



Suite 627, 59 Junction St, Nowra, NSW 2541 & Suite 673, 87 Bayliss St, Wagga Wagga, NSW 2650

P: 4421 4583  
M: 0414 315 775

matthew@harwoodacoustics.com.au  
www.harwoodacoustics.com.au

ABN: 12 654 492 823

# Environmental Noise Assessment Western Wheelers Motorsport Park

*At:-*

West Wyalong Airfield  
13510 Newell Highway  
West Wyalong, NSW 2671

*Prepared for: -*

Western Wheelers Club  
C/- Bland Shire Council  
PO Box 21  
West Wyalong NSW 2641

Attention: Mr Ray Graham

Reference: 2312009E-R

*Prepared by: -*

Matthew Harwood MAAS

5<sup>th</sup> December, 2024



Environmental  
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# Document Control Page

| Revision | Author | Released By | Date       |
|----------|--------|-------------|------------|
| Draft    | MH     | MH          | 14/03/2024 |
| Final    | MH     | MH          | 05/12/2024 |

Bland Shire Council on behalf of Western Wheelers Car Club commissioned Harwood Acoustics Pty. Ltd. to carry out an Environmental Noise Assessment for a proposed Motorsport Facility to be constructed at 13510 Newell Highway, West Wyalong, NSW.

Accordingly, Harwood Acoustics Pty. Ltd. has prepared this report for the exclusive use of the Client identified on the title page. The report is prepared in accordance with the brief and scope of works agreed between the Client and Harwood Acoustics Pty. Ltd. and may not be suitable for use beyond that scope.

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## 1. INTRODUCTION AND SUMMARY

Bland Shire Council on behalf of Western Wheelers Car Club commissioned Harwood Acoustics Pty. Ltd. to carry out an Environmental Noise Assessment for a proposed Motorsport Facility to be constructed at 13510 Newell Highway, West Wyalong, NSW (the Site).

The Site is located on the northern side of the Newell Highway at the West Wyalong Airfield on land zoned SP2 Infrastructure under Bland Shire Council's Local Environment Plan 2011 (LEP). To the south and west are large agricultural properties and to the north is the West Wyalong Golf Club. To the east and north east are residential properties and the West Wyalong CBD. The closest residences to the proposed Motorsport Facility are between 670 metres to the south and 1 kilometre to the east, a Location Plan is shown in Figure 1.

It is proposed to establish a Motorsport Facility (referred to henceforth as the Facility) at the Site comprising a 1/8 mile drag strip, club headquarters, storage shed and amenities. The track will be used primarily for 1/8<sup>th</sup> straight line sprints and will cater for all vehicle classes and include, for example, modified performance vehicles, hot rods and race cars. An events program will be developed to promote participation of competitors and spectators for events to be held during daylight hours, at least four (4) times per year.

It is a requirement of Bland Shire Council that an Environmental Noise Assessment is to be prepared to consider the potential for noise emission arising from the operation of the Facility to impact neighbouring properties and distant residential receptors.

In preparing this assessment with respect to determining noise impacts and how those noise impacts might be assessed and managed, consideration is given to the NSW Environment Protection Authority's (EPA) *Noise Guide for Local Government* 2013 (2013 NGLG). The 2013 NGLG provides a case study in Section 3.6 under the heading *Case Study 2: Noise from a motor sport facility*. The case study concerns a new motor sport development proposed to be established and provides methodology around preparing a noise assessment along with examples of possible noise mitigation measures. Among these is the preparation of an operational noise management plan and event schedule that seeks to balance noise level against noise exposure.

This approach seeks to achieve a balance between how loud racing events are likely to be and how often they may occur. An event ratio system is employed where the approved or allowable number of events at a particular noise level is reduced according to how loud any given event may be in relation to the background noise level. Using this approach Council has some control over the amount of noise nearby residents are exposed to.

The minimum applicable rating background noise level at the closest receptors in proximity of the site is 35 dBA (L<sub>90, 15 minute</sub>) in accordance with the NSW EPA's minimum rating background noise levels.

The case study provides an example that assumes a permissible number of 50 events per year at a noise level of background noise + 5 dB. Therefore, 50 events per year would be permissible if each event did not exceed 40 dBA (L<sub>eq, 15 minute</sub>) at any receptor location using the case study example.

