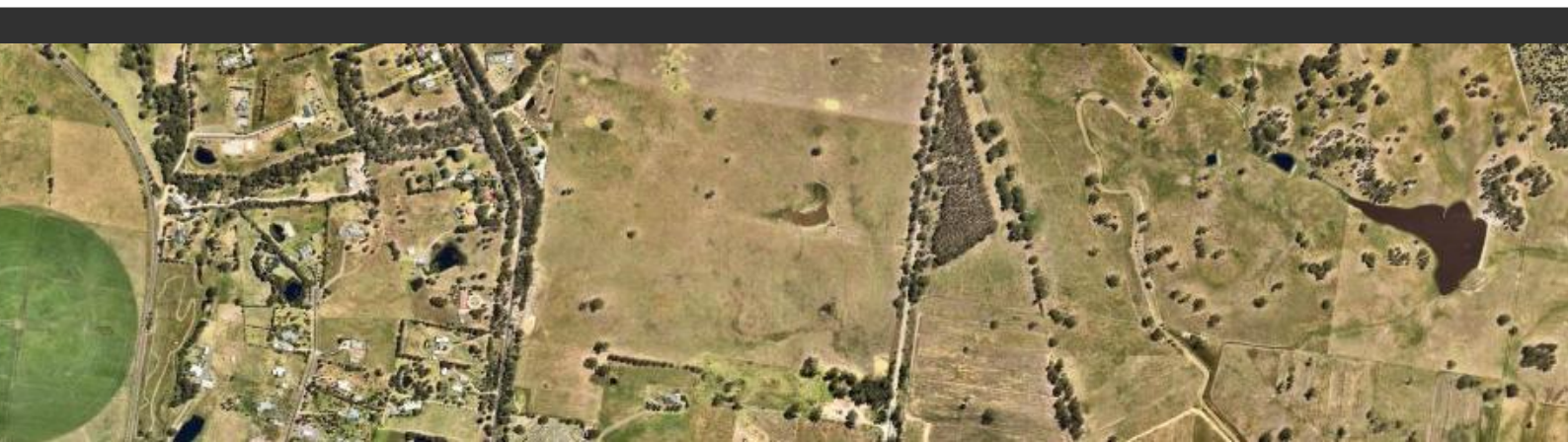


# ***Maffra-Briagolong Road, Maffra***

## Transport Impact Assessment



220684TIA001 J-F.docx

13 March 2026

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# 1 INTRODUCTION

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This report addresses the phased development of land located on Briagolong Road, Maffra, which will proceed in stages. The land is identified within the Maffra Structure Plan as appropriate for increased density rural living development, subject to further investigation and preparation of technical reports.

The site is currently zoned to facilitate subdivision into 23 rural living zoned lots with a nominated schedule of 2.0 hectares and is proposed to be developed through a coordinated three-phase planning process (staged):

- Phase 1: Preparation and approval of a Development Plan to establish the overall subdivision and servicing framework to address the requirements of the Development Plan Overlay Schedule 1.
- Phase 2: A planning permit application for the creation of 22 lots generally 6,000 m<sup>2</sup> in size, together with a balance lot, addressing the current requirements of the Rural Living Zone (Schedule 2).
- Phase 3: A Planning Scheme Amendment to the Wellington Planning Scheme to change the Zone Schedule and planning permit application to facilitate the subdivision of the balance land into 64 additional lots, also generally 6,000 m<sup>2</sup> in size. The stage proposes to delete the Development Plan Overlay applying to the land.

This report addresses all 3 phases (stages) of the development and considers both interim and ultimate development outcomes for the subject land.

# 2 PLANNING HISTORY

---

**onemilegrid** has previously prepared a Transport Impact Assessment for the application of a residential subdivision of the parcel of land identified as 1/TP533434 and 2/TP533434 for Beveridge Williams (dated 14 December 2022).

Comments were received from Department of Transport and Planning (DTP), which advised that further traffic analysis was required, which takes into consideration the intersection between Maffra-Briagolong Road and Sandy Creek Road. An updated Transport Impact Assessment was subsequently prepared (220684TIA001D-F) analysing this intersection (dated 28 May 2023).

Beveridge Williams were then provided with comments from the CFA, and an updated Transport Impact Assessment (220684TIA001G-F) was prepared on 14 June 2024 to address these comments.

Comments were then received from Council, requesting the removal of references to the temporary access road, noting that the road will serve as a permanent access, and an updated Transport Impact Assessment (220684TIA001I-F) was prepared on 18 December 2025.

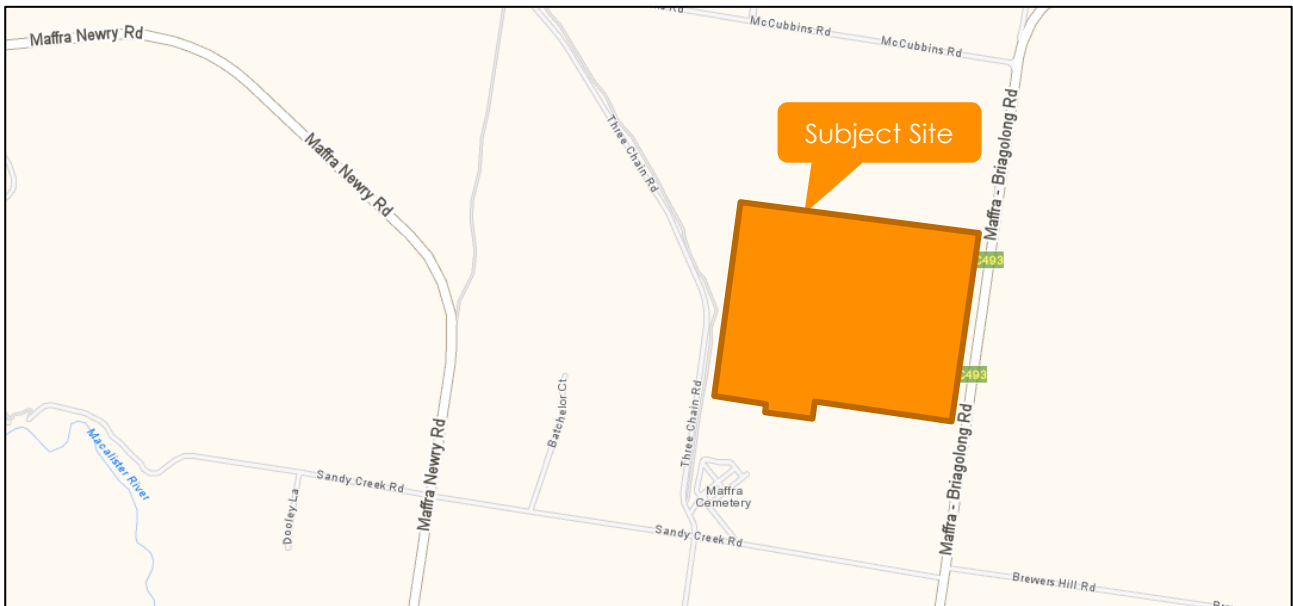
**onemilegrid** has since been requested by Beveridge Williams to prepare an updated Transport Impact Assessment to take into account the staged development (phases 1 to 3) of the site.

### 3 EXISTING CONDITIONS

#### 3.1 Site Location

The subject site is located on the eastern side of Three Chain Road, approximately 420m north of the intersection between Sandy Creek Road, Three Chain Road and Boisdale Street, as shown in Figure 1.

**Figure 1 Site Location**



Copyright Whereis

The site is irregular in shape and is bound by Three Chain Road to the west and Maffra-Briagolong Road to the east.

The site is currently vacant with no vehicle access provided to the site.

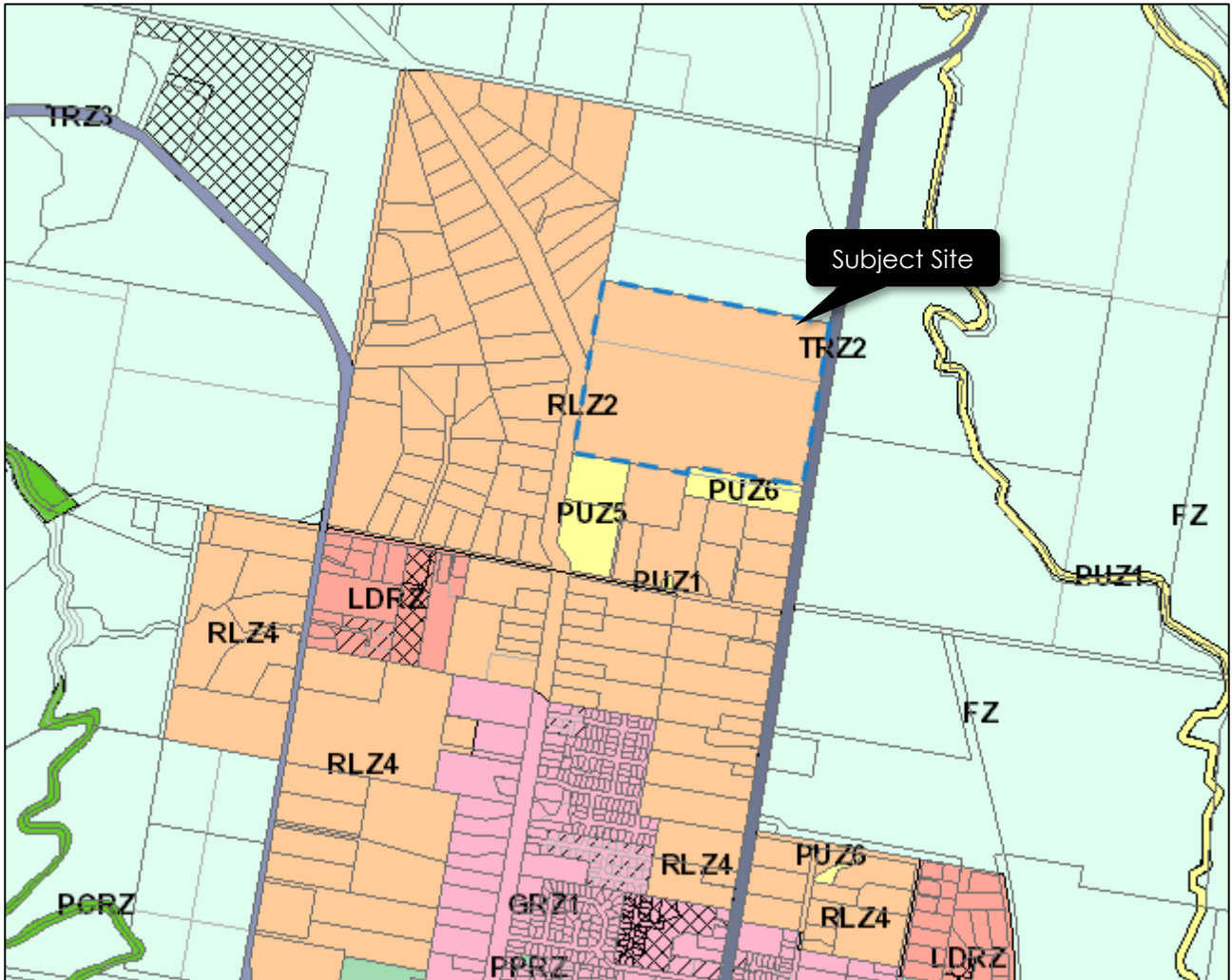
Land use in the vicinity of the site is largely comprised of sparse residential land. Of note, the Maffra Cemetery is located towards the south-western corner of the site.

Development of the subject site and land in the surrounding area is guided by the Maffra Structure Plan.

### 3.2 Planning Zones and Overlays

It is shown in Figure 2 that the site is located within a Rural Living Zone (RLZ2).

**Figure 2 Planning Scheme Zones**



The site is also subject to a Development Plan Overlay – Schedule 1 (DPO1) and a Bushfire Management Overlay (BMO).

Additionally, the site abuts Maffra-Briagolong Road, which is within a Transport Zone (TRZ2); Principal Road Network.

### 3.3 Road Network

#### 3.3.1 Maffra-Briagolong Road

Maffra-Briagolong Road is an arterial road generally aligned north-south, running between the intersection between Maffra-Briagolong Road / Forbes Street / Avon Street to the north and the intersection of Maffra-Briagolong Road / Johnson Street / Stratford-Maffra Road / Sale Road to the south.

Maffra-Briagolong Road provides a single traffic lane with unpaved shoulders in each direction adjacent to the site.

A 100km/h speed limit applies to Maffra-Briagolong Road in the vicinity of the site.

The cross-section of Maffra-Briagolong Road in the vicinity of the site of the site is shown below.

**Figure 3 Maffra-Briagolong Road, looking north adjacent to the subject site**



**Figure 4 Maffra-Briagolong Road, looking south adjacent to the subject site**



### 3.3.2 Three Chain Road

Three Chain Road is a local road generally aligned north-south, running between the intersection of Three Chain Road / Horstmans Road / Kentucky Road to the north and the intersection of Three Chain Road / Boisdale Street / Sandy Creek Road to the south.

Three Chain Road provides a single traffic lane with unpaved shoulders in each direction adjacent to the site.

An 80km/h speed limit applies to Three Chain Road in the vicinity of the site.

The cross-section of Three Chain Road in the vicinity of the site of the site is shown below.

**Figure 5 Three Chain Road, looking north adjacent to the subject site**



**Figure 6 Three Chain Road, looking south adjacent to the subject site**



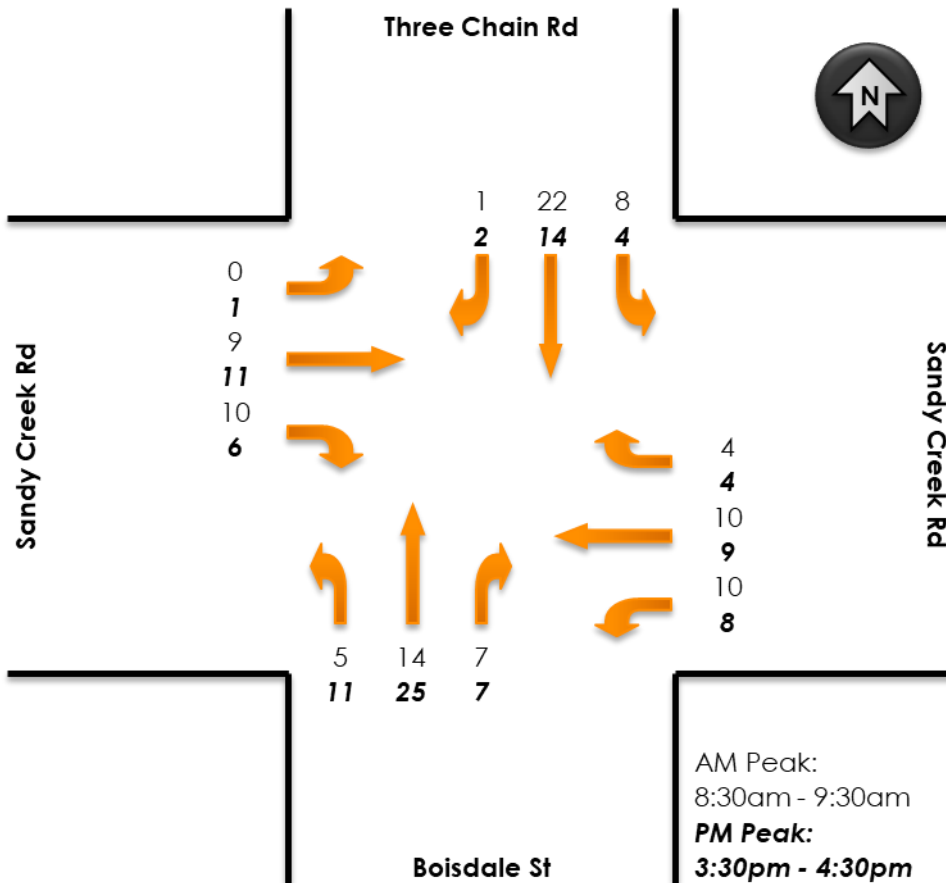
### 3.4 Traffic Volumes

#### 3.4.1 Traffic Surveys

Traffic volume surveys were undertaken by Trans Traffic Survey on behalf of **onemilegrid** at the intersection of Sandy Creek Road / Three Chain Road / Boisdale Street, on Thursday 6<sup>th</sup> October 2022, between 6:30am and 9:30am and between 3:30pm and 6:30pm.

The peak hour results of the surveys are shown in Figure 7.

