

Dr Tom Hatton
Chairman
Environmental Protection Authority
Locked Bag 10
Joondalup DC WA 6919

Your reference: CMS17431; DWERA-001165
Our reference: 56837/SGC18499.01

Attention: Elle Purdue

Dear Chairman

NOTICE REQUIRING FURTHER INFORMATION – KEYSBROOK MOTORSPORT FACILITY, LOT 78 (NO. 732) PUNRAK ROAD, KEYSBROOK

This letter has been prepared in response to the Notice Requiring Further Information issued by the Environmental Protection Authority (EPA) under Section 38A(1) of the Environmental Protection Act 1986 (EP Act), dated 3 October 2018.

The EPA has requested from the Proponent, Stati Investments Pty Ltd (Stati Group), further information regarding Social Surroundings and Inland Waters Environmental Quality as they relate to the Keysbrook Motorsport Facility proposal. Responses to each of the EPA queries are outlined within the subsequent sections of this letter.

Proposal background and justification

The Keysbrook Motorsport Facility will be a regionally significant facility comprising a multifaceted range of uses and activities based around motorsports and racing.

Site selection

The site selection process in arriving at the current site was rigorous and involved a review of 22 sites around the Perth Metropolitan Region over a two year period. The current site is strategically and ideally located for a motorsports facility due to its characteristics comprising the following:

- The close proximity of the site to key population centres including Rockingham, Mandurah, Byford and Mundijong;
- The overall lot size of 50ha being suitable for the purposes of the facility;
- The strategic positioning of the site to benefit from long term access afforded by the adjacent current and future regional road networks under Perth and Peel @ 3.5 million;
- The significant physical separation of the site from existing and planned urban development up to 2050; and

- Its location in an active (commercial) rural area, rather than an identified rural living area, surrounded by a range of activities including the Serpentine Airfield, poultry farms, turf farms, extractive industry and aquaculture.

A significant amount of work has already been undertaken by the team of consultants engaged in the planning stages for the Keysbrook Motorsports Facility. This includes the involvement of UK based and world renowned track designers Apex Motorsports. It has also included input from town planners, architects, bushfire practitioners, acoustic consultants, transport engineers, civil engineers, geotechnical engineers, hydrological engineers, arborists and environmental consultants in developing the Keysbrook Motorsports Facility proposal.

A key credential to the selection and ongoing operation of the facility at this location includes:

- The site's recognition by the Federation Internationale de l'Automobile (FIA) responsible for event accreditation and overseeing adherence to safety and management of the track operations
- The site's recognition by the Confederation of Australian Motor Sports (CAMS) as the governing body of motor sport in Australia and responsible for the governance and administration of all major forms of motor sports
- The site's recognition by Motorcycling Australia (MA) representing Australia's peak motorcycling body
- The site's recognition by the Commission Internationale de Karting (CIK) as the world body responsible for international go-kart events

This recognition has culminated in the site's recognition within Government's local and State based strategic policy framework. At State level, the State Government's Draft WA Motorsport Strategy aims to provide much needed motorsports facilities in the Perth Metropolitan Region and regional Western Australia. The site's inclusion as a recommended site under the Strategy is a key recognition of the site's suitability and capability to accommodate the Keysbrook Motorsports Facility.

At the local level, the Shire of Serpentine-Jarrahdale has recognised motorsport as part of its Economic Development Strategy 2018-2023 as part of the diversification of economic activities in the Shire. The Keysbrook Motorsport Facility will have demonstrably direct and indirect economic benefits that include:

- Direct employment at events (stewards, marshalls, admin, catering, medical and the like);
- Increased demand for short stay accommodation for State and National events;
- Increased demand for food and catering services and supplies for functions and events;
- Complimentary industry and sales such as tyres and service industries; and
- Recognition to the Shire of Serpentine-Jarrahdale locality and Keysbrook as a destination.

Furthermore, the Keysbrook Motorsport Facility is recognised within the Shire's Tourism Strategy 2018 – 2023 as a development has the capability to be a major tourism and event catalyst for the Shire and the wider Perth and Peel regions.

The strategic recognition of the facility demonstrates there is already Government support for the proposal which will provide local and regional benefits to the Shire and broader Perth Metropolitan Region.

The proposal is also recognised within the Shire of Serpentine-Jarrahdale Economic Development Strategy 2018-2023 for its benefits in contributing to the diversification of economic activities within the Shire and for its central location within the Perth and Peel Region with strong transport access.

The main circuit will be designed with the ability to ultimately gain FIA accreditation for national and international ratings. In addition, the facility will provide an important community focal point by providing a range of activities that promote road and driver safety and opportunities for other significant corporate and private events. Together, these activities will provide significant employment benefits throughout the year and administer a welcome boost to the local economy through direct and indirect spending multipliers.

Summary and outline of potential impacts and management approach

Water Management

A Stormwater Management Plan (SMP) was previously prepared and submitted to the Shire of Serpentine Jarrahdale (SoSJ) as part of the Development Application for the Keysbrook Motorsport Facility. The SMP was developed in consultation with SoSJ to identify and address proposed key stormwater management strategies.

Since then, and at the request of DWER, an Urban Water Management Plan (UWMP) was prepared in September 2018 for the Keysbrook Motorsport Facility and includes the results of a geotechnical investigation and groundwater monitoring.

It is worthwhile to note that there has been further consultation with DWER regarding concerns around the site being currently prone to inundation from flood waters from the adjacent Punrak drain. Subsequently, Lot 400 which is proposed to provide overflow carparking facilities during large events (and is located adjacent and north-west of the site) is proposed to be also utilised for flood storage (Figure 1).

Urbaqua were commissioned to undertake 2-Dimensional modelling of the proposed Keysbrook Motorsport Facility and test scenarios for diversion of significant flood flows originating from the Punrak drain around the property for storage on Lot 400. The initial findings of the flood modelling investigation demonstrate conceptually that diversion of flood waters around the proposed facility for storage in Lot 400 is possible. However, further consultation with DWER is currently being undertaken to finalise the flood modelling investigation and provide certainty on the volumes and flow paths on the regional flows.

Following DWERs endorsement of the flood modelling investigation, the UWMP will be updated to accompany the Development application for the Keysbrook Motorsport Facility and include the following additional information requested by the EPA:

- water balance modelling

- proposed on-site and off-site water management strategies
- site drainage and stormwater management principles, practices and methodology as well as detailed engineering designs
- water sourcing and disposal (wastewater) inclusive of water licensing requirements
- water quality monitoring and management
- management and mitigation of potential impacts to inland waters quality and quantity
- water planning and design consideration of the interface between the site and the adjacent Conservation Category Wetland.

Noise

The NMP has developed in consultation with the Shire and addresses both the operator's commitments and noise management measures in perpetuity. The following factors have been identified within the NMP as contributing to the degree of noise impact on surrounding residents from motorsport events (Allerding and Associates 2018):

- the events schedule, including the time at which events take place, the number and type of events held per year and the spread of events throughout the year
- the noise emission level of vehicles and the level of noise at the affected residence
- the operational aspects of the facility, including the design of public address systems and management of track use and hire
- the prior notification provided to affected residents about upcoming events.

With regard for the above factors, section 6 of the NMP outlines the noise control mechanisms to be implemented at the Keysbrook Motorsport Facility to minimise the potential noise impacts to nearby residents as a result of racing activities (Allerding and Associates 2018). Subsequently, the following key management measures are outlined within Section 6 of the NMP and addressed under (Allerding and Associates 2018):

- Section 6.1: Events Schedule
- Section 6.2: Vehicle Noise Limit and Compliance Measurement Procedures
- Section 6.3: Permanent Noise Monitoring
- Section 6.4: Operational Noise Management Initiatives
- Section 6.5: Notification of Proposed Events

In addition to these management measures, a noise enquiry/complaint and feedback procedure has been developed, and is outlined in Section 7 of the NMP (Allerding and Associates 2018).

Section 8 of the NMP outlines the procedure for reviewing the NMP, including a provision for the implementation of additional physical noise management measures subject to analysis of data collected from noise modelling over the first 5 years of the facility's operation (Allerding and Associates 2018).

A critical aspect of the NMP and based on the equivalent noise levels (measured at 30m from exhaust), there are three classes of events (Allerding and Associates 2018):

- Quite Loud (Class B) – noise limit is up to 95 dB(A)
- Moderate (Class C) – noise limit is up to 75 dB(A)
- Quiet (Class D) – Below 65 dB(A)

The NMP has developed an events schedule to determine the number of weekly and monthly race / training events and thereby, minimise noise that nearby residents would be exposed to. It is worthwhile to note that this has been adapted from other comparable motorsport venues in Australia, such as Phillip Island, to ensure there is a practical constraint to the number of louder events that can occur at the facility as well as allow for an event trade off system. (Allerding and Associates 2018)

To provide context regarding the number of residences that will be impacted by noise, an analysis of the number of residences located within a 2 km radius of the Keysbrook Motorsport Facility compared to other motorsport venues around Australia and internationally was undertaken. In summary, the number of residences within a 2 km radius of other comparable motorsport venues ranged between 70 to over 1000. In contrast, the Keysbrook Motorsport Facility has only 15 residences within the same 2 km radius. Please refer to the literature review provided in Table 7 of this response letter for further detail.

It should be noted that the scheduling of events has been limited to the day time as opposed to the Perth Motorplex which accommodates night time events and has approximately 160 residences within a 2 km radius.