The above approach to assessing and managing noise impacts from motorsport facilities was supported by the NSW Land and Environment Court in a judgment in July 2022 in relation to Wakefield Park Raceway near Goulburn, NSW. (BAC WMR Holdings Pty Ltd v Goulburn Mulwaree Council [2022] NSWLEC 1321). The commissioner stated that he gave considerable weight to the Event multiplier produced by the EPA in the NGLG and was satisfied that the respective experts agreed that the number of events for the calendar year should be 365.

This means that the number of permissible events at a noise level no greater than 40 dBA  $L_{eq, 15 \text{ minute}}$  at any receptor location is 365. The number of actual events to occur is then reduced in accordance with the event multiplier based on the noise levels produced during the noisiest events.

A noise model was developed using *SoundPLAN Essential* computer modelling software to predict noise levels at each receptor location. The inputs are derived from noise measurements undertaken by the author and Harwood Acoustics Pty. Ltd. staff of various motorsport activities and motor vehicles, including modified performance vehicles with modified and no exhaust systems as may be operated at the Facility.

Consideration was given to meteorological conditions are detailed in Section 4 and Appendix A of this report.

The typical highest level of noise emission at the closest receptor to the Facility during a racing event is predicted to be **60 dBA** ( $L_{eq, 15 \text{ minute}}$ ). This predicted noise level is 25 dB above the rating background noise level of 35 dBA ( $L_{90, 15 \text{ minute}}$ ). Using the *graph for determining event multiplication ratio from noise level* in the NGLG, this would result in an annual events ratio of 8.4. This ratio would result in a permitted number of 43 events per calendar year (from 365 / 8.4 = 43).

The Western Wheelers Car Club are anticipating a minimum of 4 events per year and it is unlikely that the number of events would ever reach 43, particularly at the noise levels predicted in this assessment. This approach however gives Council and the operators some flexibility in operating the Facility for other events outside of the drags on occasion, for example for vehicle testing, driving trainer, burn out competitions, etc.

Notwithstanding that the proposed number of events is significantly less than those permissible under the NGLG an operational noise management plan will be prepared and include provision and methodology for:-

- Local community liaison prior to the event,
- Possible noise monitoring during the event (to inform future events) and validate the noise model predictions and ensure that vehicles meet the racing association noise limits,
- Using periods of respite during the events.

## 2. SITE AND DEVELOPMENT DESCRIPTION

### 2.1 Site Description

The Site is located on the northern side of the Newell Highway at the West Wyalong Airfield on land zoned SP2 Infrastructure under Bland Shire Council's Local Environment Plan 2011 (LEP). To the south and west are large agricultural properties and to the north is the West Wyalong Golf Club. To the east and north east are residential properties and the West Wyalong CBD.

The nearest receptors to the Site are shown in Figure 1 and addresses are as follows:-

- |                                     |                                           |
|-------------------------------------|-------------------------------------------|
| R1 – 64 183 & 175 Boltes Lane       | R2 – Bellarwi Rd & Boltes Lane south east |
| R3 – Bellarwi Rd & Boltes Lane east | R4 – Bellarwi Rd & Boltes Lane north east |
| R5 – Airport Road                   | R6 – Chauvel St, Church St, Lady Mary Dr  |



**Figure 1. Location Plan – West Wyalong Airfield and Surrounds, West Wyalong, NSW**

(source: [www.earth.google.com.au](http://www.earth.google.com.au) ©)

#### Receptors

- R1 – represents the closest receptors to the south of the Site across Boltes Street,
- R2 – represents all receptors to the south east of the Site in Bellarwi Road and Boltes Lane and beyond,
- R3 - represents all receptors to the east of the Site in Bellarwi Road and Boltes Lane and beyond
- R4 - represents all receptors to the north east of the Site in Bellarwi Road, Boltes Lane and Showground Street and beyond,
- R5 - represents any receptors in Airport Road to the north, and
- R6 – represents all residences to the north east in and around the CBD of the township



## 2.2 Development Description

It is proposed to establish a Motorsport Facility (referred to henceforth as the Facility) at the Site comprising a 1/8 mile drag strip, club headquarters, storage shed and amenities. The track will be used primarily for 1/8<sup>th</sup> straight line sprints and will cater for all vehicle classes and include, for example, modified performance vehicles, hot rods and race cars. An events program will be developed to promote participation of competitors and spectators for events to be held during daylight hours, at least four (4) times per year.

A site plan showing the proposed location of the Facility is shown in Figure 2 below



**Figure 2. Site Plan – Showing Area o Proposed Motorsport Facility**

(source: Bland Shire Council)

## 3. NOISE CRITERIA

There are no specific noise criteria against which noise emission from motorsport facilities of this nature are to be assessed. The NSW Environment Protection Authority's (EPA) *Noise Policy for Industry* 2017 lists motorsport facilities as one of the noise sources specifically not covered by the Policy.

