

Victoria to New South Wales Interconnector West (VNI West) (NSW)

Technical paper 8 – Traffic and Transport Impact Assessment



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Transgrid

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New South Wales
Interconnector West
(VNI West) (NSW)**

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Traffic and transport
impact assessment

wsp

July 2025

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Glossary

Term	Definition
Interconnector	An electricity interconnector is a connection that allows power to flow in both directions between regions in the national electricity market (NEM), in this case between NSW and Victoria, providing access to a larger number of electricity generators and a greater ability to meet varying demand where and when it is needed most.
Transgrid (or ‘the proponent’)	The manager and operator of the high voltage electricity transmission network in New South Wales and the Australian Capital Territory with connections to Victoria and Queensland. Transgrid manages the network that is the backbone of the National Energy Market, which enables energy trading between Australia’s three largest States along the east coast.
Project footprint (the)	Refers to the generally 200 m wide corridor area that may be directly impacted by the project including all proposed infrastructure elements (including the proposed transmission line corridor, substation site works and other ancillary works) as well as locations for proposed construction elements such as temporary worker accommodation facilities, construction compounds, access tracks and site access points, laydown and staging areas, concrete batching plants, brake and winch sites and site offices.
Traffic and transport study area (the)	The traffic and transport study area is defined by the transport networks that may be impacted by construction traffic movements to and from the project footprint (including access to the project transmission line corridor, construction compounds, temporary worker accommodation facilities, and the proposed Dinawan substation expansion), or by the operation of the project (staff and maintenance traffic movements). The traffic and transport study area encompasses a buffer zone which incorporates local project related traffic to and from regional towns including Wagga Wagga, Deniliquin, Balranald and Swan Hill.
Project transmission line corridor	A generally 200 m wide corridor along the length of the transmission line within which the transmission line, structures and easement would be located (sub set of the project footprint).
Transmission line easement	The area surrounding and including the transmission lines that allows access, construction and maintenance work to take place. The easement grants a right of access and for the construction, maintenance and operation of the transmission line and other operational assets. The easements for the new 500 kV transmission line between the Victorian border and the expanded Dinawan substation would typically be 70 m wide. However, transposition locations would require wider easements up to 110 m wide. The replacement of the 330 kV transmission line generally between Ivydale Road (south of the existing Wagga 330 kV substation) and the future Gugaa 500 kV, Livingstone Gully Road substation would occur within the existing 60 m wide easement.
Transmission line alignment	The location of the transmission line structures along the middle of the transmission line easement.
Transmission line structure	Proposed free standing structures to support the transmission lines.
Transposition	Transposition is the periodic swapping of positions of the conductors of a transmission line to maintain transmission reliability.

Term	Definition
VNI West	An interconnector of about 480 kilometres between the power grids of NSW and Victoria. Specifically, VNI West would connect the EnergyConnect (NSW Eastern section) project (at the future Dinawan substation in NSW) with the Western Renewables Link proposal (at Bulgana in Victoria) via a new substation near Kerang (in Victoria).
VNI West (NSW) ('the project')	The NSW component of VNI West includes: — a new 500 kV transmission line connection between the NSW/Victorian border and Transgrid's Dinawan substation (currently under construction as part of the EnergyConnect (NSW – Eastern Section) project) — replacement of a section of existing single circuit 330 kV transmission line to a double circuit 330 kV line generally between Ivydale Road and the future Gugaa 500 kV substation, Livingstone Gully Road (which is subject to a separate planning approval as part of the HumeLink project) — expansion of the existing Dinawan substation to include a new 500 kV switchyard and two new 330 kV bays — connection and transmission line diversion works at both the existing Wagga 330 kV substation and the future Gugaa 500 kV substation, Livingstone Gully Road to connect the new transmission line infrastructure — ancillary activities to support the construction and operation of the project.

Abbreviations

Term/acronym	Definition
ACT	Australian Capital Territory
AEMO	Australian Energy Market Operator
CSSI	critical state significant infrastructure
DPE	(NSW) Department of Planning and Environment (until January 2024)
DPHI	(NSW) Department of Planning, Housing and Infrastructure (post January 2024)
DPIE	(NSW) Department of Planning, Infrastructure and Environment
EIS	environmental impact statement
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EP&A Regulation	Environmental Planning and Assessment Regulation 2000 (NSW)
EPBC Act	<i>Environmental Protection Biodiversity Conservation Act 1999</i> (Cth)
GW	gigawatts
ha	hectare
km	kilometre
km/h	kilometre per hour
kV	kilovolt
LGA	local government area
LoS	Level of Service
m	metre
MW	megawatt
NEM	National Energy Market
NSW	New South Wales
OPGW	optical fibre ground wire
OSOM	Over-sized and over-mass vehicles (high risk heavy vehicles)
RAV	Restricted Access Vehicle
REZ	renewable energy zone
SEARs	Secretary Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SSI	State significant infrastructure
TCV	Transmission Company Victoria (a company created by AEMO Victorian Planning to progress the VNI West project)
TfNSW	Transport for New South Wales
VNI West	Victoria New South Wales Interconnector West

Executive summary

Project overview

Transgrid and Transmission Company Victoria (TCV) are jointly developing a new electrical connection between NSW and Victoria called the Victoria to NSW Interconnector West project (VNI West). Transgrid is responsible for seeking the required planning approval and delivering the NSW component of VNI West (referred to as ‘the project’ or ‘VNI West (NSW)’) in the Riverina Region of NSW.

The project would provide the NSW 500 kV double circuit overhead transmission line component of the connection between the NSW/Victorian border near Murrabit and the future Dinawan substation (currently being constructed as part of the EnergyConnect (NSW – Eastern section) project). The project would also include replacement of around nine kilometres of an existing overhead single circuit 330 kV transmission line (Line 51) with a double circuit 330 kV transmission line generally between Ivydale Road (south of the existing Wagga substation) and the future Gugaa 500 kV substation, Livingstone Gully Road (which is subject to separate planning approval under the HumeLink project). The project would also include an expansion of the future Dinawan substation and connection works at both the existing Wagga 330 kV substation and the future Gugaa 500 kV substation, Livingstone Gully Road.

This technical paper assesses the potential impacts to traffic and transport from the construction and operation of the Victoria to New South Wales Interconnector West (NSW) project (the project) and has been prepared to support and inform the Environmental Impact Statement (EIS) for the project.

The impacts have been assessed in accordance with the Secretary’s Environmental Assessment Requirements (SEARs) issued by the Department of Planning, Housing and Infrastructure (DPHI) and against the relevant legislation and guidelines as they apply to traffic and transport.

Legislative and policy context

The key legislation and guidelines considered in this assessment included:

- *Roads Act 1993* (NSW)
- *NSW Road Rules, 2014*
- *Austroads Guide to Traffic Management and Road Design* (Austroads, 2020)
- *Guide to Transport Impact Assessment* (Transport for NSW, 2024)
- *Traffic Control at Work Sites – Technical Manual* (Transport for NSW, 2022a)
- *2026 Road Safety Action Plan* (Transport for NSW, 2022b)
- *NSW Heavy Vehicle Access Policy* (Transport for NSW, 2024).

Methodology

The methodology adopted in this technical paper can be summarised as follows:

- desktop and mapping analysis to identify, describe and qualitatively assess the existing traffic conditions of the roads that would be used by the project
- data collection at selected locations to understand existing traffic conditions including vehicle use and types of vehicles, traffic demands and patterns to further assess the impact of the project
- review of the proposed construction activities and methodology to derive the expected traffic generation and traffic distribution during the pre-construction and construction phases of the project
- assessment of the potential impacts associated with the pre-construction and construction phases of the project. This considered impacts on road capacity, condition, safety and efficiency, heavy vehicle access, access to construction compounds and the combined temporary worker accommodation facilities, access tracks, property access, transport impacts related to the stringing of transmission lines, active transport and public transport
- assessment of the potential impact associated with operational activities (i.e. maintenance of transmission lines, structures and substations). This considered the potential impacts associated with road capacity, road condition, road safety, efficiency, active transport, public transport and property access
- identification of mitigation and management measures.

The methodology has also been informed by feedback from Transport for NSW (TfNSW) and relevant councils throughout the preparation of this technical paper. This includes the assessment of a pre-construction scenario in addition to the construction scenario, which represents construction traffic movements during the establishment of construction compounds and the combined temporary worker accommodation facilities.

The traffic and transport study area is defined by the traffic and transport network that may be impacted by construction movements to and from the project footprint (including access to the project transmission line corridor, construction compounds, combined temporary worker accommodation facilities, and the proposed Dinawan substation expansion), or by the operation of the project (staff and maintenance movements).

The traffic and transport study area encompasses a buffer to nearby local regional towns including Wagga Wagga, Deniliquin, Balranald and Swan Hill.

Existing environment

Roads in the traffic and transport study area comprise rural State roads or regional roads that connect population centres, and a network of sealed and unsealed local roads that provide access to agricultural properties and other local destinations. The existing roads and intersections carry low traffic volumes and all operate at a Level of Service A in free flow conditions mid-block and with minimal delay or queues at intersections.

A sizeable proportion of vehicles on the road network within the traffic and transport study area are heavy vehicles, especially on the State and regional roads. Many of these heavy vehicles travel across the country for the transport of freight as well as agricultural purposes. Heavy vehicle traffic fluctuates with temporary increases in traffic volumes during harvest seasons.

Assessment of potential impacts

Construction impacts

Construction of the project would commence in late 2026, subject to planning approval and potential construction staging. Construction would peak in 2027 and during this time up to approximately 1,900 workers would be required for the project (potentially up to 1,100 working onsite at any given time during peak periods). There would be multiple work fronts across the project footprint which would generate traffic movements, for example between combined temporary worker accommodation facilities, construction compounds and along the transmission line easements.

The assessment concludes that:

- The impact of the predicted increase in traffic volumes generated during both the pre-construction and construction phases to the road network's capacity and efficiency are minor, attributed largely to already low traffic volumes and the low construction traffic volumes on each construction route with respect to intersection and mid-block road capacity. However, despite minor impacts to road network's capacity and efficiency, the project and associated heavy vehicle movements may impact the condition of regional and local roads proposed to be used as construction routes.
- The impacts on public and active transport during both the pre-construction and construction phases are negligible.
- Minor delays may be encountered during the stringing of transmission lines across roads at a few locations which would be managed through the use of hurdles and traffic management control. No stringing of transmission lines across any operational railways is proposed.
- Over-sized and over-mass (OSOM) vehicle movements which are high risk heavy vehicles would be required to deliver substation components to the proposed Dinawan substation expansion site. All preliminary routes proposed to the Dinawan substation expansion site are gazetted and approved as OSOM routes. Should OSOM vehicles be required to travel on roads not approved for their travel, necessary permit applications to the National Heavy Vehicle Regulator (NHVR) and relevant local council/s will be prepared and an OSOM transport route assessment completed by qualified OSOM transport contractors. The OSOM transport route assessment will include the suitability of road network and travel routes for proposed OSOM vehicles including road widths, intersection widths for vehicle swept paths, any road or bridge width, height or strength constraints and identified mitigation measures including risk assessment.
- Safe Intersection Sight Distance assessments identified that temporary speed limits would need to be implemented at intersections and access points along Moulamein Road, Cunninyeuk Road, Fisher Lane and Gregadoo East Road to ensure sufficient sight distance for road users during pre-construction and construction. The relevant roads authority would be consulted in relation to the implementation of these temporary controls.
- Swept paths analysis were completed at existing State road intersections where construction traffic would undertake turning movements. These were completed for both a 19 metre semi-trailer and a 25 / 26 metre B-Double. Some of the intersections have been identified as not requiring swept paths analysis as they are considered to have adequate space for turning manoeuvres, construction traffic is not planned to turn through the intersection or there is a large roundabout at the intersection. State road intersections identified as requiring an upgrade or modification, have had a strategic intersection design prepared. The intersections requiring upgrade as a result of the project include Sturt Highway / Maude Road, Newell Highway / Kidman Way, Cobb Highway / Wanganella-Moulamein Road and Kidman Way / Cadell Road.

- Swept path analysis were also completed at State road driveway access intersections where construction traffic would undertake turning movements. These were completed for both a 19 metre semi-trailer and a 25 / 26 metre B-Double. Strategic intersection designs have been prepared for State road driveway access intersections in accordance with *Austroads Guide to Road Design Part 4: Intersections and Crossings* at the following locations: Cobb Highway / new site access to the combined temporary worker accommodation facilities at Cobb Highway in Wanganella, Kidman Way / new site access to the Dinawan combined temporary worker accommodation in Coleambally, and two proposed access track intersections with the Cobb Highway in Wanganella. The project would use, if possible, the temporary worker accommodation facilities established at Dinawan substation for the EnergyConnect (NSW – Eastern section) project and established access point with Kidman Way. If the Dinawan substation accommodation facility cannot be used, a new facility would be constructed for this project. This assessment is based on the new facility being required and constructed including a new access point.
- Feedback from local councils has raised concerns about the suitability of roads for heavy vehicle movements and access points to the road network. Consultation with local councils will continue during the EIS exhibition to identify any additional road improvement works to address concerns over road suitability and access points, where reasonable and feasible. Ongoing consultation will also confirm the need for any road maintenance contributions with local councils. The final scope of road improvement works will address the types of construction vehicles and the likely use of the road.

Operational impacts

The assessment concluded that:

- the impact of the predicted increase in traffic volumes generated during the operational phase to the road network's capacity and efficiency are negligible. This is attributed largely to already low traffic volumes and the minimal operation traffic volumes on the road network with respect to intersection performance and mid-block road capacity
- the impact on public and active transport during the operational phase is negligible and no delays or impacts are foreseen.

Cumulative impacts

The assessment concluded that:

- the potential for cumulative traffic impacts is predominantly during construction where construction routes for the project would overlap with the relevant future projects
- cumulative project traffic turn warrant assessments for existing intersections and new access points have been carried out to inform the strategic intersection designs prepared for the State road intersections and access points
- state, regional and local roads used by the project and relevant future projects have substantial residual capacity to manage potential cumulative traffic impacts related to volumes. However, there is potential for increased impacts to road conditions, particularly for unsealed local roads.

Recommended management and mitigation

Mitigation measures for the pre-construction and construction phases have been considered to avoid and minimise potential impacts from the project. A Traffic and transport management sub-plan would be prepared prior to construction to mitigate and manage the impacts associated with the construction work. This plan will be prepared in consultation with the relevant local councils and TfNSW. All relevant permits and licences would be obtained prior to construction.

Potential impacts to the condition of regional and local roads will be managed through road condition assessments undertaken prior to and during construction, with any damage rectified as required. In addition, all unsealed roads will be subject to an inspection and maintenance schedule developed in consultation with the relevant roads authority.

The inspection and maintenance schedule will detail the required inspection frequency and associated maintenance works.

The potential for cumulative road condition impacts will be managed through multi-party consultation and coordination with the proponents of relevant future projects and the relevant roads authority.

1 Introduction

This chapter provides an overview and background to the NSW component of the Victoria to NSW Interconnector West (VNI West) project, including a summary of the project and the purpose and structure of this technical paper.

1.1 Project context and overview

Transgrid and Transmission Company Victoria (TCV) are jointly developing a new electrical connection between NSW and Victoria called the Victoria to NSW Interconnector West project (VNI West). VNI West would form a second transmission link between NSW and Victoria to harness clean, low-cost electricity from Renewable Energy Zones (REZ) in both states and improve the reliability and security of electricity supply. VNI West is a priority project for the Australian Energy Market Operator (AEMO), and the Commonwealth and NSW and Victorian governments.

VNI West proposes the construction, operation and ongoing maintenance of a high voltage, 500 kilovolt (kV) double circuit overhead transmission line that would connect the high voltage electricity grids in NSW and Victoria. Specifically, VNI West would link the Western Renewables Link proposal at Bulgana in Victoria with the EnergyConnect (NSW – Eastern section) project (SSI-9172452) at the future Dinawan substation in NSW (currently in construction). The connection would be made via a new substation near Kerang in Victoria (refer to Figure 1.1).

