (dB)	Total Loss to Receptor (dB)
D	690	21	36	57
E	420	17	36	53
F	600	20	36	56

8.4 Lowest Background at Receptors

The lowest background $L_{A90,5min}$ sound levels measured at the nearest noise sensitive receptors are presented in the table below along with the distance from Preston New Road (A677).

Receptor	Lowest Background $L_{A90,5min}$ (dB)	Distance From Preston New Road (A677)
D	36	740
E	38	400
F	42	260

The lowest background $L_{A90,5min}$ sound levels measured at the nearest noise sensitive receptors correlate well with the distance from Preston New Road (A677).

8.5 Limiting Operational Noise Level

In order to minimise the likelihood of complaints it is proposed that L_{Amax} operational noise breakout levels achieve the lowest background $L_{A90,5min}$ sound levels measured at the nearest noise sensitive receptors. The table below presents the limiting L_{Amax} operational noise levels within the Events Marquee in order to achieve this.

Receptor	Lowest Background $L_{A90,5min}$ (dB)	Total Loss to Receptor (dB)	Limiting L_{Amax} Operational Noise Level (dB)	Lowest Limiting L_{Amax} Operational Noise Level (dB)
D	36	57	93	91
E	38	53	91	
F	42	56	98	

As can be seen, the lowest limiting L_{Amax} operational noise level is 91dB. Amplified speech and music should therefore be limited to achieve this level within the Events Marquee.

8.6 Current Operational Noise Levels

A review of Time History Graph 1064/THG1 shows that current L_{Amax} operational noise levels within the Events Marquee regularly exceed 91dB. From observations during the evening this was noted to be due to amplified speech.

9.0 Mitigation Measures

In order to minimise the likelihood of complaints due to operational noise breakout from the Events Marquee the following measures are proposed.

For the existing in-house loudspeaker system, amplified speech and music levels should be limited by means of an electronic noise limiter/compressor. The device should be capable of limiting individual octave bands over the frequency range 20Hz to 20kHz and controlling the number of speakers/zones required.

In order to set the device to achieve the proposed limit a commissioning visit will be required in conjunction with an acoustic consultant once installed. The device should be lockable once set to prevent tampering. Upon completion, a commissioning report should be issued to the Local Authority specifying details of the device installed and the limit that it has been set to.

10.0 Conclusions

A site visit has been undertaken during an event in the Events Marquee in order to undertake measurements of operational noise levels both within the venue grounds and at the nearest noise sensitive receptors.

An assessment of operational noise levels from the venue to the nearest noise sensitive receptors has been undertaken and comments have been provided on the likely acceptability.

Mitigation measures to minimise operational noise levels from the venue to the nearest noise sensitive receptors have been proposed.

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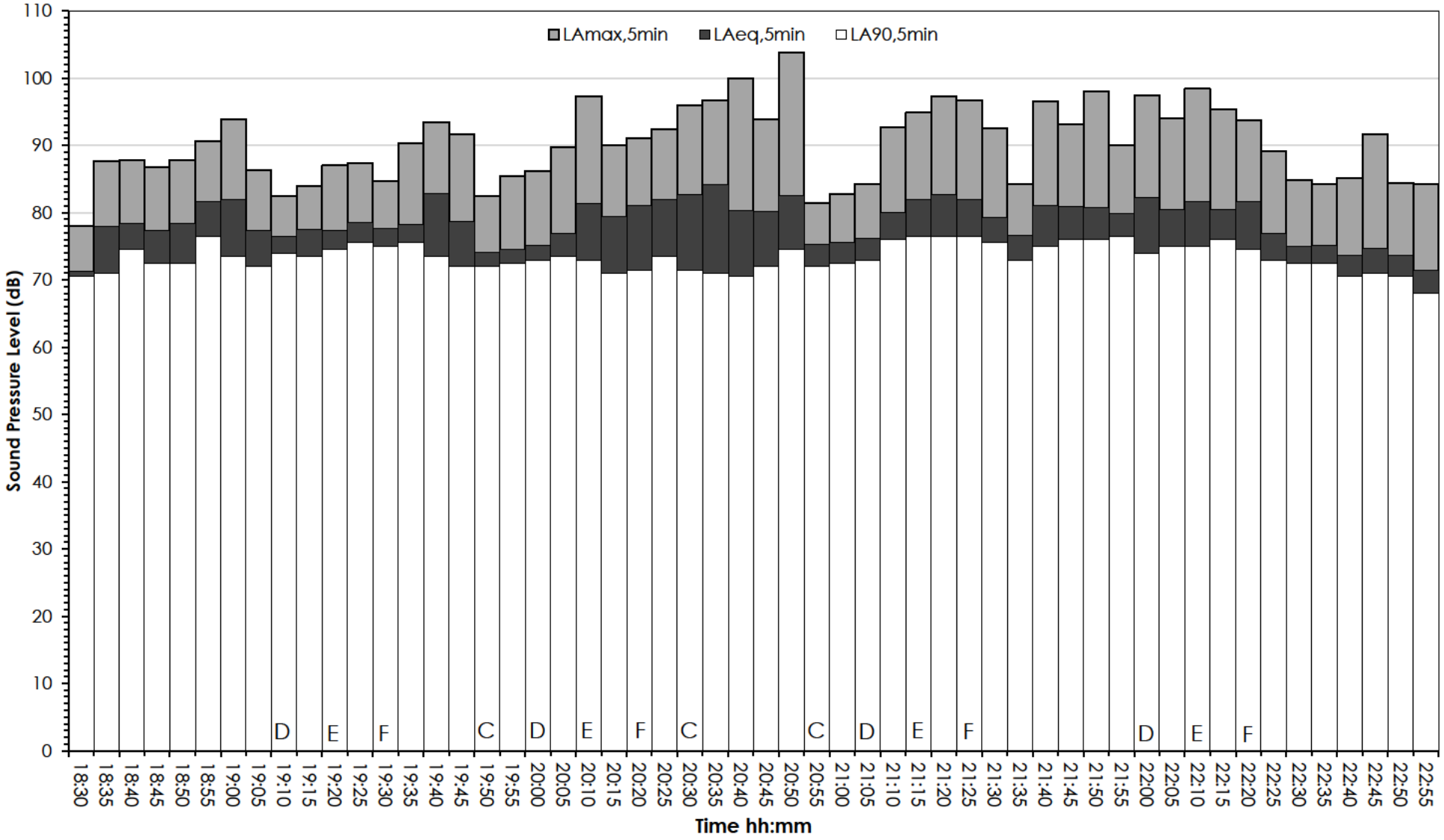
Robin Wood
LIGHTHOUSE ACOUSTICS

1064/THG1

Events Marquee, Stanley House, Further Lane, Mellor, Blackburn

Time History Graph - Friday 10 March 2023

$L_{Amax,5min}$, $L_{Aeq,5min}$ & $L_{A90,5min}$ Noise Levels at Position A



1064/THG2

Events Marquee, Stanley House, Further Lane, Mellor, Blackburn

Time History Graph - Friday 10 March 2023

$L_{Amax,5min}$, $L_{Aeq,5min}$ & $L_{A90,5min}$ Noise Levels at Position B