In preparing this assessment with respect to determining noise impacts and how those noise impacts might be managed, consideration is given to the NSW Environment Protection Authority's (EPA) *Noise Guide for Local Government* 2023 (NGLG) and 2013 (2013 NGLG).

The NGLG and 2013 NGLG provide case studies in relation to the assessment of proposed motorsport facilities, these are discussed in the following Sections.

### 3.1 NSW EPA's Noise Guide for Local Government 2023

The NSW EPA published the current version of the *Noise Guide for Local Government* in January 2023 (NGLG).

Section 2.13.4. of the NGLG provides a case study in which Council receives inquiries about a proposal to establish a motor racing facility, to host both drag racing and circuit racing, on a site outside a large country town. Council is the ARA for motor sport facilities on private land.

#### *How can Council Respond*

- *Council advises the proponent that any proposal for such a facility would require a noise assessment to evaluate the noise impact from the operation of the proposed development and identify mitigation measures to control those noise impacts. The noise assessment should include the following (non-exhaustive) considerations:*
  - *identify the sound power levels of the different types of racing vehicle proposed to be used*
  - *describe the number and type of events planned for the facility (e.g. drag racing, motocross, circuit racing, speedway or go-karts)*
  - *describe the number and location of racing cars on the circuit and in any pit or warm-up areas*
  - *provide the results of modelling to illustrate the potential noise impact of different racing vehicle numbers and types*
  - *assess potential weather effects on noise generation*
  - *assess noise impacts in the surrounding area*
  - *investigate noise mitigation strategies to reduce the noise impact.*
- *Specific mitigation options the proponent could investigate include the following.*
  - *On-site noise mitigation options:*
    - *Orienting the track to use existing topography to reduce noise at noise-sensitive receivers.*
    - *Locating the noisiest uses furthest from noise-sensitive receivers and orienting them to minimise noise.*
    - *Using earth mounds and other barriers.*
    - *Locating a noise monitoring device at a set distance from the track to detect overly noisy vehicles using the facility.*
  - *Noise source controls:*
    - *Using effective mufflers on racing vehicles and requiring all vehicles to meet Confederation of Australian Motor Sport noise specifications.*
    - *Implementing a program for testing racing vehicles to ensure they meet these*
    - *racing limits.*
  - *Operational noise controls:*
    - *Restricting the duration of events and practice sessions.*
    - *Interspersing races with respite periods on event days.*



- *Limiting the number and type of events and banning events on certain days.*
  - *If warranted, council might consider requiring the proponent to consider noise controls at receiver locations. These could include:*
    - *noise insulation for nearby houses.*
    - *encouraging the proponent to acquire affected property.*
- *Council could require the proponent develop a noise-management plan that would take effect during operation of the proposed facility and cover:*
  - *race-day mitigation strategies*
  - *noise monitoring*
  - *community liaison before and during the event*
  - *complaint-handling procedures, including a dedicated complaint telephone number*
  - *(potentially) an event schedule.*
- *An event schedule could be used to set out the maximum number of events of different types that a venue is permitted to host each year. Working to a notional total annual noise 'load', and identifying different types of motor sport events (e.g. super tourers, drag racing, motorcycles) each with a known noise level, the event schedule would limit the number of events of each type permitted at the venue each year to manage noise impacts. The expected loudness of the different types of motor sport event can be obtained from the relevant motor sport literature. The schedule would include curfew provisions that restrict events at the facility to specified days of the week and times of day.*
- *An event schedule is a practical way of balancing a proponent's need for certainty about the events that can be held at the new facility with the public's right to be protected from unreasonable exposure to noise. Any schedule prepared by the proponent could be submitted to council for approval and annual review.*
- *A factor that will influence the council's review of the event schedule submitted by the proponent is the known sensitivity of communities to a new source of noise (e.g. from a new sporting facility at a greenfield site) compared with noise from existing facilities at the same noise level. It is likely therefore that the consent will approve fewer events for this new facility than might have been approved for an existing facility of comparable size and proximity to residences.*

The recommendation of an 'event schedule' outlined in the last three bullet points above is in keeping with the case study provided in the 2013 NGLG detailed in Section 3.2 below.