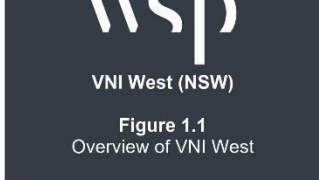
Transgrid (the proponent) is responsible for seeking the required planning approval and delivering the NSW component of VNI West (referred to as ‘the project’ or ‘VNI West (NSW)’) in the Riverina Region of NSW and would provide the 500 kV transmission line component of the connection for the VNI West project. The project would be located between the NSW/Victorian border near Murrabit in Victoria and the future Dinawan substation (the 330 kV component of which is currently being constructed under the EnergyConnect (NSW – Eastern section) project approval). The project would also include replacement of around nine kilometres of an existing single circuit 330 kV transmission line (Line 51) with a double circuit 330 kV transmission line generally between Ivydale Road (south of the existing Wagga 330 kV substation) and the future Gugaa 500 kV substation, Livingstone Gully Road (which is subject to separate planning approval as part of the HumeLink project (SSI-36656827)). The project would also include an expansion of the future Dinawan substation and substation connection works at both the existing Wagga 330 kV substation and the future Gugaa 500 kV substation, Livingstone Gully Road.

TCV, in association with the AEMO Victoria, is responsible for seeking the required planning approval and the delivery of the Victorian component of the VNI West project (VNI West (Victoria)), from the crossing point on the NSW/Victorian border to a connection with the Western Renewables Link near Bulgana, via a new proposed substation near Kerang. The Victorian component is subject to a separate planning and environmental approvals under the applicable Victorian State and Commonwealth jurisdictional requirements.

1.1.1 Project objectives

The primary objective of VNI West is to reduce the cost of providing secure electricity transmission between NSW and Victoria in the near term and facilitate the longer-term transition of the energy sector across the National Electricity Market (NEM) to low emission energy generation sources. More specifically, the project aims to:

- provide reliable and affordable electricity to customers
- improve energy security of the south western transmission network, enable greater sharing of energy between NSW and Victoria and help to unlock the potential capacity of proposed REZs in the region
- support the national transition to a lower carbon emission energy system by enabling more renewable energy generation to enter the market, supporting Australia’s emissions reduction targets
- support the development of a greater mix of renewable energy in the NEM.



1.2 The project

Transgrid is seeking approval under Part 5, Division 5.2 of the *Environmental Planning and Assessment Act 1979* (NSW) (the EP&A Act) to construct and operate the project. The project was declared as Critical State Significant Infrastructure (Critical SSI) under Section 5.13 of the EP&A Act on 19 June 2024.

The project was also declared a ‘controlled action’ on 4 September 2024 (EPBC Act 2024/09871) by the (Commonwealth) Department of Climate Change, Energy, the Environment and Water ((Commonwealth DCCEEW) and as such also requires a separate approval under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). As a result of the need for Commonwealth approval, the project will be subject to the bilateral assessment process that has been established between the Australian and NSW governments.

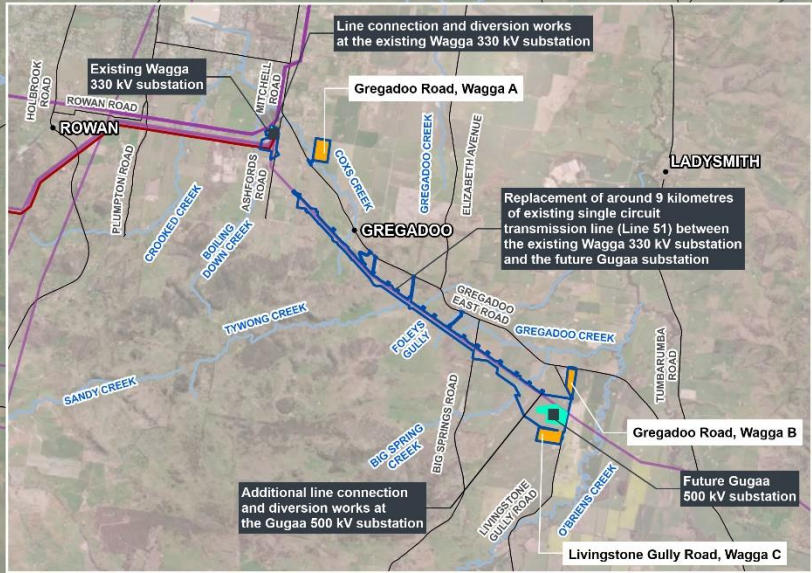
1.2.1 Key features of the project

The key elements of the project would be located within the project footprint and would include infrastructure such as the transmission lines and transmission line structures, the 500 kV expansion component of the future Dinawan substation and some additional ancillary features. The overall scope of the project includes the following key components:

- transmission line works comprising:
 - a new 500 kV double circuit overhead transmission line around 240 kilometres in length between the NSW/Victoria border near Murrabit, and the future Dinawan substation
 - replacement of around nine kilometres of an existing 330 kV single circuit overhead transmission line (Line 51), generally between Ivydale Road (south of the existing Wagga 330 kV substation) and the future Gugaa 500 kV substation, Livingstone Gully Road, with a new 330 kV double circuit overhead transmission line. The new transmission line structures for this section of the project would be up to around 56 metres in height
- substation works comprising:
 - connection and line diversion works at the future Dinawan substation to allow for connection of the proposed 500 kV switchyard
 - expansion of the future Dinawan substation to include a new 500 kV switchyard and two new 330 kV transformer bays
 - connection and line diversion work at the existing Wagga 330 kV substation and at the future Gugaa 500 kV substation, Livingstone Gully Road to allow for connection to the newly replaced Line 51
- ancillary activities comprising:
 - new and upgraded temporary and permanent access tracks
 - construction of utilities infrastructure and power supply
 - installation and operation of two telecommunication facilities (optical repeater sites) along the transmission line between the NSW/Victorian border and future Dinawan substation including connections to the local power supply
 - temporary facilities required for construction of the project including construction compounds, temporary worker accommodation facilities, laydown and staging areas, stockpiling areas, concrete batching plants, brake and winch sites, site offices, parking areas, and utilities supplies.

All components of the project would be located within the project footprint shown in Figure 1.2.

The project footprint is the area that has been assessed in this EIS as being directly affected by the construction, operation and maintenance of the project.



The 500 kV transmission line between the NSW/Victorian border and the future Dinawan substation would be located within an easement approximately 70 metres wide except at two transposition locations (where the conductors of a transmission line swap positions to improve transmission voltage balance) requiring a wider 110 metre easement for around one kilometre in length.

The section of the transmission line to be replaced generally between Ivydale Road (south of the existing Wagga 330 kV substation) and the future Gugaa 500 kV substation, Livingstone Gully Road would be contained within the existing 60 metre easement. These easements would provide a legal right of access to construct, operate and maintain the transmission lines and other operational assets associated with these lines.

A detailed description of the project features and construction methods is further described in Chapter 3 (Project description) of the main EIS document.

1.2.2 Construction

1.2.2.1 Key construction work

Key construction work for the project would typically include (but not be limited to):

- pre-construction minor works which would include:
 - installation of mitigation measures, including but not limited to erosion and sediment controls, temporary exclusion fencing and monitoring equipment
 - property acquisition adjustment work including installation of property fencing, barricades and gates
- site establishment works, which may include (but not be limited to):
 - establishment of combined temporary worker accommodation facilities and construction compounds, including excavations, surface preparation, access roads and utility connections
 - vegetation clearing
 - road and intersection improvement works (where required)
 - establishment of access tracks and watercourse crossings
 - relocating, adjusting or protecting utilities
- construction of the proposed transmission lines, which would include (but not be limited to):
 - earthwork (including establishment of construction pads) and the construction of footings and foundations for each transmission line structure
 - erection of the new transmission line structures using crane(s) and/or helicopter(s), noting, where cranes are proposed, is assumed that the final height of the cranes would extend around 20 metres above the respective transmission line structure heights
 - stringing of the conductors and overhead earth wires and optical ground wire (utilising either ground-based and/or helicopter/drone stringing construction methods)
 - installation of earthing conductors
 - testing and commissioning of the transmission lines

- works to replace around nine kilometres of Line 51 generally between Ivydale Road (south of the existing Wagga 330 kV substation) and the future Gugaa 500 kV substation, Livingstone Gully Road, which would include (but not be limited to):
 - demolition of existing transmission line structures and footings and removal of waste materials
 - erection of the new transmission line structures
 - stringing of the conductors and overhead earth wires and optical ground wire
 - testing and commissioning of the new transmission lines
- expansion of the future Dinawan substation, which would include (but not be limited to):
 - civil construction works including earthworks
 - slab construction for the new 500 kV switchyard and 330 kV transformer bays
 - electrical fit out with new substation equipment
 - testing and commissioning of the new substation equipment
- utility service connections to telecommunication facilities (optical repeater sites) and construction compounds/temporary worker accommodation facilities, and adjustments of existing utilities that intersect the transmission line corridor (as required)
- connection and transmission line diversion works at the existing Wagga 330 kV substation and future Gugaa 500 kV substation, Livingstone Gully Road.

Prior to energisation of the infrastructure, a series of pre-commissioning activities would be conducted. This would include testing the new transmission lines and additional substation infrastructure.

A detailed description of construction work for the project is further outlined in Chapter 3 (Project description) of the main EIS document.

1.2.2.2 Construction program

Subject to NSW and Commonwealth planning approvals and potential construction staging, the project is expected to commence in late 2026 (site establishment works phase). Once construction has commenced, the project is estimated to take around two years to complete. Initial operation is anticipated to commence by early 2029, and at full capacity by late 2029. Site decommissioning and remediation would extend up to around six months beyond the initial commissioning (operational) phase, with estimated completion by the end of 2029.

The final construction program would be confirmed as part of the finalisation of the project development following approval of the project.

1.2.2.3 Indicative duration of transmission line construction activities

Construction at each transmission line structure would be intermittent and construction activities would not occur for the full duration at any one location. Figure 1.3 presents an indicative duration of construction activities associated with the transmission line structures. These durations could vary and breaks between activities may be shorter, which may lead to longer inactive periods in subsequent stages of construction at an individual transmission line structure. Duration of any particular construction activity, and respite periods, may vary for a number of reasons including (but not limited to), multiple work fronts, resource and engineering constraints, works sequencing, and location.

These activities would also have multiple work fronts, therefore (for example) foundation works or structure erection would be occurring in several locations, along the transmission line easement, at the same time.

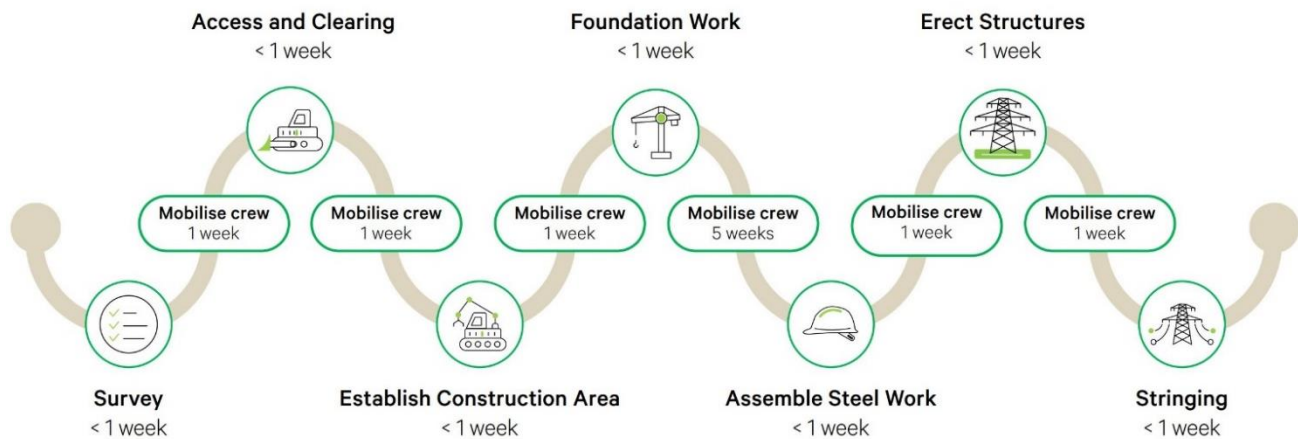


Figure 1.3 Indicative duration and sequence of construction activities for transmission line structures

1.2.3 Operation

Once operational, the new infrastructure would be inspected by field staff and contractors on a regular basis, with other operational activities occurring in the event of an emergency (as required). Key maintenance activities would include:

- regular inspection (ground and aerial) and maintenance of transmission lines and structures, including annual fly overs and routine ground inspections on an approximate six-yearly cycle
- vegetation clearing/trimming within the transmission line easement, and access along road/tracks
- inspection and maintenance of the future Dinawan substation including:
 - routine substation infrastructure inspection (such as transformers, electrical plant and equipment and fire detection systems) throughout the year
 - routine/planned substation maintenance of equipment, property and switchyard areas on a scheduled basis
 - ad hoc fault and emergency works for repair of any damaged infrastructure (for example through a weather event or other failure of infrastructure)
 - maintenance of asset protection zones (as required)
- inspection and maintenance of other ancillary infrastructure including the telecommunication facilities and associated asset protection zones
- stormwater drainage maintenance.

It is expected that these activities would only require light vehicles and/or small to medium plant (depending on the work required).

1.3 Purpose of this technical paper

The purpose of this technical paper is to identify and assess the potential traffic and transport impacts in relation to the construction and operation of the project and to support and inform the Environmental Impact Statement (EIS).

It responds directly to the project's Secretary's Environmental Assessment Requirements (SEARs) issued by the NSW Department of Planning, Housing and Infrastructure (DPHI) on October 2024 (and as updated 22 May 2025) (refer to section 1.3.1).

This report has the following objectives:

- identify and assess the potential impacts of the project in relation to traffic and transport in line with the SEARs relevant legislation, policies and guidelines
- provide suitable recommendations for the mitigation of any identified impacts

1.3.1 Secretary's Environmental Assessment Requirements

This technical paper addresses the SEARs relevant to the assessment of traffic and transport. The requirements specific to this assessment and where these aspects are addressed in this technical paper are outlined in Table 1.1.

Table 1.1 Issued SEARs and where addressed in this technical paper

SEARs requirement	Sectioned addressed
Transport	
An assessment of the peak and average traffic generation, including light vehicles, shuttle buses, heavy vehicles and high risk heavy vehicles requiring escort and construction worker transportation	Chapter 5 Chapter 6
An assessment of the likely transport impacts to the site access route(s), including the above-listed vehicles, site access point(s), and any Crown land, particularly in relation to the capacity and condition of the roads, road safety and intersection performance.	Chapter 5 Chapter 6
A cumulative impact assessment of traffic from nearby developments (including mining operations)	Chapter 7
Provide details of measures to mitigate and/or manage potential impacts (developed in consultation with the relevant road/rail authorities) including: — a schedule of all required road upgrades (including those resulting from heavy vehicle and over-mass / over-dimensional traffic haulage routes). — clear figures of proposed road upgrades (including the site access point). — road maintenance contributions, and any other traffic control measures.	Chapter 5, Chapter 8, Appendix C and Appendix E (Schedule of road improvement works, new or upgraded intersection treatments and management requirements)
Details of the ongoing maintenance works required to service assets, outlining the measures to maintain the road.	Section 6.2

1.3.2 Related technical papers

This technical paper is linked to the assessments completed in the following technical papers:

- *Technical paper 7 – Noise and vibration impact assessment*
- *Technical paper 15 – Air quality impact assessment.*

1.4 Structure of this report

The structure and content of this technical paper is as follows:

- Chapter 1 – Introduction: outlines the background and need for the project, and the purpose of this technical paper.
- Chapter 2 – Legislative and policy context: provides an outline of the key legislative requirements and policy guidelines relating to the project.
- Chapter 3 – Methodology: provides an outline of the methodology used for the preparation of this technical paper.
- Chapter 4 – Existing transport conditions: describes the existing road environment and transport network.
- Chapter 5 – Construction impact assessment: describes the project's pre-construction and construction phases and the potential construction impacts associated with the project.
- Chapter 6 – Operational impact assessment: describes the project's operational phase and the potential operational impacts associated with the project.
- Chapter 7 – Cumulative impact assessment: outlines the potential cumulative traffic impacts with respect to other known developments within the vicinity of the project.
- Chapter 8 – Mitigation measures: outlines the proposed mitigation measures for the project.
- Appendix A – Detailed assessment of existing road intersections
- Appendix B – Safe intersection sight distance compliance checks
- Appendix C – Swept path analyses at State road access intersections
- Appendix D – Intersection turn warrant assessments
- Appendix E – Schedule of road improvement works, new or upgraded intersection treatments and management requirements.

