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Review of Speedway Noise

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TABLE OF CONTENTS

1	INTRODUCTION	4
2	PROPOSED SITE LOCATION	4
3	NOISE LEVEL CRITERIA	5
3.1	RESULTING NOISE LEVEL CRITERIA	8
4	NOISE SOURCES	9
5	PREDICTED NOISE LEVELS	9
6	CONCLUSION	11

1 INTRODUCTION

This report presents the results of the preliminary acoustic investigation into the Canberra Bulls Speedway project.

The review investigates the suitable acoustic criteria for which noise from the operation of the future speedway should be assessed and the potential compliance with the noise level criteria in the event the speedway is to be located on the Symonston Site.

2 PROPOSED SITE LOCATION

The proposed location of the speedway is within Symonston with the Monaro Highway to the east Jerrabomberra Avenue to the west. There are a number of receivers within the vicinity of the site which are identified in the figure below.

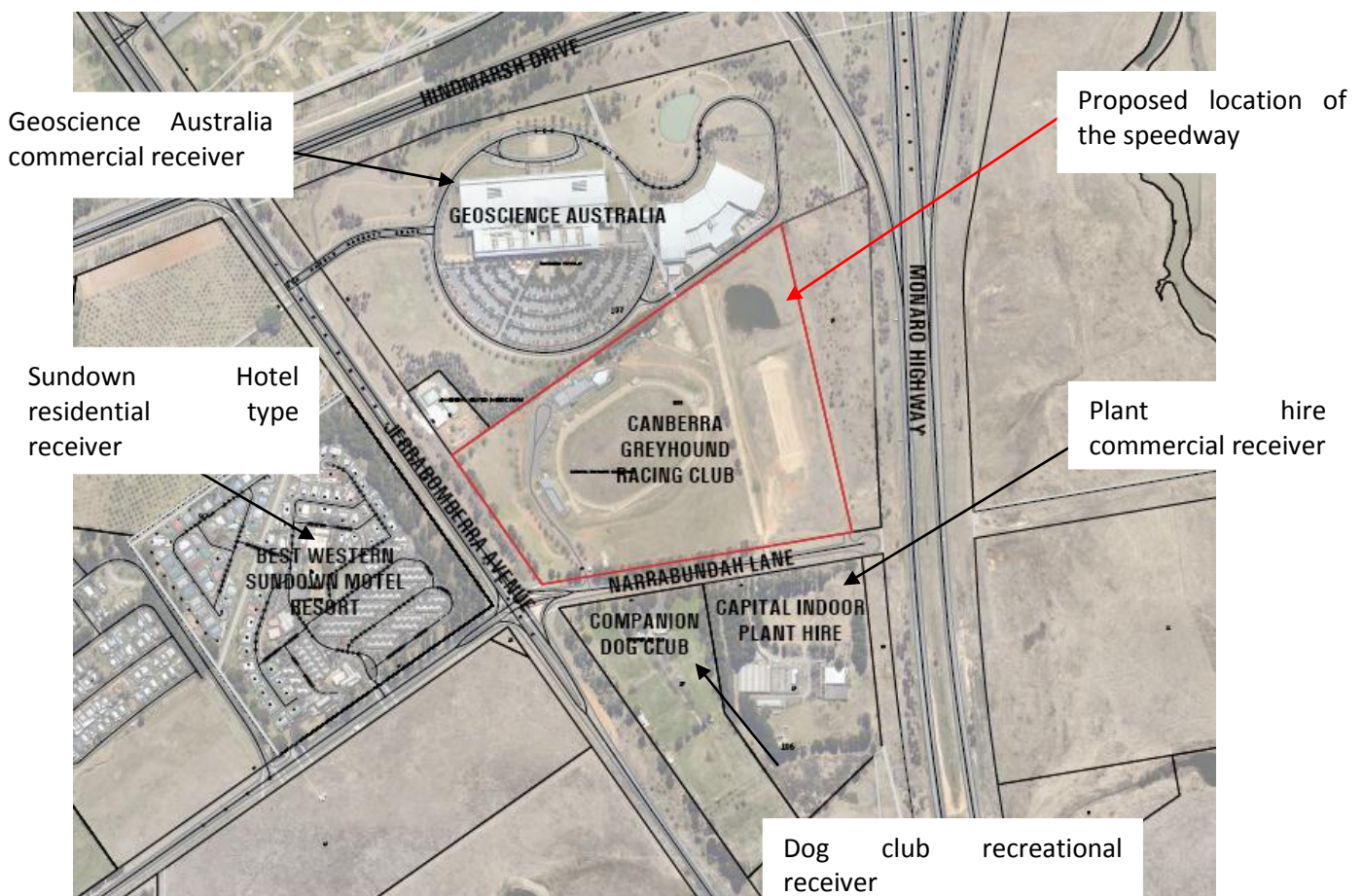


Figure 1 – Proposed Speedway Site Location

3 NOISE LEVEL CRITERIA

There are a number of bodies within the ACT which include criteria for the assessment of motorsports. As the proposed speedway is to be used for a recreational purpose the legislative criteria includes a relaxation in acoustic criteria as identified below.

1. Noise and Environment Protection Policy – Section 8.2 of the protection policy includes the following:

8.2 Measurement of noise

Noise measurements to determine compliance with the Act and Regulation are to be taken in accordance with the ACT Noise Measurement Manual. Noise levels are to be measured as $L_{A10,T}$ as defined in the Glossary.

The index for noise measurement in the ACT is as follows:

<i>Measurement index</i>	<i>Length of measurement time</i>	<i>Adjusted measure for:</i> - <i>tonality</i> - <i>impulsiveness</i> - <i>fluctuation</i>
L_{A10} (level of exceedance for 10% of the time)	Representative measurement of the noise, not less than 5 minutes or greater than 15 minutes	+ 5dB(A)

