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# Noise Management Plan

**Albany Motorcycle Club  
Proposed Motocross Venue  
Chester Pass Road**

**Reference: 13072454-01**



**Prepared for:**  
City of Albany



Member Firm of Association of Australian Acoustical  
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## Table of Contents

1	INTRODUCTION	1
2	NOISE PREDICTION METHODOLOGY	2
2.1	Site Measurements	2
2.2	Noise Modelling	2
2.2.1	Meteorological Information	3
2.2.2	Topographical Data	4
2.2.3	Ground Absorption	4
2.2.4	Source Sound Levels	4
3	NOISE MODELLING RESULTS	5
4	DISCUSSION	11
5	NOISE MANAGEMENT MEASURES	11
5.1	Noise Testing of Motorcycles	11
5.2	Operating Times	12
5.2.1	Events	12
5.2.2	Training Days	12
5.3	Notification of Events and Operating Times	12
5.4	Complaint Response	13
5.5	Responsibilities	13

## List of Tables

Table 2-1	Modelling Meteorological Conditions	3
Table 2-2	Source Sound Power Levels, dB(A)	4

## List of Figures

Figure 1-1	Location of the Proposed Motocross Track	1
Figure 1-2	Proposed Track Layout	2
Figure 2-1	Dominant Wind Direction during the Winter Months at Albany Airport	4
Figure 2-2	Ground Contour Map	5
Figures 3-1 to 3-4	Predicted Noise Levels	7 to 10

## Appendices

A	Details of Track Usage Plan
B	Terminology

# 1 INTRODUCTION

The Albany Motorcycle Club is proposing to relocate its motocross track to Chester Pass Road, just north of the South Coast Highway. The location of the Motocross track is shown in *Figure 1-1* and the proposed track layout is shown in *Figure 1-2*.

This Noise Management Plan (NMP) has been prepared to ensure that any noise impacts to neighbouring properties are minimised as far as practicable. The plan includes predicted noise levels during racing and provides details of the Club's commitments in managing the noise emissions.

*Appendix B* contains a description of some of the terminology used throughout this report.



*Figure 1-1* Location of the Proposed Motocross Track





Figure 1-2 Proposed Track Layout

## 2 NOISE PREDICTION METHODOLOGY

### 2.1 Site Measurements

Noise resulting from a typical motocross race was measured on 2 August 2009, at the previous Albany Motorcycle Club on Roberts Road, Albany. The results of these measurements have been used as a basis for the noise modelling and are considered typical for motocross racing. Further verification show these results correlate well with the German national database of noise emissions.

### 2.2 Noise Modelling

Computer modelling has been used to support the hand held measurements. The advantage of modelling is that it is not affected by background noise sources and can provide the noise level for various weather conditions. It can also evaluate the effect of noise bunds and other noise amelioration methods.

The software used to predict the noise was SoundPLAN 7.2 together with the CONCAWE algorithms. These algorithms have been selected as they include the influence of wind and atmospheric stability. Input data required in the model are:

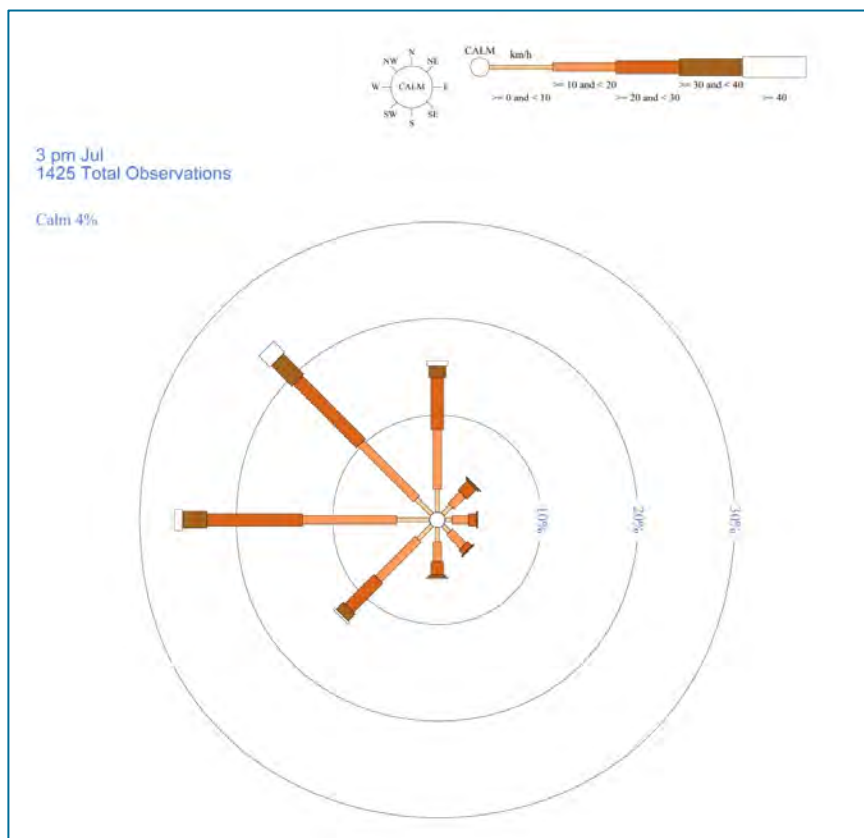
- ❑ Meteorological Information;
- ❑ Topographical data;
- ❑ Ground Absorption; and
- ❑ Source sound power levels.