The above demonstrates that comparatively the future operation of the Keysbrook Motorsport Facility will result in significantly less nearby residences being impacted by noise as opposed to other operating facilities at a local, national and international scale.

Furthermore, the proponent will engage with nearby residences to develop a noise amelioration/compensation package that will be tailored to their individual requirements and would include for example, the provision of funds for noise insulation.

Supporting documentation

Documents prepared for the facility and as relevant to address the EPA's queries are outlined in Table 1 and provided as Appendices to this letter.

Table 1 : Documents prepared for the Keysbrook Motorsport Facility

Document	Prepared by
Environmental Noise Assessment (Appendix 1)	Lloyd George Acoustics Pty Ltd
Noise Management Plan (NMP) (Appendix 2)	Allerding and Associates Pty Ltd
Literature Review (Appendix 3)	Lloyd George Acoustics Pty Ltd
Urban Water Management Plan (Appendix 4)	Peritas Group
2D Flood Modelling Letter Report	Urbaqua

Stakeholder engagement

It is worthwhile to note that the proponent has consulted with the following key stakeholders from the commencement of planning and design studies associated with the proposal:

- Shire of Serpentine-Jarrahdale
- Department of Planning, Lands and Heritage
- Department of Local Government, Sport and Cultural Industries
- Community

A number of methods have been used to communicate with stakeholders including:

- face-to-face meetings
- facilitated group meetings
- public consultation on the development application
- two rounds of public consultation on the draft Noise Management Plan

Further consultation is ongoing as the Proposal progresses through design and construction.

As previously stated, the EPA has requested from the Proponent, Stati Investments Pty Ltd (Stati Group), further information regarding Social Surroundings and Inland Waters Environmental Quality as they relate to the Keysbrook Motorsport Facility proposal. A detailed response to the specific matter is provided below.

Social surroundings

1. *The information provided presents the Motorsport Facility as not able to comply with the assigned levels in the Noise Regulations. Please inform the EPA whether there is any way the proposal could comply with the assigned noise levels in the Noise Regulations, and if not, detail why this is the case.*

The Keysbrook Motorsport Facility is set within a rural area and as such, the racing activities proposed to take place at the facility will inherently exceed the assigned allowable noise emissions within the *Environmental Protection (Noise) Regulations 1997* (the Regulations).

However, as part of the Environmental Noise Assessment undertaken by Lloyd George Acoustics (2019) (Appendix 1) and to investigate whether the proposal could comply with the assigned noise levels in the Regulations, noise was modelled with and without a 4 m high earth bund at the northern end of the track. The results of this modelling indicated that the earth bund would reduce noise by a maximum of 1 dB (Lloyd George Acoustics 2019), and thus was not considered to be practical nor effective due to the minimal reduction in noise emissions.

The Environmental Noise Assessment undertaken by Lloyd George Acoustics (2019) (Appendix 1) demonstrates that noise emissions from the proposed facility will not meet the assigned noise levels in accordance with Regulation 7 of the Regulations.

Part 2, Division 3 of the Regulations acknowledges that:

- motor sport facilities are unlikely to meet the prescribed noise standards (Regulation 7)

- such facilities are a legitimate sport that requires the provision of (properly located) facilities
- provide for a noise management plan in the place of compliance with the prescribed limits in circumstances.

Furthermore, the Department's CEO has delegated his power to approve such plans to the CEO of the local government.

Under Division 3 - Regulation 16A of the Regulations, a 'motorsport venue' is defined as:

"...premises approved or recognised by a motor sport organisation as premises at which racing activities may be conducted".

CAMS and MA are listed as motor sport organisations under Regulation 16A and have both recognised the Keysbrook Motorsport Facility to be premises at which racing activities may be conducted. On this basis, it is understood that the Keysbrook Motorsport Facility meets the prerequisite for consideration of an approved NMP in accordance with Regulation 16AA, and, is thus exempt from the application of Regulation 7. An NMP has been prepared for approval and is provided in Appendix 2.

To confirm the above and that Regulation 16A and 16AA may be applied in this instance and is not limited to existing motor sport facilities, the proponent sought legal counsel from Francis Burt Chambers on this matter. Subsequently and based on the textual indications provided within Regulation 16A and 16AA, the following advice has been provided (Francis Burt Chambers 2018):

- The definition of motor sport venue applies to premises approved or premises at which racing activities may be conducted. As the definition is framed in the future, it appears to maintain the proposition that such activities may be carried out at some stage in the future and is not restricted to activities that are currently being carried out.
- Before making a decision on whether or not to approve a noise management plan, Regulation 16AA(4) provides the local government of each in which noise emissions received from the venue with a reasonable opportunity to make a submission on whether or not the plan should be approved. Again, this is framed in the future tense as it is concerned with future noise emissions rather than an existing venue currently breaching the prescribed standard.
- Regulation 16AA(7)(b) is also framed in the future as it states that the noise management plan is required to include descriptions of the types of racing activities that can be reasonably be expected to race at the venue.

Given the above, it would appear that the application and approval of a noise management plan may apply to a motorsport facility that is yet to be constructed (Francis Burt Chambers 2018).

In relation to the use of a physical barrier to reduce noise, the Noise Assessment (Appendix 1) modelled noise with and without a 4 m high earth bund at the northern end of the track. The results of this modelling indicated that the earth bund would only reduce noise by a maximum of 1 dB (Lloyd George Acoustics 2019), and thus is not considered practicable for use at the facility due to the minimal reduction in noise emissions. Physical noise barriers have not been proposed for the facility at this stage.

It is worthwhile to note that Section 8 of the NMP outlines the procedure for reviewing the NMP, including a provision for the implementation of additional physical noise management measures if necessary, based on analysis of data collected from noise modelling over the first five years of the facility's operation (Allerding and Associates 2018).

2. *Measurement and analysis of the existing ambient noise in relation to noise sensitive premises within the vicinity of the proposal, with consideration of the contributing noise sources and frequency spectrum in relation to the noise emissions from the proposal.*

Figure 6-1 of the Noise Assessment (Appendix 1; pg. 26) depicts the predicted noise level from a typical weekend event day at the nearest noise sensitive receiver, compared to the typical ambient noise level at the receiver over the same weekend period, assuming the worst-case scenario with wind blowing directly towards the noise receiver from the facility (Lloyd George Acoustics 2019).

Figure 6-1 shows that the typical ambient noise level ranges between approximately 39 – 69 dB(A) at the nearest receiver, while the predicted noise level from the facility ranges between 35 – 68 dB(A). Times at which the difference between ambient and predicted noise levels from the facility are greatest are at 9:50am, 10:10am, 11:10am, 3:40pm and 4:10pm – 4:15pm. Noise from the facility exceeds the ambient noise level for the majority of time, although there are periods throughout the day where the ambient noise level exceeds the predicted noise level from the facility (Lloyd George Acoustics 2019).

Based on the noise contours produced in the Noise Assessment (Appendix 1; Figure 5-1 to 5-7) Table 2 provides a summary of the predicted L_{A10} noise levels at each of the sensitive noise receivers within 1 km, assuming wind from all directions.

Table 2 : Summary of the predicted L_{A10} noise levels from different race activities at each of the sensitive noise receivers assuming wind from all directions (Lloyd George Acoustics 2019)

Race activity (Number of cars on track)	L_{A10} predicted noise level at receiver							
	R1	R2	R3	R4	R5	R6	R7	R8
Formula Ford race (36)	65 dB	72 dB	69 dB	72 dB	66 dB	67 dB	66 dB	62 dB
Porsche GT3 race (36)	66 dB	74 dB	70 dB	73 dB	67 dB	68 dB	67 dB	63 dB
Superbike race (36)	66 dB	73 dB	70 dB	72 dB	67 dB	68 dB	66 dB	63 dB
125cc Rotax Kart race (20)	52 dB	58 dB	54 dB	55 dB	49 dB	52 dB	48 dB	45 dB
Hire Kart race (20)	31 dB	37 dB	34 dB	35 dB	29 dB	31 dB	27 dB	24 dB
Manufacturer car day (20)	40 dB	48 dB	45 dB	49 dB	41 dB	43 dB	40 dB	36 dB
Public address system (without racing)	<35 dB	<35 dB	<35 dB	35 dB	<35 dB	<35 dB	<35 dB	<35 dB

3. *More detailed information on the noise emission times and duration of each race event and confirmation of the types of motorsport events which will occur at the proposed Motorsport Facility, and the potential for other types of motorsport events in the future.*

A summary of track use proposed for Stage 1 is provided in Table 3 and has been adapted from the NMP (Appendix 2). Table 4 outlines the number of proposed weekday and weekend events per year by event class type. It is anticipated that track use will occur between the hours of 9am to 6pm, 7 days a week (Allerding and Associates 2018).