Under Section 24 of the Act, other appropriate noise indexes and limits are assessed in the development of other noise EPPs (eg Motorsports EPP).

2. Motor Sports Noise, Environment Protection Policy – The motor sports policy, which is referenced within the Noise and Environment Protection Policy above includes the following acoustic requirements:

4.1. Level of the Noise

Restrictions in this policy on the level of noise from motor sports at the **compliance location** are expressed as dB(A) above the **zone noise standard** applying at the **compliance location**.

In general, the greater the amount by which noise exceeds the **zone noise standard**, the greater the **environmental harm** caused. The policy permits noise levels which exceed the **zone noise standard** by varying amounts, but requires a reduction in the total number of events held if noisier events are to be held. This balancing of factors is achieved through the event credits scheme outlined in 4.2, below.

No event may exceed 65 dB(A) at the **compliance location** through the use of event credits.

4.2. Number of Events Each Year

A maximum number of events which generate noise up to 5 dB(A) above the **zone noise standard** is specified for each facility or cluster of facilities. The number of such events is controlled by fixing the maximum number of event credits which can be used at each facility in this policy.

Events generating noise above the zone standard at the **compliance location** are permitted according to the following table:

Maximum noise permitted above zone noise standard at the compliance location	Number of event credits required to stage the event
2.5 dB(A)	0.5
5 dB(A)	1
7.5 dB(A)	1.5
10 dB(A)	2
12.5 dB(A)	2.5
15 dB(A)	3
17.5 dB(A)	3.5
20 dB(A)	4 *

The maximum permitted noise level which can be obtained using event credits is 65 dB(A). At facilities where the **compliance location** has a **zone noise standard** of 45 dB(A), up to 4 event credits can be used for any one event.

Events which are not monitored directly for noise shall be assigned the highest noise level experienced from previous monitoring of a comparable event.