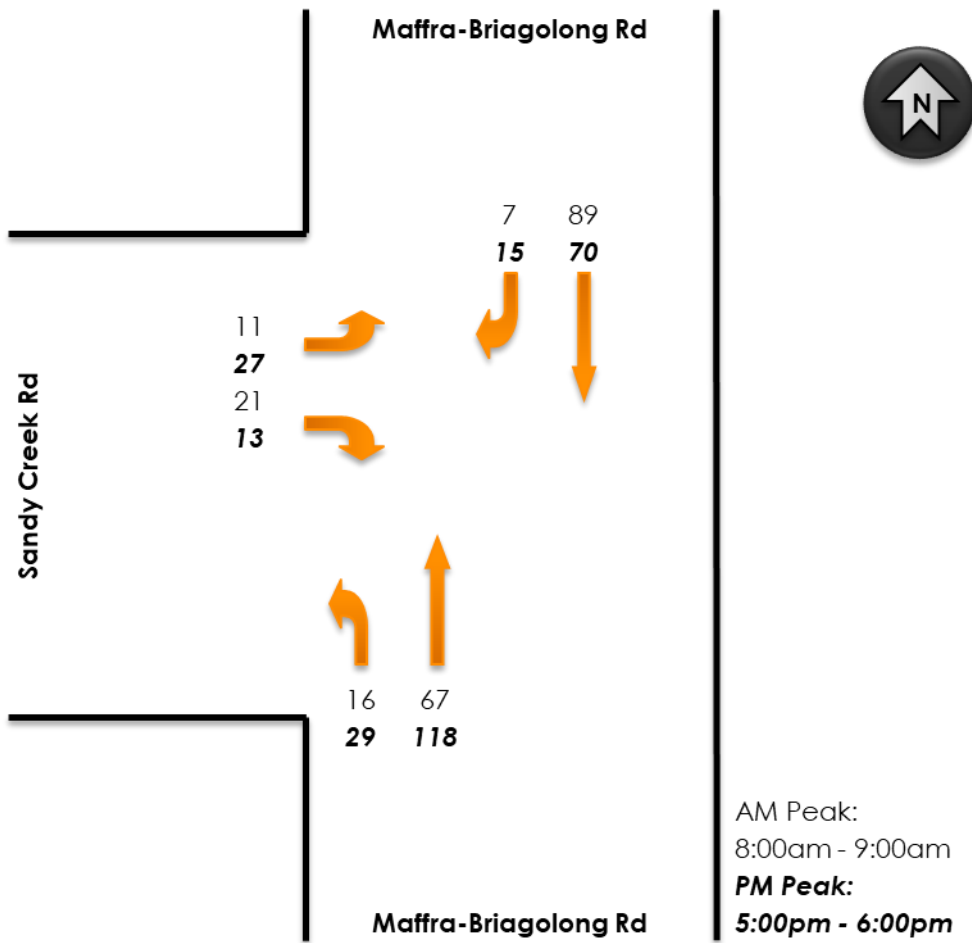
**Figure 7 Sandy Creek Road / Three Chain Road / Boisdale Street – 06/10 2022**



Additional traffic volume surveys were captured at the intersection of Maffra-Briagolong Road and Sandy Creek Road as requested by Department of Transport and Planning (DTP), on Thursday 11<sup>th</sup> May 2023, between 6:30am and 9:30am and between 3:30pm and 6:30pm.

The peak hour results of the surveys are shown in Figure 8.

Figure 8 Maffra-Briagolong Road / Sandy Creek Road – 11/05 2023



### 3.4.2 Intersection Capacity Assessment

To assess the operation of the intersections, the traffic volumes have been input into SIDRA Intersection, a traffic modelling software package.

The SIDRA Intersection software package has been developed to provide information on the capacity of an intersection with regard to a number of parameters. Those parameters considered relevant are, Degree of Saturation (DoS), 95th Percentile Queue, and Average Delay as described below.

**Table 1 SIDRA Intersection Parameters**

Parameter	Description														
Degree of Saturation (DoS)	The DoS represents the ratio of the traffic volume making a particular movement compared to the maximum capacity for that particular movement. The value of the DoS has a corresponding rating depending on the ratio as shown below.														
	<table border="1"> <thead> <tr> <th>Degree of Saturation</th> <th>Rating</th> </tr> </thead> <tbody> <tr> <td>Up to 0.60</td> <td>Excellent</td> </tr> <tr> <td>0.61 – 0.70</td> <td>Very Good</td> </tr> <tr> <td>0.71 – 0.80</td> <td>Good</td> </tr> <tr> <td>0.81 – 0.90</td> <td>Fair</td> </tr> <tr> <td>0.91 – 1.00</td> <td>Poor</td> </tr> <tr> <td>Above 1.00</td> <td>Very Poor</td> </tr> </tbody> </table>	Degree of Saturation	Rating	Up to 0.60	Excellent	0.61 – 0.70	Very Good	0.71 – 0.80	Good	0.81 – 0.90	Fair	0.91 – 1.00	Poor	Above 1.00	Very Poor
	Degree of Saturation	Rating													
	Up to 0.60	Excellent													
	0.61 – 0.70	Very Good													
	0.71 – 0.80	Good													
	0.81 – 0.90	Fair													
0.91 – 1.00	Poor														
Above 1.00	Very Poor														
It is noted that whilst the range of 0.91 – 1.00 is rated as 'poor', it is acceptable for critical movements at an intersection to be operating within this range during high peak periods, reflecting actual conditions in a significant number of suburban signalised intersections.															
Average Delay (seconds)	Average delay is the time delay that can be expected for all vehicles undertaking a particular movement in seconds. This includes time taken to accelerate or decelerate, time taken to undertake the manoeuvre, and delay at a hold line or stop line.														
95th Percentile (95th) Queue	95th percentile queue represents the maximum queue length in metres that can be expected in 95% of observed queue lengths in the peak hour.														
Level of Service (LoS)	A qualitative measure of sign-controlled intersection performance, based on the average delay experienced by a driver. A LoS of A, B, C or D suggests acceptable intersection performance. A LoS of E or F suggests mitigation measures or upgrades may be warranted.														

The value of the DoS and Level of Service has a corresponding rating depending as shown below.

**Table 2 Rating of Degree of Saturation and Level of Service**

Rating	Degree of Saturation	Level of Service
Excellent	Up to 0.60	A
Very Good	0.61 – 0.70	B
Good	0.71 – 0.80	C
Fair	0.81 – 0.90	D
Poor	0.91 – 1.00	E
Very Poor	Above 1.00	F

The results of the analysis are provided below.

**Table 3 Sandy Creek Road / Three Chain Road – Existing Conditions**

<i>Approach</i>	<i>DoS</i>	<i>Avg. Delay (sec)</i>	<i>Queue (m)</i>	<i>Level of Service</i>
AM Peak				
Sandy Creek Road South	0.023	5.1	0.6	A
Three Chain Road East	0.015	3.3	0.3	A
Sandy Creek Road North	0.025	4.7	0.7	A
Three Chain Road West	0.012	3.0	0.3	A
PM Peak				
Sandy Creek Road South	0.036	4.9	1.0	A
Three Chain Road East	0.012	3.2	0.2	A
Sandy Creek Road North	0.017	4.8	0.5	A
Three Chain Road West	0.011	2.1	0.3	A

As shown above the Sandy Creek Road / Three Chain Road intersection is currently operating under excellent conditions during both the morning and afternoon peak hours with minimal queues and delays experienced by motorists.

**Table 4 Sandy Creek Road / Maffra-Briagolong Road – Existing Conditions**

<i>Approach</i>	<i>DoS</i>	<i>Avg. Delay (sec)</i>	<i>Queue (m)</i>	<i>Level of Service</i>
AM Peak				
Maffra-Briagolong Road South	0.047	1.1	0.0	A
Maffra-Briagolong Road North	0.055	0.4	0.3	A
Sandy Creek Road West	0.029	6.1	0.7	A
PM Peak				
Maffra-Briagolong Road South	0.080	1.1	0.0	A
Maffra-Briagolong Road North	0.048	1.1	0.7	A
Sandy Creek Road West	0.032	6.0	0.8	A

As shown above the Sandy Creek Road / Maffra-Briagolong Road intersection is currently operating under excellent conditions during both the morning and afternoon peak hours with minimal queues and delays experienced by motorists.

## 4 MAFFRA STRUCTURE PLAN

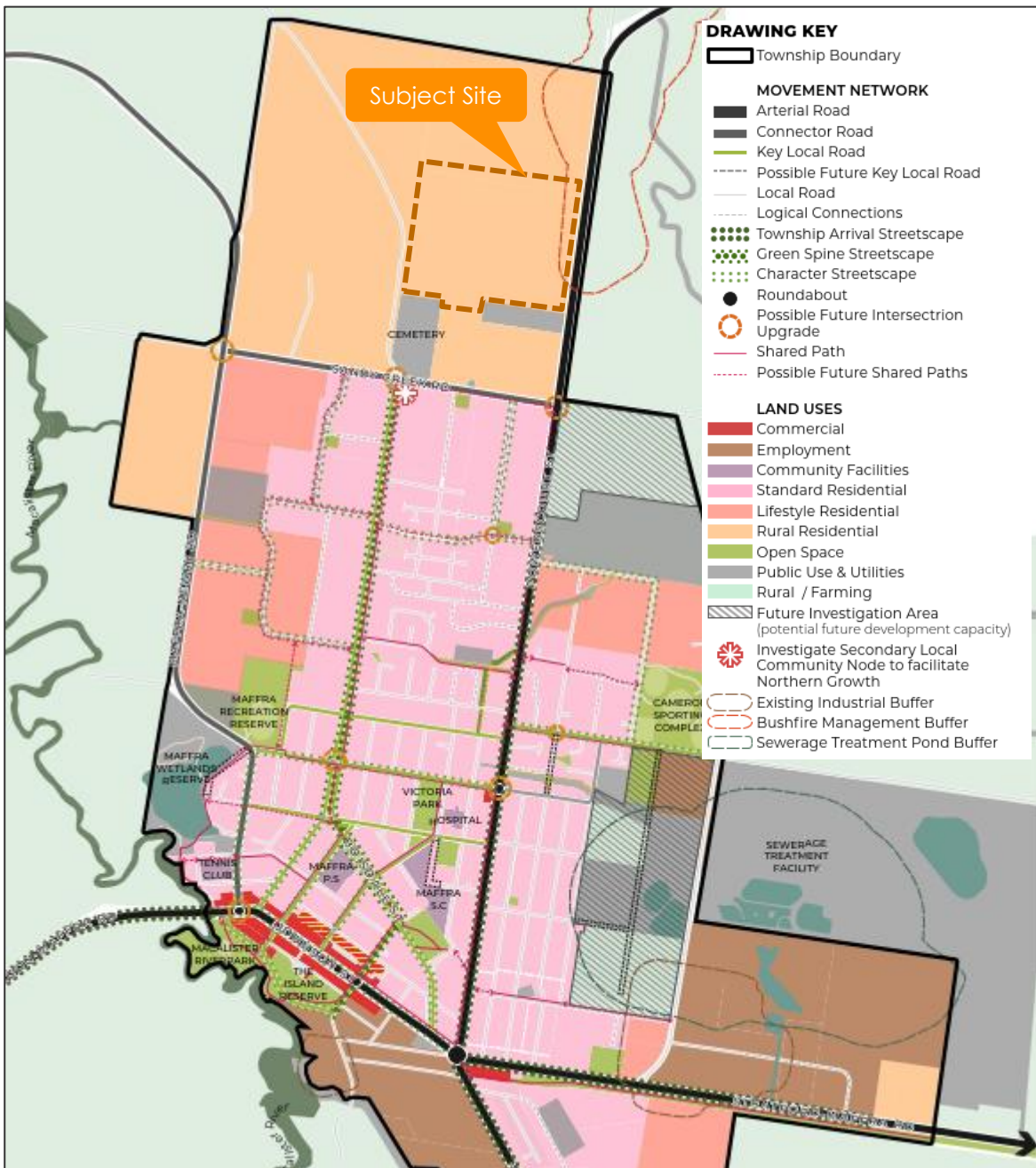
### 4.1 General

The site is located within the Maffra Structure Plan, for which an extract of the map is shown in Figure 9.

The Maffra Structure Plan was adopted by Council on 17 May 2022 with a view to guide future land-use and infrastructure development over the next 20 years. The Maffra Structure Plan describes, amongst other things, how the land is to be developed and how and where services to cater for the development will be planned and located.

This site is nominated in the Maffra Structure Plan as Rural Residential land.

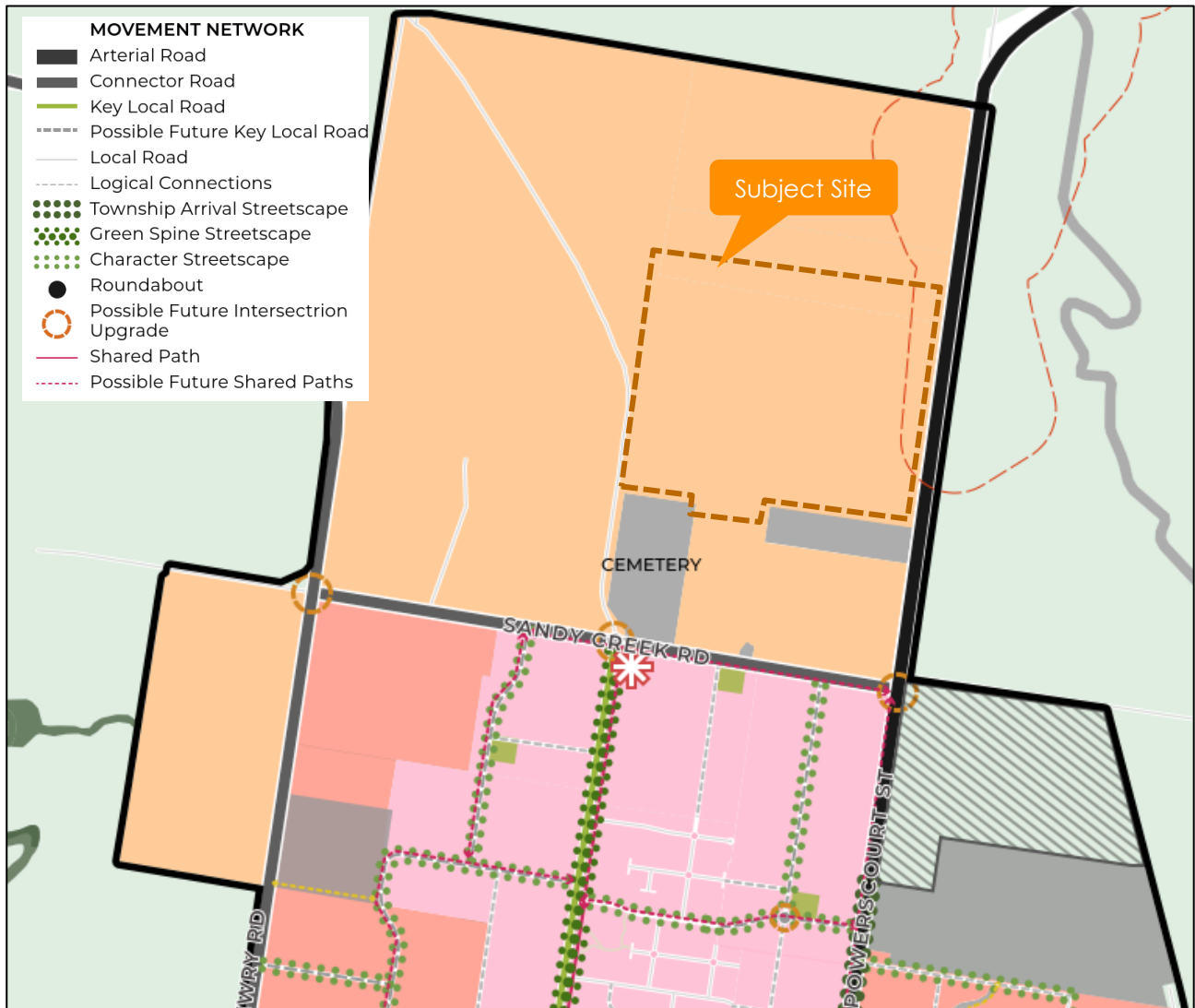
**Figure 9 Maffra Structure Plan**



## 4.2 Road Network, Public Transport, Walking and Cycling

The Maffra Structure Plan outlines the future road network in the vicinity of the site including new connections and upgrades to existing roads. A view of the structure plan road network is provided in Figure 10 and Figure 11.

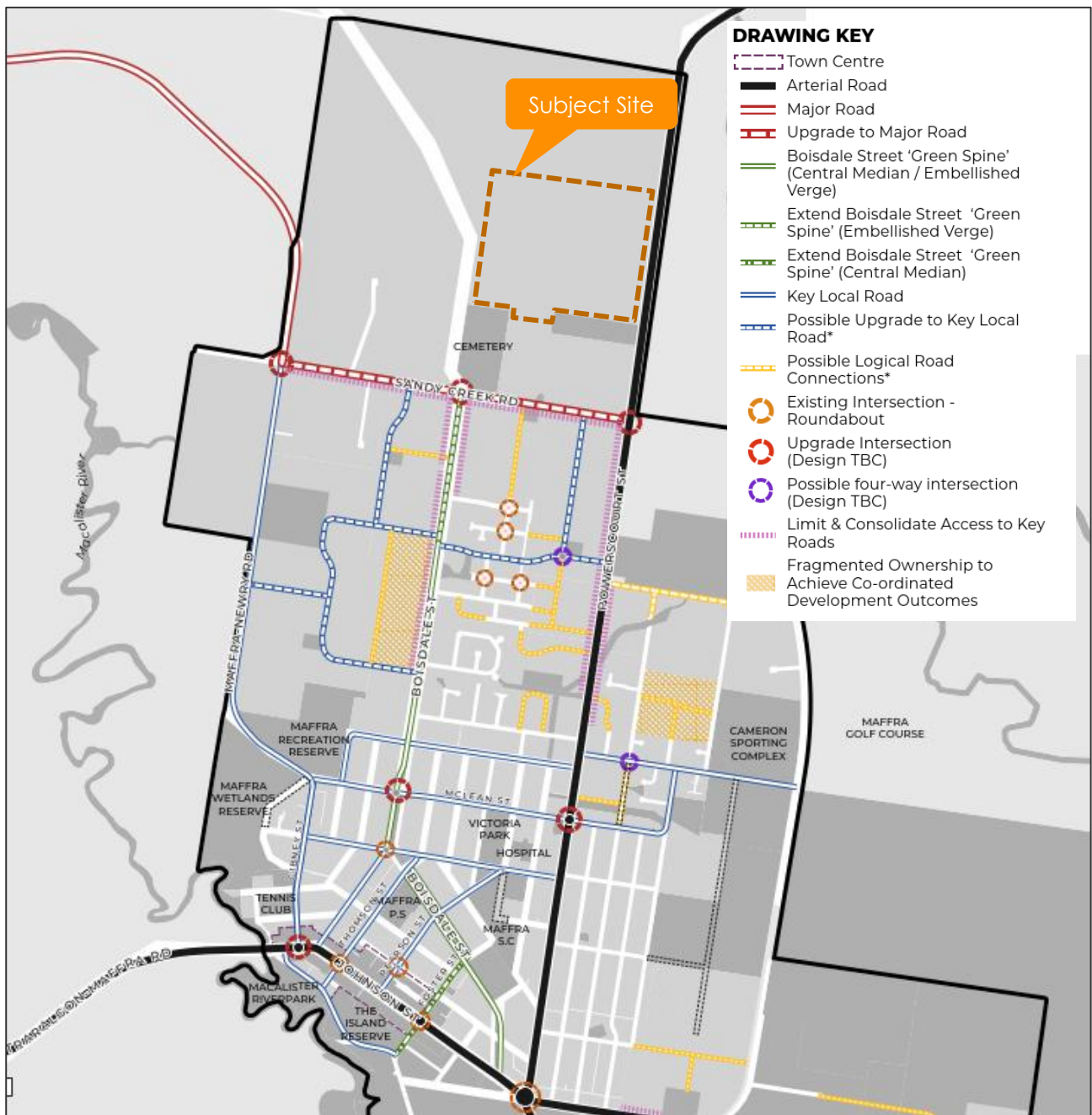
**Figure 10 Movement Network**



With respect to the subject site, Maffra-Briagolong Road is identified as an Arterial Road, Sandy Creek Road is identified as a Connector Road and Three Chain Road is shown as a Local Road. Additionally, Boisdale Street south of Sandy Creek Road is shown as a Key Local Road with a Green Spine Streetscape.