2 Legislative and policy context

This chapter outlines the legislation and policies that are relevant to the traffic and transport impact assessment.

2.1 Legislation

2.1.1 Roads Act 1993

The *Roads Act 1993* (NSW) (Roads Act) aims to establish the rights of members of the public to pass along public roads, the rights of persons who own land adjoining a public road to have access to the public road, and to establish the procedures for the opening and closing of a public road. The Roads Act also aims to provide a structure for the classification of roads, empower public agencies as the road authorities and regulate various activities on public roads, including the transportation of construction materials with heavy vehicles.

Part 9 of the Roads Act nominates the requirements for undertaking works within a public road, including the requirement to obtain consent under section 138 of the Roads Act for carrying out works in, on or over a public road (this includes the erection of structures), and the digging up or disturbance of the surface of a public road. In relation to section 138 consents, section 5.24 of the EP&A Act lists the approvals or authorisations that cannot be refused if they are necessary for carrying out approved State Significant Infrastructure (SSI) including Critical SSI (CSSI) and are substantially consistent with the CSSI approval. Consent under section 138 of the Roads Act is one of the approvals listed under section 5.24 of the EP&A Act.

The project would likely require temporary/partial closure of both non-classified and classified roads for the construction of the project and may require work to connect new access points. Transgrid would require consent under section 138 of the Roads Act to undertake any work (including temporary/partial closures) on classified roads. However, as a network operator under the *Electricity Supply Act 1995* (NSW), Transgrid is not required to obtain consent for work in, on or over unclassified roads (other than a Crown Road) due to application of section 5 of Schedule 2 of the Roads Act. Notwithstanding, the impacts of the project on roads and traffic, associated with the project, have been assessed in this technical paper.

2.1.2 NSW Road Rules, 2014

The *NSW Road Rules 2014* are a framework for the safe and efficient movement of traffic on NSW roads. The NSW Road Rules are a legislative instrument with the following objectives:

- to consolidate in a single instrument the road rules that are applicable in NSW
- to provide for road rules that are based on the *Australian Road Rules* to ensure that the road rules applicable in this State are substantially uniform with road rules applicable elsewhere in Australia
- to provide for other road rules to be observed in this State regarding matters that are not otherwise dealt with in the *Australian Road Rules*.

The project would support the objectives of the legislation by ensuring that recommended mitigation measures are aligned with the Road Rules.

2.1.3 Rail Safety Act 2008 (NSW)

The *Rail Safety Act 2008* (NSW) provides for rail safety and makes other related provisions. It focuses on the safety of rail operations, management of safety risks, and continuous improvement in rail safety management. The *Rail Safety Act 2008* specifies duties related to the design, construction, maintenance, and use of rail infrastructure and rolling stock, emphasizing safety. For the purpose of the project, the *Rail Safety Act 2008* would apply to level rail crossings where construction vehicles will traverse and proposed locations of the stringing of transmission lines over rail tracks and associated infrastructure.

2.2 Policy, standards and guidelines

This section outlines government plans, policies and guidelines, particularly those that identify assessment methodology relevant to this technical paper.

2.2.1 *Austroads Guide to Traffic Management and Road Design*

The *Austroads Guide to Traffic Management* (April 2020) provides comprehensive traffic management guidance for practitioners involved in traffic engineering, road design and road safety.

The *Austroads Guide to Traffic Management* has informed the assessment methodology for the road network performance assessment for the project. This includes intersection performance, mid-block capacity performance and management strategies to minimise the impacts of traffic and transport movements generated by the project.

The *Austroads Guide to Road Design* provides designers with a framework that promotes efficiency in design and construction, economy and both consistency and safety for road users. This guide is referred to in this study when the assessment of road geometry is required to assess the impact of construction and operation of the project.

2.2.2 *Guide to Transport Impact Assessment*

TfNSW's *Guide to Transport Impact Assessment* was released in November 2024. It provides guidance on matters related to the traffic impacts of land use developments, most notably on matters relating to traffic generation and parking.

This guideline was considered in this study to guide the traffic impact assessment methodology, traffic generation and assessment of property accesses.

2.2.3 *Traffic Control at Work Sites – Technical Manual*

The *Traffic Control at Work Sites – Technical Manual 2022* provides the requirements for temporary traffic management at TfNSW construction and maintenance work sites.

The aim of the manual is to protect the safety of all transport mode users (vehicles, pedestrians, cyclists etc.) travelling around or passing through work sites. This manual applies to all persons, including construction site staff and members of the public.

Temporary works on public roads described in this technical paper consider the practices detailed in this guideline.

2.2.4 *2026 Road Safety Action Plan*

The *2026 Road Safety Action Plan* (April 2022) is a framework by the NSW Government that seeks to continue the accomplishment of the Road Safety Plan 2021 with new road trauma reduction targets for 2030. This outlines how NSW will achieve zero road trauma by 2050.

The plan includes the four elements of the Safe System approach, which are safer people, safer roads, safer speeds and safer vehicles.

The underlying principles of the Safe System approach are:

- road safety is a shared responsibility
- the human body can only withstand limited forces in a crash before this results in fatality or serious injury
- continuous improvements in vehicles, roads and behaviour will reduce fatalities and serious injuries.

The mitigation measures detailed in Chapter 8 of this technical paper consider the principles of the Safe System approach and aim to provide a safe temporary road environment.

2.2.5 *NSW Heavy Vehicle Access Policy Framework*

The *NSW Heavy Vehicle Access Policy* (TfNSW 2024) provides a framework for heavy vehicle access in NSW for roads managed by both the State government and local council. As part of the project, heavy vehicles would be required to carry freight, including construction materials, to locations within the traffic and transport study area. This policy provides a platform to consider areas of priority such as safety and the capacity of road infrastructure (including roads and bridges).

3 Methodology

This chapter outlines the methodology used to assess potential traffic and transport impacts from the project during pre-construction, construction and operational phases of the project.

3.1 Overview

The traffic and transport impact assessment addresses the requirements in the SEARs as listed in Table 1.1, within the defined traffic and transport study area. The methodology used for the assessment includes:

- desktop analysis to identify, describe and qualitatively assess the existing traffic conditions of the proposed construction routes for the project. This includes road classification, lane configuration, speed limit, pavement type, pedestrian/cyclist facilities, existing heavy vehicle restrictions, crash analysis, road and intersection performance, and public transport provisions
- data collection (including traffic counts) at selected locations to understand existing traffic conditions, traffic demands and patterns to further assess the impact of the project
- review of the proposed pre-construction and construction activities for the project to derive the expected traffic generation and distribution during both construction phases.
- assessment of the potential impacts associated with the pre-construction and construction phases of the project, in line with advice received from TfNSW. Assessment includes:
 - consideration of impacts on road capacity, condition and efficiency
 - impacts to intersection operation and safety including turn warrant and Safe Intersection Sight Distance (SISD), completed in compliance with Austroads guidelines
 - identification of access routes for heavy vehicles, including OSOM vehicles which are high risk heavy vehicles, using approved heavy vehicle road network (routes from ports), and other roads and access points to construction compounds and combined temporary worker accommodation facilities
 - impacts on public transport, active transport and emergency services
 - impacts of construction activities such as stringing on the road network operation as well as other infrastructure crossing points
- based on the assessments applied to the project-related roads and intersections, identification of potential road improvement works, new or upgraded intersection treatments and maintenance requirements to facilitate construction-related traffic
- identification of mitigation and management measures.

The methodology has been informed by feedback received from TfNSW, Murrumbidgee Council, Edward River Council, Murray River Council and Wagga Wagga City Council throughout preparation of this technical paper. Meetings with TfNSW and local councils have been held throughout the preparation of the EIS to confirm and review assessment requirements, assumptions and to provide updates on assessment findings. Engagement with local councils has included briefings on the proposed construction routes and potential impacts on regional and local roads, including proposed mitigation measures. Feedback from TfNSW meetings and local council briefings has informed the mitigation measures and the schedule of road improvement works, new or upgraded intersection treatments and maintenance requirements (refer to Appendix E (Schedule of road improvement works, new or upgraded intersection treatments and management requirements)). Engagement with local councils is ongoing.

Chapter 5 (Stakeholder and community engagement) of the EIS provides further details on consultation undertaken with TfNSW and local councils. The outcomes of the consultation have been incorporated throughout the technical paper where required.

3.2 Traffic and transport study area

The traffic and transport study area is defined by the transport networks that may be impacted by construction movements to and from the project footprint (including access to the project transmission line corridor, construction compounds, combined temporary worker accommodation facilities and the proposed Dinawan substation expansion), or by the operation of the project (staff and maintenance movements). The traffic and transport study area encompasses a buffer zone which incorporates local project related traffic to and from regional towns including Wagga Wagga, Deniliquin, Balranald and Swan Hill.

As the construction workers and material origins are expected to be widely distributed across the broader region, the traffic and transport study area is identified as those roads and associated transport facilities (e.g. parking, active transport, heavy vehicle, public transport networks) that provide access to the project footprint, to and from the nearest highway (including sections of these highways). Beyond this point, construction traffic would diminish as it is distributed across the broader State road network to their origin or alternative locations, which is beyond the scope of assessment. Similarly, movements to and from quarries in the broader region do not form part of the traffic and transport study area due to the negligible traffic numbers from these potential locations.

Construction traffic movements associated with travelling from a port of origin (Port of Melbourne, Port of Newcastle or Port Adelaide) are assumed to travel outside of the peak hour if they are OSOM movements as they are generally required to travel outside of normal working hours, as part of access approval, to minimise their effect on the road network. Other construction traffic movements from the ports have no travel time restriction.

The traffic and transport study area spans across the following local government areas (LGA):

- Murray River
- Edward River
- Murrumbidgee
- Berrigan
- Narrandera
- Wagga Wagga
- Balranald
- Hay.

The traffic and transport study area is shown in Figure 3.1 as the black dashed outline.



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VNI West – Technical Paper
Traffic

Figure 3.1
Traffic and transport study area

Legend

- | | | | |
|--|--|--|--------------------------------------|
| — Main road | — Existing transmission line | □ Project footprint | — All project-related traffic routes |
| — Named waterway | — Dinawan substation works - proposed 500 kV | — NSW/Victorian border | □ LGA boundaries |
| — EnergyConnect (NSW - Eastern section) project (under construction) | — Dinawan substation works - existing 330 kV | — Traffic and transport study area | |
| | ■ Substation | ■ Combined temporary worker accommodation facility | |
| | ■ National park | ■ Construction compound | |
| | ■ State forest | ■ Telecommunication facility | |



3.3 Existing conditions assessment

3.3.1 *Transportation network*

The desktop and mapping analysis was completed to identify, describe and qualitatively assess the existing characteristics of the roads that would be used by the project. This includes road classification, lane configuration, speed limit, pavement type, pedestrian/cyclist facilities, existing heavy vehicle restrictions, crash history, road and intersection performance, public transport provisions (bus and rail services and routes) and level crossings.

A number of these items are available as data sets from TfNSW's Open Data platform as well as other TfNSW publicly available traffic volume or level crossing sites and National Heavy Vehicle Regulator (NHVR) heavy vehicle mapping of approved vehicle road networks.

Traffic data was also collected to understand the existing conditions and traffic demand and patterns to further assess the impact of the project. The methodology and locations are further described in section 3.3.2.

Further detail on the crash history and analysis is provided in section 4.4.

3.3.2 *Data collection*

Data collection consisted of a combination of intersection and mid-block traffic surveys. The survey locations were selected based on the:

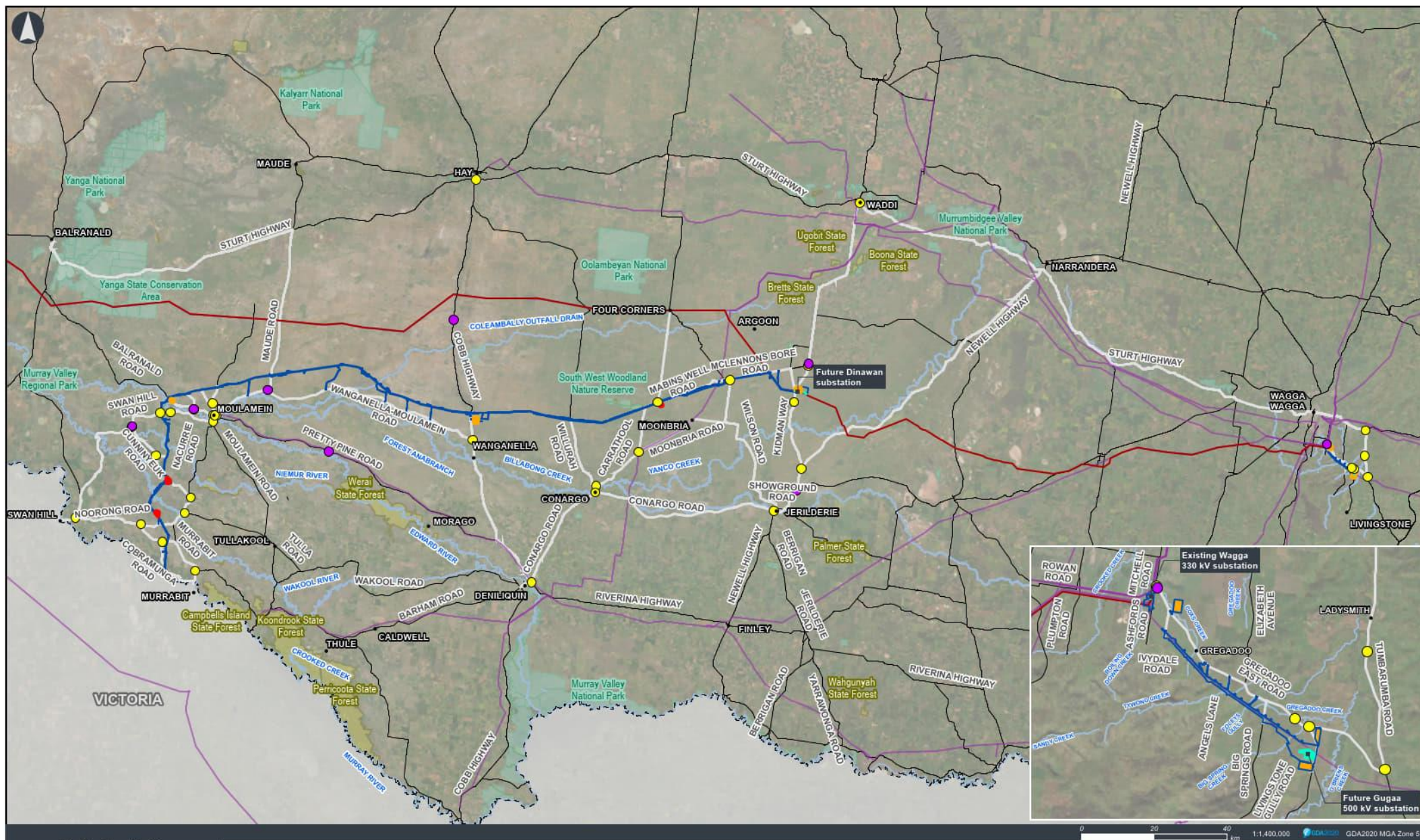
- project construction routes
- access points to the project footprint, including the construction compounds and the combined temporary worker accommodation facilities.

The locations of data collection are depicted in Figure 3.2 and the intersection and mid-block traffic survey locations are described in Table 3.1 and Table 3.2.

The mid-block traffic surveys were completed over a 24 hour 7 day period (between Monday 25 November 2024 and Sunday 1 December 2024) and were conducted to understand the current traffic demands, conditions, vehicle types and travel patterns.

The intersection traffic surveys were undertaken between Tuesday 26 November 2024 and Friday 29 November 2024 and were conducted to understand the current traffic and pedestrian demands include light and heavy vehicles.

The duration of both the mid-block traffic surveys and the intersection traffic surveys are compliant with Part 3 of *Austroads Guide to Traffic Management* where traffic volumes are assessed across a 24 hour 7 day period (including a daily profile) and a suggested 7 am to 7 pm period on a weekday (to determine weekday AM and PM peak periods).



