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Kirstin Richmond
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Dear Kirstin

WHANGMATA SHAPESHIFTER CONCERT

As requested I measured the noise from the Shapeshifter Concert held at 418 Ocean Road Whangamata (Williamson Park) on Saturday 6 January.

Condition 12 of the consent conditions requires the following conditions to be met.

- (i) *Amplified music during an event shall not exceed a level of 95dB L_{Aeq} when measured at 35 metres from the stage;*
- (ii) *Noise from the sound checks shall not exceed 30 minutes on the day of the event and a maximum level of 85dB L_{Aeq} when measured at 35 metres from the stage;*
- (iii) *No event shall commence before 5pm and shall not exceed 12 consecutive hours;*
- (iv) *The noise shall be measured in accordance with the requirements of NZS6801:2008 Acoustics - Measurement of Environmental Sound.*

The concert was measured from 5:00pm to when it finished at 10:55pm. There was a light shower at the start of the concert after which it was fine and warm. Initially it was overcast but by 6:30pm there was a clear sky and calm conditions through to the end of the concert.

The equipment used for the measurements was a Brüel & Kjær 2250 Hand-held Analyser platform with Sound Level Meter Software BZ 7222, Frequency Analysis Software BZ 7223, Logging Software BZ 7224 and Sound Recording Software BZ 7226. The equipment has been calibrated by a certified laboratory and the re-calibration is next due in December 2019. The equipment was field calibrated before and after measurements using a Brüel & Kjær 4230 calibrator. All measurements were undertaken in accordance with the requirements of NZS 6801:1991 Measurement of Sound.

Measurements were undertaken of the concert at 15 minute intervals at the mixing desk, which was 31m from the stage. As the conditions of consent require the noise to be assessed at 35m a 1dB reduction has been applied to the measured level to give the level at effective 35m. The results of the measurements at 35m from the stage are shown in Table 1.

Start time	End time	Level dB L _{Aeq}
5:00	5:15	89
5:15	5:30	90
5:30	5:45	86
5:45	6:00	87
6:00	6:15	88
6:15	6:30	87
6:30	6:45	89
6:45	7:00	89
7:00	7:15	90
7:15	7:30	91
7:30	7:45	90
7:45	8:00	91
8:00	8:15	93
8:15	8:30	92
8:30	8:45	93
8:45	9:00	93
9:00	9:15	89
9:15	9:30	96
9:30	9:45	95
9:45	10:00	96
10:00	10:15	96
10:15	10:30	96
10:30	10:45	98
10:45	10:55	97

Table 1. Measured Noise

As shown in Table 1 the opening song from Shapeshifter (9:15 – 9:30) exceeded 95dB L_{Aeq}. The sound controller was advised of this, and other periods when the 95dB was exceeded, and although the level did drop for the following 15 minute period (9:30 – 9:45) to 95dB L_{Aeq} it returned to 96dB for subsequent events, rising to 98dB just before the end of the concert.

This concert was different to the New Year's Eve concert insomuch the sound contained significantly more low frequency noise. For this reason the noise may have appeared to be louder to residents than the NYE concert for the same measured level.

As a guide, an increase of 1dB above the set limit would not be noticeable as it is generally accepted that it takes a difference of 3dB to be just noticeable. Thus, even the 3dB increase for the 10:30 – 10:45 period would have been just noticeable. However, the set level was exceeded for these periods.

Should you have any questions regarding the above please do not hesitate to contact me.

Yours faithfully
Hegley Acoustic Consultants



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