It is also supported by the NSW Land and Environment Court in a judgment in July 2022 in relation to Wakefield Park Raceway near Goulburn, NSW as mentioned in the introduction of this Report. (BAC WMR Holdings Pty Ltd v Goulburn Mulwaree Council [2022] NSWLEC 1321). The commissioner stated that he gave considerable weight to the Event multiplier produced by the EPA in the NGLG and was satisfied that the respective experts agreed that the number of events for the calendar year should be 365.

### 3.2 NSW EPA's Noise Guide for Local Government 2013

Section 3.6 of the NSW EPA's NGLG *Case Study 2: Noise from a motor sport facility* concerns a new motor sport development proposed to be established and provides methodology around preparing a noise assessment along with examples of possible noise mitigation measures. Among these is the preparation of an operational noise management plan and event schedule that seeks to balance noise level against noise exposure.

This approach seeks to achieve a balance between how loud racing events are likely to be and how often they may occur. An event ratio system is employed where the approved or allowable number of events at a particular noise level is reduced according to how loud any given event may be in relation to existing background noise level. Using this approach Council has some control over the amount of noise nearby residents are exposed to.

The entire case study starts from the premise that Council is willing to permit fifty (50) events per year that do not exceed an energy average noise level of background noise level + 5 dB when assessed over a 15 minute period ( $L_{eq, 15 \text{ minute}}$ ). Background noise is required to be assessed in accordance with the NSW EPA's *Noise Policy for Industry* 2017 (NPfI) (formerly the *Industrial Noise Policy* 2000 as referred to in the NGLG at the time of publication).

#### 3.2.1 Rating Background Noise Levels

The background noise level is defined by the EPA as 'the underlying level of noise present in ambient noise when all unusual extraneous noise is removed' and is considered to be represented by the  $L_{A90, 15 \text{ minute}}$  descriptor. This is a statistical measure of the sound pressure level that is exceeded for 90 % of the time. The Rating Background Level is the single-figure background noise level derived from monitoring  $L_{A90, 15 \text{ minutes}}$  over a representative period of time. The Rating Background Level is established for the day, evening and night time periods and is used for assessment purposes.

The EPA provides minimum rating background noise levels in Table 2.1 of the NPfI and these are replicated in Table 1 below.

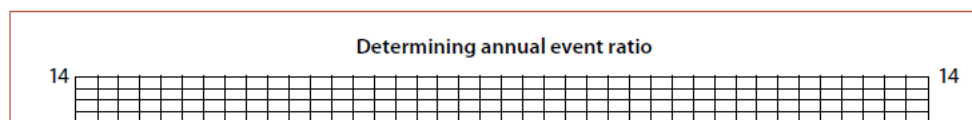
**Table 1 Minimum Assumed RBLs and Project Intrusiveness Noise Levels**  
(Derived from EPA Table 2.1)

| Time of Day             | Minimum Assumed<br>Rating Background Level<br>dBA | Minimum Project Intrusive<br>Noise Level<br>( $L_{eq, 15 \text{ minute}}$ , dBA) |
|-------------------------|---------------------------------------------------|----------------------------------------------------------------------------------|
| Day (7 am to 6 pm)      | 35                                                | 40                                                                               |
| Evening (6 pm to 10 pm) | 30                                                | 35                                                                               |
| Night (10 pm to 7 am)   | 30                                                | 35                                                                               |

#### 3.2.2 Event Multiplication Ratio

Figure 3 below shows the graph for determining event multiplication ratio from Case Study 2 in Section 3.6 of the NGLG.

**Figure 3.4: Graph for determining event multiplication ratio from noise level**



**Figure 3. Event Multiplication Ratio Graph**

(source: NSW EPA NGLG, Section 3.6 Case Study 2.)

#### 4. BACKGROUND NOISE LEVELS

In this instance a noise logger was temporarily installed near receptors R5 to measure background noise levels between Sunday 21 and Saturday 27 January 2024.

The measured background noise levels are shown in Table 1 below and instrumentation used during the noise survey is shown in Appendix B.

**Table 1 Rating Background Noise Levels – Airport Road, West Wyalong**

| Time of Day             | Rating Background Level<br>dBA (L <sub>90</sub> , 15 minute) | Existing Ambient Noise<br>Level<br>(L <sub>eq</sub> , 15 minute dBA) |
|-------------------------|--------------------------------------------------------------|----------------------------------------------------------------------|
| Day (7 am to 6 pm)      | 32                                                           | 42                                                                   |
| Evening (6 pm to 10 pm) | 34                                                           | 46                                                                   |
| Night (10 pm to 7 am)   | 29                                                           | 35                                                                   |

#### 5. DRAG RACING NOISE EMISSION

##### 5.1 Motor Vehicle Noise Levels

Events will comprise 1/8<sup>th</sup> mile sprints open to any class of vehicle, however the majority of vehicles, the noisiest, will include modified performance cars with modified exhaust systems and some without exhaust systems.