### 2.2.1 Meteorological Information

Meteorological information utilised is based on that specified in the *EPA draft Guidance for the Assessment of Environmental Factors No.8 Environmental Noise*. These conditions approximate the typical worst-case for enhancement of sound propagation. For this assessment we have assessed the noise for the wind in all directions and for the wind coming from the west, which is the dominant direction for the winter months. The meteorological conditions used in the modelling are provided in *Table 2.1* and the dominant wind directions during the racing season (Bureau of Meteorology - Albany Airport) is shown in *Figure 2.1*. It should be noted that at wind speeds greater than those shown in *Table 2.1*, sound propagation may be further enhanced, however background noise from the wind itself and from local vegetation is likely to be elevated and dominate the ambient noise levels.

**Table 2-1 Modelling Meteorological Conditions**

Parameter	Day (0700-1900)
Temperature (°C)	20
Humidity (%)	50
Wind Speed (m/s)	4
Wind Direction*	All & NW
Pasquil Stability Factor	E



**Figure 2-1 Dominant Wind Direction during the Winter Months at Albany Airport**

Courtesy of Bureau of Meteorology

**2.2.2 Topographical Data**

Ground contour data was provided by the City of Albany. The contours were in 5 metre intervals and are shown in *Figure 2-2*.

**2.2.3 Ground Absorption**

Ground absorption varies from a value of 0 to 1, with 0 being for an acoustically reflective ground (e.g. water or bitumen) and 1 for acoustically absorbent ground (e.g. grass, trees). As this area is predominantly rural, a value of 1.0 has been used for the study area.

**2.2.4 Source Sound Levels**

Table 3.2 shows the sound power levels used in the modelling. As described previously, this data was obtained from measurements undertaken at the previous Albany Motorcycle Club track on Roberts Road, Albany.

**Table 2-2 Source Sound Power Levels, dB(A)**

Description	One-third Octave Band Frequency (Hz, dBA)								Overall
	63	125	250	500	1k	2k	4k	8k	
Motorcross Race (Senior Division)	75	97	105	117	117	121	117	104	128
	82	102	113	116	118	120	114	100	
	91	100	117	114	119	120	109	97	
Motorcross Race (Junior Division)	72	81	87	105	104	105	103	94	114
	75	81	92	102	103	104	100	91	
	78	87	99	100	103	105	98	90	