The intersection connecting Sandy Creek Road, Three Chain Road and Boisdale Street is indicated as a Possible Future Intersection Upgrade.

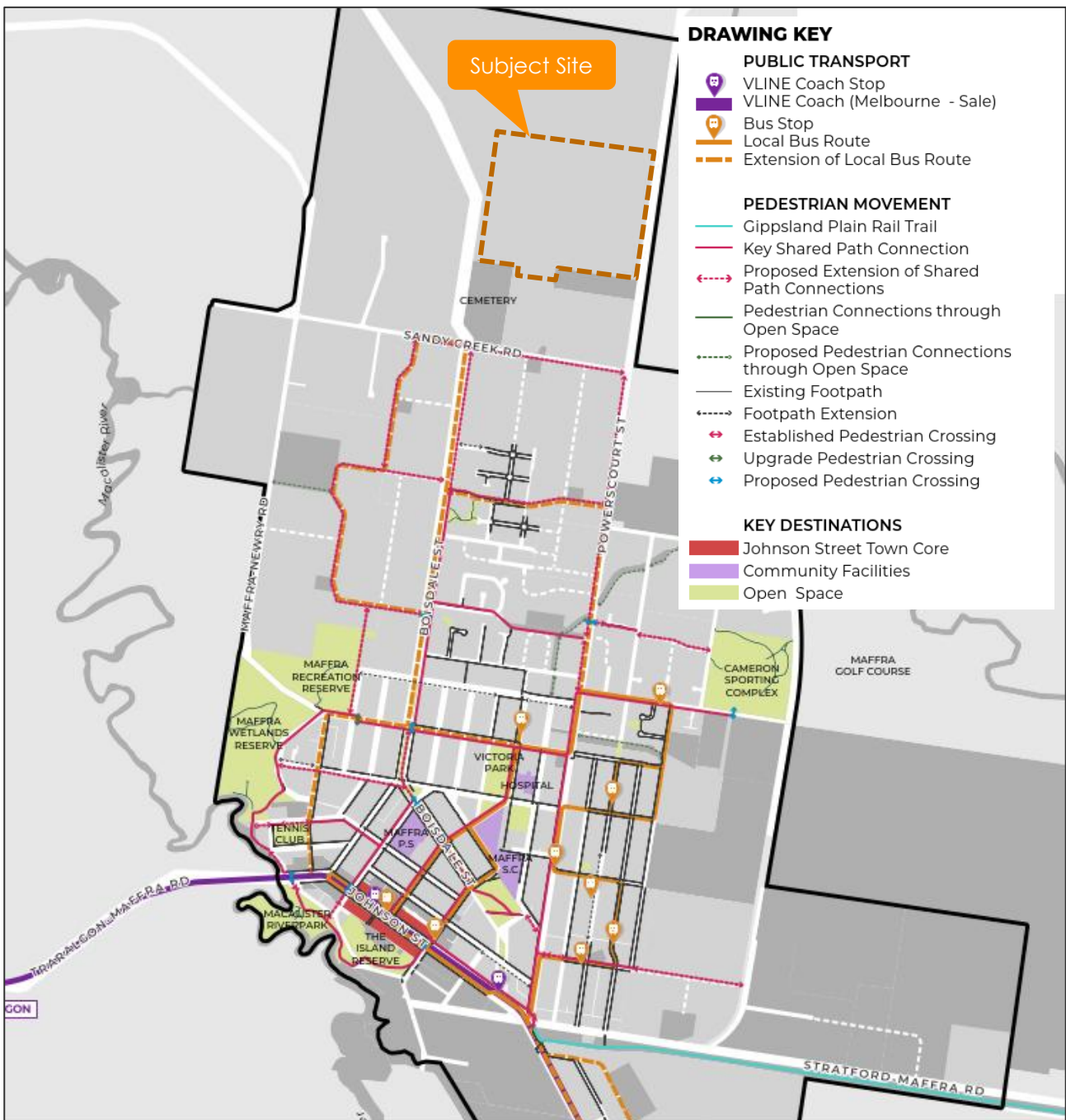
**Figure 11 Road Network Upgrade Plan**



The Maffra Structure Plan shows that road upgrades in the vicinity of the site include upgrade of Sandy Creek Road to a Major Road and the extension of Boisdale Street 'Green Spine'.

The intersection of Sandy Creek Road, Three Chain Road and Boisdale Street is again shown to be an Upgraded Intersection, with the design still under consideration.

**Figure 12 Active and Public Transport Plan**

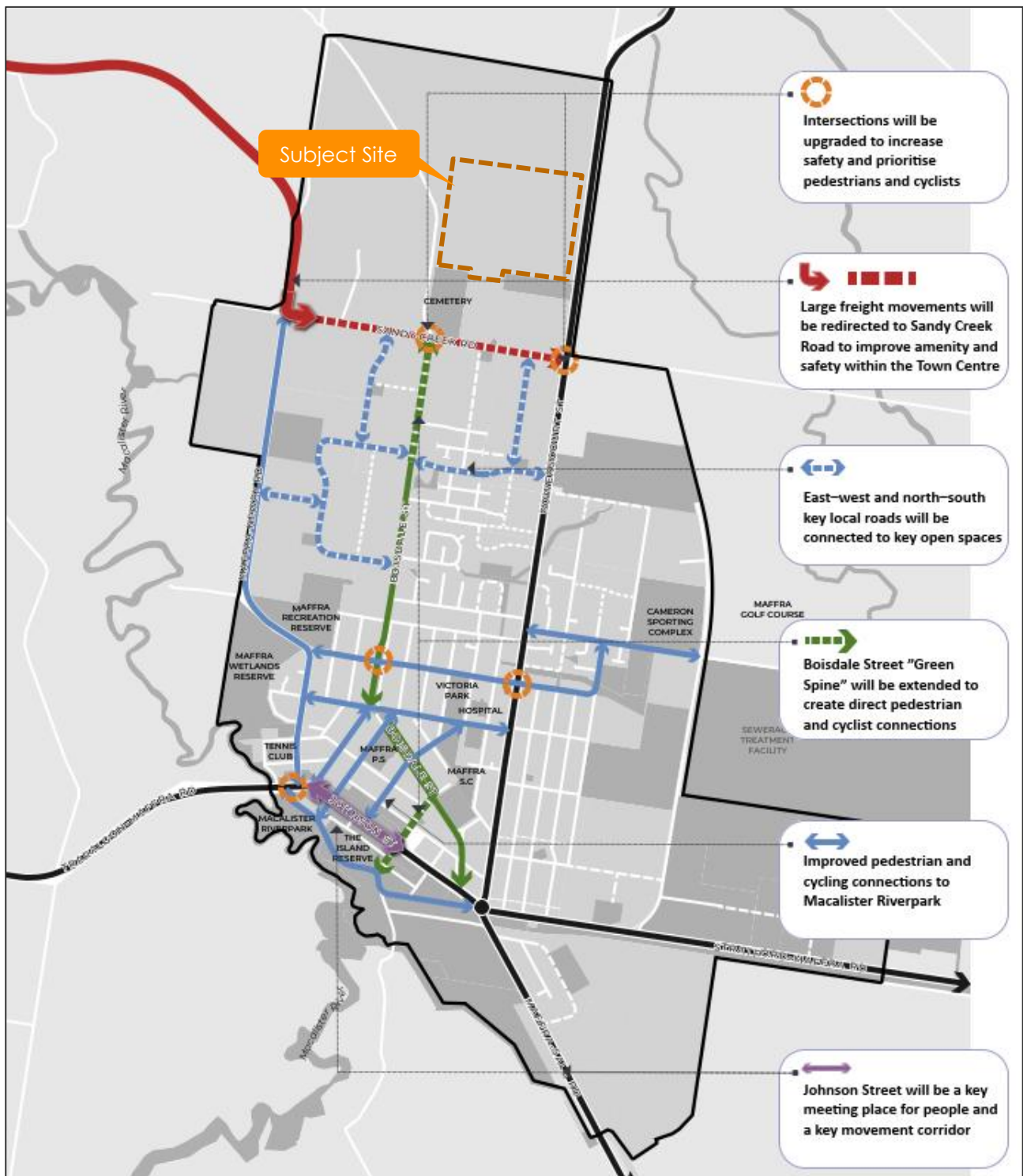


The Maffra Structure Plan Active and Public Transport Plan shows the extension of a local bus route along Boisdale Street and along Sandy Creek Road west of Three Chain Road before looping back to the south through a new local road.

Shared path extensions are also shown along Boisdale Street to Sandy Creek Road, and along Sandy Creek Road between Maffra-Briagolong Road and the north-south local road west of Three Chain Road.

The existing V/Line coach service is shown along Johnson Street towards the southern end of the Maffra Structure Plan boundary, which provides a coach service direct from Maffra to Sale Railway Station, which is a V/Line service connecting through to Melbourne CBD.

Figure 13 Meaningful and Safe Connections Plan



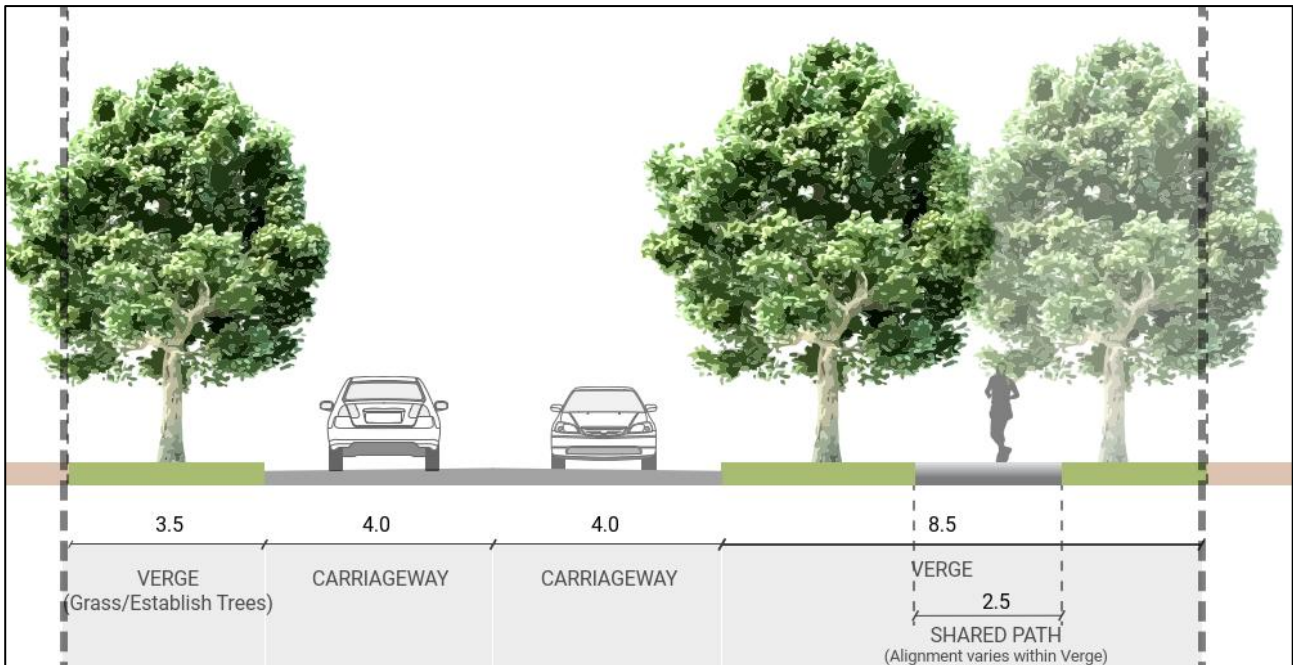
The Maffra Structure Plan Meaningful and Safe Connections Plan notes that the intersection connecting Three Chain Road, Sandy Creek Road and Boisdale Street will be upgraded to increase safety, prioritising pedestrian and cyclist movements.

Additionally, to improve safety through the Town Centre, Sandy Creek Road has been identified as the primary road for large freight movements.

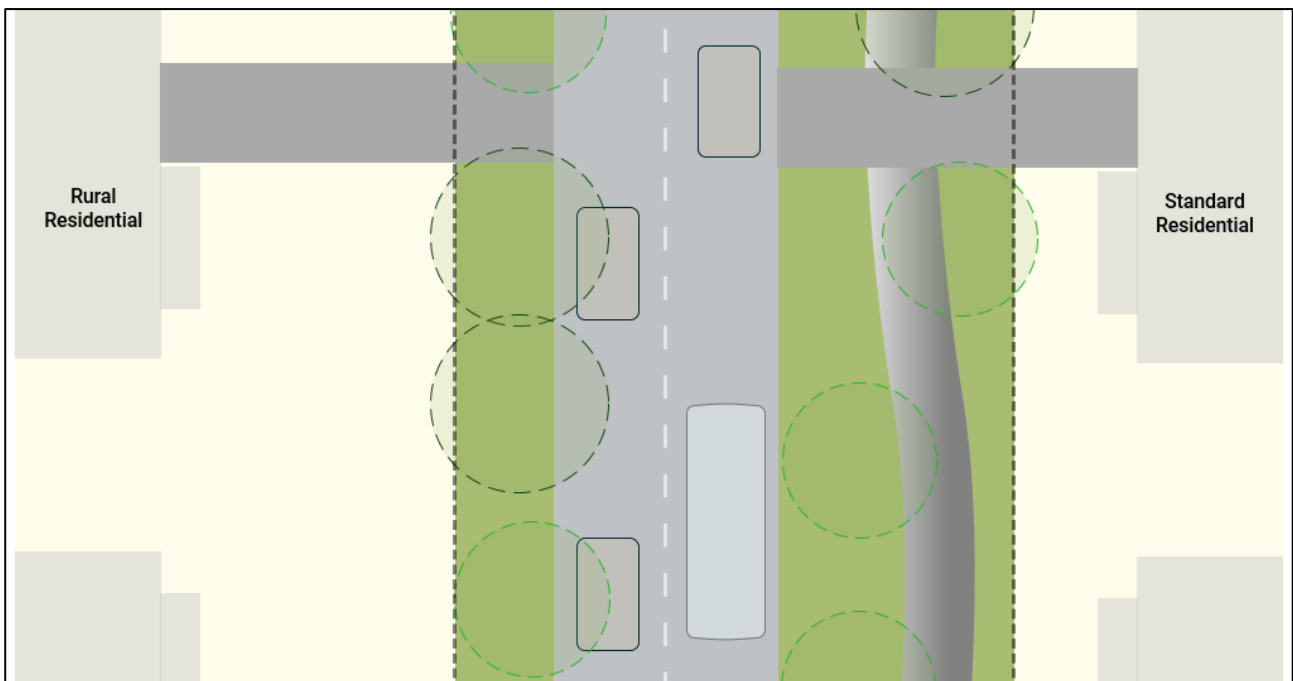
### 4.3 Road Hierarchy

The Maffra Structure Plan also provides a range of information on the road hierarchy throughout the precinct, including the desired road cross-sections for Sandy Creek Road as shown below.

**Figure 14 Sandy Creek Road Cross Section – 20m**



**Figure 15 Sandy Creek Road Cross Section Aerial View – 20m**



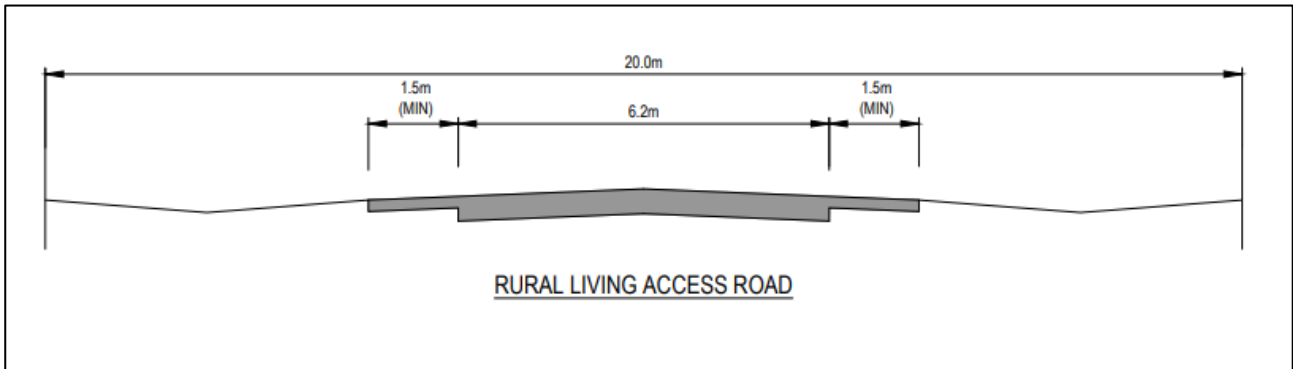
As shown above, the desired future cross-section of Sandy Creek Road has a 20m road reserve which includes a single traffic lane in each direction and a 2.5m shared path on one side of the verge.