Table 3 : Summary of proposed track use (Allerding and Associates 2018)

Motorsport event activity	Class	Noise limit	Estimated frequency (days per year)	Estimated duration	Description	Estimated traffic	Estimated patrons
Hire Karts	D	< 65 dB(A)	Daily	9am to 6pm	40 minutes per hour, for 6 hours	30 vehicle movements	80 people per day
Amateur Go Kart race events	B	Up to 95 dB(A)	15	9am to 6pm	8 categories. 10 minutes each, 4 races	50 daily vehicle movements	100 people per day
International and National Go Kart race events	B	Up to 95 dB(A)	5	9am to 6pm	10 categories. 15 minutes each, 2 races	100 daily vehicle movements	100 – 200 people per day
Manufacture days	C	Up to 75 dB(A)	74	9am to 6pm	20 standard cars on track for 5 hours	60 daily vehicle movements	70 people per day
Driver training	C	Up to 75 dB(A)	74	9am to 6pm	20 standard cars on track for 5 hours	30 daily vehicle movements	50 people per day
Amateur track/test days for road and race cars	B	Up to 95 dB(A)	55	9am to 6pm	Three groups comprising 1 road car and 2 race car, with limited noise mufflers. Each group on track for 15 minutes per hour. 6 sessions per group.	30 daily vehicle movements	30 people per day
Amateur car events (State)	B	Up to 95 dB(A)	10	9am to 6pm	12 categories. Each category on track for 8 – 10 lap races (12 – 15 minute sessions). 2 sessions each per day.	250 daily vehicle movements	100 – 500 people per day
Amateur car events (National)	B	Up to 95 dB(A)	5	9am to 6pm	8 categories. Each category on track for 8 – 10 lap races (12 – 15 minutes sessions). 3 sessions each per day.	250 daily vehicle movements	100 – 500 people per day
Track/test days for road and street bikes	B	Up to 95 dB(A)	55	9am to 6pm	Three groups each on track for 15 minutes per hour. 6 sessions each group.	30 – 50 daily vehicle movements	60 – 100 people per day
Bike race days	B	Up to 95 dB(A)	18	9am to 6pm	6 categories. 8 – 10 lap races (12 – 15 minute sessions). 4 sessions each.	250 daily vehicle movements	100 – 500 people per day
Other recreational, educational and entertainment based events, eg: Seminars (Corporate Hire of meeting rooms) Cycling events School hire (e.g. cross country events)	D	< 65 dB(A)	Average 6 per year	Case by case	Case by case	Case by case	Case by case

Table 4 : Frequency of events proposed for the facility by event class (Allerding and Associates 2018)

Event class	Noise limit (measured at 30m from exhaust)	Number of weekday events per year	Number of weekend events per year	Total
Class A (Loudest)	Above 95 dB(A)	0	0	0
Class B (Quite Loud)	Up to 95 dB(A)	115	48	163
Class C (Moderate)	Up to 75 dB(A)	110	38	148
Class D (Quiet)	Below 65 dB(A)	36	18	54
Totals		261	104	365

Class D events (e.g. Hire Karts) are likely to operate on a daily basis, but in conjunction with higher class events (i.e. Class B and C events). Due to the low noise output from Class D events, the average noise impacts are not affected by Class D events.

At this stage there are no plans for any other type of future motorsports at the venue.

4. *Detailed noise management strategies, supported with noise modelling where appropriate, to mitigate noise impacts to the surrounding environment associated with the proposal.*

The Environmental Noise Assessment and the NMP are provided in Appendices 1 and 2 respectively.

The NMP has developed in consultation with the Shire and addresses both the operator's commitments and noise management measures in perpetuity. The NMP has been refined to incorporate the methodology for the Phillip Island Circuit which was considered to have design and location characteristics similar to those of the Keysbrook Motorsport Facility.

The following factors have been identified within the NMP as contributing to the degree of noise impact on surrounding residents from motorsport events (Allerding and Associates 2018):

- the events schedule, including the time at which events take place, the number and type of events held per year and the spread of events throughout the year
- the noise emission level of vehicles and the level of noise at the affected residence
- the operational aspects of the facility, including the design of public address systems and management of track use and hire
- the prior notification provided to affected residents about upcoming events.

With regard for the above factors, section 6 of the NMP outlines the noise control mechanisms to be implemented at the Keysbrook Motorsport Facility to minimise the potential noise impacts to nearby residents as a result of racing activities. Noise management measures will be implemented during the initial phases of the facility development, with additional noise control initiatives to be developed on a continual basis as part of the NMP review process.

The following key management measures are outlined within Section 6 of the NMP and addressed under (Allerding and Associates 2018):

- Section 6.1: Events Schedule

- Section 6.2: Vehicle Noise Limit and Compliance Measurement Procedures
- Section 6.3: Permanent Noise Monitoring
- Section 6.4: Operational Noise Management Initiatives
- Section 6.5: Notification of Proposed Events

In addition to these management measures, a noise enquiry/complaint and feedback procedure has been developed, and is outlined in Section 7 of the NMP (Allerding and Associates 2018).

Section 8 of the NMP outlines the procedure for reviewing the NMP, including a provision for the implementation of additional physical noise management measures subject to analysis of data collected from noise modelling over the first 5 years of the facility's operation (Allerding and Associates 2018).

As previously stated, physical noise barriers have not been proposed for the facility at this stage. As part of the Noise Assessment, noise was modelled with and without a 4 m high earth bund at the northern end of the track. The results of this modelling indicated that the earth bund would reduce noise by a maximum of 1 dB (Lloyd George Acoustics 2019), and thus was not considered to be practical nor effective due to the minimal reduction in noise emissions.

Development and rationale for the Matrix model

Due to the similar design and location characteristics, the ratio of events held over a 365 day period at the Phillip Island Circuit was analysed to develop a Matrix based approach for the Keysbrook Motorsport Facility and establishes a cap on the number of noisier events based on achieving a maximum average equivalent sound level.

The Confederation of Australian Motor Sport (CAMS) manual, as the primary regulatory document for Australian motor sport, prescribes that each automobile shall, of necessity, in any speed event or race be configured such that the sound emitted when measured 30m from the track edge does not exceed 95dB(A) unless event regulations set a lower limit (CAMS 2019). However it is noted that the Phillip Island Circuit contains a number of events within a 365 day period that exceed the 95dB(A). That is not the case with the proposed schedule of events at the Keysbrook Motorsport Facility with no events proposed to exceed 95dB(A) and an equivalent number of the 95dB(A) events compared with the Phillip Island Circuit schedule. Therefore, overall the average equivalent sound level (L_{Aeq}) is much lower at the proposed Keysbrook Motorsport Facility than at the Phillip Island Circuit.

Therefore, in developing the Matrix model for the Keysbrook Motorsport Facility, the number of noisiest events at the Phillip Island Circuit were divided between the proposed event categories with the majority of events (18) placed in the quieter categories with noise limits $\leq 75\text{dB(A)}$ and only a small number (3) of events placed in the noisier category with noise limits $\leq 95\text{dB(A)}$.

Section 6.1 of the NMP (refer to Appendix 1) outlines the events schedule that was development based on this approach. The events schedule is intended to provide a means of determining the amount of weekly and monthly race and training events to minimise noise that adjacent residents would be exposed to. This includes consideration of other daily events, including driver training, manufacturer events and hire karts, which have noise characteristics that are equivalent to or less than normal road vehicles and which are unlikely to result in noise disturbance to neighbouring residents.

An event matrix (as shown in Table 5) outlines the equivalent A-weighted continuous sound level (L_{Aeq}) over a 365 day period will be used in the preparation of the annual calendar of events to inform the permitted number of events in each Class or lower.

Table 5: Equivalent Noise Level at 30m at the Keysbrook Motorsport Facility (Lloyd George Acoustics 2019).

Class	Noise Limit	Weekday	Weekend	L_{Aeq}
A	Above 95dB(A)	0	0	0.0
B	Up to 95dB(A)	115	48	93.6
C	Up to 75dB(A)	110	38	70.8
D	Below 65dB(A)	36	18	62.6
	Totals	261	104	93.7
365 days				

The calculations apply a +5 dB penalty for weekend events, as it is assumed these will create more nuisance than a weekday event.

The matrix was prepared using the Phillip Island Circuit annual event schedule as a basis to compare the equivalent continuous sound level at the Keysbrook Motorsport Facility to ensure that the proposal would generate an equal or lesser L_{Aeq} than Phillip Island, excluding the Class A events. As a comparison, the Phillip Island Circuit base case is provided in Table 6 which demonstrates that the average equivalent sound level is lower at the proposed Keysbrook Motorsport Facility than at the Phillip Island Circuit.

Table 6: Comparison of Equivalent Noise Level at 30m between Keysbrook Motorsport Facility Phillip Island Circuit

Class	Noise Limit	Weekday		Weekend		L_{Aeq}	
		Keysbrook	Phillip Island	Keysbrook	Phillip Island	Keysbrook	Phillip Island
A	Above 95dB(A)	0	15	0	6	0.0	94.7
B	Up to 95dB(A)	115	110	48	50	93.6	93.7
C	Up to 75dB(A)	110	100	38	12	70.8	70.8
D	Below 65dB(A)	36	36	18	36	62.6	61.1
	Totals	261	261	104	104	93.7	97.2
365 days							

The matrix approach described above allows for an event trade off system, based on the equivalent noise level never exceeding the 93.7 dB base case. For example, if the Class B number of weekday events were to increase from 115 to 125 per year, the weekend Class B events could reduce from 48 to 46 to maintain the LAeq of 93.7 dB. Similarly, if the number of Class B weekend events increased from 48 to 50, the number of weekday Class B events would need to decrease from 115 to 113.

Further, the matrix represents the number of days per year that potentially relate to each vehicle Class or lower operating on any one day. For example, using Table 5 as a base case, for 148 days of the year, Class C events (eg. Driver Training) and lower will operate and on 54 days of the year, Class D events will exclusively operate only. This is also demonstrated as follows:

- Total exclusive quiet days per year – 54 days (Class D events only);
- Total exclusive lower noise days per year – 202 days (inclusive of Class C and D events only); and
- Total louder noise days per year – 163 days (potentially inclusive of Class B, C and D events).