Figure 2-2 Ground Contour Map

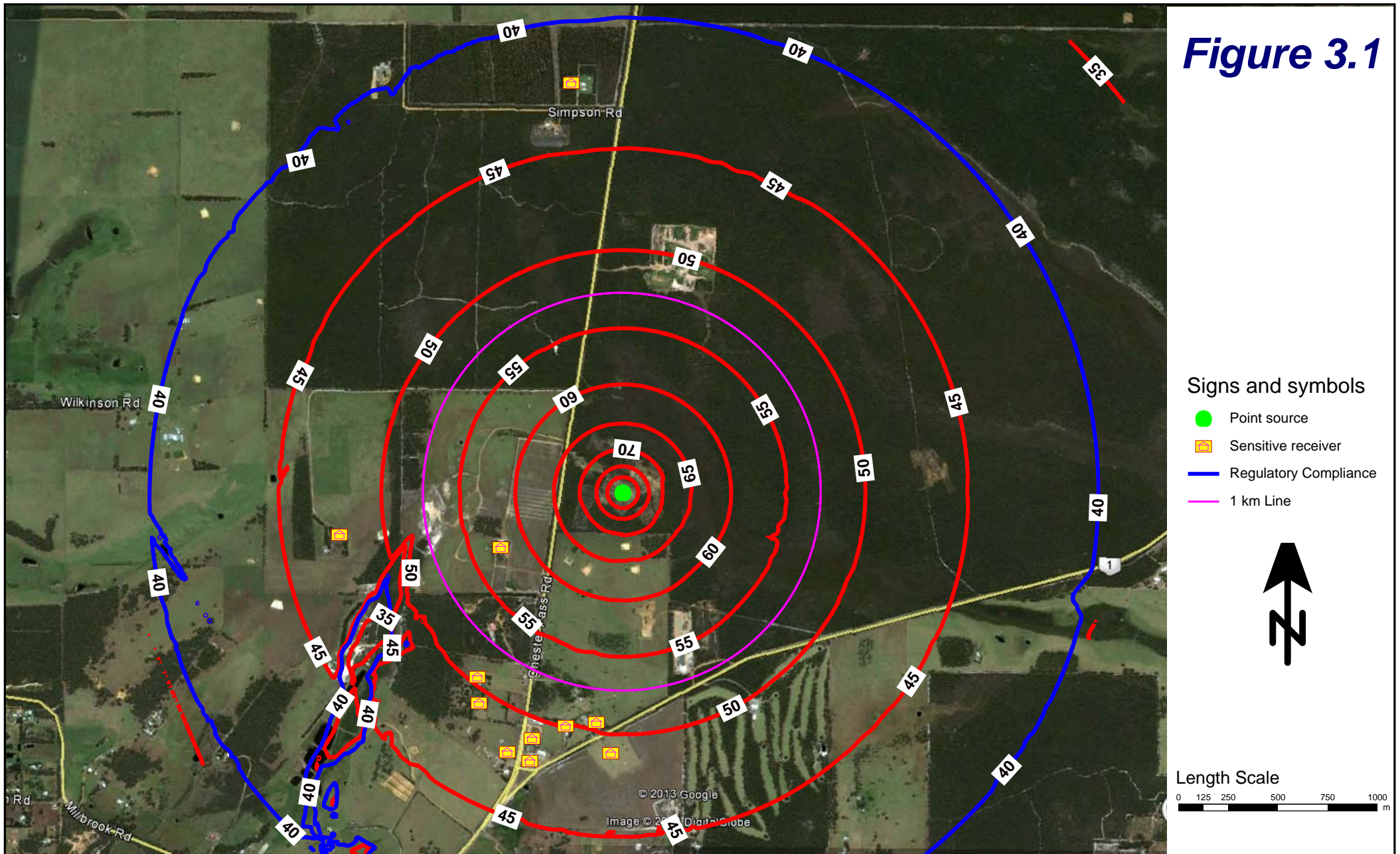


### 3 NOISE MODELLING RESULTS

The results of the noise modelling, together with the location of the nearest noise sensitive premises, are provided in *Figures 3.1 to 3.4*. The figures show the following scenarios:

- *Figure 3.1*      *Noise from a Senior Division Race with Wind from All Directions;*
- *Figure 3.2*      *Noise from a Junior Division Race with Wind from All Directions;*
- *Figure 3.3*      *Noise from a Senior Division Race with Wind from the West; and*
- *Figure 3.4*      *Noise from a Junior Division Race with Wind from the West.*