The Maffra Structure Plan includes typical cross-sections for 'Local Roads' which include an 18m road reserve with footpaths on either side. However, the structure plan does not specify road reserve widths or typical cross-sections for rural roads.

The Rural Living Access Road detailed within the Infrastructure Design Manual (Drawing No. SD 615) is therefore considered to be applicable for rural roads within the vicinity. The Rural Living Access Road includes a nominal 20m road reserve, with a 6.2m carriageway, 1.5m shoulders and swale drains.

The Rural Living Access Road cross-section is shown below in Figure 16.

**Figure 16 Rural Living Access Road – Infrastructure Design Manual**

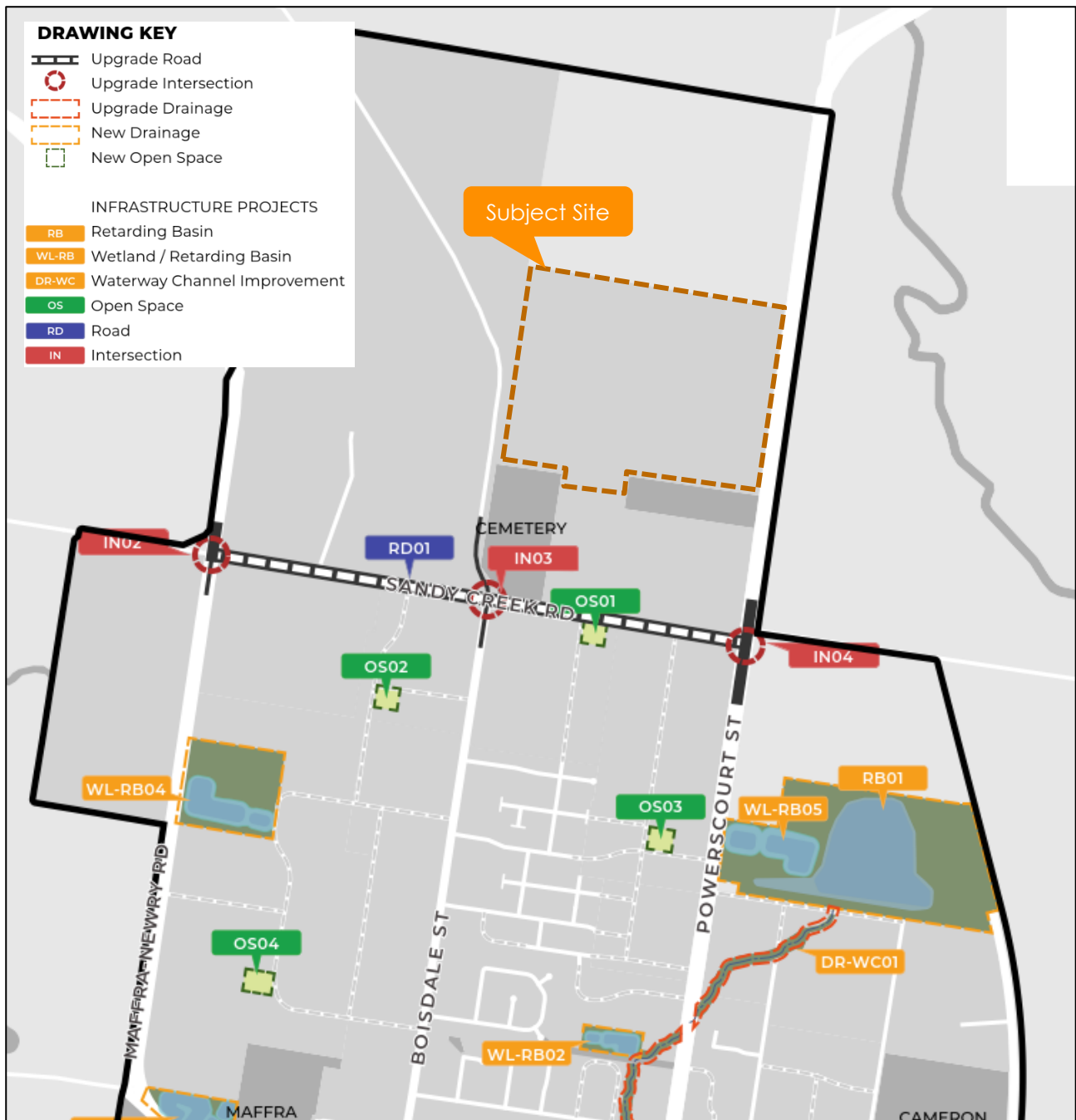


## 4.4 Infrastructure Upgrades

The subject site is located within the vicinity of multiple infrastructure projects as specified within the Maffra Structure Plan. The infrastructure upgrades map has been prepared to outline the projects, priority and financial contribution required to deliver the infrastructure projects necessary for future residents.

An extract of the Maffra Structure Plan Key Projects Plan is provided in Figure 17.

**Figure 17 Potential Key Projects Plan**



**Figure 18 Maffra Infrastructure Upgrades**

INFRASTRUCTURE PROJECTS		POTENTIAL RESPONSIBILITY	POTENTIAL FUNDING MECHANISM	PRIORITY (Low, Medium or High)
TYPE	REFERENCE NO.			
Retarding Basin	RB01	Council	Local Government Funding	High
	WL-RB02	Developer	DCP or Agreement	High
	WL-RB03	Council / Developer	DCP or Agreement	High
Wetland / Retarding Basin	WL-RB04	Developer	DCP or Agreement	Medium
	WL-RB05	Developer	DCP or Agreement	Medium / Low
	WL-RB06	Developer	DCP or Agreement	Low
Waterway Channel Improvement	DR-WC01	Developer	DCP or Agreement	High
	DR-WC02	Council / Developer	Local Government Funding	Low
Open Space	OS01	Developer	DCP or Agreement	High
	OS02	Developer	DCP or Agreement	Medium
	OS03	Developer	DCP or Agreement	Medium
	OS04	Developer	DCP or Agreement	Medium
	OS05	Developer	DCP or Agreement	Low
Road	RD01	Council	Local Government Funding	Medium
Intersection*	IN01	Council	State Funding	High
	IN02	Council	Local Government Funding	Medium
	IN03	Council	Local Government Funding	Medium
	IN04	Council	State Funding	Medium

\*Intersections IN01 and IN04 may be eligible for State funding.

In the vicinity of the site, Sandy Creek Road (RD01) and the intersection between Sandy Creek Road / Three Chain Road and Boisdale Street (IN03) are indicated as future infrastructure upgrades. It is noted that the intersection upgrade type is unspecified.

Both infrastructure upgrades are subject to Local Government Funding.

## 5 DEVELOPMENT PROPOSAL

### 5.1 General

It is proposed to develop the subject site for a residential subdivision generally consistent with the Maffra Structure Plan, yielding a total of 64 residential lots with an average lot area of 5,971 m<sup>2</sup>.

### 5.2 Staged Development

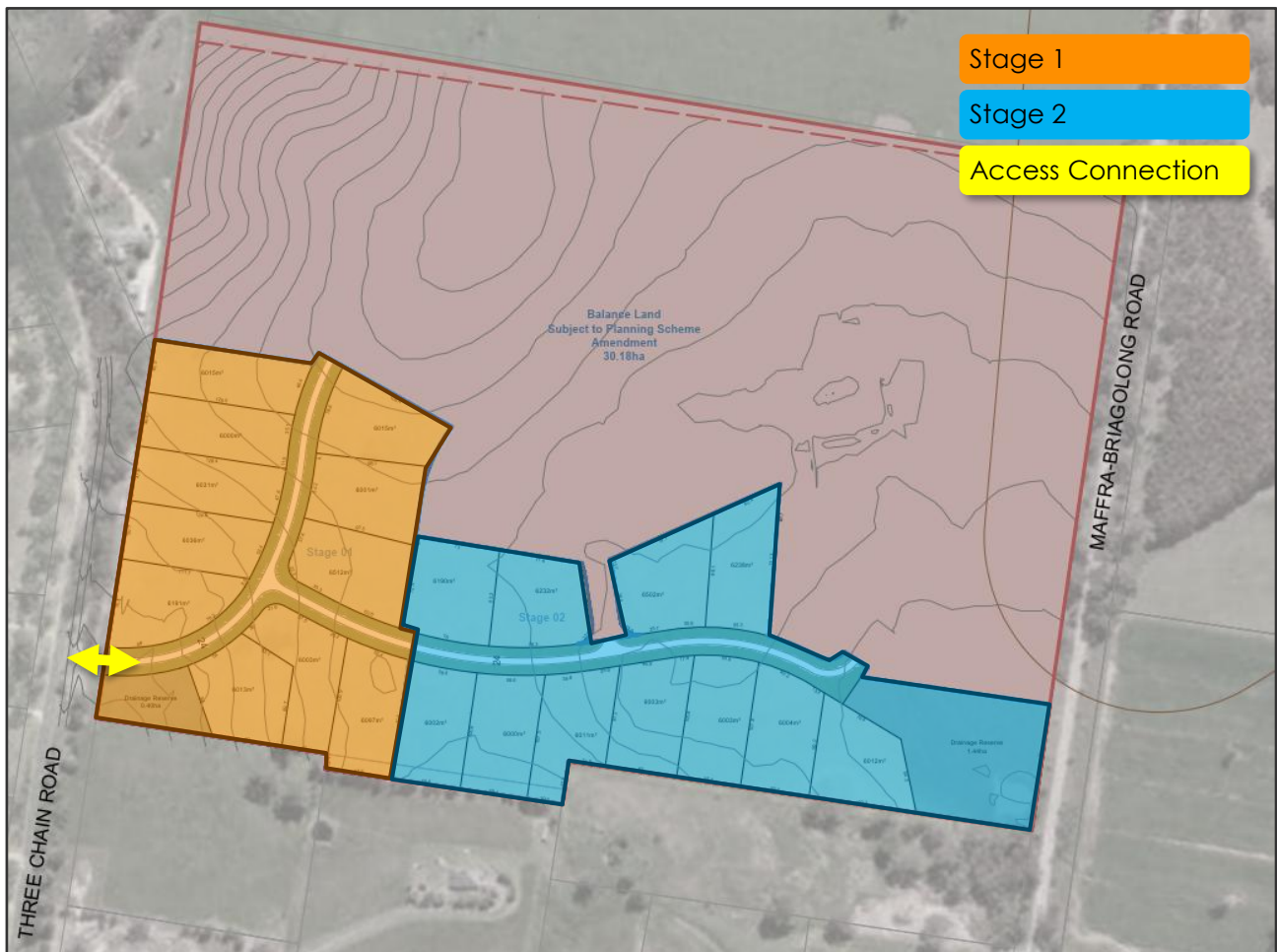
#### 5.2.1 Phase 2 / Stages 1 and 2

As part of Phase 2, it is proposed to develop Stage 1 and Stage 2 of the site, comprising a total of 22 lots and a single vehicle access connection to Three Chain Road.

It is noted that temporary turnaround areas may be required between stages of development.

The location and extent of stages 1 and 2 are shown below in Figure 19.

**Figure 19 Staged Development – Phase 2**

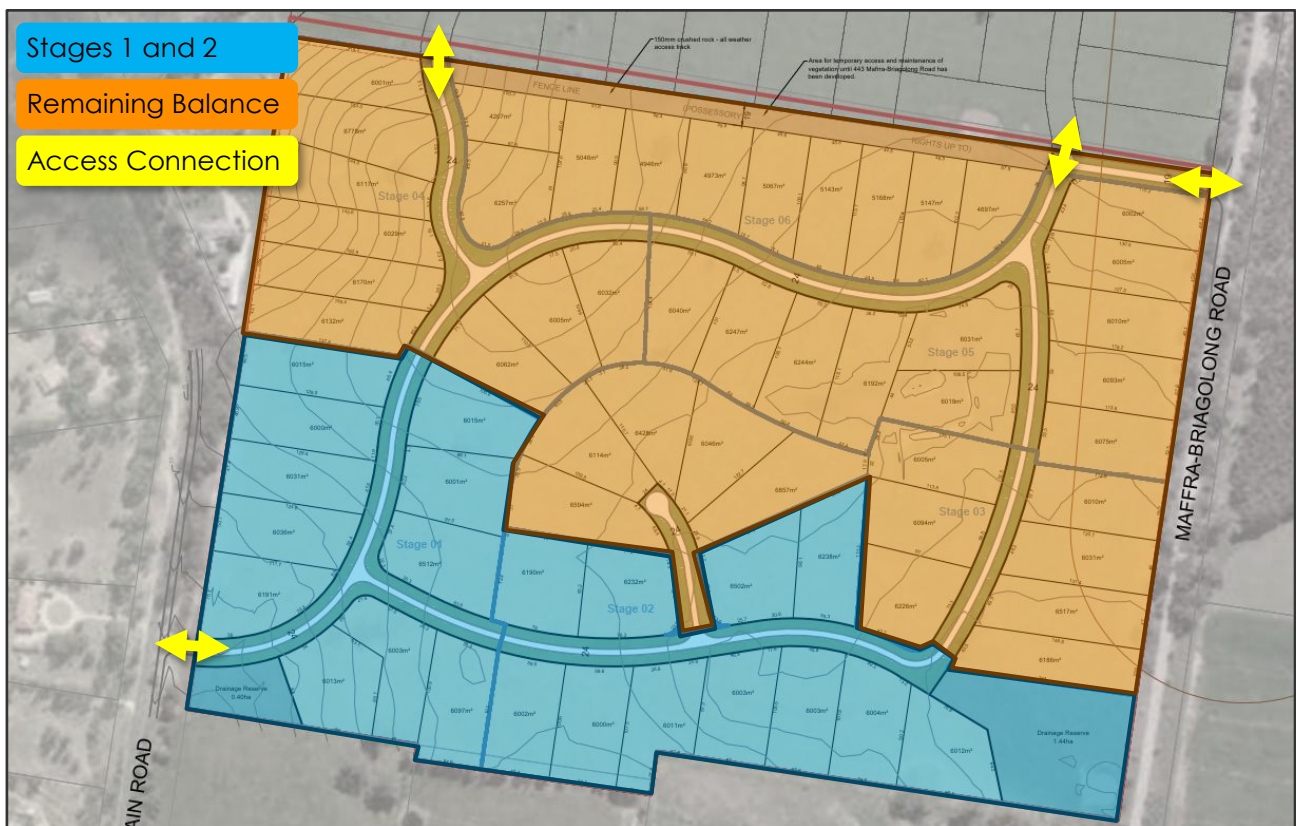


## 5.2.2 Phase 3 / Remaining Balance

Phase 3 will include the remaining balance of the site comprising 4 additional stages (Stage 3 to Stage 6) and an additional 42 lots, totalling 64 lots for the site.

The intersection to Maffra-Briagolong Road towards the northeast corner of the site is to be constructed prior to the development of Stage 6. The developer will make contribution to this intersection from Stage 3 onwards, with the intersection being delivered by Council.

**Figure 20 Staged Development – Phase 3**



## 5.3 Site Access & Road Network

The subdivision will be serviced by a proposed internal road network generally consistent with that identified within the Maffra Structure Plan.

The road cross-section widths proposed throughout the site are designed with a 24 metre road reserve, which is in excess of the Rural Living Access Road detailed within the Infrastructure Design Manual (Drawing No. SD 615).

Access to the site is proposed to be provided through a connection to Three Chain Road towards the southwest corner of the site, and to Maffra-Briagolong Road towards the northeast corner of the site.