However, it is possible that a different configuration of events can occur, but only on the proviso that any event combinations achieve an LAeq of 93.7 dB or less.

Again, the above demonstrates that comparatively the future operation of the Keysbrook Motorsport Facility will result in significantly less noise impacts as opposed to other facilities at a local, national and international scale.

5. Completion of a literature review of noise sensitive receiver criteria for international and national motorsport facilities.

A literature review of noise sensitive receiver criteria for international and national motorsport facilities has been prepared by Lloyd George Acoustics (2019) and is provided in Appendix 3. A summary is provided in Table 7 below. To provide a meaningful comparison between the Keysbrook Motorsport Facility and other comparable national and international motorsport venues, included within this table is an analysis of the following:

- facility attributes
- approximate number of residences within a 2 km radius
- key noise management measures

The summary includes justification for inclusion of the facility in the literature review and relevance to the Keysbrook Motorsport Facility.

Table 7 : Summary of national and international motorsport facilities selected for literature review

Motorsport Facility	Facility attributes	Residences within 2 km radius (approx.)	Noise limits				Key noise management measures	Relevance to Keysbrook Motorsport Facility
			Activity	Number of days				
Mallory Park Circuit (Leicestershire, United Kingdom)	2.1 km track length, 5 corners Closest residence: Approx. 100 m north east Other uses: Cycling and triathlon events	101	Activity	Number of days	0800-1800 Mon-Sat 0900-1800 Sunday	All other times	Noise testing conducted Vehicles exceeding the 105 dB(A) limit are not permitted to use the track until changes have been made and it passes the test PA system is zoned, is used only between 8am – 6pm and no music is played Circuit bookings and noise limits maintained and published on website Complaints are logged, investigated and reported Donuts, burnouts and drifting are not permitted NMP: https://www.malloryparkcircuit.com/wp-content/uploads/2015/05/Mallory-Park-Noise-Management-Plan-2015-V5-Active.pdf	Facility is set within a rural area, similar to the area surrounding Keysbrook Motorsport Facility
			Tier 1 – Day to day Activities and Off-track Activities	No limit	55 dB L _{Aeq}	40 dB L _{Aeq}		
			Tier 2 – Event days	16 (only 2 public holidays)	95 dB L _{AFmax} at 30 m	40 dB L _{Aeq}		
Highlands Motorsport Park (Cromwell, New Zealand)	4.1 km track length Other uses: Mini golf, motorsport museum, Jurassic Park adventure	185	Activity	Number of days	0800-1800 Mon-Sat 0900-1800 Sunday	All other times	Online noise feedback form Noisier Tier 2 events advertised via website and local newspaper All vehicles other than special interest must comply with 95 dB at 30 m PA system shall not exceed Tier 1 noise limit Traffic management	Highlands Motorsport Park NMP guided the framework of the Keysbrook Motorsport Facility NMP Similar noise management measures will be implemented at the Keysbrook Motorsport Facility
			Tier 1 – Day to day Activities and Off-track Activities	No limit	55 dB L _{Aeq}	40 dB L _{Aeq}		
			Tier 2 – Event days	16 (only 2 public holidays)	95 dB L _{AFmax} at 30 m	40 dB L _{Aeq}		

Motorsport Facility	Facility attributes	Residences within 2 km radius (approx.)	Noise limits					Key noise management measures	Relevance to Keysbrook Motorsport Facility
Mike Pero Motorsport Park (Christchurch, New Zealand)	Approx 3.5 km track length Closest residence: Approx. 450 m Other uses: Cycling, athletic events, social/business functions	70	Raceway noise limits					Community liaison committee formed and meets a minimum of 4 times per year Noise feedback forms available, complaints investigated and corrective actions taken PA system used for communication and background music between 9am and 6pm (may be used until 8pm during race events) Traffic management Trackside noise levels must not exceed 95 dB at 25 m on the fastest part of the straight Raceway NMP: http://www.canterburycarclub.co.nz/wp-content/uploads/2017/05/Raceway-Noise-Management-Plan-v1.1.pdf Speedway NMP: http://www.canterburycarclub.co.nz/wp-content/uploads/2017/01/Final-SNMP-201617-v13-Speedway.pdf	
			Category / Activity	Days / Hours	Max Days	L _{Aeq} , dB	L _{AFmax} , dB		
			F – Non-race vehicles up to 100 km/h	Mon 0900-1800	50	65	85		
			E – Motor racing vehicles	Tue-Sun 0900-1800	90	65	90		
			D	0900-2000 for 5 days (Fri-Sun)	75	70	90		
			C		120 (50 Tue-Fri)	80	95		
			B – Drag racing	Tue-Sun 0900-1800	5	80	105		
			A – Special interest Vehicles	Tue –Sun 90 minutes, 1000-1700	6	90	105		
			Speedway noise limits						
			Activity	Time	Days per year	L _{Aeq,15mins} , dB	L _{AFmax} , dB		
Race events and practices	1800-2200 and 1200-1800	15 races & 5 practice days (except Monday)	65	85					
Remote controlled vehicles	0900-1800	Any day (electric only) & 50 racing days (non-electric vehicles) except Monday	65	90					
Other activity	Unrestricted	0700-2200 2200-0700	50 40	75 65					

Motorsport Facility	Facility attributes	Residences within 2 km radius (approx.)	Noise limits	Key noise management measures	Relevance to Keysbrook Motorsport Facility
Sandown Raceway (Victoria)	<p>3.1 km track length, 13 corners</p> <p>Closest residence: Approx. 90 m south east</p> <p>Other uses: Horse racing, music festivals</p>	1000+	<p>The site is permitted motorsport meetings with noise levels up to 95 dB(A) at 30 metres as per the CAMS guidelines and Sandown staff monitor these levels on motorsport and car club days.</p> <p>Driver training days would generally be limited to 75 dB(A) at 30 metres.</p>	<p>Upcoming events advertised on website</p> <p>Traffic managed away from local roads</p> <p>Free ticket offers for local residents for certain events (excluding V8 supercars)</p> <p>Noise levels monitored</p> <p>Motorsport meetings permitted with noise levels up to 95dB(A) at 30 m</p> <p>Any vehicle above 95 dB(A) at 30 m removed from track until rectified</p> <p>No competition engines start prior to 0900 hours or after 1800 hours.</p> <p>Facility regulations: http://www.sandown.net.au/uploads/1/9/6/2/19620565/sandown_standing_venue_regulations_-_mspt_approved.pdf</p>	<p>Noise emissions from the Keysbrook Motorsport Facility are expected to be similar to Sandown Raceway</p> <p>Similar noise management measures will be implemented at the Keysbrook Motorsport Facility</p> <p>Proximity to housing is much closer and at higher densities for Sandown Raceway</p>

Motorsport Facility	Facility attributes	Residences within 2 km radius (approx.)	Noise limits	Key noise management measures	Relevance to Keysbrook Motorsport Facility
Perth Motorplex (Western Australia)	500 m track length (Speedway) Closest residence: Over 1 km Other uses: Concerts	160	<p>Speedway noise emissions (Kwinana Motorplex NMP) Noise levels emitted by racing vehicles, other than Exhibition vehicles, during any speedway event, practice session or media session at the Premises shall not exceed 75 dB $L_{A\text{slow}}$ for more than 2.5% of the total event duration when measured at an approved monitoring location. Noise levels emitted during a speedway event, practice session or media session at the Premises shall not exceed 55 dB $L_{A\text{slow}}$ for more than 50% of the total event duration when measured at an approved monitoring location. Where noise levels are found to exceed this criterion, the cause shall be determined and if found to be the result of bad practices by the Motorplex, corrective action will be implemented.</p> <p>Drag racing noise emissions (Kwinana Motorplex NMP) Noise levels emitted by racing vehicles, other than Top Fuel or jet powered vehicles, during a drag racing event, practice session or media session at the Premises shall not exceed 90 dB $L_{A\text{slow}}$ for more than 0.6% of the total event duration when measured at an approved monitoring location. Noise levels emitted during a drag racing event, practice session or media session at the Premises shall not exceed 55 dB $L_{A\text{slow}}$ for more than 50% of the total event duration, when measured at an approved monitoring location. Where noise levels are found to exceed this criterion, the cause shall be determined and if found to be the result of bad practices by the Motorplex, corrective action will be implemented.</p>	<p>Times and dates made publicly available before the start of each season Public complaint line and register to be maintained in accordance with the Complaints Response Procedure for the Motorplex The line is to be manned during the conduct of all motor-sport events, practice and media sessions Speedway vehicles likely to exceed 95 dB(A) at 30m tested annually and certified for compliance Noise testing performed early in racing season at Speedway practice sessions, random testing performed throughout Sprintcar, Late Model and Super Sedan teams required to attend Speedway practice session to gain certification Racecars must be fitted with recognised Speedway Type muffler Vehicles deemed too noisy are black flagged and disqualified Race curfews enforced Noise levels measured during at least one event annually Supplementary track regulations: http://www.motorplex.com.au/wp-content/uploads/2017/08/2017-18-PM-SW-Track-Supp-Regs.pdf</p>	<p>Noise emissions from the Keysbrook Motorsport Facility are expected to be similar to Perth Motorplex Similar noise management measures will be implemented at the Keysbrook Motorsport Facility</p>