**Figure 3.1**



**Signs and symbols**

- Point source
- Sensitive receiver
- Regulatory Compliance
- 1 km Line



**Length Scale**



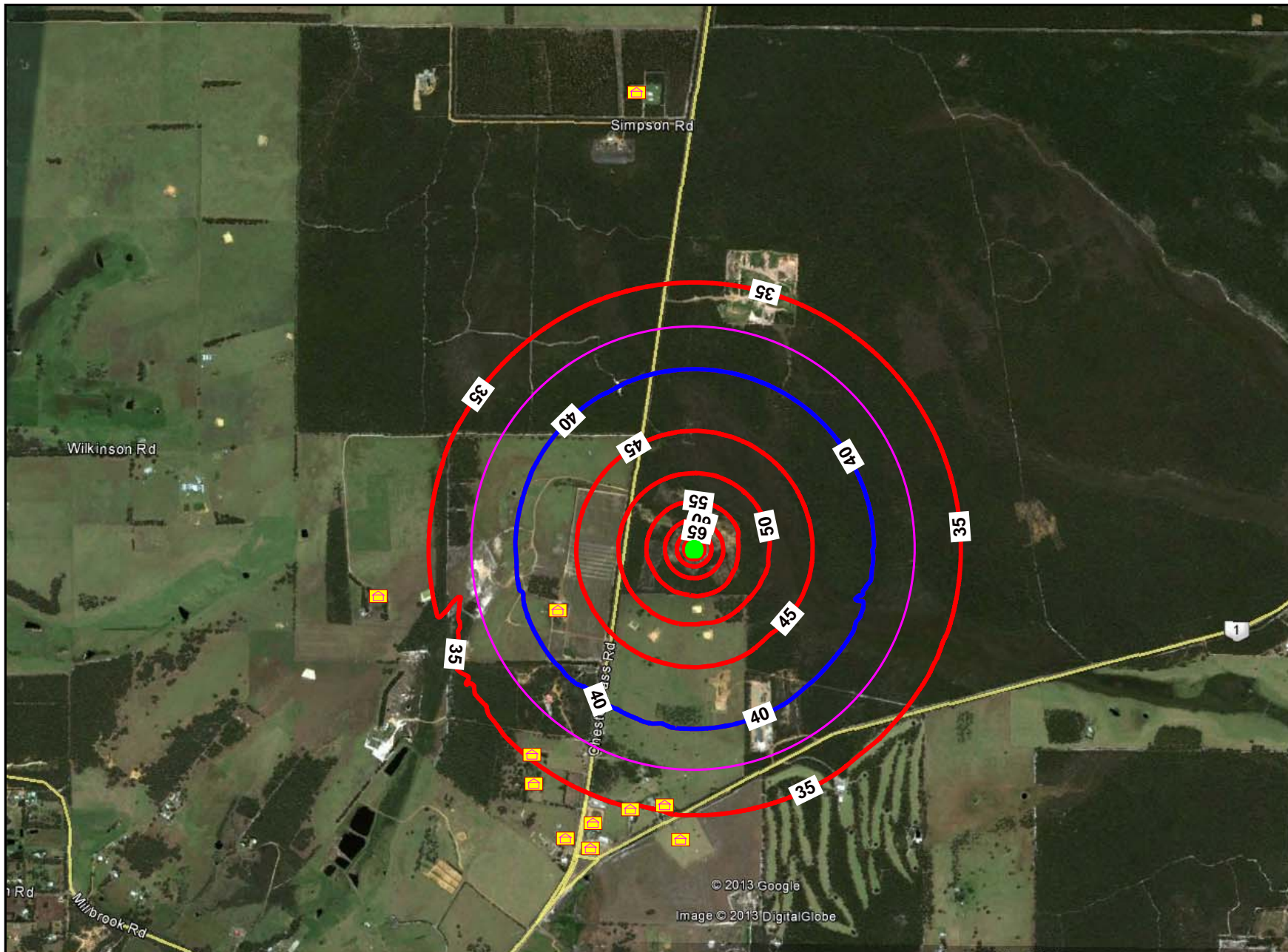
Proposed Albany Motorcross Track - Assumes Seniors Motorcross Racing  
 Predicted  $L_{A10}$  Noise Levels - Wind From All Directions



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# Figure 3.2



### Signs and symbols

- Point source
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- Regulatory Compliance
- 1 km Line