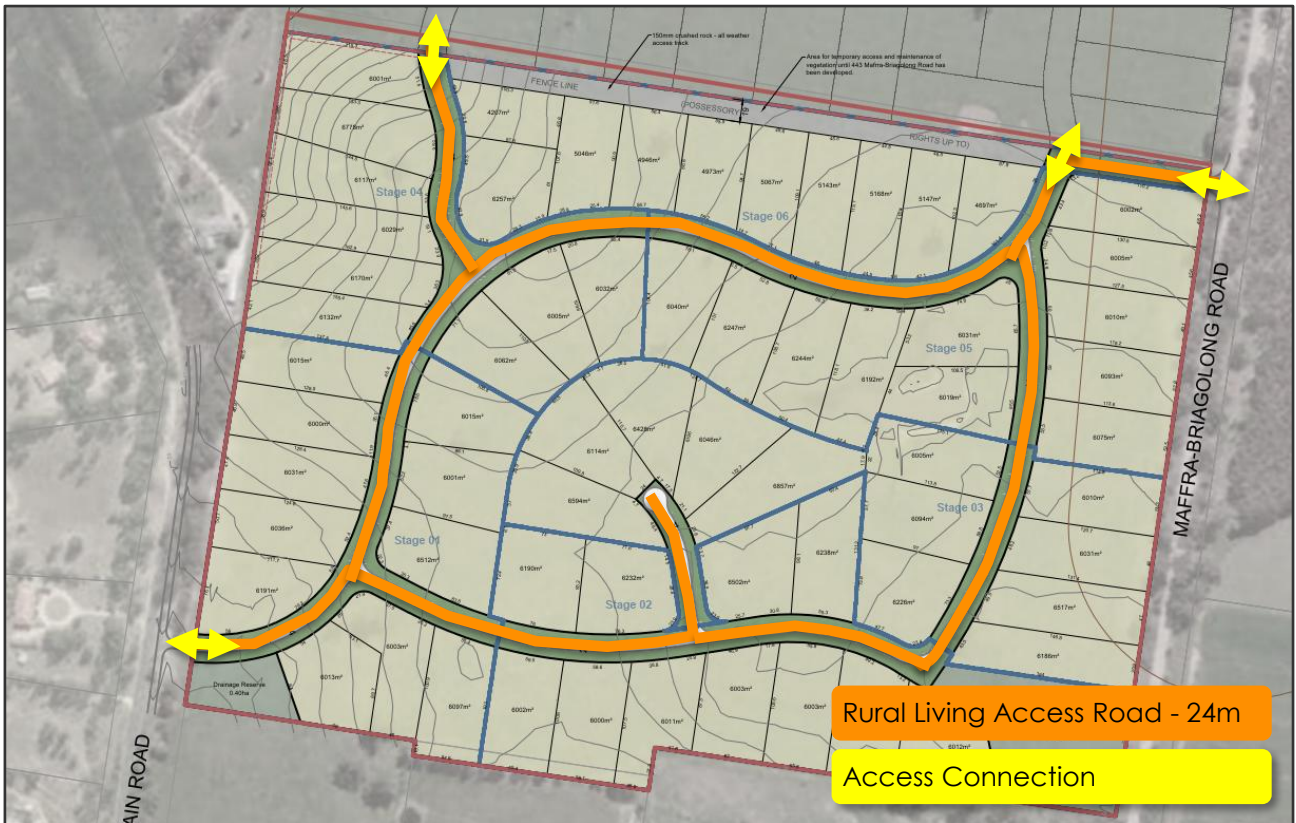
Allowance has been made for two additional connections to the north. It is noted that connectivity to the north through the access points is subject to the timing and development of land to the north.

Due to the potential delay of access to the north, a secondary access will be provided towards the northeast corner of the site to Maffra-Briagolong Road. Localised road widening is proposed by way of shoulder widening / formalisation to provide for a basic left-turn treatment and basic right-turn treatment on Maffra-Briagolong Road to facilitate access.

Access to Maffra-Briagolong Road should be designed generally in accordance with Austroads Guide to Road Design Typical Access to Rural Properties (GD4010-A). It is noted that the DTP intersection connection to Maffra-Briagolong Road will be a permanent access point, with costs being contributed by this development and Council.

The proposed internal road network layout and site access points are shown below in Figure 21.

**Figure 21 Proposed Road Network**



## 6 RESIDENTIAL SUBDIVISION DESIGN ASSESSMENT

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### 6.1 General

The design of the proposed residential subdivision has been assessed, in relation to the Maffra Structure Plan and Clause 56 of the Wellington Planning Scheme (Residential Subdivision).

### 6.2 Maffra Structure Plan

In reference to the Maffra Structure Plan documents summarised in Section 4, the following is noted:

- The proposed road network is generally in accordance with the structure plan;
- The curved roads provide a level of traffic calming through the site; and
- The provision for pedestrians, bicycles and public transport is generally in accordance with the structure plan.

Based on the above, the proposed residential subdivision is considered to be generally in accordance with the structure plan.

### 6.3 Wellington Planning Scheme – Clause 56

Whilst not strictly applicable to the proposed development, being located within a Rural Living Zone, Clause 56.06 identifies Access and Mobility Management requirements for residential subdivisions such as that proposed at the site. The following Clauses would typically be applicable.

#### 6.3.1 Clause 56.06-2, Walking and Cycling Network Objectives

Standard C15

*The walking and cycling network should be designed to:*

- *Implement any relevant regional and local walking and cycling strategy, plan or policy for the area set out in this scheme.*
- *Link to any existing pedestrian and cycling networks.*
- *Provide safe walkable distances to activity centres, community facilities, public transport stops and public open spaces.*
- *Provide an interconnected and continuous network of safe, efficient and convenient footpaths, shared paths, cycle paths and cycle lanes based primarily on the network of arterial roads, neighbourhood streets and regional public open spaces.*
- *Provide direct cycling routes for regional journeys to major activity centres, community facilities, public transport and other regional activities and for regional recreational cycling.*
- *Ensure safe street and road crossings including the provision of traffic controls where required.*
- *Provide an appropriate level of priority for pedestrians and cyclists.*
- *Have natural surveillance along streets and from abutting dwellings and be designed for personal safety and security particularly at night.*
- *Be accessible to people with disabilities.*

The proposed road network is in accordance with the Rural Living Access Road and does not include footpaths. Notwithstanding, the internal roads are expected to have minimal traffic volumes and low speeds, and are considered suitable for cyclists.

It is therefore considered that the subdivision satisfies the objectives of Clause 56.06-2.

### 6.3.2 Clause 56.06-3, Public Transport Network Objectives

#### Standard C16

The public transport network should be designed to:

- Implement any relevant public transport strategy, plan or policy for the area set out in this scheme.
- Connect new public transport routes to existing and proposed routes to the satisfaction of the relevant public transport authority.
- Provide for public transport links between activity centres and other locations that attract people using the Principal Public Transport Network in Metropolitan Melbourne and the regional public transport network outside Metropolitan Melbourne.
- Locate regional bus routes principally on arterial roads and locate local bus services principally on connector streets to provide:
  - ✦ Safe and direct movement between activity centres without complicated turning manoeuvres.
  - ✦ Direct travel between neighbourhoods and neighbourhood activity centres.
  - ✦ A short and safe walk to a public transport stop from most dwellings.

Roads to the south of the proposed development are designed to accommodate future public transport routes, ensuring that the entire development is situated within close proximity to public transport.

It is therefore considered that the subdivision satisfies the objectives of Clause 56.06-3.

### 6.3.3 Clause 56.06-4, Neighbourhood Street Network Objective

#### Standard C17

The neighbourhood street network must:

- Take account of the existing mobility network of arterial roads, neighbourhood streets, cycle paths, cycle paths, footpaths and public transport routes.
- Provide clear physical distinctions between arterial roads and neighbourhood street types.
- Comply with the Roads Corporation's arterial road access management policies.
- Provide an appropriate speed environment and movement priority for the safe and easy movement of pedestrians and cyclists and for accessing public transport.
- Provide safe and efficient access to activity centres for commercial and freight vehicles.
- Provide safe and efficient access to all lots for service and emergency vehicles.
- Provide safe movement for all vehicles.
- Incorporate any necessary traffic control measures and traffic management infrastructure.

The neighbourhood street network should be designed to:

- Implement any relevant transport strategy, plan or policy for the area set out in this scheme.
- Include arterial roads at intervals of approximately 1.6 kilometres that have adequate reservation widths to accommodate long term movement demand.
- Include connector streets approximately halfway between arterial roads and provide adequate reservation widths to accommodate long term movement demand.
- Ensure connector streets align between neighbourhoods for direct and efficient movement of pedestrians, cyclists, public transport and other motor vehicles.
- Provide an interconnected and continuous network of streets within and between neighbourhoods for use by pedestrians, cyclists, public transport and other vehicles.
- Provide an appropriate level of local traffic dispersal.
- Indicate the appropriate street type.
- Provide a speed environment that is appropriate to the street type.

- Provide a street environment that appropriately manages movement demand (volume, type and mix of pedestrians, cyclists, public transport and other motor vehicles).
- Encourage appropriate and safe pedestrian, cyclist and driver behaviour.
- Provide safe sharing of access lanes and access places by pedestrians, cyclists and vehicles.
- Minimise the provision of culs-de-sac.
- Provide for service and emergency vehicles to safely turn at the end of a dead-end street.
- Facilitate solar orientation of lots.
- Facilitate the provision of the walking and cycling network, integrated water management systems, utilities and planting of trees.
- Contribute to the area's character and identity.
- Take account of any identified significant features.

The Maffra Structure Plan road network has been designed in consideration of the objectives of Clause 56.06-4, and the proposed development is in accordance with the structure plan.

The more detailed network provided within the proposed development includes connectivity to surrounding development, with a defined road hierarchy identified by the structure plan.

It is therefore considered that the subdivision generally satisfies the objectives of Clause 56.06-4.

### **6.3.4 Clause 56.06-5, Walking and Cycling Detail Network Objectives**

#### Standard C18

*Footpaths, shared paths, cycle paths and cycle lanes should be designed to:*

- Be part of a comprehensive design of the road or street reservation.
- Be continuous and connect.
- Provide for public transport stops, street crossings for pedestrians and cyclists and kerb crossovers for access to lots.
- Accommodate projected user volumes and mix.
- Meet the requirements of Table C1.
- Provide pavement edge, kerb, channel and crossover details that support safe travel for pedestrians, footpath bound vehicles and cyclists, perform required drainage functions and are structurally sound.
- Provide appropriate signage.
- Be constructed to allow access to lots without damage to the footpath or shared path surfaces.
- Be constructed with a durable, non-skid surface.
- Be of a quality and durability to ensure:
  - ✦ Safe passage for pedestrians, cyclists, footpath bound vehicles and vehicles.
  - ✦ Discharge of urban run-off.
  - ✦ Preservation of all-weather access.
  - ✦ Maintenance of a reasonable, comfortable riding quality.
  - ✦ A minimum 20 year life span.
- Be accessible to people with disabilities and include tactile ground surface indicators, audible signals and kerb ramps required for the movement of people with disabilities.

The proposal includes a road network in accordance with the Rural Living Access Road detailed within the Infrastructure Design Manual. The proposed roads includes swale drains on either side and do not include footpaths.

### 6.3.5 Clause 56.06-6, Public Transport Network Detail Objectives

#### Standard C19

*Bus priority measures must be provided along arterial roads forming part of the existing or proposed Principal Public Transport Network in Metropolitan Melbourne and the regional public transport network outside Metropolitan Melbourne to the requirements of the relevant roads authority.*

*Road alignment and geometry along bus routes should provide for the efficient, unimpeded movement of buses and the safety and comfort of passengers.*

*The design of public transport stops should not impede the movement of pedestrians.*

*Bus and tram stops should have:*

- *Surveillance from streets and adjacent lots.*
- *Safe street crossing conditions for pedestrians and cyclists.*
- *Safe pedestrian crossings on arterial roads and at schools including the provision of traffic controls as required by the roads authority.*
- *Continuous hard pavement from the footpath to the kerb.*
- *Sufficient lighting and paved, sheltered waiting areas for forecast user volume at neighbourhood centres, schools and other locations with expected high patronage.*
- *Appropriate signage.*

The road network has not been designed to cater for a public transport route, therefore the requirements of Clause 56.06-6 do not apply.

### 6.3.6 Clause 56.06-7, Neighbourhood Street Network Detail Objective

#### Standard C20

*The design of streets and roads should:*

- *Meet the requirements of Table C1. Where the widths of access lanes, access places, and access streets do not comply with the requirements of Table C1, the requirements of the relevant fire authority and roads authority must be met.*
- *Provide street blocks that are generally between 120 metres and 240 metres in length and generally between 60 metres to 120 metres in width to facilitate pedestrian movement and control traffic speed.*
- *Have verges of sufficient width to accommodate footpaths, shared paths, cycle paths, integrated water management, street tree planting, lighting and utility needs.*
- *Have street geometry appropriate to the street type and function, the physical land characteristics and achieve a safe environment for all users.*
- *Provide a low-speed environment while allowing all road users to proceed without unreasonable inconvenience or delay.*
- *Provide a safe environment for all street users applying speed control measures where appropriate.*
- *Ensure intersection layouts clearly indicate the travel path and priority of movement for pedestrians, cyclists and vehicles.*
- *Provide a minimum 5 metre by 5 metre corner splay at junctions with arterial roads and a minimum 3 metre by 3 metre corner splay at other junctions unless site conditions justify a variation to achieve safe sight lines across corners.*
- *Ensure streets are of sufficient strength to:*
  - ✦ *Enable the carriage of vehicles.*
  - ✦ *Avoid damage by construction vehicles and equipment.*
- *Ensure street pavements are of sufficient quality and durability for the:*
  - ✦ *Safe passage of pedestrians, cyclists and vehicles.*
  - ✦ *Discharge of urban run-off.*
  - ✦ *Preservation of all-weather access and maintenance of a reasonable, comfortable riding quality.*

- Ensure carriageways of planned arterial roads are designed to the requirements of the relevant road authority.
- Ensure carriageways of neighbourhood streets are designed for a minimum 20 year life span.
- Provide pavement edges, kerbs, channel and crossover details designed to:
  - ✦ Perform the required integrated water management functions.
  - ✦ Delineate the edge of the carriageway for all street users.
  - ✦ Provide efficient and comfortable access to abutting lots at appropriate locations.
  - ✦ Contribute to streetscape design.
- Provide for the safe and efficient collection of waste and recycling materials from lots.
- Be accessible to people with disabilities.
- Meet the requirements of Table C1. Where the widths of access lanes, access places, and access streets do not comply with the requirements of Table C1, the requirements of the relevant fire authority and roads authority must be met. Where the widths of connector streets do not comply with the requirements of Table C1, the requirements of the relevant public transport authority must be met.

A street detail plan should be prepared that shows, as appropriate:

- The street hierarchy and typical cross-sections for all street types.
- Location of carriageway pavement, parking, bus stops, kerbs, crossovers, footpaths, tactile surface indicators, cycle paths and speed control and traffic management devices.
- Water sensitive urban design features.
- Location and species of proposed street trees and other vegetation.
- Location of existing vegetation to be retained and proposed treatment to ensure its health.
- Any relevant details for the design and location of street furniture, lighting, seats, bus stops, telephone boxes and mailboxes.

Appropriate splays are provided on the corner of intersections. It is therefore considered that the subdivision generally satisfies the objectives of Clause 56.06-7.

### **6.3.7 Clause 56.06-8, Lot Access Objective**

#### **Standard C21**

Vehicle access to lots abutting arterial roads should be provided from service roads, side or rear access lanes, access places or access streets where appropriate and in accordance with the access management requirements of the relevant roads authority.

Vehicle access to lots of 300 square metres or less in area and lots with a frontage of 7.5 metres or less should be provided via rear or side access lanes, places or streets.

The design and construction of a crossover should meet the requirements of the relevant road authority.

No lots are provided with direct access to an arterial road, and no lots are provided with a frontage of less than 7.5m.

It is therefore considered that the subdivision satisfies the objectives of Clause 56.06-8.

## 6.4 Infrastructure Design Manual

The Infrastructure Design Manual (IDM) is a document prepared by numerous Victorian rural and regional Councils, providing a set of consistent requirements and standards for the design and development of infrastructure.

The manual provides cross-sectional requirements for rural and urban roads, with the relevant requirements to the subject site reproduced in Table 5.

Roads through the site are proposed to be designed in accordance with a Rural Living Access Road.

**Table 5 IDM Road Cross-Sectional Requirements – Rural Roads**

<i>Road Type</i>	<i>Max. Traffic Volumes (veh/day)</i>	<i>Min. Reserve</i>	<i>Min. Seal Width</i>	<i>Min. Shoulder Width</i>	<i>Kerbing</i>
Rural Living Access Road	1000	20.0m	6.2m	1.5m	nil
Rural Living or Low Density Residential Court Bowls	n/a	32.0m	9.5m-10.5m	0-1.5m	n/a-SM2

The proposed road cross-sections are designed in accordance with the requirements for a Rural Living Access Road, and are therefore considered to be acceptable.

Additional road width has been provided throughout the internal road network to allow for tree planting as requested by Council.

## 7 TRAFFIC

### 7.1 Traffic Generation

#### 7.1.1 Regional and Rural Residential

Whilst in outer suburban areas, traffic generation surveys suggest that single dwellings may generate traffic at up to 10 vehicle trips per day, traffic generation surveys of residential developments in regional areas suggests that reduced traffic generation is often experienced, as trip distances are generally greater (and therefore trips are often combined to reduce travel times and distances), and non-essential trips may be avoided.

Surveys undertaken by **onemilegrid** in Broadford suggested average weekday traffic volumes of between 6.3 and 7.7 vehicle movements per dwelling per day, whilst surveys undertaken in Wangaratta suggested between 0.37 and 0.66 vehicle movements per dwelling during the peak hour.

Furthermore, traffic generation surveys at the Eynesbury residential estate identified a daily traffic generation rate of 5.39 vehicle movements per dwelling per day.

Considering the above, it can be expected that the proposed residential development will generate traffic at a rate of no more than 8 vehicle trips per day, with a rate of approximately 6 vehicle trips per day more likely. For the purposes of a conservative analysis, a daily traffic generation rate of 8 vehicle trips per day will be adopted, with 10% of trips occurring during the peak hours.

When applied to the 64 lots proposed, a daily traffic generation of 512 vehicles per day can be expected, with 52 vehicles per hour during the morning and evening peak hour.

Furthermore, based on typically observed rates, the residential traffic distribution shown in Table 6 has been adopted.

**Table 6 Residential Traffic Distribution - Subdivision**

<i>Peak Hour</i>	<i>Percentage of Daily</i>	<i>Outbound</i>	<i>Inbound</i>
AM Peak	10%	70%	30%
PM Peak	10%	40%	60%

Based on the above, the anticipated traffic generated by the proposed development is shown in Table 7.