The author has carried out a number of assessments of performance racing vehicles over the past 20 years including noise measurements of burn out cars, race cars and modified sports and ‘muscle’ cars.

Examples include the following types of vehicles:-



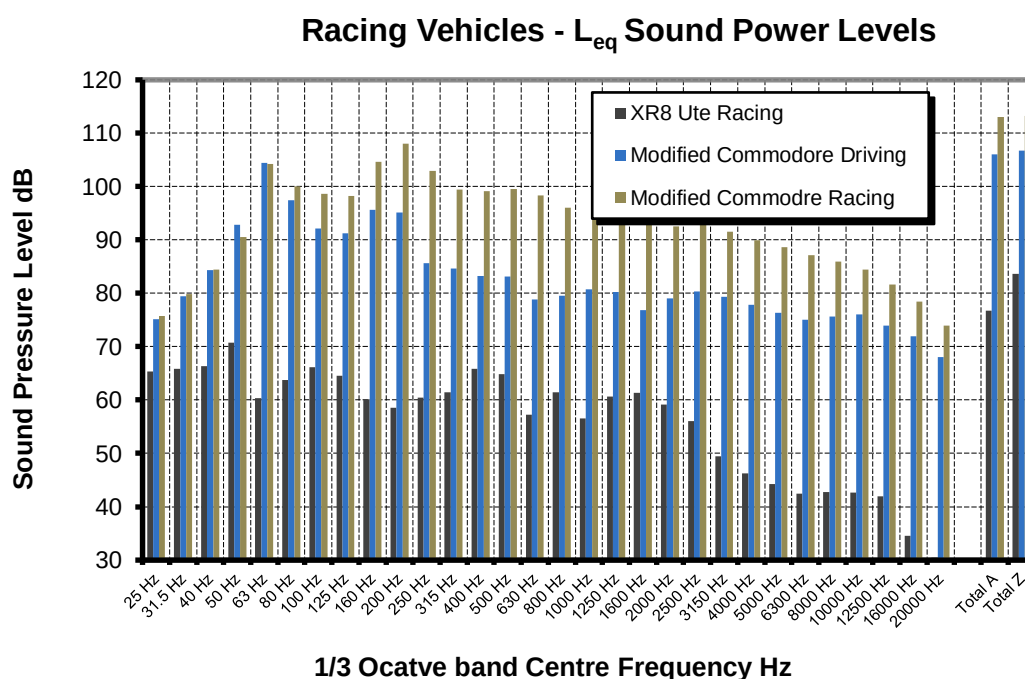
**Figure 4. Example Various Vehicle Types – Measured Noise Levels**

Measured noise levels of various motor vehicle types and activities were used to develop the schedule of sound power levels given in Tables 3 below.

**Table 3**  $L_{eq}$ , short term **Sound Power Level of Racing Cars**

| Description                   | Sound Power Level (dBA) |
|-------------------------------|-------------------------|
| V8 / Performance Race Cars    | 95 - 112                |
| Modified Drag / Burn Out cars | 112 – 129               |

Figure 5 below shows the overall A weighted and one-third octave band measured sound pressure levels of a variety of racing vehicle movements.



**Figure 5. Measured Sound Pressure Levels Various Vehicle Types**

## 5.2 Noise Level Predictions

### 5.2.1 Noise Modelling Details and Parameters

A noise model was prepared using *SoundPLAN Essential* noise prediction software *Version 5.1* as well as Harwood Acoustics Pty. Ltd. own computer software.

Table 3 below provides details on the specific parameters used to develop the noise model.