### Length Scale



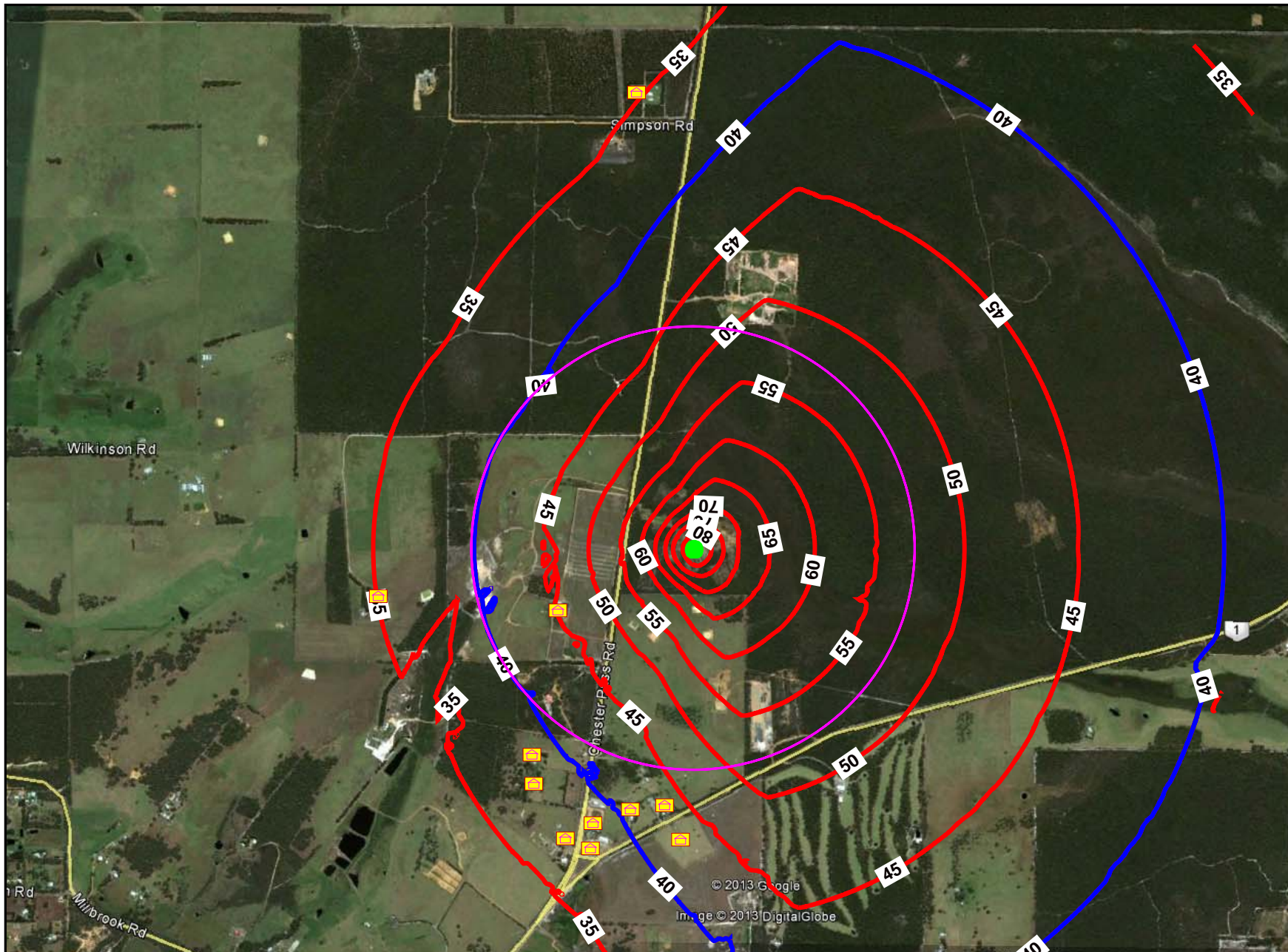
Proposed Albany Motorcross Track - Assumes Juniors Motorcross Racing  
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# Figure 3.3



### Signs and symbols

- Point source
- Sensitive receiver
- Regulatory Compliance
- 1 km Line



### Length Scale



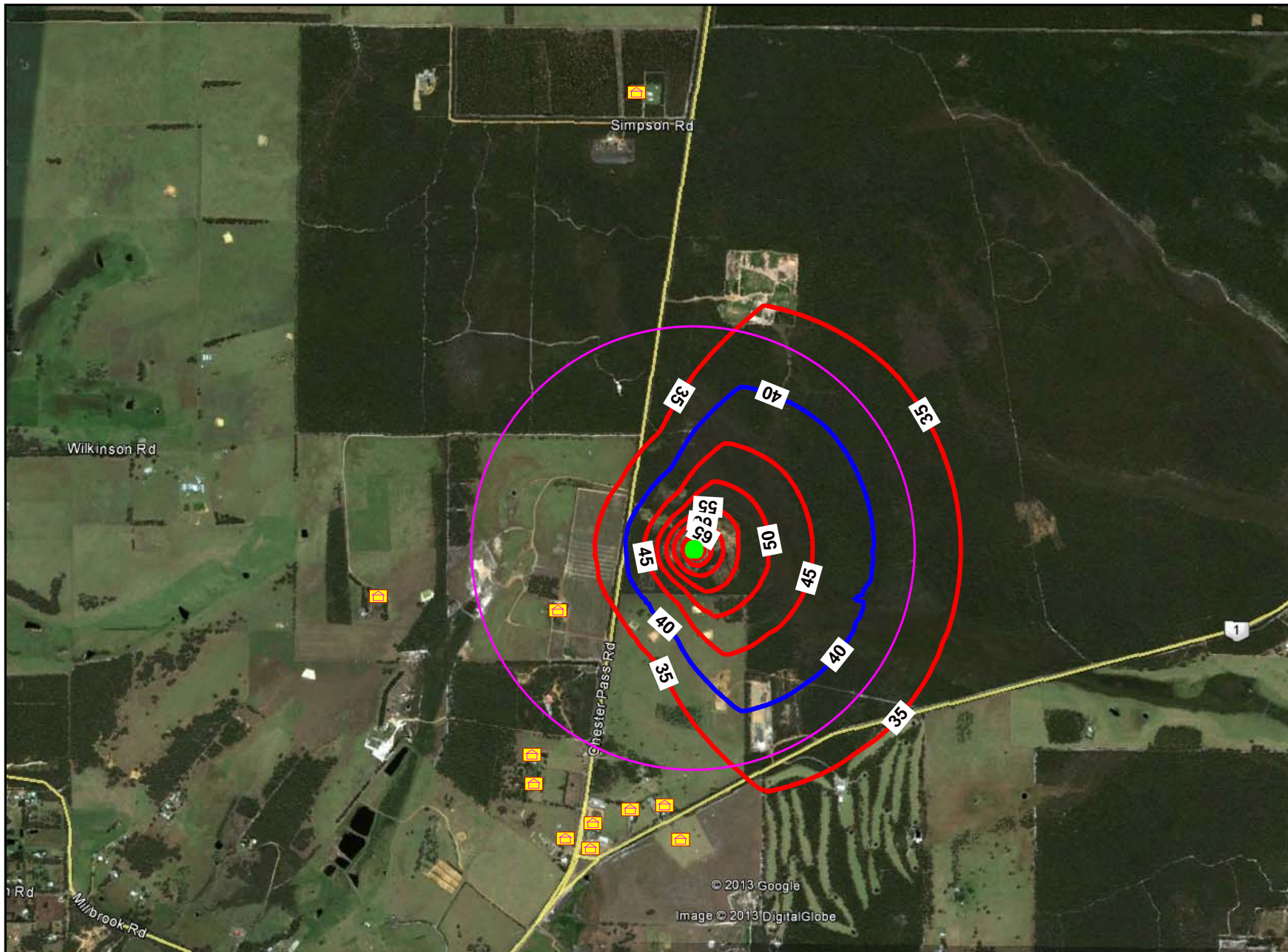
Proposed Albany Motorcross Track - Assumes Seniors Motorcross Racing  
Predicted  $L_{A10}$  Noise Levels - Wind from the Predominant Direction (Westerly)