**Table 7 Anticipated Traffic Generation**

<i>Period</i>	<i>Inbound</i>	<i>Outbound</i>	<i>Total</i>
AM Peak	16	36	52
PM Peak	31	21	52

## 7.2 Traffic Distribution

The directional distribution shown in Table 8 has been adopted.

**Table 8 Adopted Directional Traffic Distribution – Sandy Creek Road / Three Chain Road**

Origin/Destination	Percentage
Three Chain Road – South	60%
Maffra-Briagolong Road – South	40%

Given the location of the site, it is expected that 100% of vehicle trips will arrive from/depart to the south, towards the town centre.

## 7.3 Generated Traffic Volumes

Based on the above, the following traffic volumes are expected to be generated by the proposed development through the surrounding road network.

**Figure 22 Generated Traffic Volumes – AM Peak Period**

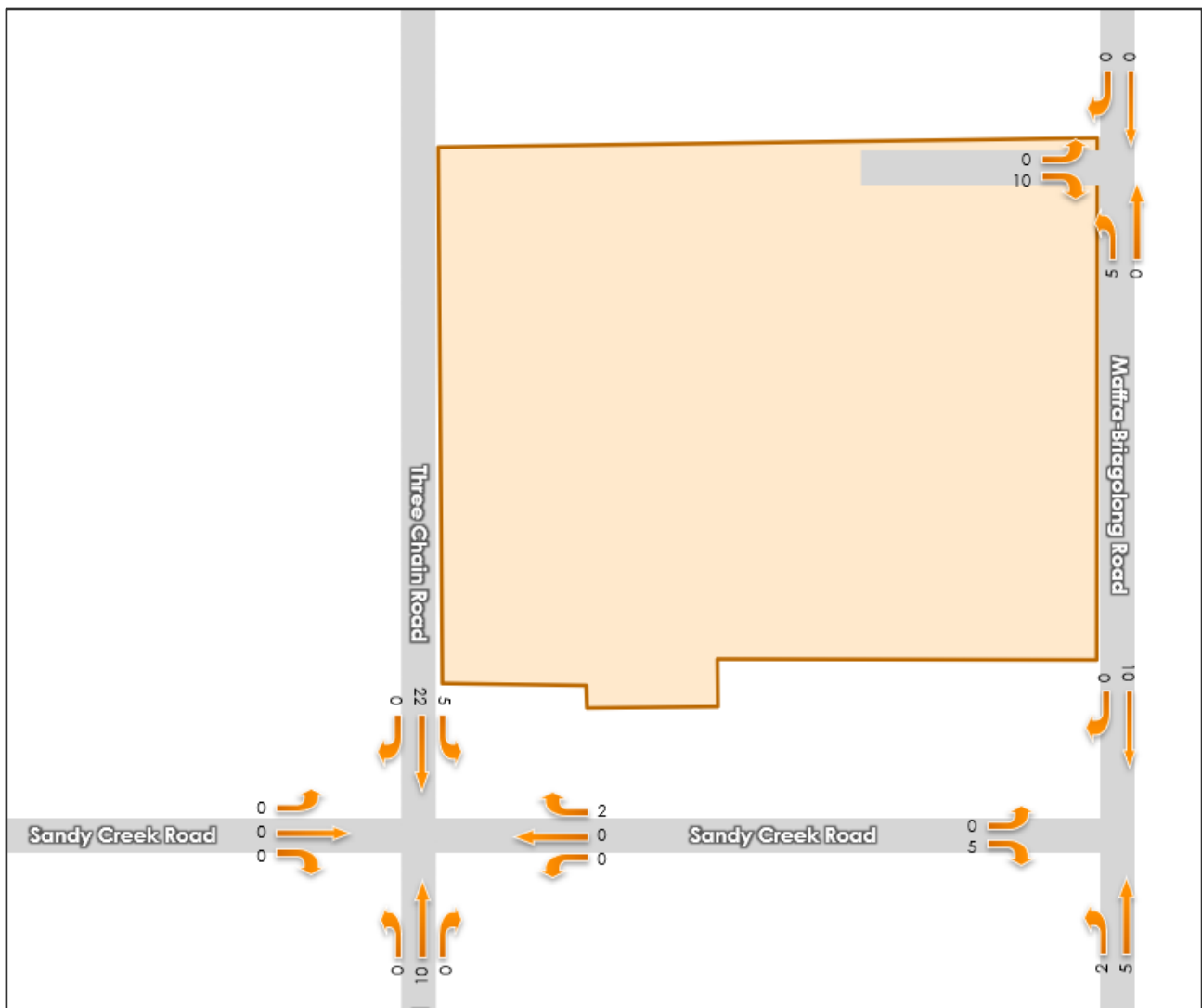
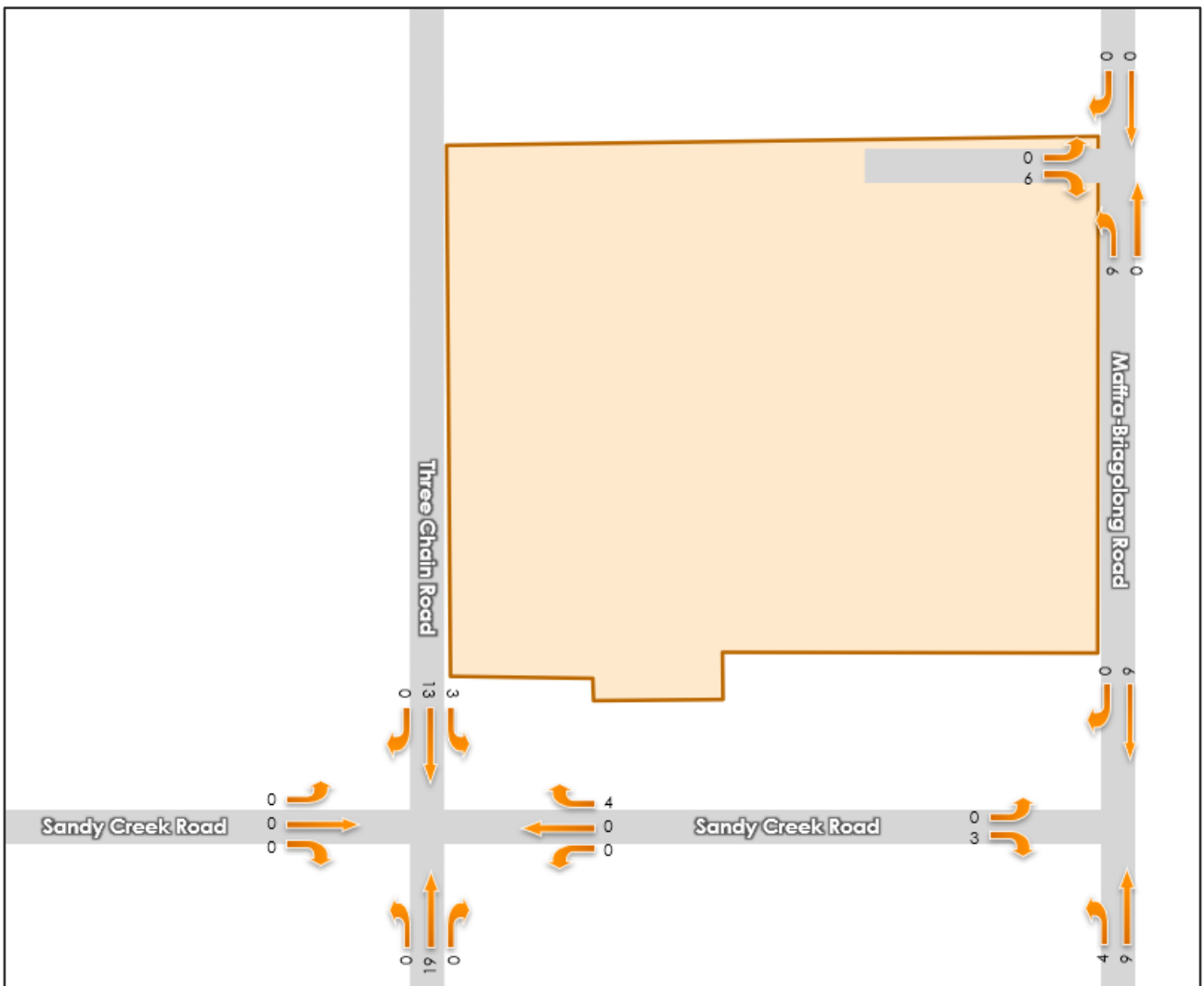


Figure 23 Generated Traffic Volumes – PM Peak Period



## 7.4 Resultant Future Traffic Volumes

Based on the above, the future intersection volumes can be calculated by combining the existing volumes with the traffic anticipated to be generated by the proposed development.

The resultant peak hour traffic volumes are shown below.

**Figure 24 Resultant Future Traffic Volumes – AM Peak**

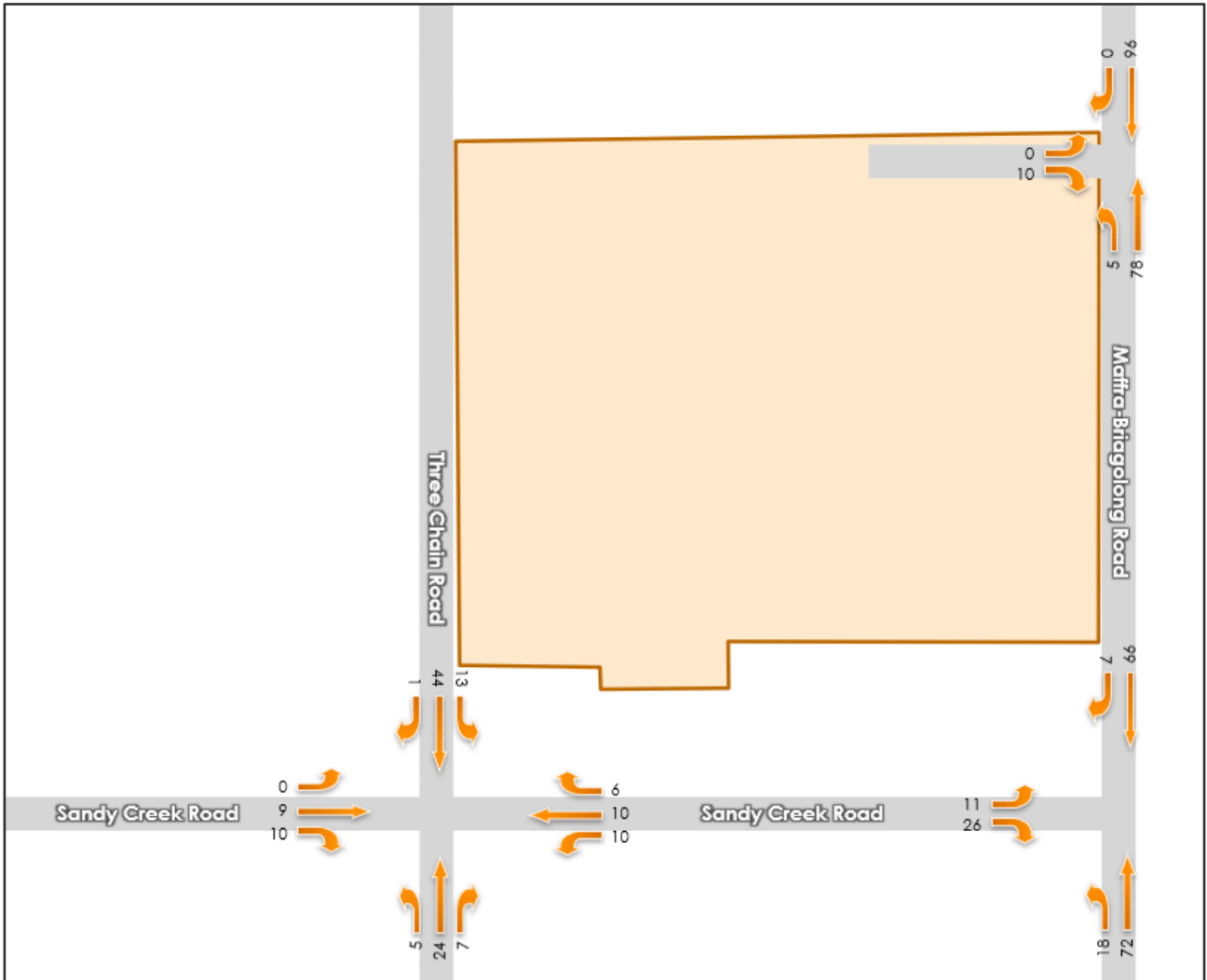
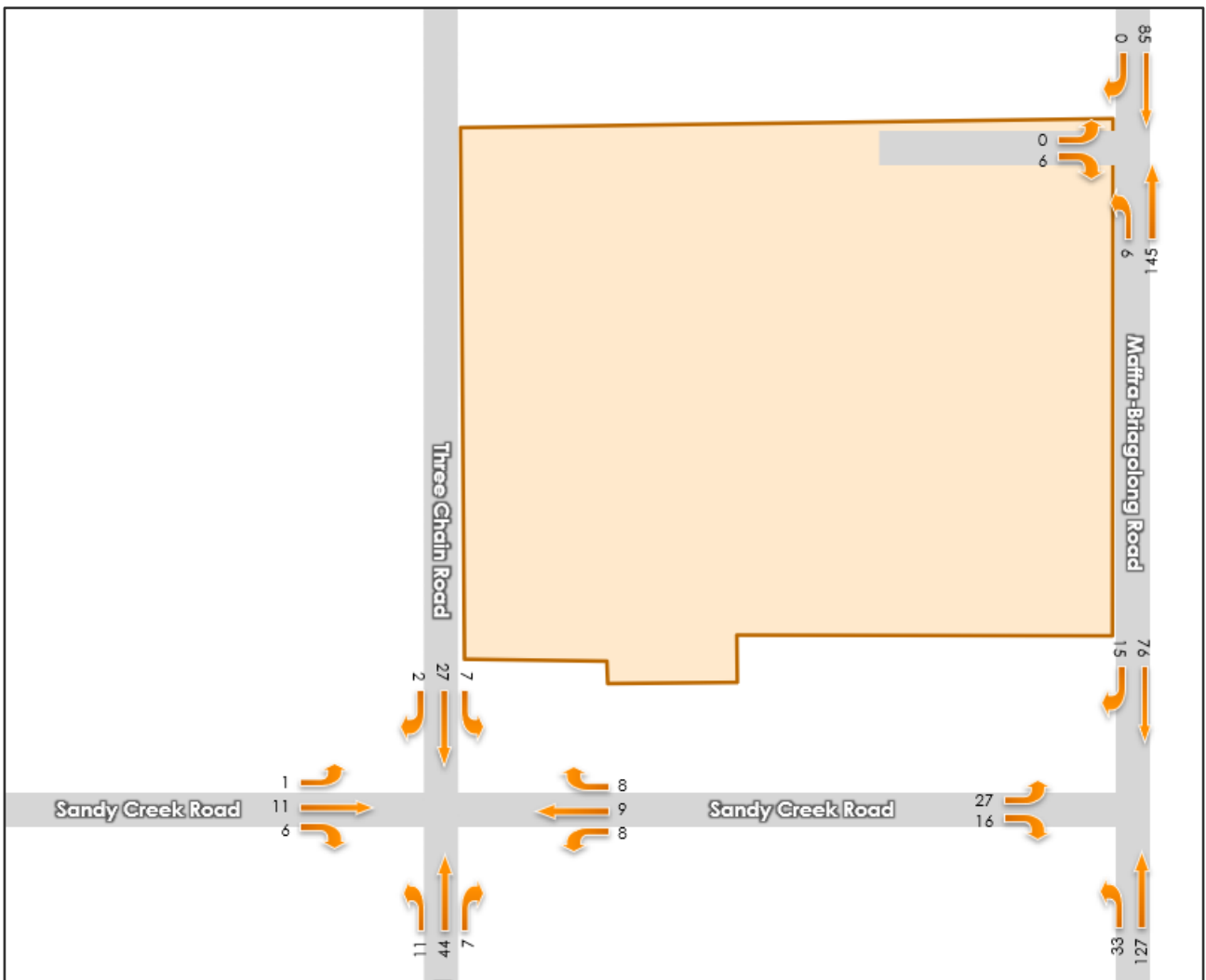


Figure 25 Resultant Future Traffic Volumes – PM Peak



## 7.5 Traffic Impact

### 7.5.1 Interim

Development of stages 1 to 5 will be facilitated through the vehicle access connection to Three Chain Road towards the southwest corner of the site.

Should development of the parcel of land to the north of the site be completed prior to the development of stage 6, an additional vehicle access point will be provided towards the northwest corner of the site through the development of Stage 4.

It is noted that temporary turnaround areas may be required between stages of development, and towards the northwest corner of the site for the connecting road.

The intersection to Maffra-Briagolong Road towards the northeast corner of the site is to be constructed prior to the development of Stage 6. The developer will make contribution to this intersection from Stage 3 onwards, with the intersection being delivered by Council.

### 7.5.2 Ultimate

#### 7.5.2.1 Intersection Capacity Assessment

To assess the operation of the intersections, the traffic volumes have been input into SIDRA.

As shown below, the proposed development is expected to have a negligible impact on the operation of the Sandy Creek Road / Three Chain Road intersection, with all legs continuing to operate under excellent conditions with a Level of Service rating 'A'. In view of the foregoing, infrastructure upgrade works are not considered to be required at the intersection of Sandy Creek Road / Three Chain Road to accommodate the traffic generated by development of the proposed residential subdivision.