**Table 3 Computer Noise Model Parameters**

| Parameter                                              | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Derived $L_{eq, 15 \text{ minute}}$ sound power levels | <p>Derived sound power levels for the facility consider the following</p> <ul style="list-style-type: none"> <li>• Approximate 1/8<sup>th</sup> mile race duration 15 seconds- two cars at full sound power (129 dBA),</li> <li>• Three races in a 15 minute period,</li> <li>• Marshalling, warm up and manoeuvring of vehicles at sound power level of 112 dBA for two minutes per race,</li> <li>• Additional 4 vehicles in waiting area operating at 112 dBA sound power for two minutes each during same 15 minute period, <ul style="list-style-type: none"> <li>○ Resulting 116 dBA <math>L_{eq, 15 \text{ minute}}</math></li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Site and topography                                    | The topography of the site and surrounding area including ground contours is imported into the model.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Algorithm & Meteorological conditions                  | <p>Noise sources were modelled in accordance with the International Standard ISO 9613-2 (1996(E)) '<i>Acoustic – Attenuation of sound during propagation outdoors Part 2 General method of calculation</i>'.</p> <p>The method described in the Standard is general in the sense that it may be applied to a wide variety of noise sources, and covers the major mechanism of attenuation.</p> <ul style="list-style-type: none"> <li>• The method allows for downwind propagation conditions namely:-</li> <li>• wind direction within an angle of <math>\pm 45^\circ</math> of the direction connecting the centre of the dominant sound source and the centre of the specified receiver region with the wind blowing from source to receiver, and</li> <li>• wind speed between approximately 1 m/s and 5 m/s measured at a height of 3 m to 11 m above the ground*,</li> </ul> <p>The equations for calculating downwind sound pressure level, including the equations for attenuation, are the average for meteorological conditions within these limits.</p> <p>These equations also hold, equivalently, for average propagation under well-developed moderate ground-based temperature inversion, such as commonly occurs on clear, calm nights.</p> |

\* This algorithm considers noise-enhancing meteorological affects with respect to wind speed and direction in accordance with the NSW EPA's *Noise Policy for Industry* 2017, refer Appendix A.

### 5.2.2 Predicted Noise Levels

Table 4 below shows the highest predicted noise levels at each of the receptor locations.

**Table 4 Predicted  $L_{eq}$  Noise Levels – During Noisiest Drag Event**

| Description                                                                     | Predicted Noise Level $L_{eq, 15 \text{ minute}}$ (dBA) at Receptor Location |           |            |            |            |            |
|---------------------------------------------------------------------------------|------------------------------------------------------------------------------|-----------|------------|------------|------------|------------|
|                                                                                 | R1                                                                           | R2        | R3         | R4         | R5         | R6         |
| <b><math>L_{90, 15 \text{ minute}}</math> Background Noise Level – Day Time</b> | <b>35</b>                                                                    | <b>35</b> | <b>35</b>  | <b>35</b>  | <b>35</b>  | <b>35</b>  |
| Highest predicted Noise Level                                                   | 60                                                                           | 51        | 49         | 49         | 54         | 47         |
| Emergence above background noise level (dB)                                     | 25                                                                           | 16        | 14         | 14         | 19         | 12         |
| <b>Applicable event ratio <sup>1</sup></b>                                      | <b>8.4</b>                                                                   | <b>5</b>  | <b>4.4</b> | <b>4.4</b> | <b>3.6</b> | <b>6.4</b> |
| Allowable number of annual events at noise level <sup>2</sup>                   | 43                                                                           | 73        | 83         | 83         | 101        | 57         |
| Proposed number of events at this noise level                                   | 4 to 6                                                                       | 4 to 6    | 4 to 6     | 4 to 6     | 4 to 6     | 4 to 6     |
| Acceptable                                                                      | Yes                                                                          | Yes       | Yes        | Yes        | Yes        | Yes        |

Notes:-

1. Applicable event ratio is derived from Figure 3.4 of the NGLG (refer Figure 3 in this Report),
2. Equivalent number of allowable annual events is derived from the permissible number of 365 events at background noise level + 5 dB reduced by dividing 365 by the applicable event ratio.

Diagrammatical representations of the highest prediction noise levels are shown in Appendices C & D.

## 6. NOISE CONTROL RECOMMENDATIONS

Using the NGLG Case Study 2 as a benchmark for assessing noise impacts from the proposed Facility, it can be seen that the predicted noise levels easily allow for the proposed number of events without the need for physical noise controls.

Indeed, the number of allowable events at the highest predicted noise levels is 43, being approximately 3 to 4 per month.