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VNI West – Technical Paper
Traffic

Figure 3.2
Traffic survey locations

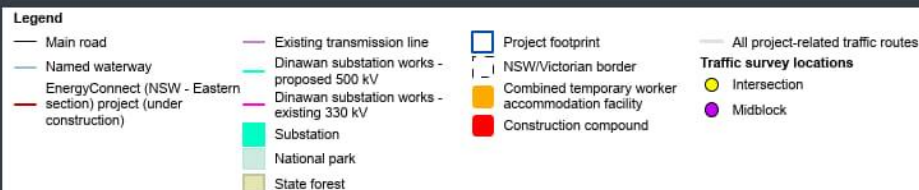


Table 3.1 Intersection traffic survey locations and weekday AM and PM peak hours

Intersection		Local Government Area (LGA)	Peak hours (AM)	Peak hours (PM)	Survey day
Road 1	Road 2				
Baratta Street	Carne Street	Murray River	10:00 am – 1:00 pm	3:30 pm – 6:30 pm	Tuesday
Cedar Avenue	Moulamein Road	Murray River	9:00 am – 12:00 pm	2:00 pm – 5:00 pm	Friday
Kidman Way	Sturt Highway (Hay to Narrandera)	Murrumbidgee	9:00 am – 12:00 pm	2:00 pm – 5:00 pm	Tuesday
Kidman Way	Newell Highway (Narrandera to Jerilderie)	Murrumbidgee	9:00 am – 12:00 pm	2:00 pm – 5:00 pm	Tuesday
Kidman Way	McLennons Bore Road	Murrumbidgee	8:00 am – 11:00 am	2:30 pm – 5:30 pm	Tuesday
Cunninyeuk Road	Swan Hill Road	Murray River	10:00 am – 1:00 pm	2:00 pm – 5:00 pm	Thursday
Balranald Road	Berrambong Railway Road	Murray River	10:00 am – 1:00 pm	3:00 pm – 6:00 pm	Tuesday
Conargo Road (in Conargo)	Carrathool Road	Edward River	10:00 am – 1:00 pm	2:00 pm – 5:00 pm	Wednesday
Conargo Road (in Conargo)	Jerilderie Street (in Jerilderie)	Murrumbidgee	9:00 am – 12:00 pm	2:00 pm – 5:00 pm	Wednesday
Sturt Highway (Balranald to Hay)	Maude Road	Hay	9:00 am – 12:00 pm	2:00 pm – 5:00 pm	Tuesday
Gonn Road	Moulamein Road	Murray River	8:30 am – 11:30 am	1:30 pm – 4:30 pm	Friday
Wanganella-Moulamein Road	Cobb Highway (Hay South to Deniliquin)	Edward River	9:00 am – 12:00 pm	3:00 pm – 6:00 pm	Tuesday
Sturt Highway (West)	Newell Highway (West)	Narrandera	9:00 am – 12:00 pm	2:00 pm – 5:00 pm	Tuesday
Sturt Highway (East)	Newell Highway (East)	Narrandera	9:00 am – 12:00 pm	2:00 pm – 5:00 pm	Tuesday
Moulamein Road	Barham Road	Murray River	8:30 am – 11:30 am	1:30 pm – 4:30 pm	Friday
Moulamein Road	Wakool Road	Murray River	8:30 am – 11:30 am	1:30 pm – 4:30 pm	Friday
Moulamein Road	Noorong Road	Murray River	8:30 am – 11:30 am	1:30 pm – 4:30 pm	Friday
Swan Hill Road	Noorong Road	Murray River	10:00 am – 1:00 pm	2:00 pm – 5:00 pm	Thursday

Intersection		Local Government Area (LGA)	Peak hours (AM)	Peak hours (PM)	Survey day
Road 1	Road 2				
Swan Hill Road	Pike Pike lane	Murrumbidgee	10:00 am – 1:00 pm	2:00 pm – 5:00 pm	Thursday
Swan Hill Road	Kaylock Road	Murrumbidgee	10:00 am – 1:00 pm	2:00 pm – 5:00 pm	Thursday
Charlotte Street	Hardinge Street	Edward River	8:30 am – 11:30 am	2:30 pm – 5:30 pm	Friday
Jerilderie Street (in Jerilderie)	Bolton Street	Murrumbidgee	9:00 am – 12:00 pm	2:00 pm – 5:00 pm	Wednesday
Wanderer Street	Finley Road	Edward River	8:30 am – 11:30 am	2:30 pm – 5:30 pm	Thursday
Finley Road	Hay Road	Edward River	8:30 am – 11:30 am	2:30 pm – 5:30 pm	Thursday
Berrigan Road (in Finley)	Murray Street	Berrigan	8:00 am – 11:00 am	2:00 pm – 5:00 pm	Tuesday
Berrigan Road (south of Jerilderie)	Newell Highway (Jerilderie to Finley)	Murrumbidgee	9:00 am – 12:00 pm	2:00 pm – 5:00 pm	Friday
Jerilderie Street (in Berrigan)	Chanter Street	Berrigan	7:30 am – 10:30 am	2:00 pm – 5:00 pm	Friday
Murray Street	Tuppall Street	Berrigan	8:00 am – 11:00 am	2:00 pm – 5:00 pm	Tuesday
Barham Road	Ochertyre Street	Edward River	8:00 am – 11:00 am	2:00 pm – 5:00 pm	Friday
Sturt Highway (Narrandera to Wagga Wagga)	Lockhart Road	Wagga Wagga	9:00 am – 12:00 pm	2:00 pm – 5:00 pm	Thursday
Tchelery Road	Tallow Street	Murray River	10:00 am – 1:00 pm	2:30 pm – 5:30 pm	Friday
Maude Road	Wanganella-Moulamein Road	Murrumbidgee	10:00 am – 1:00 pm	2:30 pm – 5:30 pm	Thursday
Newell Highway (West Wyalong to Grong Grong)	Burley Griffin Way	Coolamon Shire	9:00 am – 12:00 pm	1:00 pm – 4:00pm	Thursday
Tallow Street	Carne Street	Murrumbidgee	10:00 am – 1:00 pm	2:30 pm – 5:30 pm	Friday
Cobb Highway (Hay South to Deniliquin)	Moama Street (in Hay South)	Hay	9:00 am – 12:00 pm	3:00 pm – 6:00 pm	Tuesday
Tumbarumba Road	Gregadoo East Road	Wagga Wagga	9:00 am – 12:00 pm	2:00 pm – 5:00 pm	Thursday
Tumbarumba Road	Sturt Highway	Wagga Wagga	9:00 am – 12:00 pm	2:00 pm – 5:00 pm	Thursday

Table 3.2 Mid-block traffic survey locations

ID	Mid-block location	Local Government Area (LGA)	Survey period
M-1	Sturt Highway	Hay	Monday 25 November 2024 to Sunday 1 December 2024 (24 hour 7 day period)
M-2	Cobb Highway	Edward River	
M-3	Kidman Way	Murrumbidgee	
M-4	Newell Highway	Murrumbidgee	
M-5	Riverina Highway	Edward River	
M-6	Burley Griffin Way	Coolamon Shire	
M-7	Baratta Street	Murray River	
M-8	Cedar Avenue	Murray River	
M-9	Balranald Road	Murray River	
M-10	Conargo Road (in Conargo)	Edward River	
M-11	Moulamein Road (south of Noorong Road)	Murray River	
M-12	Swan Hill Road	Murray River	
M-13	Maude Road	Hay	
M-14	Wanderer Street	Edward River	
M-15	Berrigan Road (south of Jerilderie)	Murrumbidgee	
M-16	Jerilderie Road (north of Berrigan)	Berrigan	
M-17	Barham Road	Edward River	
M-18	Wakool Road	Murray River	
M-19	Maude Road	Hay	
M-20	Lockhart Collingullie Road	Wagga Wagga	
M-21	Lockhart Road	Wagga Wagga	
M-22	Tallow Street	Murray River	
M-23	Carne Street	Murray River	
M-24	Moulamein Road (north of Swan Hill Road)	Murray River	

3.3.3 Crash history analysis

To develop an understanding of the key existing safety issues on the road network, a crash analysis was completed using available crash history data over five years (2019 to 2023). This data was used from the NSW Crash Data accessed via TfNSW's Open Data platform in March 2025.

Crash data was grouped by NSW Road Classifications which include State roads (Sturt Highway, Newell Highway, Cobb Highway, Riverina Highway and Kidman Way), regional roads and local roads.

3.4 Traffic growth rate assumption

The Annual Average Daily Traffic (AADT) data from TfNSW counting station T6727W was extracted from TfNSW's traffic volume viewer in 2024 with traffic data from 2021 to 2024. This counting station is located on the Sturt Highway, south of Balranald and is the closest counting station to the traffic and transport study area. This data was reviewed to develop the annual growth rate that is applied to existing traffic volumes on roads within the traffic and transport study area. A two per cent historic annual growth rate was identified and applied to the existing (2024) traffic demand to predict future background traffic numbers (which is likely to include the traffic generated by other external projects within the project traffic and transport study area) in line with the peak pre-construction and construction periods (assumed to commence in 2026 and 2027 respectively). This background traffic growth rate was also discussed with TfNSW during regular monthly project meetings and was deemed suitable.

3.5 Construction assessment

A quantitative assessment of road mid-block capacity performance, intersection performance, turn warrants and safe intersection sight distance were completed. These various types of quantitative assessment took into consideration the construction program, staging, number of workers, construction routes, construction accesses, construction vehicle types and construction vehicle volumes. Quantitative assessments have been focused on State and regional roads as they are significant roads which facilitate higher volumes of traffic and provide vital connectivity between cities, towns and regions. The quantitative assessments (intersection performance and turn warrant assessments) were conducted for intersections where project-related traffic would pass through, which included State roads as per assessment requirements.

To assess the impacts on the road network capacity, a quantitative assessment was completed for road mid-block, intersections and for turn warrants by comparing the following scenarios measured using the assessment criteria detailed in section 3.8:

- **'Existing'**: measuring the performance of the road network with the existing traffic surveys.
- **'With construction'** scenarios for the 'pre-construction' (2026) and 'construction' (2027) phases: measuring the existing network performance with the addition of background traffic growth and construction traffic.

The 'pre-construction' scenario represents the impacts of the project during the site establishment phase of construction and before the operation of the construction compounds and combined temporary worker accommodation facilities.

The qualitative impact assessment considered impacts including:

- heavy vehicle access (including OSOM movements)
- stringing of transmission lines via aerial hurdle method across roads, disused rail tracks and watercourses
- road condition (pavement of sealed and unsealed roads) based on construction traffic use
- road safety (crash attributors) due to known crash history on construction routes and increase heavy vehicle demand
- site access safe sight distance
- property access
- active transport and public transport due to construction traffic and from stringing of transmission lines.

The potential traffic and transport impacts from construction activities for this project are discussed in Chapter 5.

3.5.1 Construction routes

The construction routes within the traffic and transport study area have been classified as:

- **Construction routes** – construction routes that are required regularly to enable construction activities. This includes:
 - between the construction compounds to the project transmission line corridor
 - between the construction compounds and combined temporary worker accommodation facilities
 - between the combined temporary worker accommodation facilities and the project transmission line corridor
 - movement of earthworks materials between sections of the project footprint, as required
 - transport of water to combined temporary worker accommodation facilities, construction compounds and other ancillary sites.
- **OSOM (high risk heavy vehicle) construction routes** – construction routes that would be used for OSOM movements primarily between ports to the future Dinawan substation for the delivery of project infrastructure and specialist transmission equipment. The preliminary OSOM construction routes were selected with consideration of existing gazetted OSOM approved routes. Identified approved OSOM routes have been mapped and considered for assessment from the Port Adelaide, Port of Melbourne and Port of Newcastle to the site. Roads beyond those mapped which are not approved for OSOM vehicle use have been identified for further permit application and route assessment.

3.5.2 Construction traffic volumes and assessment peak hour

The daily and peak hourly construction vehicle movements along construction routes was informed by the indicative number of workers, construction activities, construction staging, construction compound size and the number of workers staying at temporary worker accommodation facilities. This considered:

- delivery of materials to/from external sites (e.g. ports, quarries, water supply points) to the transmission line corridor, construction compounds and/or combined temporary worker accommodation facilities
- workers travelling between combined temporary worker accommodation facilities and the transmission line corridor
- delivery of materials from the construction compounds and combined temporary worker accommodation facilities to the transmission line corridor

Construction traffic movements assumed on the road network reflect the highest traffic demand likely to be experienced along the construction routes within the traffic and transport study area (i.e. worst-case scenario). In reality, traffic volumes along construction routes would fluctuate and reflect the multiple work fronts within the project transmission line corridor, construction compounds and combined temporary worker accommodation facilities.

Details of the assumed daily and hourly peak of construction vehicles is provided in section 5.1 and section 5.2. To assess a worst-case scenario, the project hourly peak has been selected (6–7 am and 5–6 pm). This represents the highest volume of traffic generated by the project. These peak hours do not correspond with the background traffic peak hours observed from the traffic count data.

3.5.3 Site access points safety assessment

The design criteria listed below were investigated at site access points (including existing intersections as well as proposed intersections to the transmission line corridor) for safety purposes relating to driver sight distance at intersections.

Safe Intersection Sight Distance (SISD) is the minimum sight distance that should be provided on a major road at any intersection. The calculation method for SISD is detailed in *Austroads Guide to Road Design Part 4A Unsignalised and Signalised Intersections*.

3.5.4 *Site access points intersection swept path analyses and strategic intersection design*

Swept path analyses were completed at State road intersections where construction traffic is proposed to travel through undertaking turning movements for existing intersections and new proposed site access points. Swept paths were completed for both 19 metre semi-trailers (articulated vehicles) and 25 / 26 metre B-Doubles turning simultaneously at intersections. The purpose of this was to determine the suitability of the intersection for vehicle manoeuvring purposes based on a worst-case scenario and the requirements for any intersection upgrades or modifications. Strategic intersection designs have been prepared where intersection upgrades or modifications are required with turning paths and road and intersection modifications overlaid on aerial imagery using AutoCAD (refer to Appendix C).

3.6 Operational assessment

The operation of the project requires maintenance (i.e. maintenance of transmission lines, vegetation management and management of the future proposed Dinawan substation expansion) which would be needed at various times in a year. During its operation, project-generated movements associated with maintenance are likely to be low in volume.

Therefore, the operational traffic assessment involved a qualitative assessment of the potential impacts to road capacity, road condition, road safety, efficiency, active transport, public transport and property access.

The operational impacts of the project are discussed in Chapter 6.

3.7 Cumulative assessment

The cumulative impact assessment is a quantitative approach that involves considering the impacts of the project together with the impacts of other relevant future projects on traffic and transport matters. Relevant future projects with the potential for cumulative traffic impacts with the project were identified through a review of publicly available information and environmental impact assessments.

Cumulative impacts have been assessed for road midblock capacity on similar utilised roads as shown in Table 7.3 and for intersection turn warrant assessment as detailed in Table 7.4.

The cumulative impacts of the project are discussed in Chapter 7.

3.8 Quantitative assessment criteria

3.8.1 *Mid-block road performance assessment*

The level of service (LoS) adopted in the assessment of road network performance (mid-block) focuses on the volume to capacity ratio (V/C ratio) of the roads that form part of the project construction routes and where data is available. This was selected as the most appropriate method of assessment as traffic volume metrics are consistently available throughout the traffic and transport study area. The LoS applies to mid-block sections of the road and does not assess intersection performance.

The LoS is classified from LoS A representing a free flow condition to LoS F representing unstable flow. The description of the various levels of service is listed in Table 3.3. Performance up to LoS D is considered typically acceptable by TfNSW.

Table 3.3 Level of Service criteria

LoS	Description
A	LoS A describes free-flow operations. Vehicles are almost completely unimpeded in their ability to manoeuvre within the traffic stream.
B	LoS B represents reasonable free-flow operations. The ability to manoeuvre within the traffic stream is only slightly restricted and the general level of physical and psychological comfort provided to drivers is still high.
C	LoS C provides the flow conditions with speeds near the free-flow speed. Freedom to manoeuvre within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the drivers.
D	LoS D is the level at which speeds begin to decline slightly with increasing flows, with density increasing more quickly. Freedom to manoeuvre is seriously limited and the drivers experience reduced physical and psychological comfort levels.
E	LoS E describes operation at or near capacity. Operations at this level are highly volatile with virtually no usable gaps within the traffic stream, leaving little room to manoeuvre within the traffic stream. The physical and psychological comfort of drivers is poor.
F	LoS F describes unstable flow.