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# Figure 3.4



### Signs and symbols

- Point source
- Sensitive receiver
- Regulatory Compliance
- 1 km Line



### Length Scale



Proposed Albany Motorcross Track - Assumes Juniors Motorcross Racing  
Predicted  $L_{A10}$  Noise Levels - Wind from the Predominant Direction (Westerly)



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## 4 DISCUSSION

From *Figures 3.1 to 3.4*, it can be seen that the noise from the Albany Motorcycle Club Motocross track is predicted to be approximately  $L_{A10}$  58 dB at the closest receiver, being a caretaker's residence. This noise level would also be audible at nearby residential premises and exceeds the assigned levels under Regulation 7 of the *Environmental Protection (Noise) Regulations 1997 (Amended 2014 [the Regulations])*, during worst-case winds (from the track towards the receiver).

It is widely recognised that noise from motorsport venues results in an impact over a large area and compliance with the Regulations is often problematic. It is also recognised that motor racing venues are a community benefit. To achieve a balance between impact and benefit, Regulation 16A of the Regulations allows certain motorsport venues to be exempt from the assigned levels, provided that the Local Authority CEO has approved a noise management plan and that the motor sport is being conducted in accordance with that regulation.

Detailed below are the noise control measures developed by the Albany Motorcycle Club that should address the requirements of such a management plan.

## 5 NOISE MANAGEMENT MEASURES

To minimise the impact of noise, the following management measures will be enforced by the Albany Motorcycle Club at all racing (club and state races), training, practice sessions, exhibitions and special events.

Generally, the most effective noise management techniques for motocross venues are:

- Ensure noise emissions for motorcycles are within best practice guidelines;
- Limit the use of the track to prescribed times only;
- Ensuring PA systems are designed to minimise impacts to sensitive receivers; and
- Undertake community consultation and provide a complaints management system.

The Club will provide all Club members with a written instruction explaining the noise issues, the member's responsibility to maintain the NMP requirements and penalties that apply for breaches of these requirements.

### 5.1 Noise Testing of Motorcycles

All motorcycles using the track will be tested to ensure that they comply with Motorcycling Australia and FIM (Federation of International Motocross) Guidelines on noise output. The club has a sound level meter for this purpose and a number of club members are accredited Noise Control Officers.

Testing will also be carried out randomly or on motorcycles suspected of exceeding the Guidelines. Any motorcycles failing the test will not be permitted to race until they conform to the Guidelines. A record of non-complying racing vehicles will be kept for a period of 2 years.

The record will include:

- Details of the racing vehicle;
- The racing vehicle's owner
- Date and time that non-compliance was determined;
- The action taken by the owner following the request to cease racing; and
- The action taken by the owner to remedy the excessive noise emissions.

If requested by the CEO, these records are to be made available within 21 days.