Notwithstanding this, a noise management plan should be established as follows:

### 5.1 Operational Noise Management Plan

- There should be no events (practice, warm up, etc) held outside day time hours (7 am to 6 pm on the Saturday or 8 am to 6 pm if ever held on a Sunday),
- The operators of the facility should appoint a media / community liaison officer to engage with the residents in the vicinity of the site,
  - An overview of the event should be provided to local residents prior to commencement,
  - The information should contain the time and duration of the event, then nature of the event, when the noise will stop each day and a contact number for queries prior and on the days of the event,
  - This may be done via social media / website / local newspaper, etc



- The media releases and information should contain a contact number for information including live contact during events,
- A complaints hot line should be established and provided so that any unauthorised or “out of hours” use may be reported;
- The operators of the facility must keep an accurate record of complaints to the hot line including details of the complainant, nature of the complaint and what action was taken by the peak body facility in response to the complaint;
- The facility should maintain an accurate record of the events held including start and finish times,
- If required noise monitoring may be conducted during an event/s to validate the noise model to accurately inform future event schedules.

## 7. CONCLUSION

An assessment of the potential noise emission arising from a Motorsport Facility to be established at 13510 Newell Highway, West Wyalong, NSW was undertaken.

Noise modelling, calculations and predictions show that the level of noise emission from the operation of the Facility will be managed in accordance with the NSW Environment Protection Authority’s *Noise Guide for Local Government* 2023 and 2013.

A Noise Management Plan will be established and continue to be adhered to, as detailed in Section 6 of this Report.



**Matthew Harwood**, MAAS

Director & Principal Consultant  
Harwood Acoustics Pty. Ltd.

Attachments: -

Important note & Disclaimer

Appendix A – Meteorological assessment

Appendix B – Noise Survey Instrumentation

Appendix C – *SoundPLAN* noise model noise drag cars – single points

Appendix D – *SoundPLAN* noise model noise drag cars – contours

**Important Note**

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*Recommendations made in this report are intended to resolve acoustical problems only, therefore all other properties such as aesthetics, air flows, chemical, corrosion, combustion, construction details, decomposition, expansion, fire rating, fumes, grout or tile cracking, loading, shrinkage, smoke, ventilation etc. are outside Harwood Acoustic's fields of expertise and **must** be checked with the supplier or suitably qualified specialist before purchase.*

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| Meteorological Assessment | Appendix A |
|---------------------------|------------|
|---------------------------|------------|

It is a requirement of the NSW EPA's *Noise Policy for Industry* 2017 (NPfI) that an assessment of the potential for noise enhancing meteorological conditions is to be undertaken.

Fact Sheet D of the NPfI states:-

*Two options are available to a proponent to consider meteorological effects:*

- 1. Adopt the noise-enhancing meteorological conditions for all assessment periods for noise impact assessment purposes without an assessment of how often these conditions occur – a conservative approach that considers source-to-receiver wind vectors for all receivers and F class temperature inversions with wind speeds up to 2 m/s at night.*
- 2. Determine the significance of noise-enhancing conditions. This involves assessing the significance of temperature inversions (F and G class stability categories) for the night-time period and the significance of light winds up to and including 3 m/s for all assessment periods during stability categories other than E, F or G. Significance is based on a threshold of occurrence of 30% determined in accordance with the provisions in this policy. Where noise-enhancing meteorological conditions occur for less than 30% of the time, standard meteorological conditions may be adopted for the assessment.*

In preparing this assessment it has not been practicable to obtain current wind speed and direction data from the Bureau of Meteorology due to a delay in processing times. Noise modelling in this assessment therefore considers noise-enhancing conditions with respect to wind blowing from source to receiver of between 1 and 5 m/s as detailed in Table 3 in Section 5.2.1 of this report.

Given the event will only occur during day time hours no consideration needs to be given to temperature inversions.

| Noise Survey Instrumentation | Appendix B |
|------------------------------|------------|
|------------------------------|------------|

The instrumentation used during the noise survey consisted of: -

| Description                   | Model No. | Serial No. |
|-------------------------------|-----------|------------|
| Infobyte Noise logger         | Im4       | 104        |
| SVANTEK Acoustical Calibrator | SV 34A    | 58762      |

The infobyte Model Im4 noise logger conforms to Australian Standard AS1259:2-1990 'Acoustics - Sound Level Meters' as a Type 2 precision sound level meter and has an accuracy suitable for field use.

The calibration of the sound level meter and logger was checked before and after the measurement periods. No significant system drift occurred over the measurement periods.

The sound level meter, logger and calibrator were previously checked, adjusted and aligned to conform to the factory specifications and issued with conformance certificates as required by the regulations.