Motorsport Facility	Facility attributes	Residences within 2 km radius (approx.)	Noise limits					Key noise management measures	Relevance to Keysbrook Motorsport Facility
			Class/Activities	No of midweek days	No of Weekend days	Total	Noise Limit		
Phillip Island Grand Prix Circuit (Victoria)	4.5 km track length, 12 corners Closest residence: Approx. 280 m Other uses: Cycling, running events	480	Class/Activities	No of midweek days	No of Weekend days	Total	Noise Limit	No documented NMP could be found for this facility	Similar environment and distance to residences as the Keysbrook Motorsport Facility Vehicle classification for the Keysbrook Motorsport Facility follows the classification system used at Phillip Island
			A – International	15	6	21	> 95 dB(A)		
			B – National Events, Motorbike Ride Days, International Events & Club Sprints	110	50	160	Up to 95 dB(A)		
			C – Club Sprints, Vehicle Launches, Driver Training, Rider Training	100	12	112	Up to 75 dB(A)		
			D – Push bike racing, Running events & Go Karts	36	36	72	Quiet		
Cardinia Motor Recreation and Education Park Development Plan (Victoria)	3.6 km track length, 9 corners Closest residence: Approx. 180 m	23 within adjacent rural setting. 540 within residential development located north of the site	The Development Plan for the motor recreation and education park has been approved. Further details of site uses will be developed as part of future planning applications. Allowable noise emissions for different classes of operations will be developed as part of the subsequent phases of development and future Noise/Site Management Plan. (Marshall Day Acoustics 2018)					Noise / Site Management Plan still to be prepared.	Similar environment and distance to residences as the Keysbrook Motorsport Facility. The circuit has been designed by the same designer as Keysbrook and same class of circuit as Keysbrook.
Proposed Keysbrook Motorsport Facility	3.5 km track length Closest residence: Approx. 290 m	15	Event class	No weekday events	No of weekend events	Total	Noise limit	Mechanisms for ensuring continuing compliance with operating conditions Noise monitoring and reporting of noise emissions from the facility Notification of events to stakeholders	N/A
			Class A (Loudest)	0	0	0	> 95 dB(A)		
			Class B (Quite Loud)	115	48	163	Up to 95 dB(A)		

Motorsport Facility	Facility attributes	Residences within 2 km radius (approx.)	Noise limits				Key noise management measures	Relevance to Keysbrook Motorsport Facility	
	Other uses: Cycling, running events, seminars		Class C (Moderate)	110	38	148	Up to 75 dB(A)	Response to noise enquiries or concerns regarding noise Continuing development of strategies to reduce noise impacts from the facility in line with best-management noise management procedures	
			Class D (Quiet)	36	18	54	Below 65 dB(A)		

In addition to the review of noise management procedures at existing facilities, the below noise guidelines and policies were also reviewed:

Noise Guide for Local Government – Part 3: Noise Management Principles

Noise Guide for Local Government 2013: Noise Management Principles (EPA 2013) addresses how often events should occur according to how noisy they are expected to be, and based on how much the event exceeded background noise. For instance, 50 events were permitted that would exceed background noise by 5 dB. If an event was to exceed background noise by 30 dB, 1 event would count as 10 events for instance. The approach taken for the Keysbrook Motorsport Facility is to use a trackside equivalent noise level and applying a 5 dB penalty for weekend events.

Motor Sports Noise – Environmental Protection Policy

Motor Sports Noise Environment Protection Policy (Department of Urban Services 2002) was developed to balance the rights of motor sports enthusiasts with the need to protect neighbouring residents. The policy identified a number of factors to be considered, including: the level of the noise; the number of events each year; the time at which events take place; the spread of events during the year; and the amount of prior notification provided to surrounding residents about upcoming events. The general principle followed was the greater the noise level exceeded the 'zone noise standard', the less events permitted.

In terms of noise limits, proximity to noise sensitive receivers and proposed management measures, the literature review demonstrates that the Keysbrook Motorsport Facility is comparable to existing international and national motorsport facilities.

With regard to the number of residences that will be impacted by noise, the literature review demonstrates that the number of residences within a 2 km radius of other comparable motorsport venues ranged between 70 to over 1000. In contrast, the Keysbrook Motorsport Facility has only 15 residences within the same 2 km radius.

Furthermore, the Keysbrook Motorsport Facility NMP represents best practice when measured against other comparable facilities around Australia and internationally.

Given the findings of the literature review and the proximity of only 15 residences within a 2 km radius of the Keysbrook Motorsport Facility, the future operation of the Keysbrook Motorsport Facility will result in significantly less nearby residences being impacted by noise as opposed to other facilities at a local, national and international scale.

6. *Identification and justification of noise sensitive criteria deemed to be acceptable for the operation of the proposed new motor sport venue in context with the rural setting of the proposal.*

The Proposal is located in the "Rural" zone under the Shire of Serpentine-Jarrahdale Town Planning Scheme No. 2 (TPS2). The Rural zone is an active commercial zone and not a rural living area, comprising a range of land uses.

Subsequently, the site is well located to accommodate the proposed use as it surrounded by a range of intensive activities that will mitigate the prospect for land use conflict. For example, it is surrounded on all sides by a range of intensive rural, industrial and recreational land uses including (Plate 1):

- poultry farms to the north and north-east
- an industrial / mining fabrication operation to the north-west
- extractive industries to the north and north east
- Serpentine Airfield to the north
- a range of surrounding grazing, equestrian and agricultural uses.

These activities have been considered within the context of this proposal and highlight the advantages of the proposed motorsport facility at this location in a predominantly non sensitive environment. Plate 2 identifies the intensive rural and agricultural land uses surrounding the site along with a generic buffer plan to provide an indication of the amenity of the locality.

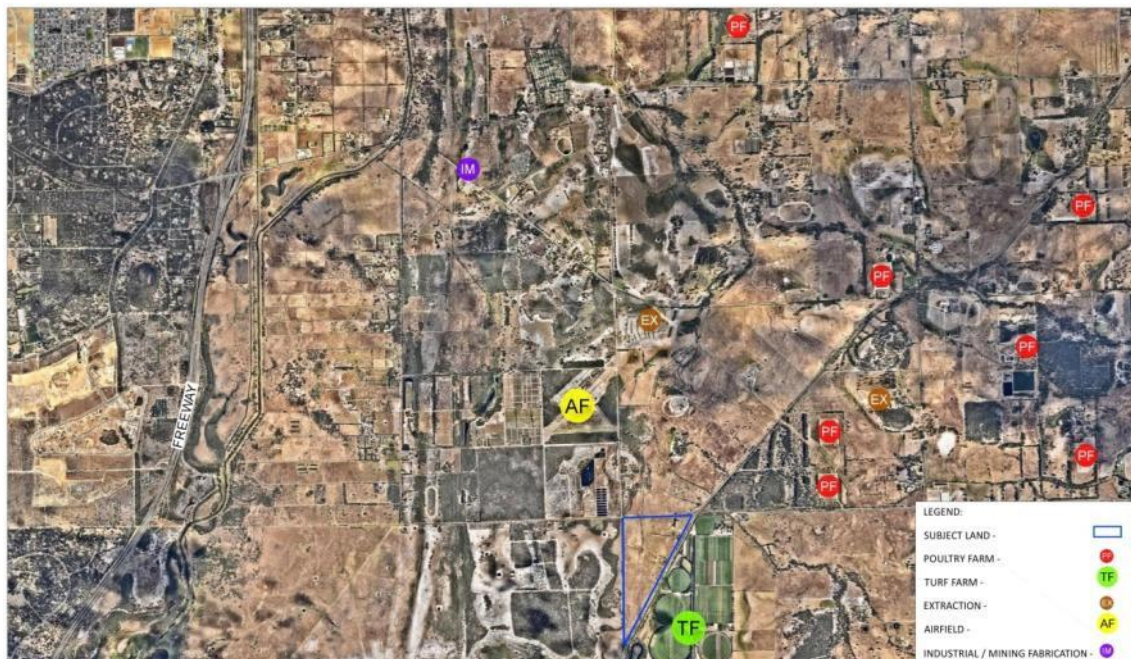


Plate 1: Local context (Source: Allerding and Associates 2018)

Furthermore, the literature review demonstrates that comparatively the future operation of the Keysbrook Motorsport Facility will result in significantly less nearby residences being impacted by noise within a 2 km radius as opposed to other facilities at a local, national and international scale.