**Table 9 Sandy Creek Road / Three Chain Road – Future Conditions**

Approach	DoS		Avg. Delay (sec)		Queue (m)		Level of Service	
	Existing	Future	Existing	Future	Existing	Future	Existing	Future
AM Peak								
Sandy Creek Road South	0.023	0.032	5.1	5.0	0.6	0.9	A	A
Three Chain Road East	0.015	0.016	3.3	3.5	0.3	0.4	A	A
Sandy Creek Road North	0.025	0.049	4.7	4.7	0.7	1.4	A	A
Three Chain Road West	0.012	0.012	3.0	3.0	0.3	0.3	A	A
PM Peak								
Sandy Creek Road South	0.036	0.052	4.9	4.8	1.0	1.4	A	A
Three Chain Road East	0.012	0.014	3.2	3.5	0.2	0.3	A	A
Sandy Creek Road North	0.017	0.030	4.8	4.8	0.5	0.8	A	A
Three Chain Road West	0.011	0.011	2.1	2.1	0.3	0.3	A	A

As shown below, the proposed development is expected to have a negligible impact on the operation of the Sandy Creek Road / Maffra-Briagolong Road intersection, with all legs continuing to operate under excellent conditions with a Level of Service rating 'A'.

**Table 10 Sandy Creek Road / Maffra-Briagolong Road – Existing/Future Conditions**

Approach	DoS		Avg. Delay (sec)		Queue (m)		Level of Service	
	Existing	Future	Existing	Future	Existing	Future	Existing	Future
AM Peak								
Maffra-Briagolong Road South	0.047	0.051	1.1	1.1	0.0	0.0	A	A
Maffra-Briagolong Road North	0.055	0.060	0.4	0.4	0.3	0.3	A	A
Sandy Creek Road West	0.029	0.034	6.1	6.1	0.7	0.8	A	A
PM Peak								
Maffra-Briagolong Road South	0.080	0.088	1.1	1.2	0.0	0.0	A	A
Maffra-Briagolong Road North	0.048	0.052	1.1	1.1	0.7	0.7	A	A
Sandy Creek Road West	0.032	0.036	6.0	6.1	0.8	0.9	A	A

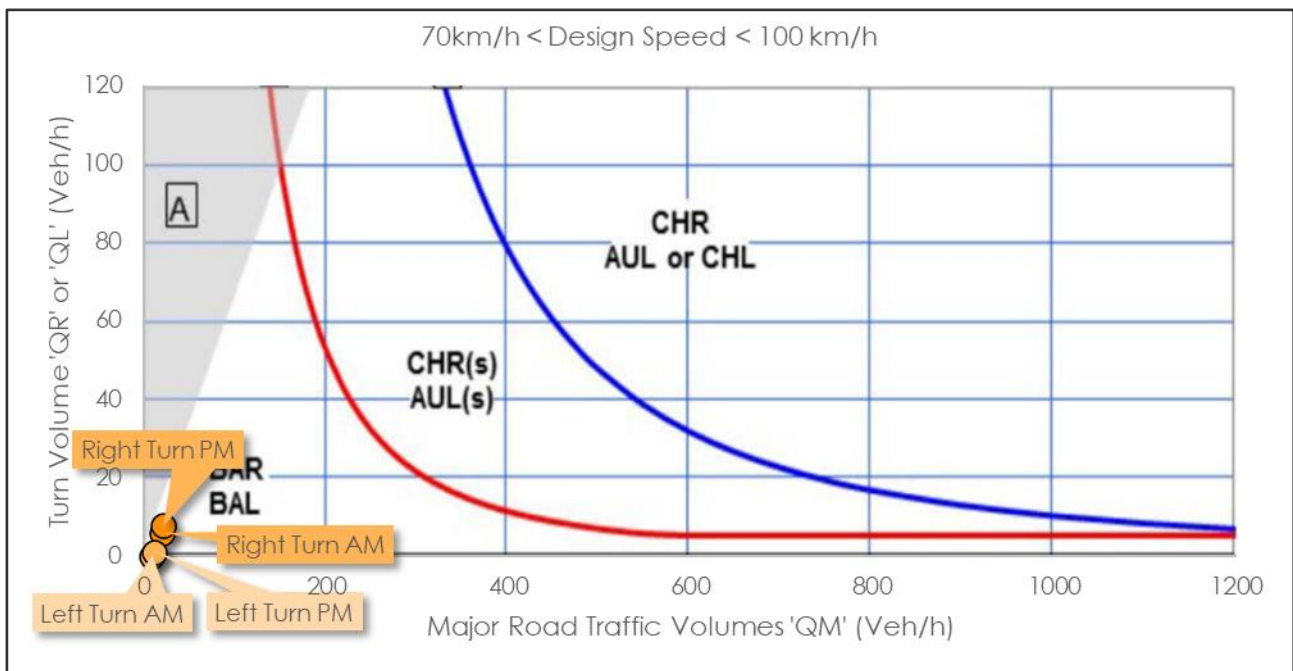
### 7.5.2.2 Austroads Turn Lane Warrants

In determining an appropriate intersection configuration, the anticipated post-development peak hour volumes were assessed against the turn lane treatment warrants specified in the *Austroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings*.

Based on the anticipated post-development traffic volumes (as shown Figure 24 and Figure 25), the turn lane requirements are demonstrated below.

As identified below, the anticipated post development turning movements at the Sandy Creek Road / Three Chain Road intersection indicate that turn lanes are not warranted. Intersection upgrade works are therefore not considered to be required at Sandy Creek Road / Three Chain Road and are not proposed as part of this application.

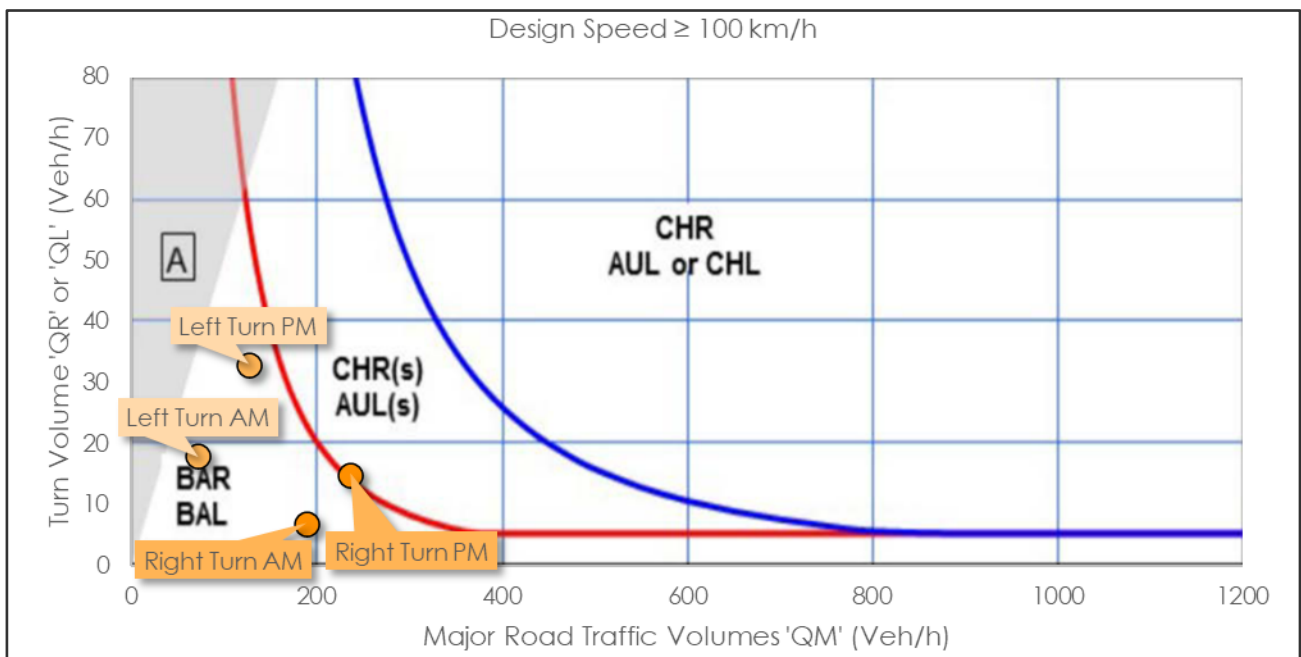
**Figure 26 Austroads Turn Treatment Warrants – Sandy Creek Road / Three Chain Road**



As demonstrated below, the anticipated post development turning movements at the Sandy Creek Road / Maffra-Briagolong Road intersection indicate that a basic left turn treatment (BAL) and a basic right turn treatment (BAR) are required.

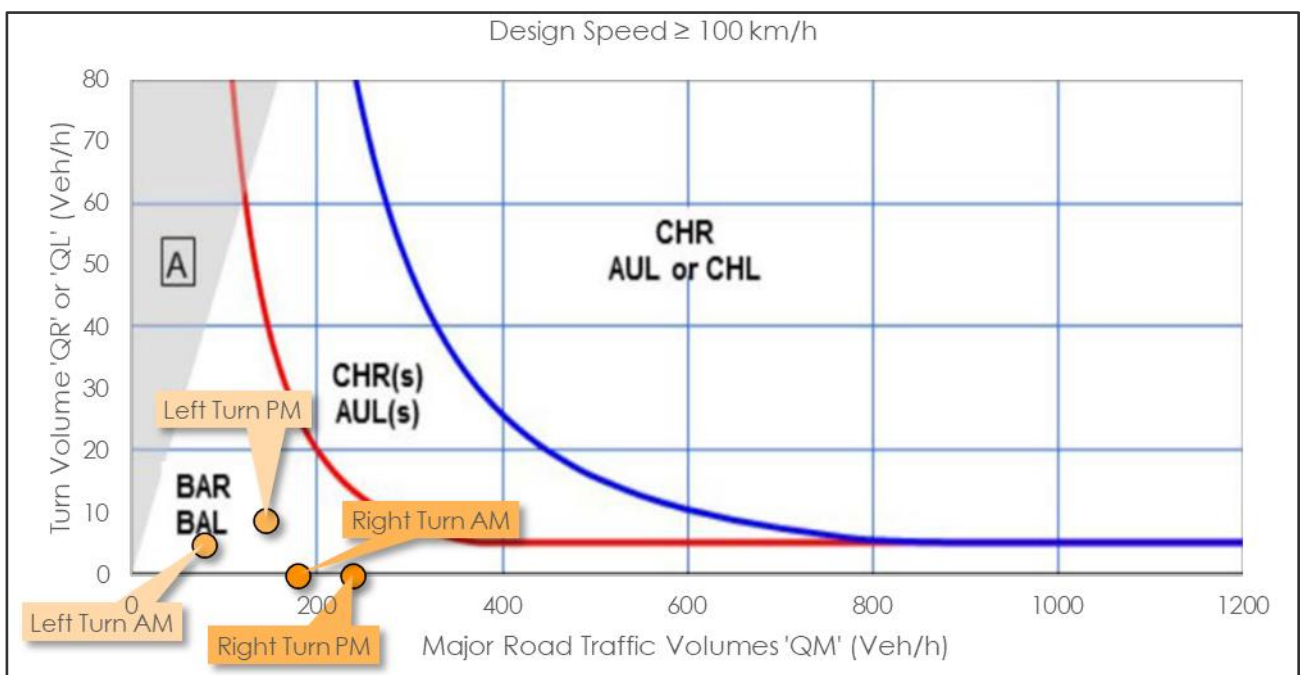
It is noted that the traffic generated by the proposed development is very low and has a minimal impact on the operation of the Sandy Creek Road / Maffra-Briagolong Road intersection. Intersection upgrade works are therefore not considered to be required at Sandy Creek Road / Maffra-Briagolong Road and are not proposed as part of this application.

**Figure 27 Austroads Turn Treatment Warrants – Sandy Creek Road / Maffra-Briagolong Road**



Based on the traffic model and distribution, the projected post development turning movements at the intersection between Maffra-Briagolong Road and the site access point are very low. This coupled with the relatively low through volumes mean in reality there will be no vehicles delayed when using this access. Notwithstanding, when assessed against the turn lane treatments of Austroads, effectively any turning movement triggers the need for a basic left turn treatment (BAL) and a basic right turn treatment (BAR). Despite the low levels of traffic, it is understood that DTP require the inclusion of road widening to allow for a BAL and BAR treatment and accordingly these will be delivered on Maffra-Briagolong Road to facilitate access in accordance with the Austroads requirements. A Concept Layout Plan is enclosed as Appendix A demonstrating the basic turn treatments.

**Figure 28 Austroads Turn Treatment Warrants – Site Access / Maffra-Briagolong Road**



## 8 CONCLUSIONS

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This report addresses the phased development of land located on Briagolong Road, Maffra, which will proceed in stages. The land identified within the Maffra Structure Plan as appropriate for increased density rural living development, subject to further investigation and preparation of technical reports.

The Site is currently zoned to facilitate subdivision into 23 rural living zoned lots with a nominated schedule of 2.0 hectares and is proposed to be developed through a coordinated three-phase planning process (staged):

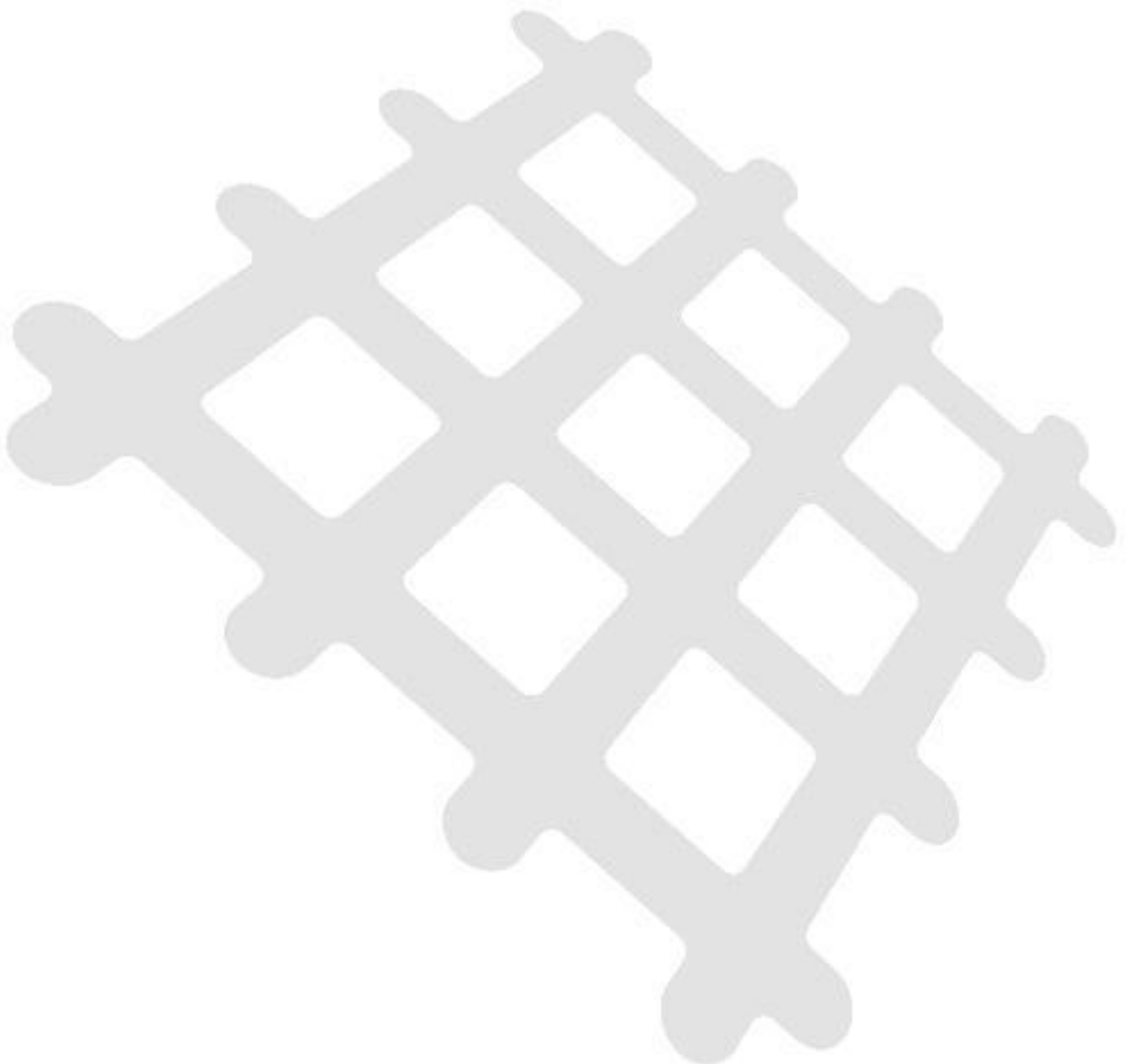
- Phase 1: Preparation and approval of a Development Plan to establish the overall subdivision and servicing framework to address the requirements of the Development Plan Overlay Schedule 1.
- Phase 2: A planning permit application for the creation of 22 lots generally 6,000 m<sup>2</sup> in size, together with a balance lot, addressing the current requirements of the Rural Living Zone (Schedule 2).
- Phase 3: A Planning Scheme Amendment to the Wellington Planning Scheme to change the Zone Schedule and planning permit application to facilitate the subdivision of the balance land into 64 additional lots, also generally 6,000 m<sup>2</sup> in size. The stage proposes to delete the Development Plan Overlay applying to the land.

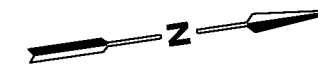
This report addresses all three phases (stages) of the development and considers both interim and ultimate development outcomes for the subject land.