Source: *Guide to Traffic Management Part 3: Transport Study and Analysis Methods (Austroads, 2020)*

Table 3.4 provides a measure of each level of service based on the ratio of lane volume compared to the capacity (measured in volume/hour/lane), taken from the Austroads' *Guide to Traffic Management Part 3: Transport Study and Analysis Methods*, based on road functional classification. This classification differs from the administrative classification adopted throughout the report and is only relevant to the mid-block assessment due to the need to define lane capacity.

Table 3.4 Level of Service description for road performance (road mid-block)

LoS	Highways (State/Regional roads)		Arterial roads (State/Regional roads)		Collector roads (Regional/Local roads)		Local roads	
	V/C	Lane capacity	V/C	Lane capacity	V/C	Lane capacity	V/C	Lane capacity
A	0.3	540	0.26	360	0.24	240	0.24	220
B	0.47	850	0.41	570	0.38	380	0.38	340
C	0.68	1,220	0.59	830	0.54	540	0.54	490
D	0.89	1,600	0.81	1,130	0.78	780	0.78	700
E	1.00	1,800	1.00	1,400	1.00	1,000	1.00	900
F	>1.00	>1,800	>1.00	>1,400	>1.00	>1,000	>1.00	>900

Source: *Guide to Traffic Management Part 3: Transport Study and Analysis Methods (Austroads, 2020)*

Notes: Volume to capacity ratio and maximum lane capacity (measured at LOS E) are adopted from Austroads to align with the typical road function and posted speed limit. Lane capacity is measured in vehicles/hour/lane in one direction.

3.8.2 Intersection performance assessment

This assessment utilises SIDRA Intersection version 9.1.6.228 to determine the intersection operating parameters associated with the project. The key parameters considered in this assessment are Degree of Saturation (DoS), Average Delay, 95th percentile queue and LoS.

DOS is the ratio of demand flow to capacity and therefore has no unit. As it approaches 1.0, extended queues and delays could be expected. For a satisfactory situation, DoS should be less than the nominated practical degree of saturation, usually 0.9. The intersection DoS is based on the movement with the highest value.

According to Austroads, in practice, the target degrees of saturation (known as the practical degree of saturation) for signals, roundabouts and priority-controlled intersections are 0.90, 0.85 and 0.80 respectively. At higher values, longer queues and delays are experienced by motorists on the side road which results in motorists becoming frustrated and potentially selecting inappropriate or smaller gaps in the traffic to enter the intersection (refer to Table 3.5).

Table 3.5 Intersection Degree of Saturation

Level of Service (LoS)	Degree of saturation			Description of intersection operation
	Signals	Roundabouts	Sign Control	
A	$x \leq 0.60$	$x \leq 0.60$	$x \leq 0.60$	Excellent
B	$0.61 < x \leq 0.70$	$0.61 < x \leq 0.70$	$0.61 < x \leq 0.70$	Very good
C	$0.71 < x \leq 0.90$	$0.71 < x \leq 0.85$	$0.71 < x \leq 0.80$	Good
D	$0.91 < x \leq 0.95$	$0.86 < x \leq 0.95$	$0.81 < x \leq 0.90$	Fair
E	$0.96 < x \leq 1.00$	$0.96 < x \leq 1.00$	$0.91 < x \leq 1.00$	Poor
F	$1.00 < x$	$1.00 < x$	$1.00 < x$	Very poor

Average Delay is the delay, in seconds, which can be expected over all the vehicles making a particular movement in the intersection during the peak hour.

95th Percentile Queue represents the maximum queue length, in metres, below which 95 per cent of all observed cycle queue lengths would fall during the peak hour.

LoS is a performance criterion for intersections that is generally based on delays. This applies to individual movement, approach and intersection total delays. Table 3.6 summarises the criteria for the various levels of service.

Table 3.6 Level of Service criteria for intersections

Level of Service	Average delay (seconds per vehicle)	Traffic signals, roundabout	Give-way and stop signs
A	Less than 14	Good operation	Good operation
B	15–28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29–42	Satisfactory	Satisfactory, but accident study required
D	43–56	Operating near capacity	Near capacity and accident study required
E	57–70	At capacity; at signals, incidents would cause excessive delays. Roundabouts require another control mode.	At capacity; requires another control mode.
F	Greater than 71	Unsatisfactory with excessive queuing	Unsatisfactory with excessive queuing; requires other control mode

Source: Roads and Maritime Services *Guide to Traffic Generating Developments* (2002)

3.8.3 Turn warrant assessment

Turn warrant assessments of intersections have been analysed using Austroads' *Intersection Turn Treatment Warrant Assessment*. The turn warrant assessment is used to understand if the current intersection layouts are suitable to provide safe operations for the existing and future peak hour demand at the intersection. It has also been used to determine adequacy of new proposed site access points. Its evaluation mainly focuses on safety performance outcomes, rather than operational performance. Turn warrants were completed on State and regional roads (as the 'main' road) with local or access roads (as the side 'minor' road).

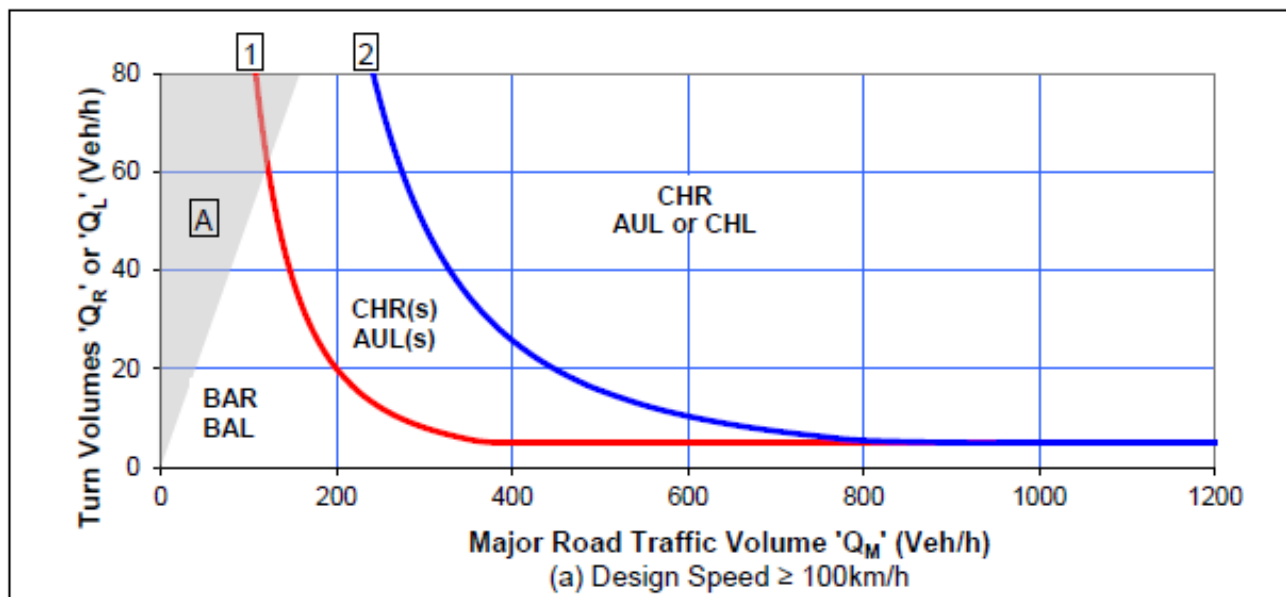
This methodology, as described in the *Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management* assesses the need for priority-controlled intersections to provide basic (BA), auxiliary (AU) lane or channelised (CH) lanes.

Table 3.7 Calculation of the major road traffic volume (Q_M)

	Road type	Turn type	Splitter island	Q_M (vehs/hr)
	Two-lane two-way	Right	No	$= Q_{T1} + Q_{T2} + Q_L$
			Yes	$= Q_{T1} + Q_{T2}$
		Left	Yes or no	$= Q_{T2}$
	Four-lane two-way	Right	No	$= 0.5*Q_{T1} + Q_{T2} + Q_L$
			Yes	$= 0.5*Q_{T1} + Q_{T2}$
		Left	Yes or no	$= 0.5*Q_{T2}$

Source: *Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management* (Austroads, 2020)

The turn treatment is assessed by analysing the traffic volume demands on major roads, using the calculation in Table 3.7 and assessed against the graph shown in Figure 3.3. Curves 1 and 2 shown in the diagram are applicable for two-lane, two-way roads to depict the boundary between the different treatments (basic and short/regular auxiliary or channelised lanes). For roads with four or more lanes, curve 1 becomes the boundary between a basic and regular auxiliary or channelised lane.



Source: *Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management (Austroads, 2020)*

Figure 3.3 Warrants for turn treatments on major roads at unsignalised intersections

3.8.4 Safe Intersection Sight Distance (SISD)

Safety checks at intersections proposed to be regularly used during construction were assessed using the Safe Intersection Sight Distance (SISD) criteria used in road design practice (*Austroads Guide to Road Design Part 4A*). This assessment is not informed by existing or future volumes, rather the sight requirements drivers require to view the intersection based on road speed, vehicle type and driver reaction time. The SISD assessment has been completed at existing intersections and new proposed site access points.

This assessment checks the provision of mutual sight distance to allow drivers on a major road to observe, react and decelerate sufficiently to avoid a crash if a vehicle enters from the minor road and moves into a potential conflict point causing collision. The concept of SISD is depicted in Figure 3.4 and the equation in Table 3.8.

Table 3.8 Safe Intersection Sight Distance equation

$SISD = \frac{D_T \times V}{3.6} + \frac{V^2}{254 \times (d \div 0.01 \times a)}$	SISD: Safe Intersection Sight Distance
	D _T : Decision time (seconds) including an observation time (3 sec) + reaction time
	V: Operating speed (km/h)
	d: coefficient of deceleration
	a: longitudinal grade in %

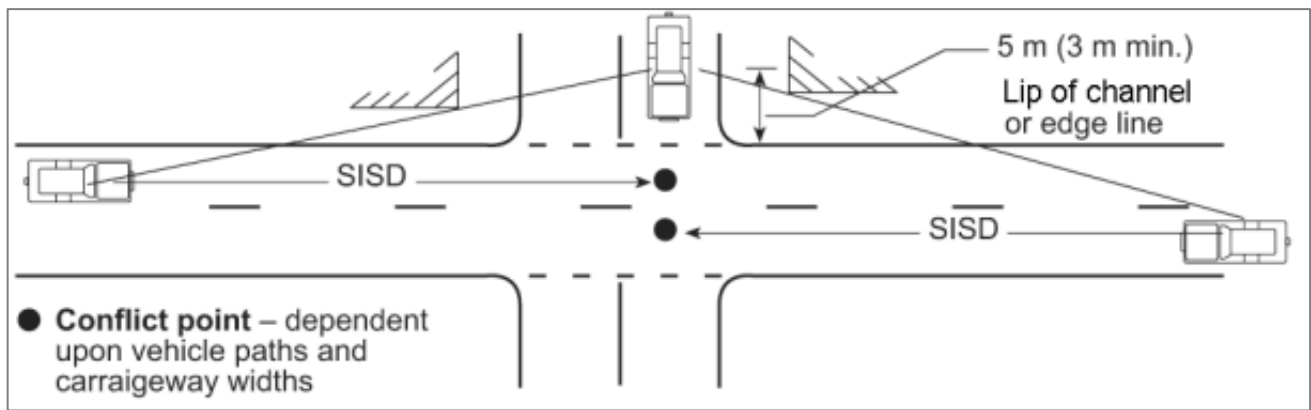


Figure 3.4 Safe Intersection Sight Distance assessment

SISD considers the following:

- The distance on the major road from an approaching vehicle to the conflict point. This aims to provide sufficient distance for a driver on the major road to observe, react and decelerate to a stop to a potential conflict.
- The line of sight, which is measured from where a driver is typically situated approximately five to seven metres from the conflict point.
- Allowance for three seconds of observation time for drivers on the major road to identify a potential conflict ahead.
- Allowance for a Stopping Sight Distance (SSD) for the travel speed and appropriate reaction time.

The assessment determines if an intersection complies or not. Intersections that do not comply would require implementation of mitigation measures.

The SISD assessment documented in this technical paper were completed via desktop using the latest aerial imagery available and via site inspection.

3.8.5 Level of Service impact assessment

To understand the impact of additional traffic movements on the construction routes with respect to road and intersection performance (LoS), the following assessment has been considered in Chapter 5 for assessment during construction:

- Low impact: no change in LoS.
- Medium impact: one level change in LoS.
- High impact: two or more level changes in LoS.

4 Existing transport conditions

This chapter outlines the existing road and transport network within the traffic and transport study area.

4.1 Road network

Roads in the traffic and transport study area comprise State, and local regional roads that connect regional population centres. It is a network of sealed and unsealed local roads that provide access to agricultural properties and other local destinations.

A sizeable proportion of vehicles on the road network within the traffic and transport study area are heavy vehicles, especially on the State and regional roads.

4.1.1 Roads

This section provides a description of the existing conditions of roads that form construction routes within the traffic and transport study area. The roads listed in this section are depicted in Figure 4.1. The approved heavy vehicle types permitted to access these roads are further discussed in section 4.3.

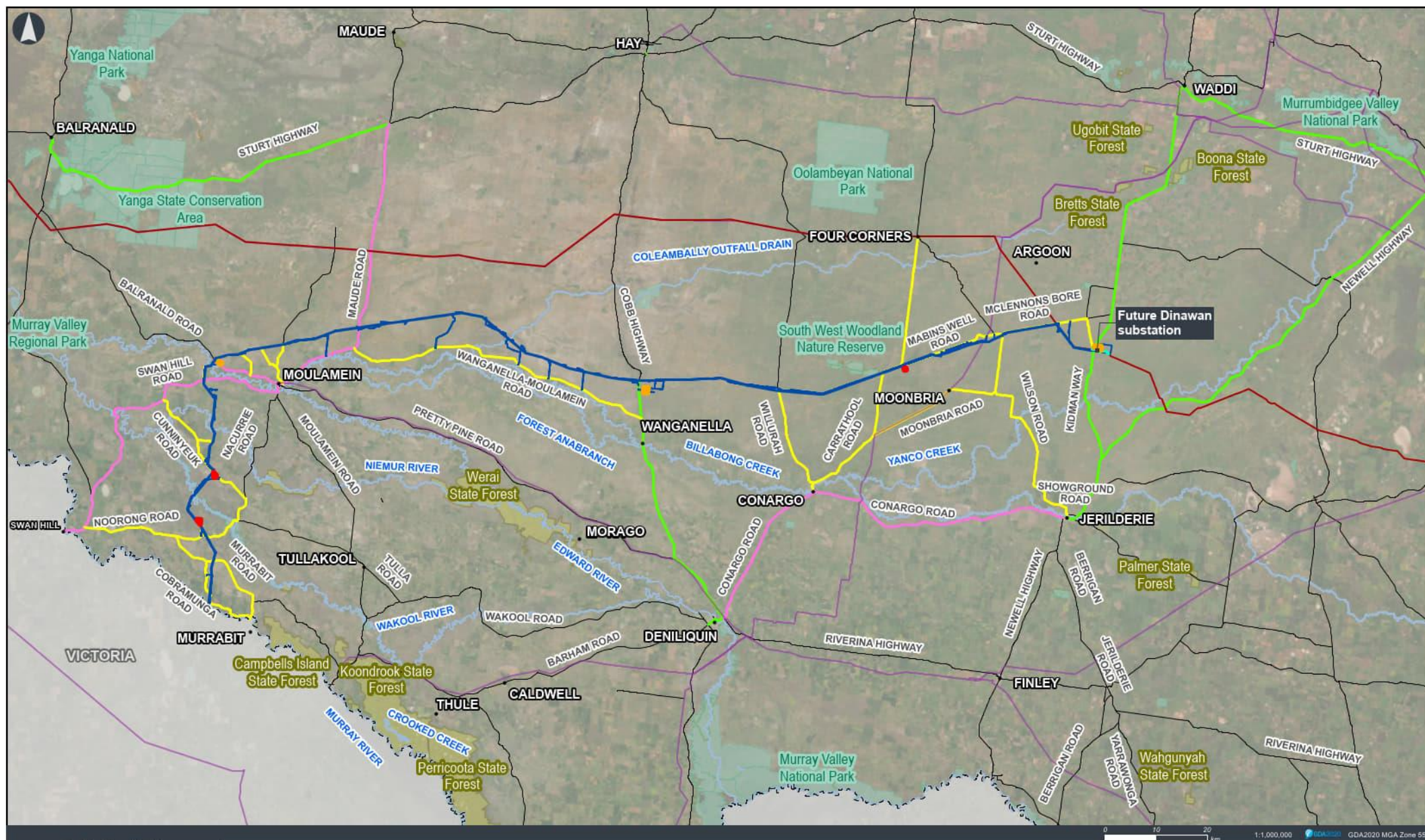
In NSW, roads are classified into three administrative classes (State, regional and local). State roads are managed by TfNSW. Regional and local roads are managed by local councils. The existing conditions of roads are presented based on the administrative classes.