The number of event credits allocated to each facility annually is calculated to enable existing levels of activity to continue. The annual number of event credits allocated to each facility is:

Fairbairn Park Cluster	27
Stromlo Forest (including the Pipeline)	7

4.3. Time at Which the Event Takes Place

Events may be held during the day, between 9 am and 5 pm, or in the evenings, between 5 pm and 10 pm. The number of event credits needed to hold an event within one of these periods is calculated as indicated in section 4.2 of this policy. Events which commence before 5 pm and finish after 5 pm will be treated as two events for the purpose of calculating event credits. Thus, an event which generated noise 10 dB(A) above the **zone noise standard** which commences at 1 pm and finishes at 10 pm will require four event credits. However, if the event does not exceed 5 hours in total then overlapping time periods will be treated as one time period. Thus an event which generates noise at 10 dB(A) above the zone noise standard and which commences at 4 pm and finishes at 8 pm will require only two event credits.

An additional restriction applies to the Fairbairn Park cluster. Events held at facilities in the cluster may only be held during the day, i.e. between 9 am and 5 pm. This restriction continues the arrangements currently in place for these facilities.

4.4. Spread of Events During the Year

Authorisations will contain the following limits to ensure a reasonable spread of events at a facility:

- events may not be held on any more than two weekends in any month;
- events may not be held on any more than two consecutive weekends; and
- events may not be held on any more than 2 consecutive days.

Fairbairn Park Cluster authorisation holders are encouraged to plan events for the same day to minimise the number of events in a calendar year. Authorisation holders may share the use of event credits where events coincide.

3.1 RESULTING NOISE LEVEL CRITERIA

The proposed speedway is located within an area with various zones. The suitable acoustic criterion for the project is therefore based on the relevant criteria for land including residential receivers which are detailed below.

1. Australian Capital Territory Environmental Protection Regulation 2005, Schedule 2 for ACT Zoning.

Table 1 - External Noise Level Criteria Environmental Noise Emissions

Noise Zone	Zone Noise Standard dB(A) L ₁₀			
	Mon – Sat 7am – 10pm	Mon – Sat 10pm – 7am	Sun and Public holidays 8am – 10pm	Sun and Public holidays 10pm – 8am
Zone G (Which includes residential areas)	45	35	45	35

Based on the noise zone standards detailed in the table above the noise level criteria for the use of the speedway will be the following:

Table 2 – Resulting Noise Level Criteria

Number of Event Credits	Time of Day	Background Noise Based on Zone Noise Criteria	Resulting Noise Level Criteria
1	Day Time	45	50
2	Day Time	45	55
3	Day Time	45	60
4	Day Time	45	65

Based on the table above it would be assumed that the speedway would be required to apply and acquire event credits from the relevant ACT body.

4 NOISE SOURCES

The expected noise source of the speedway can be predicted on a number of sources including the following:

1. Acoustic Logic Consultancy measured noise levels – ALC has previously measured motorbike noise levels of a Motor Cross race. The measured noise levels at the Motor Cross event was 125 dB(A) SWL.
2. Motorcycling Australia Noise testing standards – the maximum noise level of 112 dB(A) @ 2m with the 4 dB(A) allowance.