Considering the analysis presented above, it is concluded that:

- The proposed subdivision design is considered to be generally in accordance with the transport related requirements of the Maffra Structure Plan;
- It is considered that the subdivision satisfies the objectives of Clause 56 of the Planning Scheme;
- The proposed road cross-sections are generally in accordance with the Wellington Planning Scheme, and are therefore considered acceptable;
- The overall subdivision is projected to generate up to 52 vehicle movements during the peak hour periods;
- The traffic generated by the proposed subdivision is expected to have a minimal impact on the operation of Three Chain Road / Sandy Creek Road and Maffra-Briagolong Road / Sandy Creek Road;
- Turn lanes are not considered to be warranted at the intersection of Three Chain Road / Sandy Creek Road or Maffra-Briagolong Road / Sandy Creek Road; and
- Turn lanes are not considered to be warranted at the intersection of Maffra-Briagolong Road / site access, however it is proposed to provide localised widening to respond to DTP's concerns.

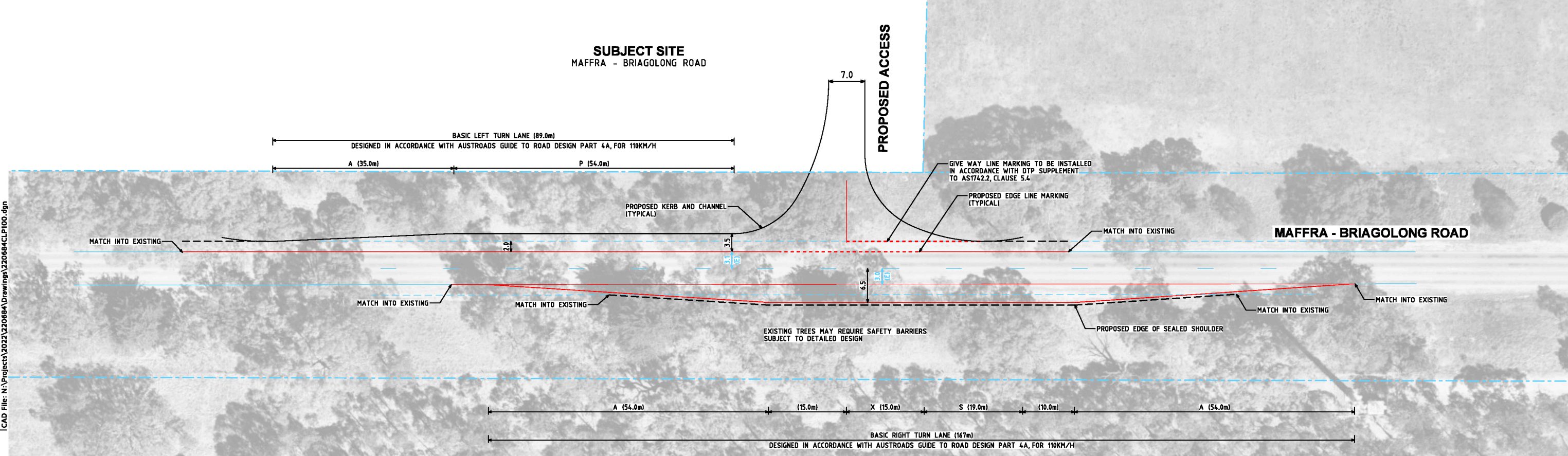
# ***Appendix A    Concept Layout Plan***





**SUBJECT SITE**  
MAFFRA - BRIAGOLONG ROAD

**PROPOSED ACCESS**



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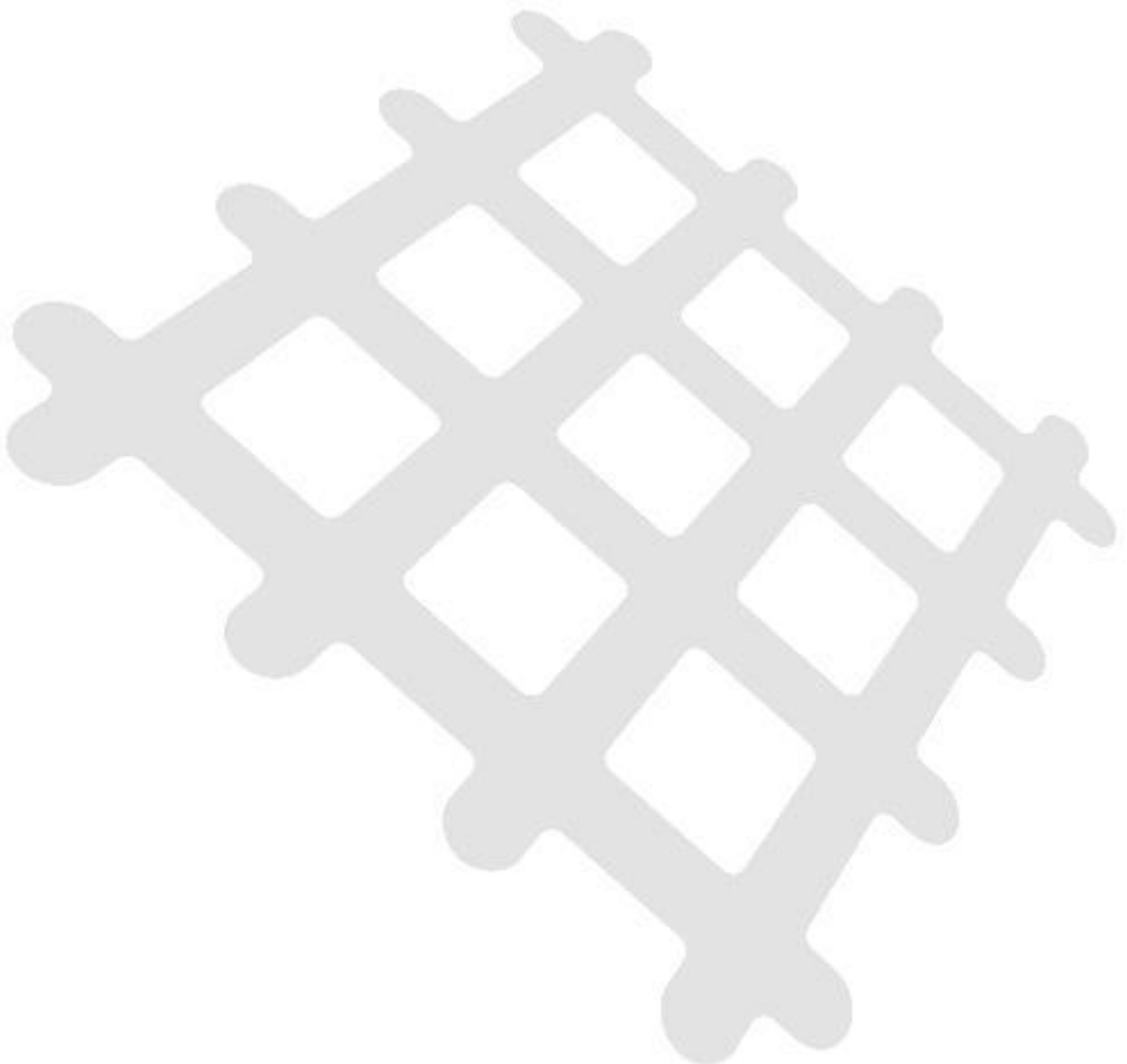
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Aerial photography provided by Nearmap

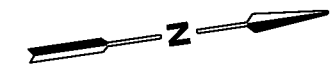
Wurundjeri Woiwurrung Country  
56 Down Street, Collingwood, VIC 3066  
Email: info@onemilegrid.com.au Web: www.onemilegrid.com.au  
Phone (03) 9939 8250

Scale  
1:750 @ A3

Drawing Title MAFFRA - BRIAGOLONG ROAD, MAFFRA SITE ACCESS LAYOUT CONCEPT LAYOUT PLAN		
Designed	Approved	Meiway Ref
		X928 H6
Project Number	Drawing Number	Revision
220684	CLP100	C

# ***Appendix B    Swept Path Analysis***





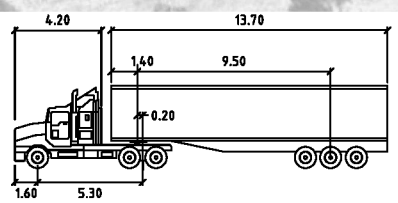
**SUBJECT SITE**  
MAFFRA - BRIAGOLONG ROAD

**PROPOSED ACCESS**

**MAFFRA - BRIAGOLONG ROAD**

CAD File: N:\Projects\2022\220684\Drawings\220684SPA100.dgn

Date Plotted: 28-05-2025 12:02:44 PM



PM S 19M	meters	meters	
Tractor Width	: 4.20	Tractor Height	: 1.40
Tractor Track	: 1.60	Trailer Length	: 9.50
Tractor Wheelbase	: 5.30	Trailer Height	: 0.20
Tractor Lock to Lock Time	: 6.0	Trailer Track	: 2.50
Tractor Steering Angle	: 27.8	Trailer Track	: 2.50
Tractor Articulating Angle	: 70.0		

**SWEPT PATH LEGEND**

--- DESIGN VEHICLE SWEEP PATHS SHOWN DASHED

..... 500mm CLEARANCE ENVELOPE SHOWN DOTTED

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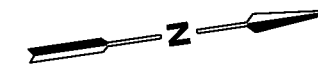
Scale  
**1:750 @ A3**

Drawing Title <b>MAFFRA - BRIAGOLONG ROAD, MAFFRA VEHICLE SITE ACCESS - DESIGN VEHICLE SWEEP PATH ANALYSIS</b>		
Designed	Approved	Meiway Ref
		<b>X928 H6</b>
Project Number	Drawing Number	Revision
<b>220684</b>	<b>SPA100</b>	<b>C</b>

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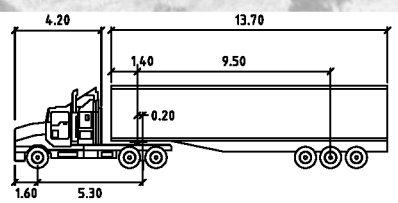
**SUBJECT SITE**  
MAFFRA - BRIAGOLONG ROAD

**PROPOSED ACCESS**

**MAFFRA - BRIAGOLONG ROAD**

CAD File: N:\Projects\2022\220684\Drawings\220684SPA101.dgn

Date Plotted: 28-05-2025 12:05:45 PM



PM S 19M	meters	meters
Tractor Width	: 4.20	Tractor Wheel Offset
Trailer Width	: 13.70	Trailer Height
Tractor Track	: 1.60	Trailer Track
Trailer Track	: 5.30	

**SWEPT PATH LEGEND**

---	DESIGN VEHICLE SWEEP PATHS SHOWN DASHED
.....	500mm CLEARANCE ENVELOPE SHOWN DOTTED

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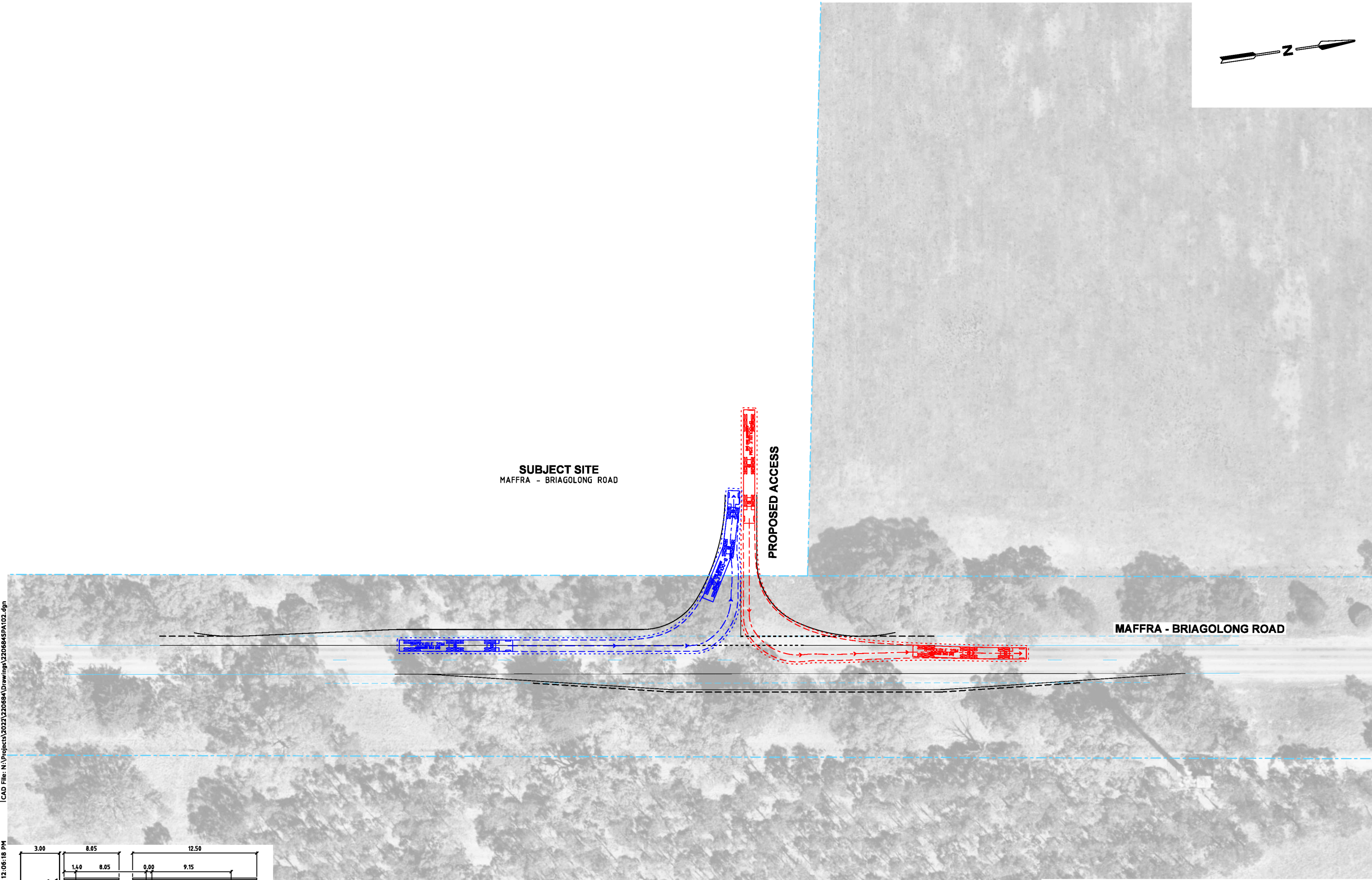
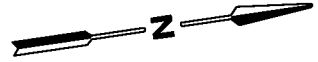
Scale: 1:750 @ A3

Drawing Title MAFFRA - BRIAGOLONG ROAD, MAFFRA VEHICLE SITE ACCESS - DESIGN VEHICLE SWEEP PATH ANALYSIS		
Designed L..	Approved .....	Meiway Ref X928 H6
Project Number 220684	Drawing Number SPA101	Revision C

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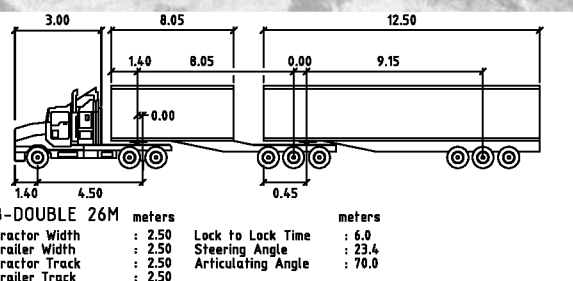
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Aerial photography provided by Nearmap



CAD File: N:\Projects\2022\220684\Drawings\220684SPA102.dgn

Date Plotted: 28-05-2025 12:06:18 PM



**SWEPT PATH LEGEND**  
 - - - - CHECK VEHICLE SWEEP PATHS SHOWN DASHED  
 ······ 500mm CLEARANCE ENVELOPE SHOWN DOTTED

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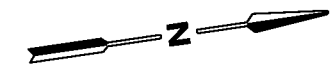
Scale: 1:750 @ A3

Drawing Title		
MAFFRA - BRIAGOLONG ROAD, MAFFRA VEHICLE SITE ACCESS - CHECK VEHICLE SWEEP PATH ANALYSIS		
Designed	Approved	Meiway Ref
...	...	X928 H6
Project Number	Drawing Number	Revision
220684	SPA102	C

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Aerial Photography  
 Aerial photography provided by Nearmap



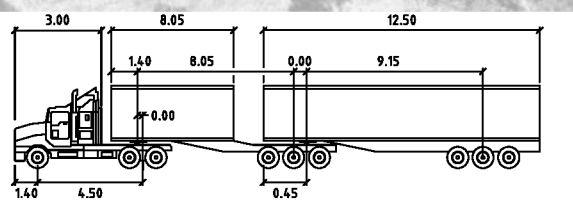
**SUBJECT SITE**  
MAFFRA - BRIAGOLONG ROAD

**PROPOSED ACCESS**

**MAFFRA - BRIAGOLONG ROAD**

CAD File: N:\Projects\2022\220684\Drawings\220684SPA103.dgn

Date Plotted: 28-05-2025 12:06:50 PM




B-DOUBLE 26M		Tractor	Trailer
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

**SWEPT PATH LEGEND**  
 - - - - CHECK VEHICLE SWEEP PATHS SHOWN DASHED  
 - - - - 500mm CLEARANCE ENVELOPE SHOWN DOTTED

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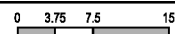
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Scale  
**1:750 @ A3**



Drawing Title <b>MAFFRA - BRIAGOLONG ROAD, MAFFRA VEHICLE SITE ACCESS - CHECK VEHICLE SWEEP PATH ANALYSIS</b>		
Designed	Approved	Meiway Ref
		<b>X928 H6</b>
Project Number	Drawing Number	Revision
<b>220684</b>	<b>SPA103</b>	<b>C</b>