4.1.1.1 State road network

There are five State roads that would be used as construction routes within the traffic and transport study area (refer to Figure 4.1). All are built to a higher design standard which includes sealed pavement, wider travel lanes, shoulder lanes, pavement strength and accommodate higher volumes of vehicles with generally higher speed limits.

These roads generally comprise one lane in each direction with overtaking lanes at some locations to provide passing opportunities. When passing through towns, these roads may contain an additional lane in each direction to cater for kerbside parking and often offer footpaths or space within the road reserve to allow pedestrian access. Outside towns, road shoulders are available for limited pedestrian and cyclist activities.

The speed limit on State roads is generally 100 kilometres per hour or 110 kilometres per hour, dropping down to 80 kilometres per hour when approaching towns and reduces to 50 kilometres per hour or 60 kilometres per hour within town environments.



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Figure 4.1a

Roads used for construction routes
within the traffic and transport study area

Legend

— Main road
— Named waterway
— EnergyConnect (NSW - Eastern
section) project (under
construction)

— Existing transmission line
— Dinawan substation works -
proposed 500 kV
— Dinawan substation works -
existing 330 kV
— National park
— State forest

□ Project footprint
□ NSW/Victorian border
□ Combined temporary worker
accommodation facility
■ Construction compound

All project-related traffic routes
NSW road classification
— State Road
— Regional Road
— Local Road





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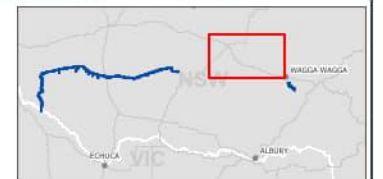
Figure 4.1b
Roads used for construction routes
within the traffic and transport study area

Legend

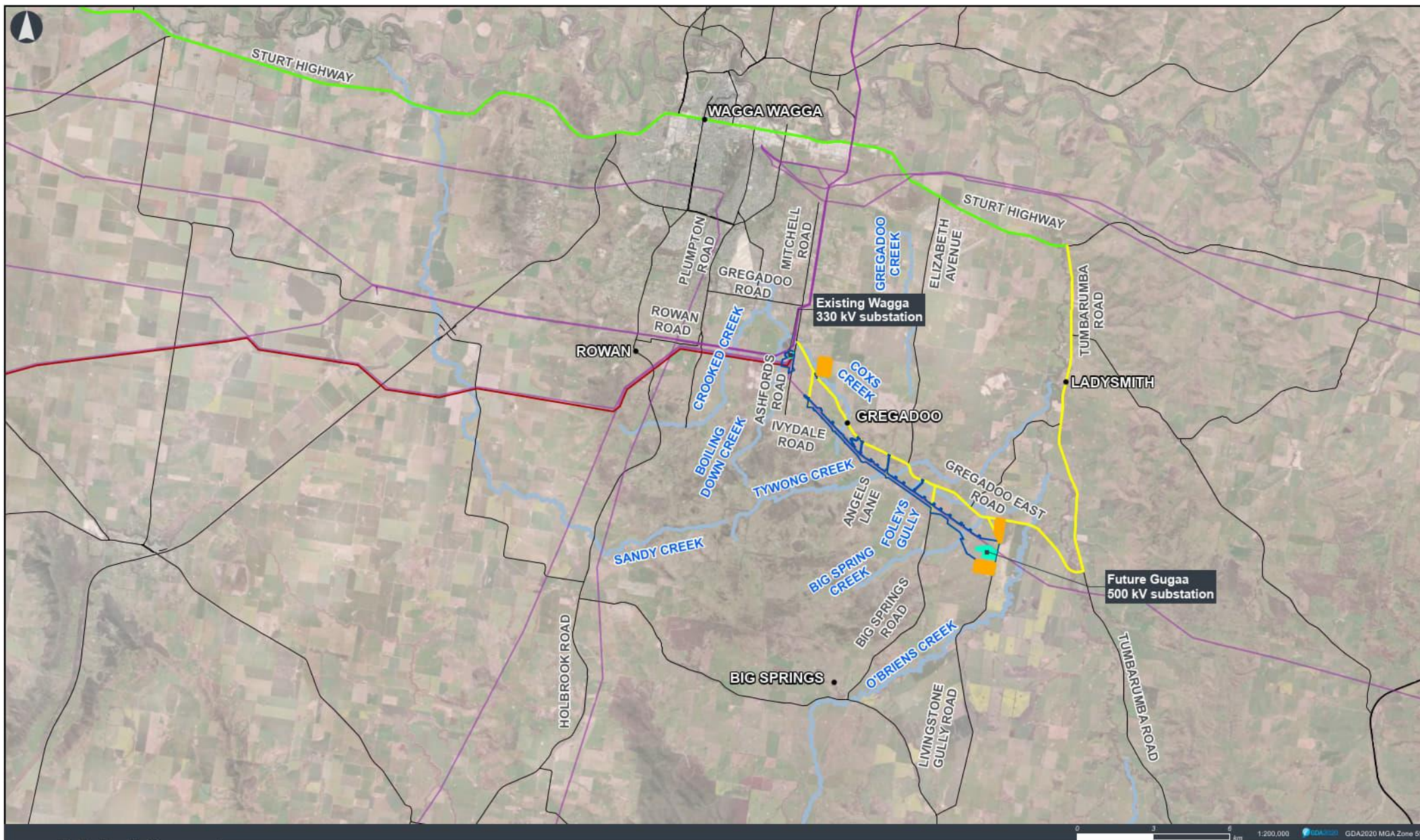
— Main road
— Named waterway

— Existing transmission line
■ National park

All project-related traffic routes
NSW road classification
— State Road



Data sources: NSW EPI, DELWP, WSP, EnergyConnect



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Figure 4.1c
Roads used for construction routes
within the traffic and transport study area

Legend

— Main road

— Named waterway

— EnergyConnect (NSW - Eastern
section) project (under
construction)

— Existing transmission line

■ Substation

□ Project footprint

■ Combined temporary worker
accommodation facility

**All project-related traffic routes
NSW road classification**

— State Road

— Local Road



Data sources: NSW EPI, DELWP, WSP, EnergyConnect

Table 4.1 State road network within the traffic and transport study area

Road name	Description	Pavement type	Lane description	Speed limit	Pedestrian/ cyclist provision
Sturt Highway (A20) including — Market Street (Balranald) — Moama Street (Hay) — Edward Street (Wagga Wagga) — Hammond Avenue (Wagga Wagga)	Sturt Highway has a generally east-west alignment through the LGAs of Balranald, Murray River, Hay, Murrumbidgee, Narrandera and Wagga Wagga. — Edward Street is the section of the Sturt Highway A20 route between Lake Albert Road and Olympic Highway totalling approximately 3 km. — Hammond Avenue is the section of the Sturt Highway A20 route between Lake Albert Road and Tasman Road/Eunony Bridge Road totalling approximately 4 km. — Market Street is the section of the Sturt Highway A20 route between McCabe Street and Endeavour Drive totalling approximately 2.5 km. — Moama Street is the section of the Sturt Highway A20 route that links Cobb and Mid-Western Highways and Bonn Street in Hay totalling approximately 1.5 km.	Sealed	General — 1 lane per direction In towns — mostly 1 lane with additional kerbside parking lane per direction — 1 lane per direction on Moama Street with no kerbside parking lanes	General — 100 or 110 km/hr In towns — 50 or 60 km/hr	General — sealed shoulders In towns — mostly with footpaths — sealed shoulders on Moama Street

Road name	Description	Pavement type	Lane description	Speed limit	Pedestrian/ cyclist provision
Newell Highway (A39) including — Dean Street (Tocumwal) — Murray Street (Finley) — Jerilderie Street (Jerilderie) — Southey Street (Jerilderie)	This is a north-south highway that connects south-eastern Queensland and Victoria via central New South Wales (passing through towns such as Jerilderie and Dubbo), catering for passenger vehicles and heavy vehicles. Specific to the traffic and transport study area, the Newell Highway is located in the Berrigan, Murrumbidgee, Federation and Narrandera LGAs. — Dean Street (Tocumwal) is the section of the Newell Highway (A39 route) within the town of Tocumwal. — Murray Street (Finley) is the section of the Newell Highway (A39 route) within the town of Finley. — Jerilderie Street is the section of the Newell Highway (A39 route) between Southey Street and Sargood Street in Jerilderie totalling approximately 2 km. — Southey Street is the section of the Newell Highway (A39 route) between Jerilderie Street and Saleyards Road in Jerilderie totalling approximately 850 metres.	Sealed	General — 1 lane per direction In towns — 1 lane with additional kerbside parking lane per direction	General — 110 km/hr In towns — 50 km/hr	General — sealed shoulders In towns — footpaths or road reserve

Road name	Description	Pavement type	Lane description	Speed limit	Pedestrian/ cyclist provision
Riverina Highway (B58) including — Finley Road (Deniliquin) — Tuppal Street (Finley) — Berrigan Road (Finley) — Chanter Street (Berrigan) — Jerilderie Street (Berrigan)	Riverina Highway is a 220 km highway that connects Hume Highway to the east and Cobb Highway to the west in an east-west alignment. It runs through some major towns such as Deniliquin, Finley and Berrigan. Specific to the traffic and transport study area, the Riverina Highway is located in the Federation, Berrigan and Edward River LGAs. — Finley Road is the section of the Riverina Highway (B58 route) between Davidson Street and Coborro Street in Deniliquin totalling approximately 1 km. — Tuppal Street (Finley) is the section of the Riverina Highway (B58 route) between Tocumwal Street and Murray Street. — Berrigan Road (Finley) is the section of the Riverina Highway (B58 route) between Murray Street and Howe Street. — Chanter Street (Berrigan) is the section of the Riverina Highway (B58 route) between Dibbs Street and Jerilderie Street.	Sealed	General — 1 lane per direction In towns — 1 lane with additional kerbside parking lane per direction	General — 100 km/hr In towns — 50 km/hr	General — sealed shoulders In towns — footpaths

Road name	Description	Pavement type	Lane description	Speed limit	Pedestrian/ cyclist provision
Cobb Highway (B75) including — Hay Road (Deniliquin) — Davidson Street (Deniliquin) — Charlotte Street (Deniliquin) — Ochtertyre Street (Deniliquin) — Hardinge Street (Deniliquin)	Cobb Highway (B75) is a State Road in the far western regions of NSW of approximately 570 km in length. Within the traffic and transport study area, the section south of Deniliquin provides a key north-south connection with the towns of Mathoura and Moama. Cobb Highway within the town of Mathoura is also known as Moama Street, which is the local street name. Specific to the traffic and transport study area, the Cobb Highway is located in the Edward River and Hay LGAs: — Hay Road is the section of the B75 route between Davidson Street and Moulamein No 2 Channel in Deniliquin totalling approximately 2.5 km. — Davidson Street is the section of the B75 route between Riverina Highway and Charlotte Street in Deniliquin totalling approximately 1.7 km. — Charlotte Street is a section of the B75 route through Deniliquin which forms part of a major connection in a northwest-southeast direction between Deniliquin and Albury. Charlotte Street is a 250 m section of the B75 route between Davidson Street and Hardinge Street in Deniliquin. — Ochtertyre Street is the section of the B75 route between Edward River and Hardinge Street in Deniliquin totalling approximately 1.8 km. — Hardinge Street is the section of the B75 route between Charlotte Street and Ochtertyre Street in Deniliquin totalling approximately 1.7 km.	Sealed	General — 1 lane per direction In towns — Mostly 1 lane with additional kerbside parking lane per direction — 1 lane per direction on Ochtertyre Street with no kerbside parking lanes	General — 110 km/hr In towns — 60 km/hr	General — sealed shoulders In towns — mostly with footpaths — sealed shoulders on Ochtertyre Street

Road name	Description	Pavement type	Lane description	Speed limit	Pedestrian/ cyclist provision
Kidman Way (B87)	Kidman Way (B87 route) is a 644 km highway that services the western region of NSW. It links the Newell Highway with the Sturt, Mid-Western, Barrier, Mitchell and Kamilaroi Highways. It generally runs in a north-south alignment. Specific to the traffic and transport study area, the Kidman Way is located in the Murrumbidgee LGA.	Sealed	1 lane per direction	— 100 km/hr	Sealed shoulders

4.1.1.2 Regional road network

Regional roads that would be used for haulage in the traffic and transport study area are listed in Table 4.2. Regional roads support State roads by connecting smaller towns to the State road network.

Regional roads in the traffic and transport study area are generally sealed except for Balranald Road which is partially unsealed. Most of the regional roads that pass through towns do not contain dedicated pedestrian and cycling facilities such as pedestrian footpaths, shared use paths or bicycle lanes. The operating speed and the rural nature of these regional roads outside town centres result in minimal pedestrian and cyclist activity.

Table 4.2 Regional roads within the traffic and transport study area

Road name	LGA	Pavement type	Lane description	Speed limit
Balranald Road	Murray River	Sealed and unsealed There is a ~33-kilometre unsealed section (out of a 34 kilometre road length) between Yanga Way and Kyalite Road. The section between Kyalite Road and Moulamein is 30 kilometre sealed road.	1 lane per direction	100 km/hr
Barham Road	Edward River	Sealed	1 lane per direction	General — 80 km/hr In town — 50 km/hr
Berrigan Road	Murray River	Sealed	1 lane per direction	100 km/hr
Cedar Avenue	Murray River	Sealed	1 lane per direction	General 70 km/hr In town — 50 km/hr
Conargo Road	Edward River	Sealed	1 lane per direction	General — 70 km/hr In town — 50 km/hr
Jerilderie Road	Berrigan	Sealed	1 lane per direction	General — 70 km/hr In town — 50 km/hr
Kyeamba Street	Wagga Wagga	Sealed	1 lane per direction	50 km/hr
Maude Road	Murray River	Sealed	1 lane per direction	100 km/hr

Road name	LGA	Pavement type	Lane description	Speed limit
Moulamein Road	Murray River	Sealed	1 lane per direction	General — 70 km/hr In town — 50 km/hr
Swan Hill Road	Murray River	Sealed	1 lane per direction	General — 80 km/hr In town — 60 km/hr
Tallow Street	Murray River	Sealed	1 lane per direction	50 km/hr
Tumbarumba Road	Wagga Wagga	Sealed	1 lane per direction	100 km/hr
Wanderer Street	Edward River	Sealed	1 lane per direction	50 km/hr

4.1.1.3 Local road network

There are 28 local roads that would be used by the project in the traffic and transport study area (refer to Table 4.3). 22 of these local roads are unsealed to some extent. The majority of these roads, which are more likely to include residential land uses, do not contain dedicated pedestrian and cycling facilities. Where no posted speed limit is installed, a general open speed limit of 100 km/hr has been tabled although speed of travel will be to the road conditions and substantially reduced for narrow and unsealed roads.