5 PREDICTED NOISE LEVELS

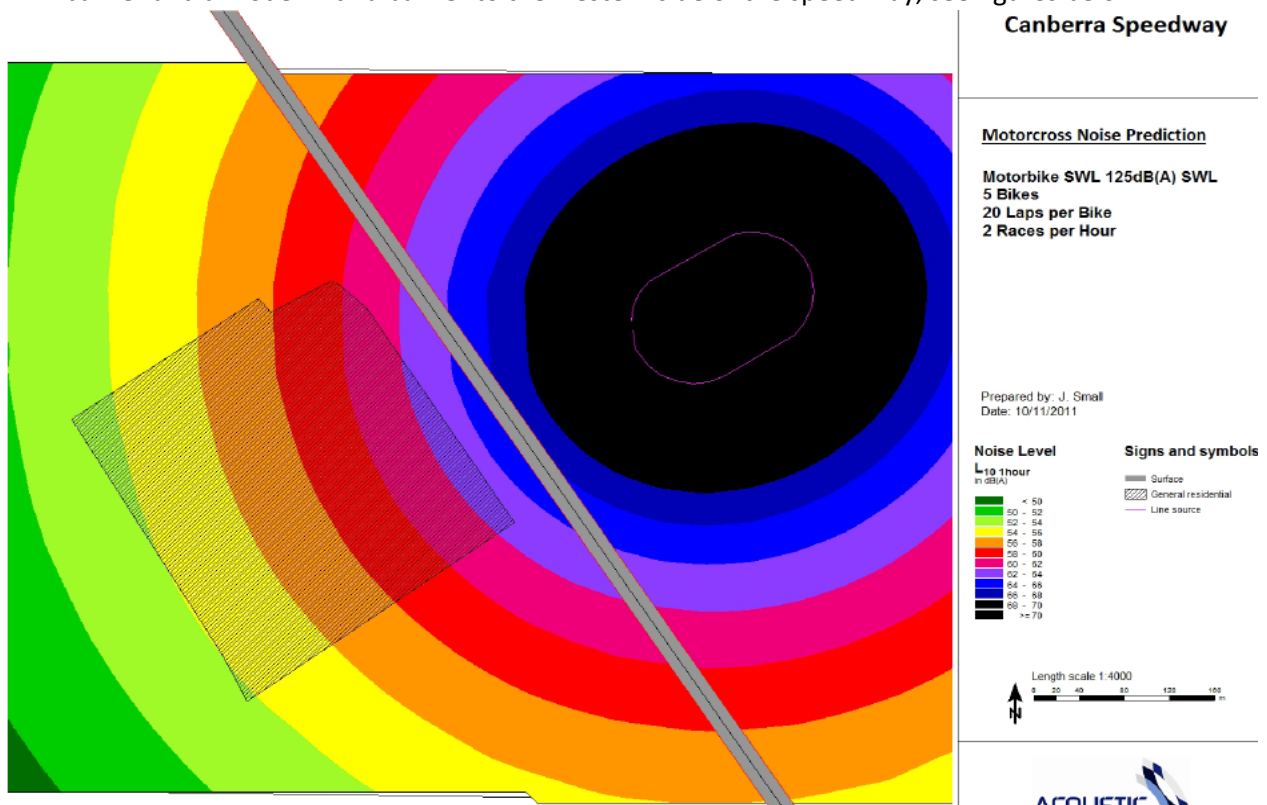
Based on the conditions detailed above and the assumption that the speedway would be able to apply and be granted the suitable noise event credits from the relevant ACT body and that 4 credits would be used for each event, such that the noise level criteria at the adjacent tourist park would be 65dB(A).