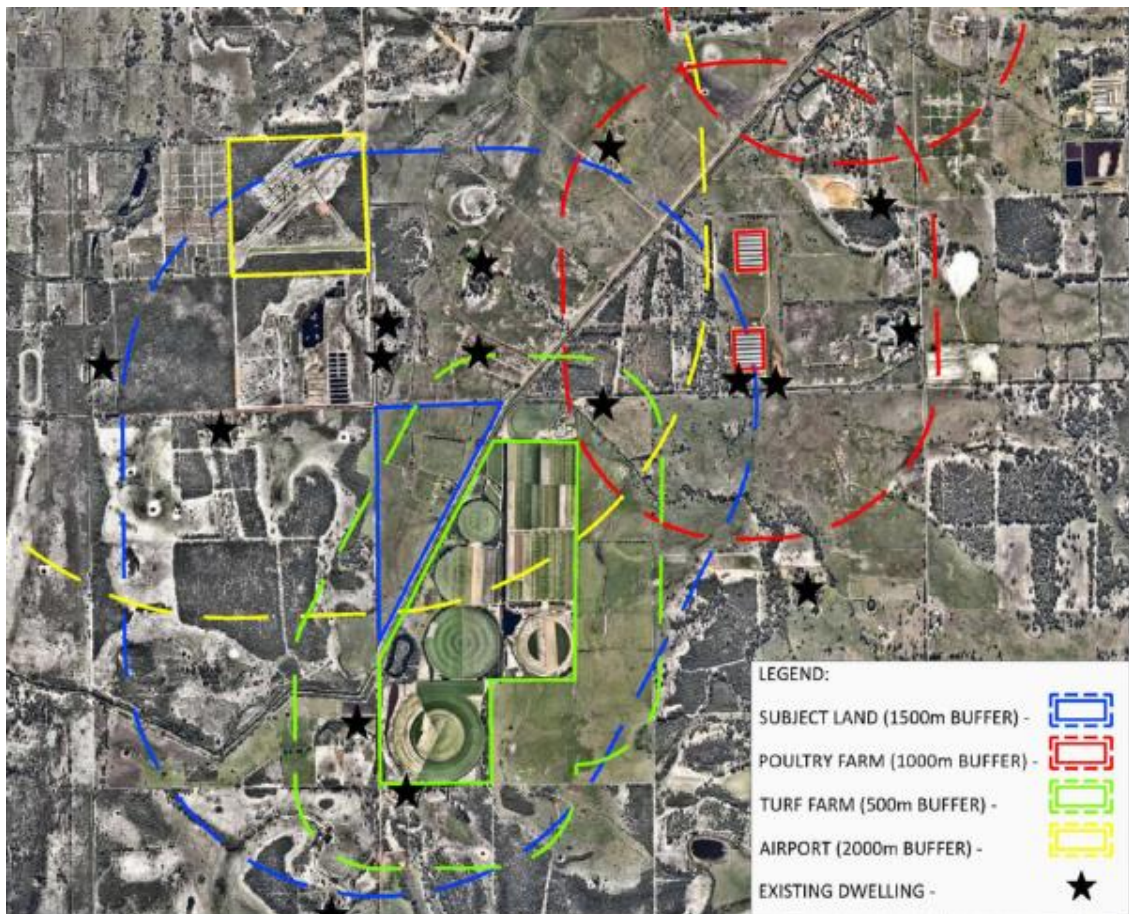


Plate 2: Land use and buffer plan (Source: Allerding and Associates 2018)

Plate 3 includes the flight path of the Serpentine Airfield which stretches to the north-east and south-west over a large land area in proximity to the site. Serpentine Airfield is commonly used for touch and go training whereby aircraft will operate in a continuous circuit by touching down on the runway then ascend to a height of around 600 feet (approx. 180 metres). Plate 3 also contains the height and speed data of an aircraft performing this training manoeuvre, which shows the height of aircraft which overflies surrounding residents is at a height of approximately 600 feet (180 metres).

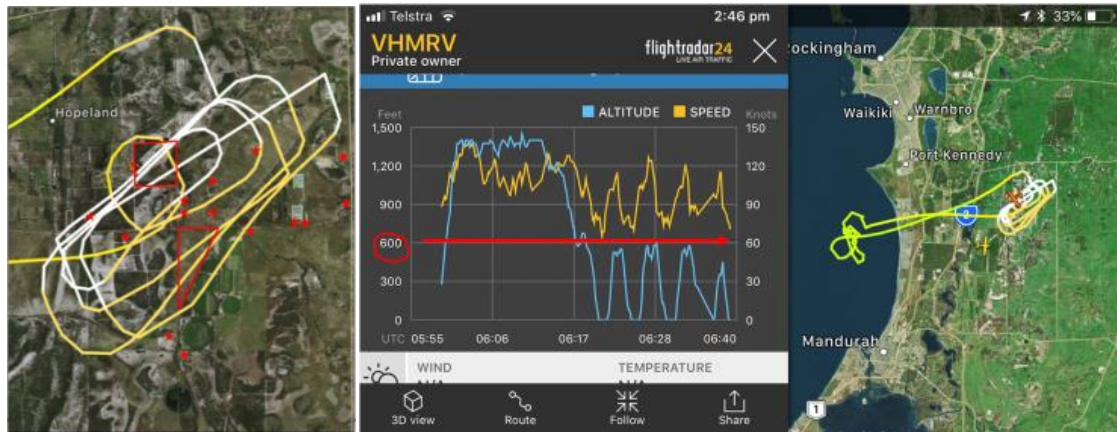


Plate 3: Flight path of the Serpentine Airfield

The Proposal is located in the "Rural" zone under the Shire of Serpentine-Jarrahdale Town Planning Scheme No. 2 (TPS2). The Rural zone is an active commercial zone and not a rural living area. As demonstrated above, the Rural zone is a highly active area comprising a range of land uses. The Shire have other dedicated rural living zones, including "Rural Living A", "Rural Living B" and "Special Rural" that provide a rural living amenity.

The closest rural living zone to the subject site is approximately 2.5km to the north (refer Plate 4). As demonstrated in Plate 4, despite the zoning allowing for rural living opportunities, the area is surrounded on all sides by a range of intensive rural, industrial and recreational land uses including:

- poultry farms to the north and north-east
- an industrial / mining fabrication operation to the north-west
- extractive industries to the north and north east
- Serpentine Airfield to the north

Other rural living zones exist further afield, between 6km and 9km from the subject site, both within and outside of the Shire boundary (Plate 4).

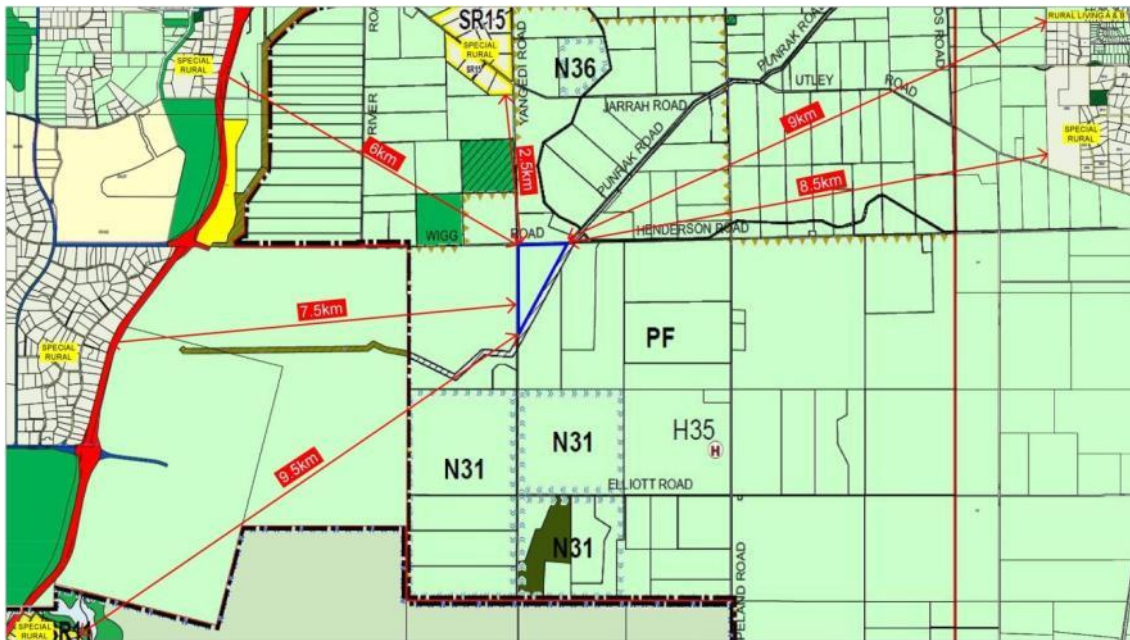


Plate 4: Rural Living Zones

The subject site is also positioned a significant distance from existing and future urban development. The State Government's Perth and Peel @ 3.5 Million and associated South Metropolitan Peel Sub-Regional Planning Framework have identified land for urban development up to 2050. The area is identified as rural under these strategic documents, with the closest urban areas identified being approximately 7km distant from the site in all directions. Therefore, the site is ideally located to ensure there will be no future land use conflict with planned sensitive land uses.

Despite this separation to existing and future urban areas, the site is strategically located in proximity to key population centres of Rockingham, Mandurah and Mundijong. The site also benefits from its strategic positioning adjacent to current and future regional road networks which will provide for long term access to the site. This includes the existing access provided by South Western Highway to the east, Tonkin Highway to the north and the Kwinana Freeway to the west. The Federal Government has granted funding for the southern extension of Tonkin Highway to South Western Highway south of Mundijong which will further improve access to the site. Importantly also, a future upgrade of Wigg Road immediately north of the site as an east to west connection between South Western Highway through to the Kwinana Freeway has been specifically recognised in Perth and Peel @ 3.5 million as reflected in Plate 5.