Table 4.3 Local roads within the traffic and transport study area that form part of the construction routes

Road name	LGA	Pavement	Lanes	Speed limit
Angels Lane	Wagga Wagga	Unsealed	1 lane per direction	100 km/hr
Berrambong Railway Road	Murray River	Unsealed	1 lane per direction	100 km/hr
Big Springs Road	Wagga Wagga	Sealed	1 lane per direction	100 km/hr
Cadell Road	Murrumbidgee	Sealed	1 lane per direction	80 km/hr
Carrathool Road	Edward River	Sealed and unsealed	1 lane per direction	100 km/hr
Cobramunga Road	Murray River	Sealed and unsealed. There is an approximately 12 kilometre unsealed section (out of a 17 kilometre road length) between Noorong Road and Murrabit Road. The unsealed section is mostly within the northwestern portion.	1 lane per direction	100 km/hr
Cunninyeuk Road	Murray River	Sealed and unsealed. Cunninyeuk Road has a 13 kilometre section of sealed road and 14 kilometre section of unsealed road.	1 lane per direction	100 km/hr

Road name	LGA	Pavement	Lanes	Speed limit
Fisher Lane	Murray River	Unsealed	1 lane per direction	100 km/hr
Gregadoo East Road	Wagga Wagga	Sealed	1 lane per direction	100 km/hr
Ivydale Road	Wagga Wagga	Unsealed	1 lane per direction	100 km/hr
Kaylock Road	Murray River	Unsealed	1 lane per direction	100 km/hr
Livingstone Gully Road	Wagga Wagga	Unsealed	1 lane per direction	100 km/hr
Mabins Well Road	Edward River Murrumbidgee	Sealed and unsealed There is a an approximately 11 kilometre unsealed section (out of a 20 kilometre road length). The unsealed section is mostly in the eastern portion.	1 lane per direction	100 km/hr
McLennons Bore Road	Murrumbidgee	Unsealed	1 lane per direction	100 km/hr
Moonbria Road	Edward River	Unsealed	1 lane per direction	100 km/hr
Murrabit Road	Murray River	Sealed and unsealed. There is an approximately 22 kilometre long section that is unsealed between Noorong Road and Gonn Road. It is sealed for approximately 3 kilometres between the NSW/Victorian border and Gonn Road.	1 lane per direction	100 km/hr
Nacurrie Road North	Murray River	Sealed and unsealed	1 lane per direction	100 km/hr
Nacurrie Road South	Murray River	Unsealed	1 lane per direction	100 km/hr
Noorong Road	Murray River	Sealed	1 lane per direction	100 km/hr
Pike Pike Lane	Murray River	Unsealed	1 lane per direction	100 km/hr
Robb Road	Murray River	Unsealed	1 lane per direction	100 km/hr
Showground Road	Murrumbidgee	Sealed	1 lane per direction	80 km/hr
Tchelery Road	Murray River	Sealed and unsealed Approximately 32 kilometres unsealed section (out of a 34 kilometres long road). It is sealed mostly at the southern end towards Moulamein.	1 lane per direction	70 km/hr

Road name	LGA	Pavement	Lanes	Speed limit
Wanganella-Moulamein Road	Edward River	Sealed and unsealed. Approximately 40 kilometres unsealed section (out of a 62 kilometres long road) between Maude Road and Cobb Highway. It is unsealed mostly within the middle of the road section.	1 lane per direction	100 km/hr
Willurah Road	Edward River	Sealed and unsealed. Approximately 51 kilometres unsealed section (out of a 61 kilometres long road). It is sealed mostly at the southern end towards Conargo.	1 lane per direction	100 km/hr
Wilson Road	Murrumbidgee	Sealed and unsealed. Approximately 10 kilometres unsealed section (out of a 47 kilometres long road) between Maude Road and Cobb Highway. This is mostly between Moonbria Road and the project footprint.	1 lane per direction	100 km/hr
Wood Lane	Murray River	Unsealed	1 lane per direction	100 km/hr

4.1.2 Existing road network (mid-block) traffic volumes and performance

The existing mid-block traffic volumes and performance of roads surveyed for this project, are detailed in Table 4.4. The level of service (LoS) has been measured for each direction of travel in the morning (AM) and afternoon (PM) peak hours. Based on the assessment, it was found all State, regional and local roads operate at LoS A under existing traffic conditions. This means the roads are generally operating as free flowing. Vehicles are almost completely unimpeded in their ability to manoeuvre within the traffic stream.

Table 4.4 Mid-block surveyed traffic count data (2024) and measured LoS within the traffic and transport study area

Survey ID	Location	Road classification	ADT ¹	Weekday daily volume			Peak hour volume (vph)				Lane capacity (vph ² / lane)	Volume/capacity ratio and LoS			
				AWT ³	Vehicle classification		AM peak		PM peak			AM peak		PM peak	
					Light vehicles	Heavy vehicles	NB/WB ⁴	SB/EB ⁵	NB/WB	SB/EB		NB/WB	SB/EB	NB/WB	SB/EB
M-01	Sturt Highway west of Pevensey Rest Area, Hay	Highway	1,708	1,858	1,104 (65.2%)	590 (34.8%)	75	52	60	78	1,800	0.04 (LoS A)	0.03 (LoS A)	0.03 (LoS A)	0.04 (LoS A)
M-02	Cobb Highway north of 16 Mile Gums Rest Area	Highway	522	578	357 (69.7%)	155 (30.3%)	23	25	28	21	1,800	0.01 (LoS A)	0.01 (LoS A)	0.02 (LoS A)	0.01 (LoS A)
M-03	Kidman Way south of Fairlie Grange Road	Arterial	1,114	1,224	708 (64.0%)	399 (36.0%)	42	47	47	49	1,400	0.03 (LoS A)	0.03 (LoS A)	0.03 (LoS A)	0.04 (LoS A)
M-04	Newell Highway near Yanco Creek	Highway	979	1,046	489 (47.0%)	551 (53.0%)	33	44	37	39	1,800	0.02 (LoS A)	0.02 (LoS A)	0.02 (LoS A)	0.02 (LoS A)
M-05	Riverina Highway west of Tubbs Road	Highway	1,029	1,137	712 (63.0%)	419 (37.0%)	57	49	43	54	1,800	0.03 (LoS A)	0.03 (LoS A)	0.02 (LoS A)	0.03 (LoS A)
M-07	Baratta Street west of Jebb Street	Local	491	528	449 (86.2%)	72 (13.8%)	19	21	21	24	900	0.02 (LoS A)	0.02 (LoS A)	0.02 (LoS A)	0.03 (LoS A)
M-08	Cedar Avenue east of Gwynne Street	Local	404	452	387 (89.6%)	45 (10.4%)	21	16	18	23	900	0.02 (LoS A)	0.02 (LoS A)	0.02 (LoS A)	0.03 (LoS A)

¹ Average daily traffic

² Vehicles per hour

³ Average weekday traffic

⁴ Northbound or Westbound

⁵ Southbound or Eastbound

Survey ID	Location	Road classification	ADT ¹	Weekday daily volume		Peak hour volume (vph)				Lane capacity (vph ² / lane)	Volume/capacity ratio and LoS				
				AWT ³	Vehicle classification		AM peak		PM peak		AM peak		PM peak		
					Light vehicles	Heavy vehicles	NB/WB ⁴	SB/EB ⁵	NB/WB		SB/EB	NB/WB	SB/EB	NB/WB	SB/EB
M-09	Balranald Road south of Property 1479 Yanga Road	Arterial	219	230	192 (86.1%)	31 (13.9%)	9	10	9	12	1,400	0.01 (LoS A)	0.01 (LoS A)	0.01 (LoS A)	0.01 (LoS A)
M-10	Conargo Road east of Property 5174	Arterial	627	680	481 (71.7%)	190 (28.3%)	28	27	30	31	1,400	0.02 (LoS A)	0.02 (LoS A)	0.02 (LoS A)	0.02 (LoS A)
M-11	Moulamein Road south of Noorong Road	Arterial	440	483	364 (76.8%)	110 (23.2%)	23	17	21	19	1,400	0.02 (LoS A)	0.01 (LoS A)	0.02 (LoS A)	0.01 (LoS A)
M-12	Swan Hill Road east of Coobool Island Road	Arterial	420	458	306 (67.8%)	145 (32.2%)	21	15	17	17	1,400	0.02 (LoS A)	0.01 (LoS A)	0.01 (LoS A)	0.01 (LoS A)
M-13	Maude Road approx. 4km north of Dry Lake	Arterial	234	249	137 (57.1%)	103 (42.9%)	8	9	13	12	1,400	0.01 (LoS A)	0.01 (LoS A)	0.01 (LoS A)	0.01 (LoS A)
M-14	Wanderer Street north of Mulumbah Road	Collector	986	1,078	757 (71.3%)	304 (28.7%)	44	48	41	49	1,000	0.04 (LoS A)	0.05 (LoS A)	0.04 (LoS A)	0.05 (LoS A)
M-15	Berrigan Road west of Hampden Street	Arterial	1,410	1,612	1,367 (85.8%)	227 (14.2%)	85	61	62	83	1,400	0.06 (LoS A)	0.04 (LoS A)	0.04 (LoS A)	0.06 (LoS A)
M-16	Jerilderie Road north of Berrigan	Arterial	456	516	375 (73.5%)	135 (26.5%)	24	18	17	24	1,400	0.02 (LoS A)	0.01 (LoS A)	0.01 (LoS A)	0.02 (LoS A)
M-17	Barham Road west of Larcombe Lane	Arterial	463	518	375 (73.5%)	135 (26.5%)	20	22	19	26	1,400	0.01 (LoS A)	0.02 (LoS A)	0.01 (LoS A)	0.02 (LoS A)
M-18	Wakool Road west of Yallakool No 1 Channel	Arterial	237	265	189 (74.1%)	66 (25.9%)	12	13	12	13	1,400	0.01 (LoS A)	0.01 (LoS A)	0.01 (LoS A)	0.01 (LoS A)

Survey ID	Location	Road classification	ADT ¹	Weekday daily volume			Peak hour volume (vph)				Lane capacity (vph ² / lane)	Volume/capacity ratio and LoS			
				AWT ³	Vehicle classification		AM peak		PM peak			AM peak		PM peak	
					Light vehicles	Heavy vehicles	NB/WB ⁴	SB/EB ⁵	NB/WB	SB/EB		NB/WB	SB/EB	NB/WB	SB/EB
M-20	Nacurrie Road North south of Windarra Lane	Local	23	22	15 (83.3%)	3 (16.7%)	1	1	1	2	900	0.00 (LoS A)	0.00 (LoS A)	0.00 (LoS A)	0.00 (LoS A)
M-21	Lockhart Road east of Riverina HF Transmit	Arterial	1,211	1,344	1,058 (79.2%)	278 (20.8%)	47	62	52	55	1,400	0.03 (LoS A)	0.04 (LoS A)	0.04 (LoS A)	0.04 (LoS A)
M-22	Tallow Street outside Property 63	Local	822	889	728 (83.2%)	147 (16.8%)	42	35	37	40	900	0.05 (LoS A)	0.04 (LoS A)	0.04 (LoS A)	0.04 (LoS A)
M-23	Carne Street outside Property 24	Local	520	555	428 (78.2%)	119 (21.8%)	29	25	23	25	900	0.03 (LoS A)	0.03 (LoS A)	0.03 (LoS A)	0.03 (LoS A)
M-24	Moulamein Road north of Swan Hill Road	Collector	828	908	737 (82.1%)	161 (17.9%)	37	38	35	34	1,000	0.04 (LoS A)	0.04 (LoS A)	0.04 (LoS A)	0.03 (LoS A)

4.1.3 Crown roads

The traffic and transport study area encompasses areas of Crown land including roads, watercourses, travelling stock reserves and properties. The project footprint crosses the following Crown roads (NSW Crown lands 2023):

- in Murray River LGA: Noorong Road, Fisher Lane, Wood Lane, Pike Pike Lane and Kaylock Road
- in Edward River LGA: Mabins Well Road
- in Murrumbidgee LGA: Wilson Road, McLennons Bore Road and Fernbank Road.

4.1.4 Property access points and tracks

Property access points and tracks within properties are scattered within the traffic and transport study area. However, these are not accessible to public traffic and do not form part of the road network.

4.2 Intersection layout and traffic volumes

This section describes the layout, traffic volumes and turn warrant assessments of existing intersections on pre-construction and construction routes. The assessment criterion is detailed in section 3.8. Table 4.5 details the existing intersection configurations and turn warrant assessments, further details are included in Appendix A. This assessment was limited to the intersections that involve a State or regional road.

The turn warrant assessment is used to understand if the current intersection layouts are suitable to provide safe operations for the existing peak hour demand at the intersection. It is also assessed in section 5.2.6.2 to determine the impacts of construction traffic. This assessment focuses on safety performance outcomes for the intersection, rather than operational performance.

Table 4.5 Assessment of existing road intersections

Intersection location	Local Government Area (LGA)	Existing intersection configuration	Turn warrant assessment
Sturt Highway/ Maude Road	Hay	On the Sturt Highway, a left turn treatment into Maude Road is provided through an auxiliary left turn lane (AUL) of about 135 metres long. The right turn into Maude Road is a basic right turn however there is an AUL of about 135 metres for the traffic to use to pass right turn traffic safely.	The existing intersection layout is compliant to existing vehicle demands
Sturt Highway/ Cobb Highway	Hay	This intersection is a roundabout.	No turn warrant assessment required given it is a roundabout.
Sturt Highway/ Kidman Way	Murrumbidgee	On the Sturt Highway, the left turn treatment into Kidman Way is a basic left turn. The right turn into Kidman Way is provided through a channelised right turn (CHR) of about 80 metres.	This intersection layout is compliant to existing vehicle demands.

Intersection location	Local Government Area (LGA)	Existing intersection configuration	Turn warrant assessment
Sturt Highway/ Newell Highway (west)	Narrandera	On the Sturt Highway, a left turn treatment into Newell Highway is provided through an AUL of about 130 metres. The right turn into Kidman Way is provided through a CHR of about 70 metres.	This intersection layout is compliant to existing vehicle demands.
Sturt Highway/ Newell Highway (east)	Narrandera	The right turn into the Sturt Highway is provided through a CHR of about 125 metres.	This intersection layout is compliant to existing vehicle demands.
Sturt Highway/ Lockhart Road	Wagga Wagga	On the Sturt Highway, a left turn treatment into Lockhart Road is provided through an AUL of about 45 metres. The right turn into Lockhart Road is provided through a CHR of about 45 metres.	This intersection layout is compliant to existing vehicle demands.
Sturt Highway/ Tumbarumba Road	Wagga Wagga	On the Sturt Highway, the left turn treatment into Tumbarumba Road is a basic left turn. The right turn into Lockhart Road is provided through a CHR of about 95 metres.	This intersection layout is compliant to existing vehicle demands.
Kidman Way/ Newell Highway	Murrumbidgee	On the Newell Highway, a left turn treatment into Kidman Way is provided through an AUL of about 110 metres. The right turn into Kidman Way is a basic right turn from Newell Highway.	This intersection layout is compliant to existing vehicle demands.
Newell Highway (Jerilderie Street)/ Newell Highway (Southey Street)	Murrumbidgee	On Jerilderie Street, the left turn treatment into Southey Street Way is provided with a slip lane. The right turn into Southey Street is provided through a CHR of about 25 metres.	This intersection layout is compliant to existing vehicle demands.
Newell Highway/ Berrigan Road	Murrumbidgee	On Newell Highway, the left turn treatment into Berrigan Road is provided through an AUL of about 90 metres. The right turn into Berrigan Road is provided through a CHR of about 40 metres.	This intersection layout is compliant to existing vehicle demands.
Riverina Highway (Jerilderie Street)/ Riverina Highway (Chanter Street)	Murrumbidgee	On Jerilderie Street, the left turn treatment into Chanter Street is provided through a basic left turn. The right turn into Jerilderie Street is provided through a basic right turn.	This intersection layout is compliant to existing vehicle demands.
Newell Highway (Murray Street)/ Riverina Highway (Berrigan Road)	Berrigan	Project-related traffic would be travelling straight through the intersection.	Not required as construction traffic is travelling through the intersection and not turning at the intersection.

Intersection location	Local Government Area (LGA)	Existing intersection configuration	Turn warrant assessment
Newell Highway (Murray Street)/ Riverina Highway (Tuppall Street)	Berrigan	Project-related traffic would be travelling straight through the intersection.	Not required as construction traffic is travelling through the intersection and not turning at the intersection.
Riverina Highway (Finley Road)/ Wanderer Street	Edward River	There is an 80-metre CHR from Finley Road onto Wanderer Street.	This intersection layout is compliant to existing vehicle demands.
Cobb Highway (Hay Road) / Riverina Highway (Finley Road)	Edward River	This intersection is a roundabout.	No turn warrant assessment required given it is a roundabout.
Cobb Highway (Hardinge Street) / Cobb Highway (Charlotte Street)	Edward River	On Charlotte Street, the left turn treatment into Hardinge Street is a basic left turn with all other traffic giving way. The right turn into Charlotte Street is a basic right turn from Hardinge Street with all other traffic giving way.	This intersection layout is compliant to existing vehicle demands.