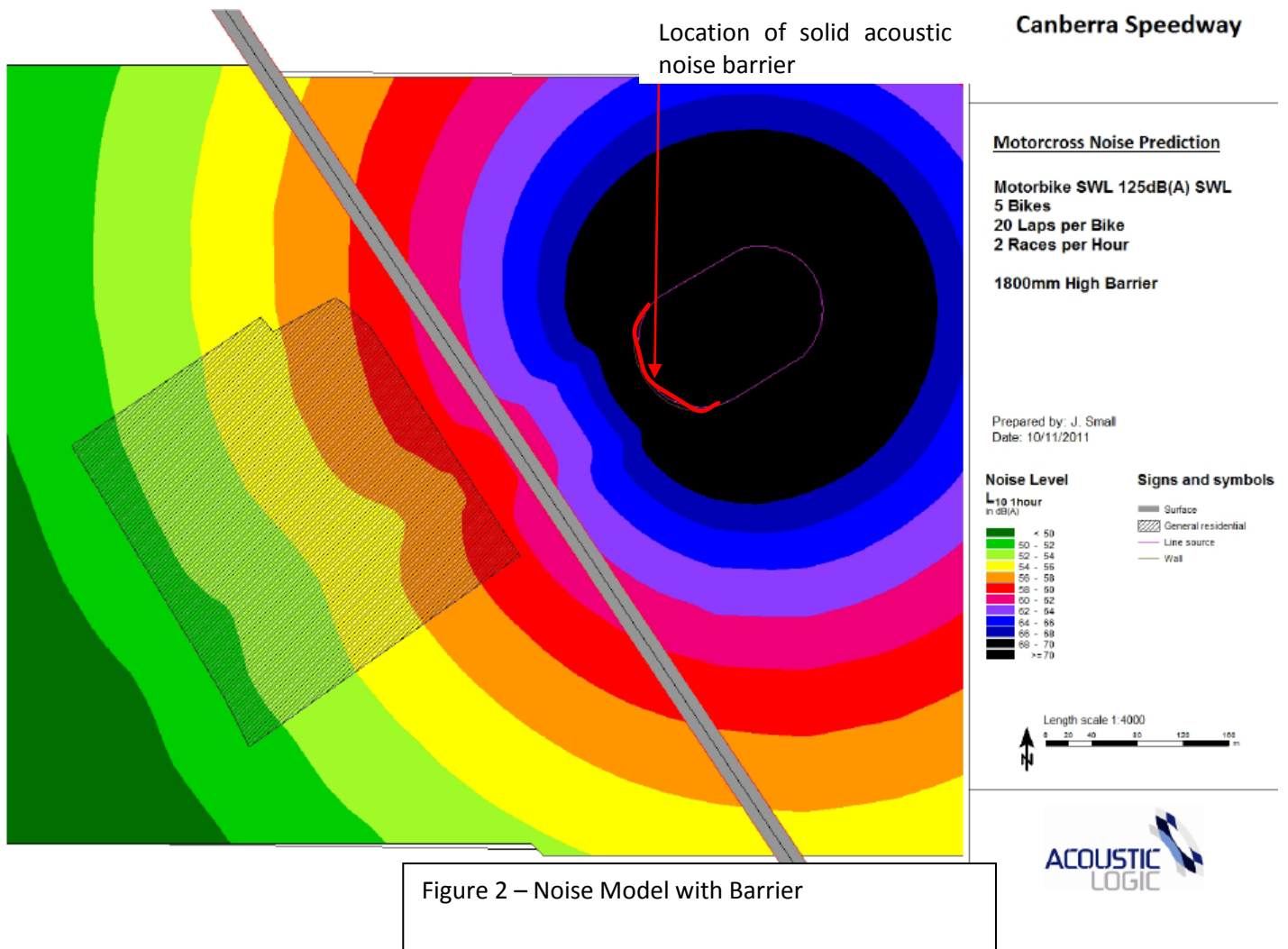
Noise level predictions in this section of the report are based on speedway racing being conducted on the site, which includes upto 5 bikes on track at any one time with races typically being approximately 2 minutes in length with upto 15 races in any given hour.

The speedway events would also be required to operate during the detailed daytime noise levels of:

- Monday to Saturday - 7am – 10pm
- Sunday and Public holidays- 8am – 10pm

As part of this assessment a desktop model was undertaken which would provide the typically expected L_{10} dB(A) noise levels at surrounding receivers. The inputs included a model without any barrier and a model with a barrier to the western side of the speed way, see figures below.





Based on the results of the above sound models the expected noise levels at the potentially affected residential receiver will be approximately;

1. Without barrier – 66 dB(A) L₁₀
2. With Barrier – 59 dB(A) L₁₀

It is our recommendation that a solid noise barrier should be installed to the western end of the track to provide protection to the residential residence to the east of the speedway.

It is noted that the resulting noise levels of 59 – 66 dB(A) L₁₀ will be audible at the surrounding receivers and complaints may be possible. In the event the speedway is to go ahead the relevant approvals and the suitable noise event credits from the relevant ACT body would be required to be obtained.

6 CONCLUSION

This report presents the results of the preliminary acoustic investigation into the Canberra Bulls Speedway project.

The review investigates the suitable acoustic criteria for which noise from the operation of the future speedway should be assessed and the potential compliance with the noise level criteria in the event the speedway is to be located on the Symonston Site.

The preliminary review has revealed that technically the acoustic criteria within this report would be achievable.

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,

A handwritten signature in black ink that reads "B.G. White." The signature is written in a cursive, slightly slanted style.

Acoustic Logic Consultancy Pty Ltd
Ben White