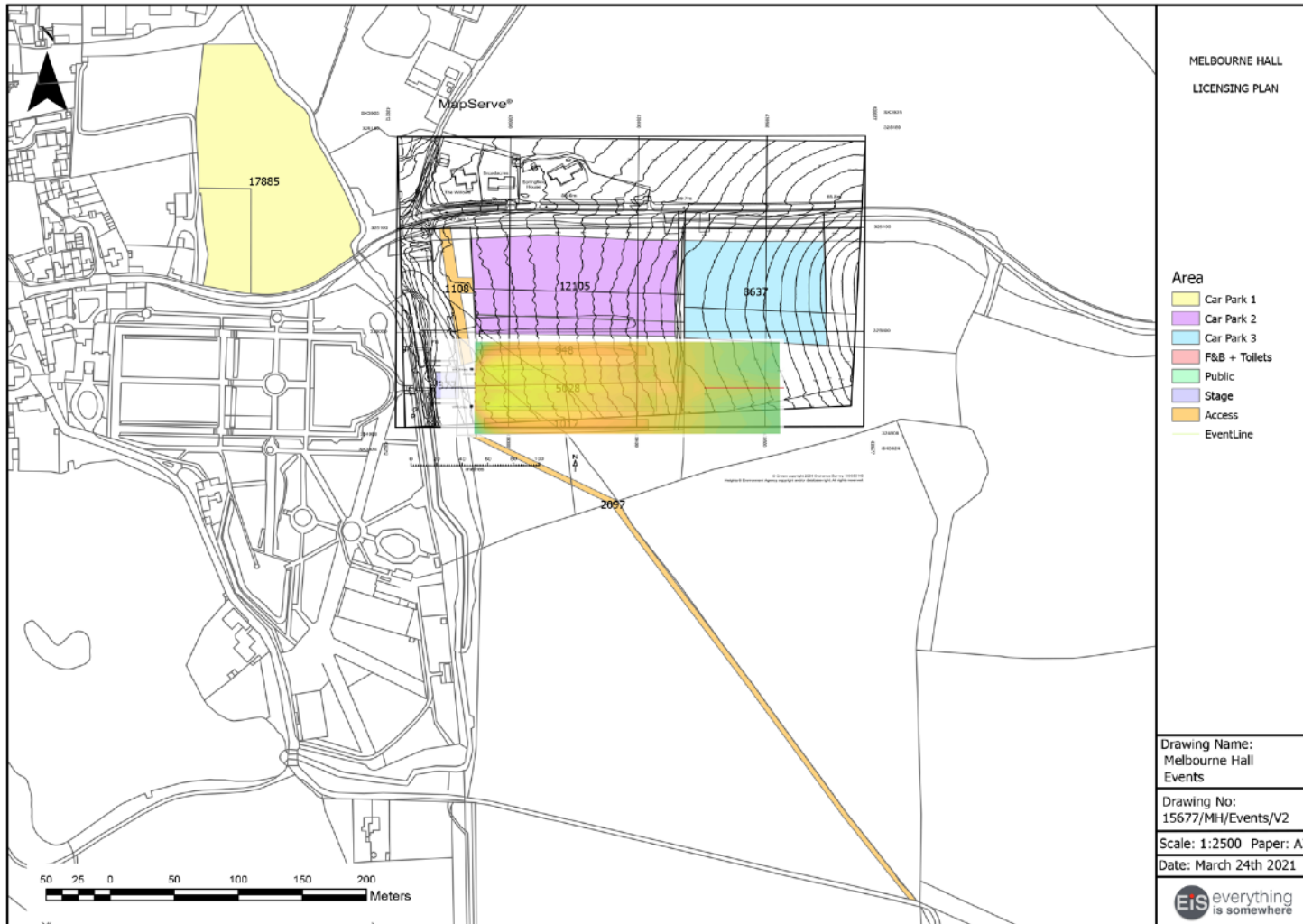


# **MELBOURNE HALL**

## **SOUND COVERAGE ANALYSIS**

# SOUND COVERAGE



# SOUND COVERAGE

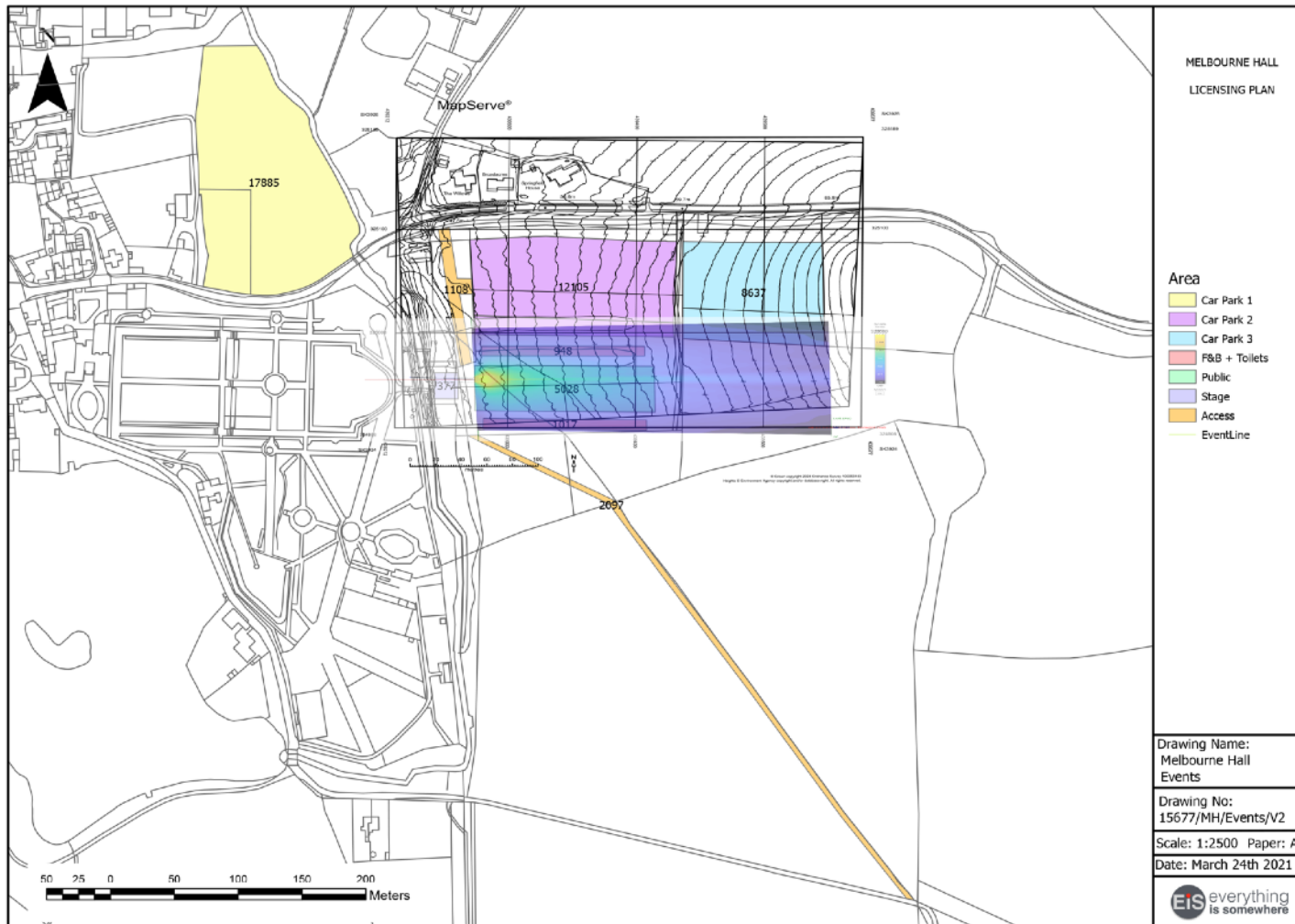
As seen in the above plan, overlayed is the coverage that we would expect from our concert PA system. This system is made up of 8x Martin Audio Wavefront Precision Compact (WPC), in each PA wing of the stage. Meaning a total of 16x Martin Audio WPC in total for the coverage. In terms of Subwoofer, this is made up of 8x Martin Audio SX218, which is ideal for the size of this event field. However with the correct configuration, more of these can be added with limited impact to the overall SPL. This drawing is based on our Large Arc stage, which is 14m between each PA wing.

The coverage shows that the 'hot points' of the system are directly in front of the stage, with even coverage up to the 40m mark, where it starts to drop off. Resulting in a really low SPL by the time it reaches beyond the rear of the event field.

The Martin Audio WPC as where latest wavefront range has a state of the art processing system which allows hard avoid limits & non audience zones to be set, while achieving a more filtered SPL to the space you are in. Our system allows us to cover a large space without driving the boxes too hard which would result in over firing where loud noise levels are not permitted.

Lower frequencies tend to be the hardest to remove at certain points, as they travel in a much more persistent way. We can eliminate most noise from sub from being thrown back onto stage, by stacking the subs in a cardioid array. This means the frequencies produced by the box, cancel each other out to the rear.