Satellite



Proposed Motorsport Park Stage 1  
Western Wheelers - West Wyalong  
Predicted Noise Levels  
1/8 Mile Drag Strip  
Leq, 15 minute

- Receivers
- Cars at muster area
- Drag Strip (1/8 mile + slow down)

1 : 19601

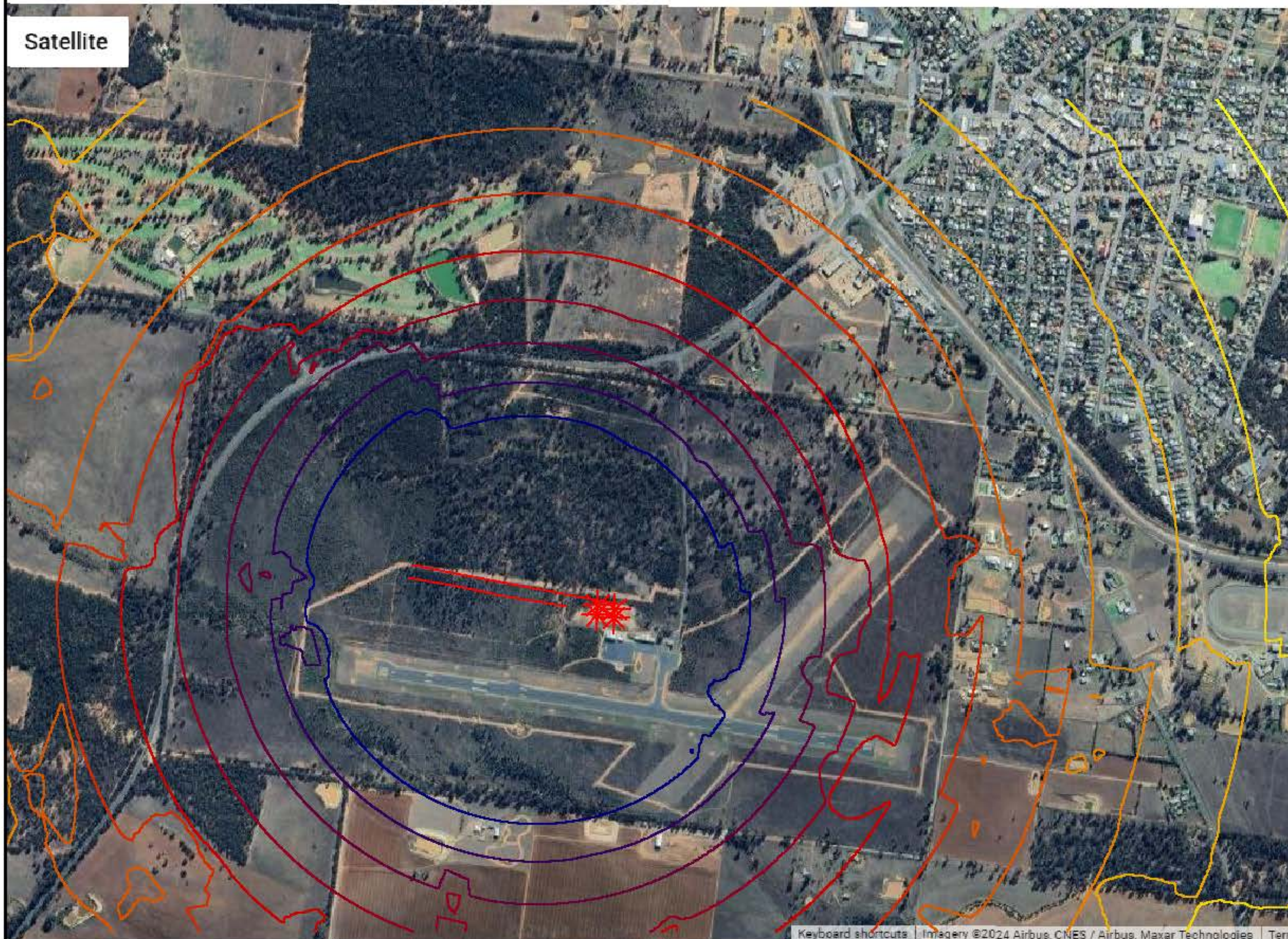
0 100 200 400 600 800 m



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Satellite



Proposed Motorsport Park Stage 1  
Western Wheelers - West Wyalong  
Predicted Noise Levels  
1/8 Mile Drag Strip  
Leq, 15 minute

- \* Cars at muster area
- Drag Strip (1/8 mile + slow down)

Levels in dB(A)

- = 30
- = 32
- = 34
- = 36
- = 38
- = 40
- = 42
- = 44
- = 46
- = 48
- = 50
- = 52
- = 54
- = 56
- = 58

1 : 19601

0 100 200 400 600 800 m

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