## **5.2 Operating Times**

The track will only be open at prescribed times. When the track is closed, it will be securely locked and riding will be strictly prohibited. The track may be opened for maintenance purposes, however riding will be prohibited during this time.

On race or practice days, access to the site will be via a controlled key entry system. Riders (as directed by Motorcycling WA) may only enter the track with an official present. The ration will be kept at one (1) official per five (5) riders. All practice activity is recorded with riders and officials details entered into a log book. The officials present for practice will ensure that curfew times are adhered to.

The Albany Motorcycle Club has a five-year plan in place that incorporate State Title Event and Open Events.

### **5.2.1 Events**

Apart from two special events to be held on Sunday, all racing will be held on Saturday. Race days start after 8.30 am and conclude by 5.00 pm.

### **5.2.2 Training Days**

From 1 March to 31 November, training will occur on three days per week between 12.00 pm and 6.30 pm (curfew time will be drastically reduced in mid winter due to daylight).

From 1 December of one year to 28 February the following year, training will occur on two days per week between 12.00 pm and 6.30 pm.

The Albany Motorcycle Club commits to supplying our neighbours with a copy of our race calendar at the beginning of our season. The club will also inform neighbours of any changes to the calendar that may occur during the year.

## **5.3 Notification of Events and Operating Times**

The Albany Motorcycle Club will provide information on race dates and operating times to all affected residents. Should any unexpected changes to the calendar occur, the revised times will be conveyed to all affected residents at least one week before the event where practicable.

Event details will be published in the local newspaper one week before the event day. The club will liaise with the newspapers for editorial prior to the event for publicity and general information purposes. Information of events will be placed on the clubs web site as well as social media. In addition, any notifications for events will be hand delivered to any noise sensitive premises within 1km of the venue.

#### **5.4 Complaint Response**

The Albany Motorcycle Club wishes to maintain a good relationship with their neighbours and will ensure that systems are in place to address any concerns our neighbours have.

The Albany Motorcycle Club will provide all affected residents with a complaints number. All complaints will be answered as soon as possible and no later than 48 hours after the complaint was received. The reason for the complaint will be investigated and any remedial action will be conveyed to the complainant.

A log of any complaints will be kept on record and will be presented to the City of Albany upon request.

#### **5.5 Responsibilities**

The track will be designed to maximise distances from noise sensitive premises.

Club Committee:	Appointment of Club Secretary Appointment of Track Manager; Appointment of Race Stewards; Development of program for scheduled race and practice meetings.
Club Secretary:	Neighbour liaison; Complaints Handling.
Track Manager:	Rostering of Officials for race and practice days; Enforcement of racing and curfew times; Control of public address system.
Club Steward:	Scrutiny of racing vehicles.



**Appendix A**

## **Details of Track Usage Plan**

Albany Motorcycle Club is involved in the Southwest Interclub Championships, this is a ten round event with clubs throughout the southwest and great southern hosting two rounds each per year. We call these events Interclub's.

Generally AMCC hold two Interclubs', five to eight Club Days, and two to three Organised Practice days per year. Depending on the room available in the State Race Calendar. As we cannot run race events when a State Title Round is on, we will either not race or hold a practice day. Coaching days are usually only held once a year, these can be held on either a Saturday or Sunday early in the season as all junior riders must complete five hours of coaching before they can enter a race event.

Each year all clubs in WA are able to apply to host a Junior and Senior State Round, (WAMX Championships) there are six round of each held throughout WA, generally clubs will only be allocated either a Junior or a Senior round. Sometimes clubs are able to hold one of each, although usually only those clubs that are close to Perth. AMCC will apply to host a junior or senior event in 2013. AMCC hope to be able to host one of these events every two years.

Each year clubs in WA can hold Open Events, AMCC plans to host its first open event in 2013.

AMCC will also endeavour to host a round of the VMX (vintage motocross) each year as a fundraiser for the club.

A 'Special Interclub' is a stand alone event, and open to invited clubs only. AMCC also have this event in their five year plan.

This number of events will not be held every year, this is only a guide to what the club wishes to do over the next five years. The average event number would be around eight to twelve.

The club will work with Albany City Kart Club to hold at least two of our weekday training days on the same days. Saturdays will be open for training from 12pm to 5pm. No more that three days per week for training. Please note that when a race day is to be held on a Sunday the track will be closed for Prep Work on Saturday. Racing is not held every weekend, the club try not to book races for two weekends in a row, but unfortunately this sometimes happens, it is also possible that no racing will be held for three or four weekends. All this depends on the WA State Calendar, and the South West Calendar.

**Appendix B**

## **Terminology**

The following is an explanation of the terminology used throughout this report.