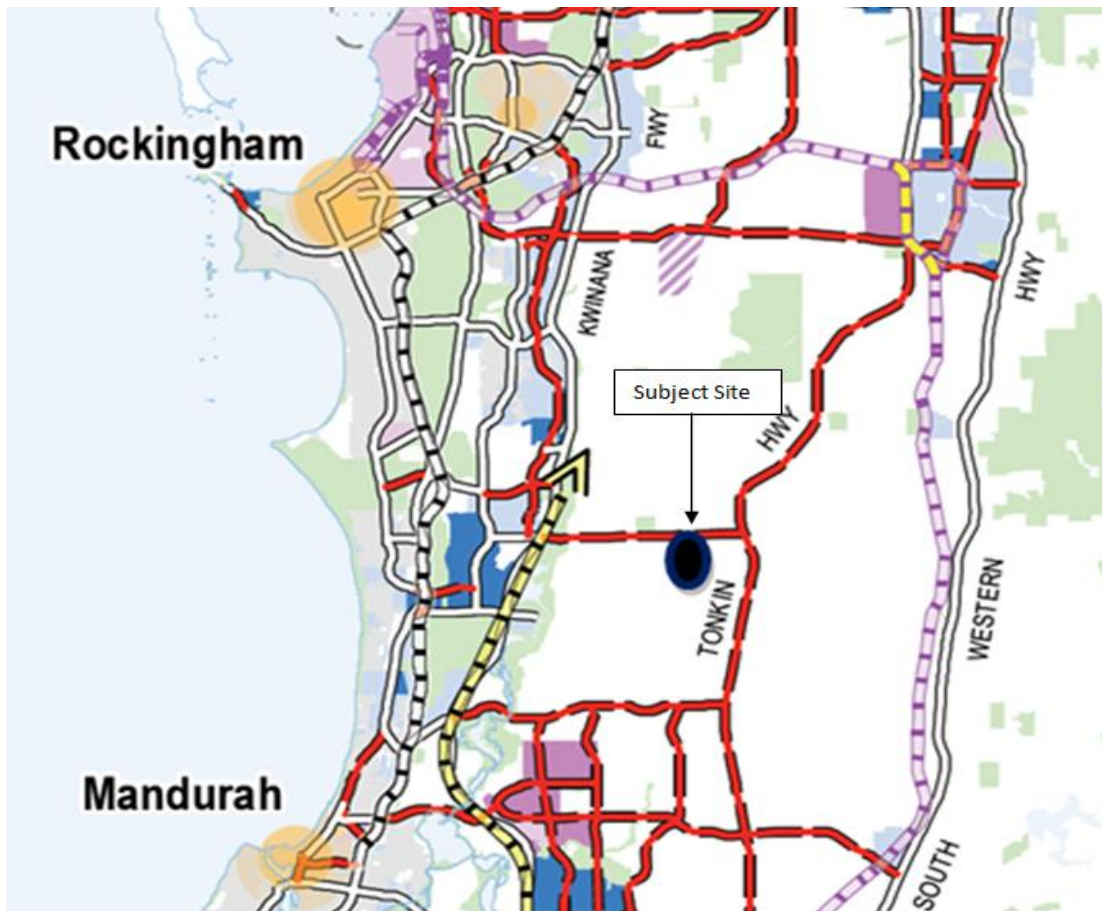


Plate 5: Extract of Perth and Peel @ 3.5 Million – A spatial plan

In summary, the above demonstrates that comparatively the future operation of the Keysbrook Motorsport Facility will result in significantly less nearby residences being impacted by noise as opposed to other facilities at a local, national and international scale. Furthermore, the site is ideally located to ensure there will be no future land use conflict with planned sensitive land uses.

7. *Noise modelling, analysis and assessment of noise emissions from vehicles, public address systems and any other sources associated with the proposal which are not defined as a 'racing activity' under Division 3 of the Noise Regulations.*

Under Division 3 of the Regulations, a racing activity is defined as:

"...racing of motor vehicles or motor vessels conducted as part of a competition day, practice or training sessions, exhibition run, trial, test, entertainment event, promotion or other similar activity."

Based on the advice provided Francis Burt Chambers (2018), it is understood that the below activities proposed for the Keysbrook Motorsport Facility meet the definition of a 'racing activity' as defined under Division 3 of the Regulations as they involve the use of a motor vehicle/motor vessel and are 'a contest of speed':

- Hire Karts
- Amateur Go Kart race events
- International and National Go Kart race events
- Car manufacture days
- Amateur track/test days for road and race cars
- Amateur car events
- Track/test days for road and street bikes
- Bike race days

It is understood that these events would be permitted to occur with an approved NMP under Regulation 16AA.

By the same definition, the below are not considered to be a 'racing activity', on the basis that they do not involve the use of a motor vehicle/motor vessel, and are not 'a contest of speed' (Francis Burt Chambers 2018):

- Road safety driver training
- Use of the Public Address system
- Recreational, educational and entertainment events

Of these activities, noise modelling has been undertaken for use of the Public Address system at the Keysbrook Motorsport Facility. Noise sensitive receivers within 1 km of the facility will receive a maximum L_{A10} of 35 dB or less from Public Address system emissions (without racing activity), which is under the limits set for "Noise sensitive premises: highly sensitive area". Use of the Public Address system will be primarily for commentary and safety requirements, and playing music through the Public Address system during racing will be limited to minimise noise impacts as far as practicable.

Inland Waters Environmental Quality

1. *Water balance modelling (evidence of pre-and post-development water flows and retention of regional floodplain storage volumes).*

The site proposed for the Keysbrook Motorsport Facility is located within a low-lying rural property and in its present state is prone to inundation by regional flood from the adjacent Punrak drain (Peritas 2018). As the site will require fill to provide the necessary freeboard from the 1% AEP flood event and due to a number of constraints construction of a stormwater basin on site is not feasible (Peritas 2019).

Lot 400 (Plate 5), which is located adjacent and north-west of the site, is proposed to be utilised for flood storage. Subsequently, Urbaqua were commissioned to undertake 2-Dimensional modelling of the proposed Keysbrook Motorsport Facility and test scenarios for diversion of significant flood flows originating from the Punrak drain around the property for storage on Lot 400, which is located north-west of the site (Urbaqua 2019; Appendix 5).



Plate 5: 2-Dimensional Model Domain (Urbaqua 2019)

The initial findings of the flood modelling investigation are presented in Appendix 5 and demonstrates conceptually that diversion of flood waters around the proposed facility for storage in Lot 400 is possible (Urbaqua 2019). As an outcome of the modelling exercise Urbaqua (2019) recommended that an earthworks and drainage design for the site and proposed diversion drain is undertaken and an accurate post development model scenario is modelled to confirm the proposed drainage strategy will prevent significant changes to the flood regime on surrounding properties.

The initial flood modelling investigation was undertaken in consultation with DWER, and further consultation with DWER is currently being undertaken to finalise the flood modelling investigation and provide certainty on the volumes and flow paths on the regional flows. Following this exercise, a high-level earthworks model will be undertaken to demonstrate the stormwater storage proposed for Lot 400 is a viable option.

2. Water management including on-site and off-site management strategies.

An Urban Water Management Plan (UWMP) was prepared by Peritas Group in September 2018. Since then, there has been a substantial amount of work undertaken to confirm the use of Lot 400 for flood storage (see above). Following DWERs confirmation of the flood modelling results, the UWMP will be updated to accompany the Development Application for the proposed facility and include the proposed on -site and off-site water management strategies. Site drainage and stormwater management detailing water sensitive design principles, practices and methodology and detailed engineering designs.

As previously stated, there has been a significant amount of work undertaken to confirm the use of Lot 400 for flood storage (see above). Following DWERs confirmation of the flood modelling results, the UWMP will be updated and revised to include:

- further details on the proposed site drainage and stormwater management system
- demonstrate that water sensitive design principles and practices will be implemented on site.

Further detailed engineering designs will accompany the revised UWMP.

3. Water sourcing and disposal (wastewater) inclusive of water licencing requirements.

Wastewater will be managed through the use of Aerobic treatment Units. It is worthwhile to note the venue will be event based and as there will be limited permanent ablution facilities available on-site portable toilets will be provided during larger events.

Following acquisition of Lot 400 by the proponent, the water licence allocated to Lot 400 expired. A new water licence application will be submitted to DWER as part of the proposed development.

4. Water quality monitoring and management.

Post development water quality monitoring and management is proposed and will be based on the Department's Water Quality Monitoring Guidelines for Better Urban Water Management Strategies and Plans. In particular, groundwater levels, hydrocarbons, heavy metals and nutrients will be measured against design objectives and baseline water quality.

Should post-development monitoring find the water quality related objective are not being met, the following contingency procedures will be undertaken:

- Investigate source or cause of elevated levels of contaminants and determine if it is due to the KMF

- Ensure that the development has fully complied with development conditions relating to water quality management. If such BMPs have not been designed and installed as approved, then the developer would do so or council would be entitled to take regulatory action for a breach of development conditions
 - If investigation indicates that the elevated level of contaminants is caused by external sources, further investigation will be undertaken in consultation with DWER.
5. *Management and mitigation of potential impacts to inland waters (surface and groundwater) quality and quantity.*

The following key design measures are proposed to ensure surface water and groundwater is appropriately managed:

- Stormwater will be managed through the use of bio-retention infrastructures
- Flood waters (1% AEP flood levels) will be diverted around the proposed facility for storage in Lot 400 with minor changes to the flood regime on surrounding properties
- Critical infrastructure will be elevated above 1% AEP flood levels with freeboard.
- Groundwater levels will be managed through the use of a subsoil drainage network.