# FULL ZONE MAP



# FULL ZONE MAP

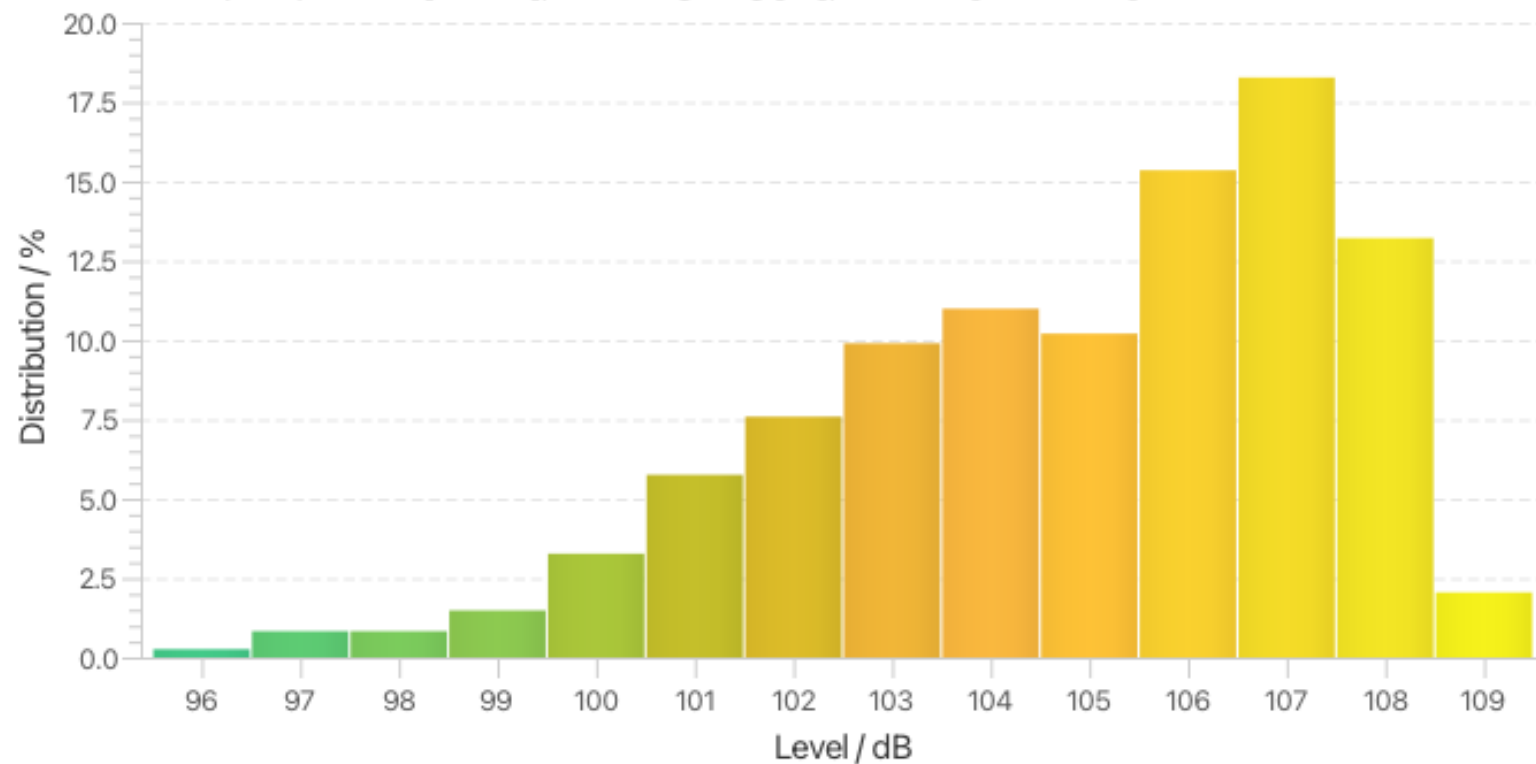
The full zone map shows the full coverage of the PA system. As shown, the PA only effects the main audience zone, to the outskirts of this, the noise levels drop drastically. Where buildings are situated - north of the drawing, these areas will hear very little noise pollution, if anything at all. These drawings are done with an SPL of 100dB from the speaker position which is slightly above the usual level to run an event at. As previously stated, as teams work onsite, and familiarise themselves with the event space, they will take accurate measurements and readings at different locations around the site, to time the system correctly and ensure noise levels out of the audience area are kept to a minimum.

Some events may require the use of delay towers depending on capacity. In which case these will only be used to throw extra high frequencies to the rear of the field. This is usually done at a low level, and more to just act as a 'fill in' as oppose to being used as a separate PA. The positioning of these would usually sit around 50m from the front edge of the stage, meaning the only spaces that would suffer from a higher amount of noise pollution would potentially be the field beyond by Car Park 3.

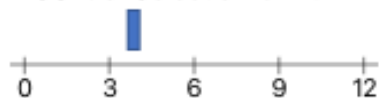
These calculations are based on using the specified PA with the calibration file settings from this analysis, inserting hard avoid areas of behind the speakers and soft avoid areas starting from the end of the audience zone.

# SPL DIAGRAM

Melbourne Hall 2024 SPL Distribution at Broadband resolution, over 20-16000 Hz  
Input Spectrum [ music ], SPL Weighting [ Z ], Includes [ Audience ]



90% of Selection is within



Average Level = 104.8 dB

Standard Deviation = 2.6 dB

Included Receivers = 100 %

Sound Analysis v2 - Melbourne Hall



# FREQUENCY RESPONSE