### *Decibel (dB)*

The decibel is the unit that describes the sound pressure and sound power levels of a noise source. It is a logarithmic scale referenced to the threshold of hearing.

### *A-Weighting*

An A-weighted noise level has been filtered in such a way as to represent the way in which the human ear perceives sound. This weighting reflects the fact that the human ear is not as sensitive to lower frequencies as it is to higher frequencies. An A-weighted sound level is described as  $L_A$  dB.

### *Sound Power Level ( $L_w$ )*

Under normal conditions, a given sound source will radiate the same amount of energy, irrespective of its surroundings, being the sound power level. This is similar to a 1kW electric heater always radiating 1kW of heat. The sound power level of a noise source cannot be directly measured using a sound level meter but is calculated based on measured sound pressure levels at known distances. Noise modelling incorporates source sound power levels as part of the input data.

### *Sound Pressure Level ( $L_p$ )*

The sound pressure level of a noise source is dependent upon its surroundings, being influenced by distance, ground absorption, topography, meteorological conditions etc and is what the human ear actually hears. Using the electric heater analogy above, the heat will vary depending upon where the heater is located, just as the sound pressure level will vary depending on the surroundings. Noise modelling predicts the sound pressure level from the sound power levels taking into account ground absorption, barrier effects, distance etc.

### $L_{ASlow}$

This is the noise level in decibels, obtained using the A frequency weighting and the S time weighting as specified in AS1259.1-1990. Unless assessing modulation, all measurements use the slow time weighting characteristic.

### $L_{AFast}$

This is the noise level in decibels, obtained using the A frequency weighting and the F time weighting as specified in AS1259.1-1990. This is used when assessing the presence of modulation only.

### $L_{APeak}$

This is the maximum reading in decibels using the A frequency weighting and P time weighting AS1259.1-1990.

### $L_{Amax}$

An  $L_{Amax}$  level is the maximum A-weighted noise level during a particular measurement.



$L_{A1}$

An  $L_{A1}$  level is the A-weighted noise level which is exceeded for one percent of the measurement period and is considered to represent the average of the maximum noise levels measured.

$L_{A10}$

An  $L_{A10}$  level is the A-weighted noise level which is exceeded for 10 percent of the measurement period and is considered to represent the “intrusive” noise level.

$L_{Aeq}$

The equivalent steady state A-weighted sound level (“equal energy”) in decibels which, in a specified time period, contains the same acoustic energy as the time-varying level during the same period. It is considered to represent the “average” noise level.

$L_{A90}$

An  $L_{A90}$  level is the A-weighted noise level which is exceeded for 90 percent of the measurement period and is considered to represent the “background” noise level.

#### *One-Third-Octave Band*

Means a band of frequencies spanning one-third of an octave and having a centre frequency between 25 Hz and 20 000 Hz inclusive.

$L_{Amax}$  assigned level

Means an assigned level which, measured as a  $L_{A\text{Slow}}$  value, is not to be exceeded at any time.

$L_{A1}$  assigned level

Means an assigned level which, measured as a  $L_{A\text{Slow}}$  value, is not to be exceeded for more than 1% of the representative assessment period.

$L_{A10}$  assigned level

Means an assigned level which, measured as a  $L_{A\text{Slow}}$  value, is not to be exceeded for more than 10% of the representative assessment period.

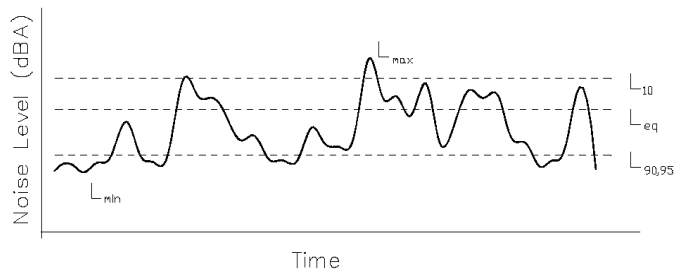
#### *Background Noise*

Background noise or residual noise is the noise level from sources other than the source of concern. When measuring environmental noise, residual sound is often a problem. One reason is that regulations often require that the noise from different types of sources be dealt with separately. This separation, e.g. of traffic noise from industrial noise, is often difficult to accomplish in practice. Another reason is that the measurements are normally carried out outdoors. Wind-induced noise, directly on the microphone and indirectly on trees, buildings, etc., may also affect the result. The character of these noise sources can make it difficult or even impossible to carry out any corrections.

#### *Ambient Noise*

Means the level of noise from all sources, including background noise from near and far and the source of interest.

## Chart of Noise Level Descriptors



## Typical Noise Levels