As previously advised, the UWMP will be updated and revised to include further details on the proposed site drainage and stormwater management system. Furthermore, it will address potential impacts to surface and groundwater quality and quantity through a number of management and mitigation measures which will be guided by the following water management objectives:

Groundwater and surface water quantity

- where there are identified impacts on significant ecosystems, maintain or restore desirable environmental flows and/or hydrological cycles
- for flood management, manage up to the 1 in 100-year ARI event within the development area to pre-development flows and the requirements of Water Corporation.

Groundwater and surface water quality

- maintain or improve groundwater and surface water quality.

6. *Water management planning and design in consideration of the interface between the site and the adjacent Conservation Category Wetland.*

Regional geomorphic wetland mapping indicates that there is a Conservation Category Wetland adjacent to the proposed Keysbrook Motorsport Facility. Another Conservation Category Wetland occurs within (north-west portion) and adjacent to Lot 400.

Construction and operation of the facility has the potential to impact the hydrological regime of the wetland, allow for uncontrolled access into the wetland, introduce weeds and pest and generate additional stormwater runoff that will potentially contain elevated concentrations of nutrients, heavy metals and organic compounds.

To mitigate these impacts, future development will establish a 50 m buffer to the adjacent Conservation Category Wetlands and 30 m buffer to the Resource Enhancement Wetland located within the southern portion of Lot 400. The revised UWMP will include management measures and contingencies that will be implemented to mitigate negative impacts of stormwater run-off on the wetlands. Furthermore, any future management measures will be developed and implemented to ensure the long-term conservation of these wetlands, such as controlled access and fencing requirements, interface design, use of bioretention swales, weed control and revegetation where required.

In relation to the current wetland mapping for these Conservation Category Wetlands and based on aerial imagery, the current mapped wetland boundaries do not appear to align with areas of intact wetland vegetation (Figure 1). In order to define the development footprint and thereby, inform the flood modelling investigation, the 50 m conservation category wetland buffer has been defined by following the area of intact wetland vegetation.

However, as part of future development, a detailed wetland assessment will be undertaken to evaluate the wetland's values and accurately map the CCW boundary. This will ensure the wetland buffer is correctly sized and future development is appropriately setback. The wetland assessment will also inform the management responses and measures required to ensure the long-term conservation of the CCW.

Conclusion

The site's strategic position to accommodate the Keysbrook Motorsport Facility, the high level of regulation already in place through its accreditation by peak motorsports bodies and the development of management procedures as part of the development and design process has enabled a comprehensive approach to the development and ongoing management of the facility for the benefit of the community, the motorsport industry and the Shire of Serpentine-Jarrahdale.

All reasonable steps have been undertaken to minimise noise emissions from the proposed facility and the Noise Management Plan represents best practice when measured against other comparable facilities around Australia and internationally.

Comparatively, the future operation of the Keysbrook Motorsport Facility will result in significantly less nearby residences being impacted by noise as opposed to other facilities around Australia and internationally. Furthermore, the scheduling of events has been limited to the day time as opposed to the Perth Motorplex which accommodates night time events and has approximately 160 residences within a 2 km radius.

As part of their further commitment to ensuring noise emissions are minimised, the proponent will engage with nearby residences to develop a noise amelioration/compensation package that will be tailored to their individual requirements and would include for example, the provision of funds for noise insulation.

Future management of key environmental factors: social surroundings and inland waters

Whilst the UWMP still requires further revision following DWERs endorsement of the flood modelling investigations, the UWMP will be prepared and approved as a condition of the Development Application. Furthermore, the UWMP will be prepared in close consultation with DWER. Impacts on inland waters are not considered to be significant.

Similarly, the Noise Management Plan will be approved as a requirement of Regulation 16A. Any future revisions to the Noise Management Plan will also be undertaken in consultation with DWER. It is worthwhile to note that as part of the planning and design process, extensive liaison has been undertaken with the Shire and the Noise Management Plan has been developed in consultation with the Shire.

The above demonstrates that the application of Regulation 16A will ensure the potential impacts to social surroundings are appropriately managed and the necessary measures implemented through the Noise Management Plan.

Given the potential impacts to inland water are not considered to be significant and that noise can be effectively regulated via Regulation 16A of the Regulations a formal level of environmental impact assessment is not required.

While it is acknowledged that the proposal will be of local public interest the State and local government planning approvals processes, as well as the proponent's community consultation programme, provide substantial opportunities for community concerns to be considered and addressed.

Should you require clarification, please contact the undersigned on 08 9380 3100 or by email kchoo@jbsg.com.au.

Yours sincerely



Darren Walsh
EXECUTIVE DIRECTOR

20 March 2020

**cc: Jahnn Stati, Stati Investments Pty Ltd
Steve Allarding, Allarding and Associates**

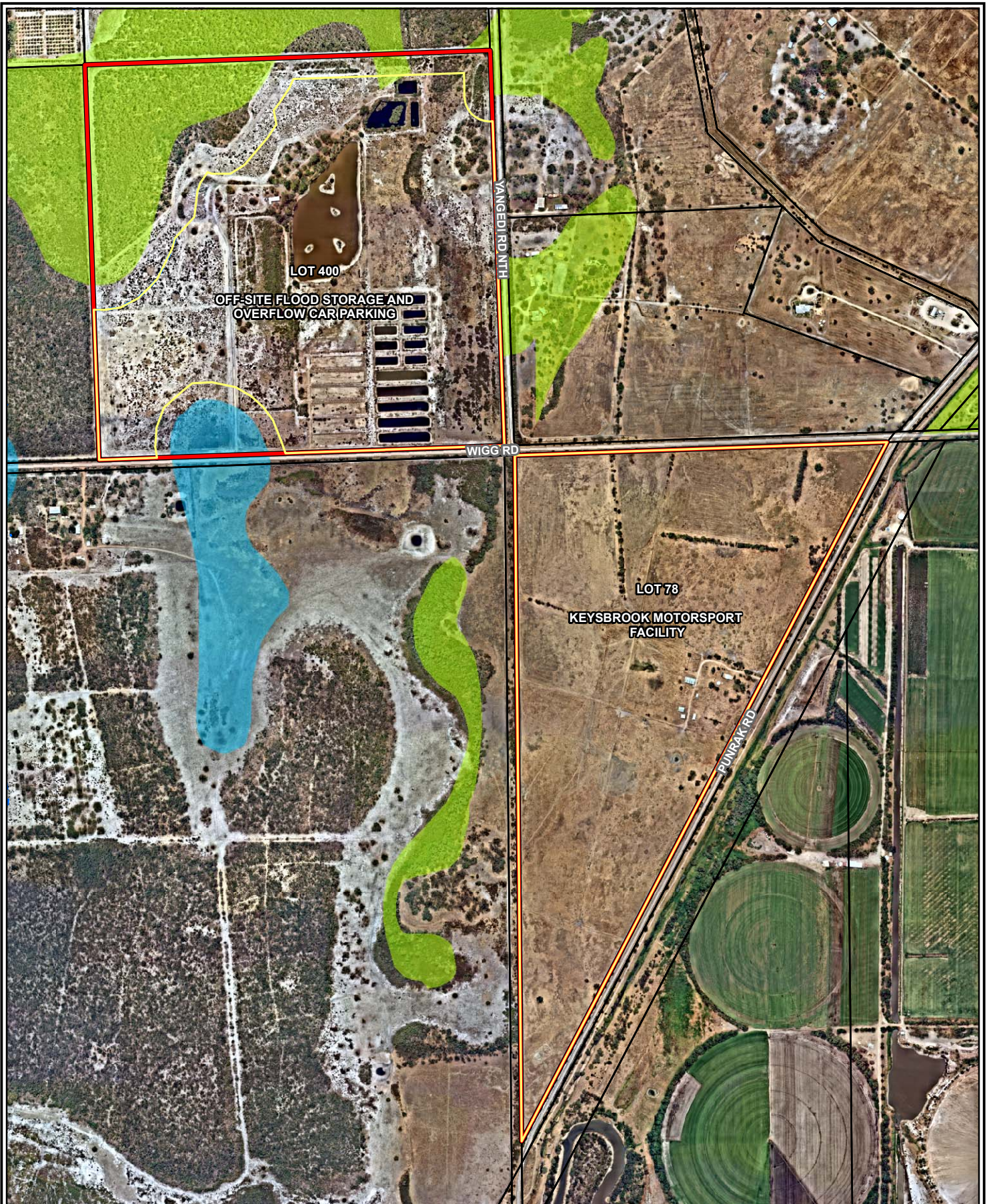
Enclosure:

- Figure 1: Proposal Area
- Appendix 1: Environmental Noise Assessment
- Appendix 2: Noise Management Plan
- Appendix 3: Literature Review
- Appendix 4: Urban Water Management Plan
- Appendix 5: 2D Flood Modelling Letter Report

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Figures



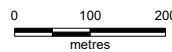
Legend:

- Development envelope (113.36 ha)
- Development footprint (95.67 ha)
- Cadastral boundary

Geomorphic Wetlands (DBCA)

- Conservation Category
- Resource Enhancement
- Roads (MRWA)

Scale 1:10,000 at A4



Coord. Sys. GDA 1994 MGA Zone 50



Job No: 56837

Client: Stati Group

Version: A

Date: 17-Mar-2020

Drawn By: hsullivan

Checked By: KC

**Lot 400 and 78 Punkrak Rd
Keysbrook, WA**

PROPOSAL AREA

FIGURE 1