4.2.1 Safe Intersection Sight Distance compliance check

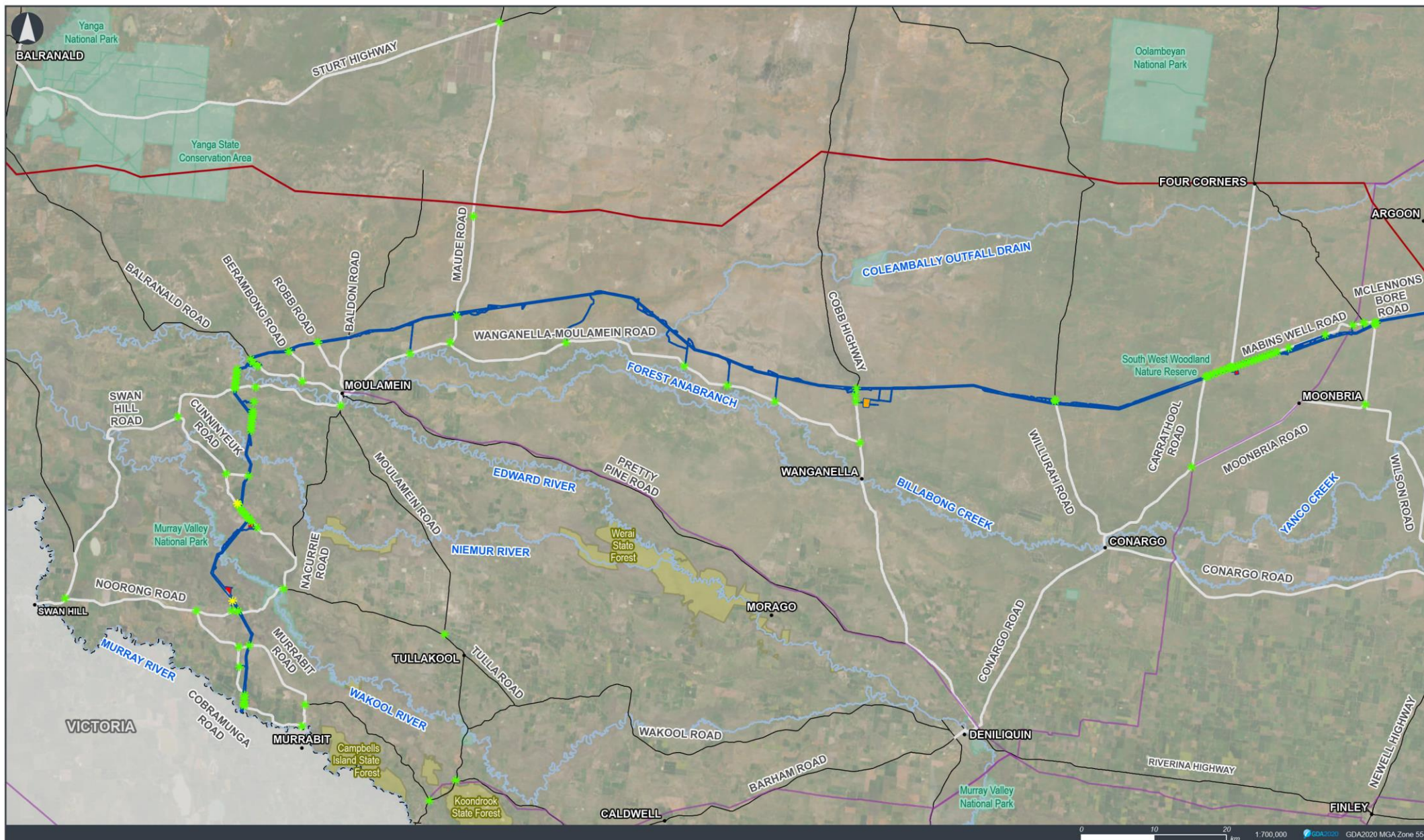
A Safe Intersection Sight Distance (SISD) compliance check was carried out for each intersection proposed to be used during construction for existing intersections. The assessment criteria are detailed in section 3.8.1. Figure 4.2 shows the location of intersections assessed.

The detailed SISD assessment of each intersection listed is in Appendix B.

Table 4.6 Existing intersection SISD summary

Intersection	Local Government Area (LGA)	SISD compliant
Sturt Highway and Maude Road	Hay	Yes
Sturt Highway and Kidman Way	Murrumbidgee	Yes
Sturt Highway and Lockhart Road	Wagga Wagga	Yes
Sturt Highway and Tumbarumba Road	Wagga Wagga	Yes
Newell Highway and Kidman Way	Murrumbidgee	Yes
Newell Highway and Berrigan Road	Murrumbidgee	Yes
Cobb Highway and Wanganella-Moulamein Road	Edward River	Yes
Swan Hill Road and Cunninyeuk Road	Murray River	Yes
Balranald Road and Berrambong Railway Road	Murray River	Yes
Moulamein Road and Swan Hill Road	Murrumbidgee	Yes

Intersection	Local Government Area (LGA)	SISD compliant
Swan Hill Road and Noorong Road	Murray River	Yes
Swan Hill Road and Pike Pike Lane	Murrumbidgee	Yes
Swan Hill Road and Kaylock Road	Murrumbidgee	Yes
Maude Road and Wanganella-Moulamein Road	Murrumbidgee	Yes
Tumbarumba Road and Gregadoo East Road	Wagga Wagga	Yes
Newell Highway and Showground Road	Murrumbidgee	Yes
Maude Road and Booroorban-Tchelery Road	Edward River	Yes
Noorong Road and Murrabit Road	Murray River	Yes
Noorong Road and Nacurrie Road North	Murray River	Yes
Noorong Road and Moulamein Road	Murray River	Yes
Cunninyeuk Road and Wood Lane	Murray River	Yes
Murrabit Road and Cobramunga Road (North)	Murray River	Yes
Murrabit Road and Gonn Road	Murray River	Yes
Murrabit Road and Cobramunga Road (South)	Murray River	Yes
Moulamein Road and Gonn Road	Murray River	Yes
Moulamein Road and Barham Road	Murray River	Yes
Carrathool Road and Moonbria Road	Edward River	Yes
Carrathool Road and Mabins Well Road	Edward River	Yes
Wilson Road and Mabins Well Road	Edward River	Yes
Wilson Road and McLennons Bore Road	Murrumbidgee	Yes
Wilson Road and Moonbria Road	Murrumbidgee	Yes
Kidman Way and Cadell Road	Murrumbidgee	Yes
Newell Highway and Burley Griffin Way	Coolamon Shire	Yes



wsp
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Figure 4.2a
Safe Intersection sight distance
compliance check



wsp

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Figure 4.2b
Safe Intersection sight distance
compliance check

Legend

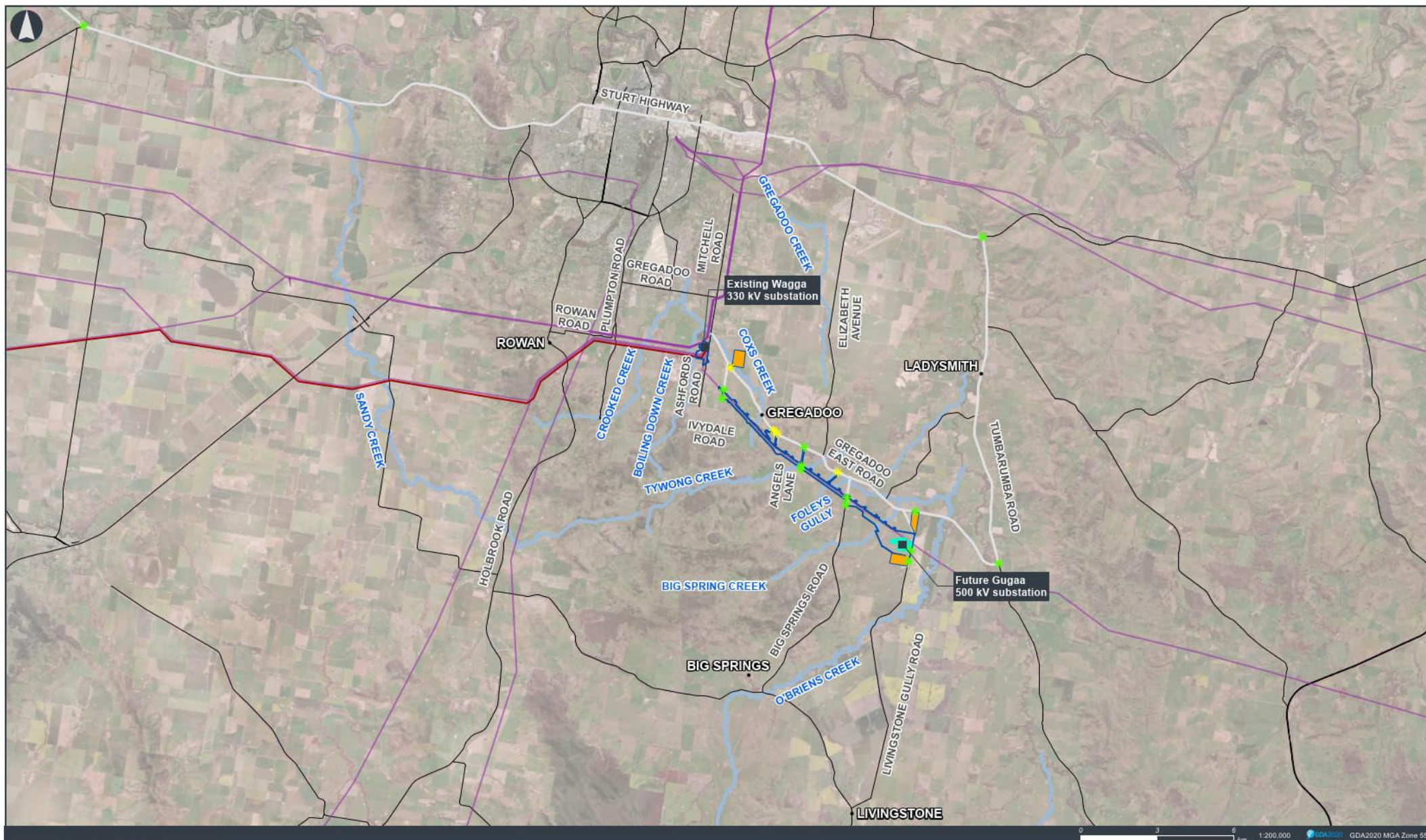
- Main road
- Named waterway
- EnergyConnect (NSW - Eastern section) project (under construction)

- Existing transmission line
- Dinawan substation works - proposed 500 kV
- Dinawan substation works - existing 330 kV
- National park
- State forest

- Project footprint
- Combined temporary worker accommodation facility
- Construction compound

- All project-related traffic routes
- Safe intersection sight distance**
 - ★ Compliant
 - ★ Non-compliant





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Traffic

Figure 4.2c
Safe Intersection Sight Distance
compliance check

Legend

- Main road
- Named waterway
- EnergyConnect (NSW - Eastern section) project (under construction)

- Existing transmission line
- Substation

- Project footprint
- Combined temporary worker accommodation facility

- All project-related traffic routes
- Safe intersection sight distance
- ★ Compliant
- ★ Non-compliant



4.2.2 Swept path analyses and strategic intersection design

Swept paths analysis was completed at the following State road intersections where construction traffic would undertake turning movements, as shown in Table 4.7. These have been completed for both a 19 metre semi-trailer and a 25 / 26 metre B-Double. Some of the intersections have been identified as not requiring swept paths analysis as they are considered to have adequate space for turning manoeuvres, construction traffic is not planned to turn through the intersection or there is a large roundabout at the intersection. State road intersections identified as requiring an upgrade or modification, have had a strategic intersection design prepared.

This applies to four intersections. Swept paths and strategic intersection designs are provided in Appendix C.

Table 4.7 Swept path analyses and strategic intersection design at State road intersections

Intersection	Local Government Area (LGA)	Control	Swept path adequate for 19 m semi-trailer or 25/26 m B-Double	Strategic intersection design required
Sturt Highway and Maude Road	Hay	Give Way	No	Yes
Sturt Highway and Cobb Highway	Hay	Roundabout	Yes	No
Sturt Highway and Kidman Way	Murrumbidgee	Give Way	Yes	No
Sturt Highway and Newell Highway (west)	Narrandera	Give Way	Yes	No
Sturt Highway and Newell Highway (east)	Narrandera	Give Way	Yes	No
Sturt Highway and Tumbarumba Road	Wagga Wagga	Give Way	Yes	No
Newell Highway and Kidman Way	Murrumbidgee	Give Way	No	Yes
Newell Highway (Jerilderie Street) and Newell Highway (Southey Street)	Murrumbidgee	Give Way	Yes	No
Newell Highway and Berrigan Road	Murrumbidgee	Give Way	Yes	No
Riverina Highway (Jerilderie Street) and Riverina Highway (Chanter Street)	Berrigan	Give Way	Yes	No
Newell Highway (Murray Street) and Riverina Highway (Berrigan Rd)	Berrigan	Stop	Yes	No
Newell Highway (Murray Street) and Riverina Highway (Tuppall Street)	Berrigan	Give Way	Yes	No
Riverina Highway (Finley Road) and Wanderer Street	Edward River	Give Way	Yes	No

Intersection	Local Government Area (LGA)	Control	Swept path adequate for 19 m semi-trailer or 25/26 m B-Double	Strategic intersection design required
Cobb Highway (Hay Road) and Riverina Highway (Finley Road)	Edward River	Roundabout	Yes	No
Cobb Highway (Hardinge Street) and Cobb Highway (Charlotte Street)	Edward River	Give Way	Yes	No
Cobb Highway (Hardinge Street) and Cobb Highway (Ochertyre Street)	Edward River	Roundabout	Yes	No
Cobb Highway and Wanganella-Moulamein Road	Edward River	Give Way	No	Yes
Conargo Road and Newell Highway (Jerilderie Street)	Murrumbidgee	Give Way	Yes	No
Newell Highway and Showground Road	Murrumbidgee	Give Way	Yes	No
Kidman Way and Cadell Road	Murrumbidgee	Give Way	No	Yes

4.2.3 Intersection performance

Table 4.8 and Table 4.9 show the current performance of intersections in the weekday AM and PM peaks. All intersections are LoS A in each peak.

Table 4.8 2024 Weekday AM intersection performance

Intersection	Control	Road network peak			
		Degree of Saturation (DoS)	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach
Sturt Highway and Maude Road	Give Way	0.04	10.4 sec (Maude Road [S])	A	0.3 m (Maude Road [S])
Sturt Highway and Cobb Highway	Roundabout	0.09	10.1 sec (Cobb Highway [S])	A	4.5 m (Sturt Highway [E])
Sturt Highway and Kidman Way	Give Way	0.04	9.2 sec (Kidman Way [S])	A	0.4 m (Kidman Way [S])
Sturt Highway and Newell Highway (west)	Give Way	0.11	8.1 sec (Newell Highway [S])	A	4 m (Newell Highway [S])
Sturt Highway and Newell Highway (east)	Give Way	0.09	9.5 sec (Sturt Highway [W])	A	3.4 m (Newell Highway [N])
Sturt Highway and Lockhart Road	Give Way	0.12	9.8 sec (Lockhart Road [S])	A	3.5 m (Lockhart Road [S])
Sturt Highway and Tumbarumba Road	Give Way	0.15	16.5 sec (Tumbarumba Road [S])	A	2 m (Tumbarumba Road [S])
Newell Highway and Kidman Way	Give Way	0.09	10.5 sec (Kidman Way [W])	A	3.6 m (Kidman Way [W])
Jerilderie Street and Southey Street	Give Way	0.10	6.8 sec (Southey Street [S])	A	4.1 m (Jerilderie Street [E])
Newell Highway and Berrigan Road	Give Way	0.08	10.2 sec (Berrigan Road [S])	A	0.7 m (Berrigan Road [S])
Jerilderie Street and Chanter Street	Give Way	0.09	5.2 sec (Chanter Street [W])	A	2.5 m (Chanter Street [W])
Murray Street and Berrigan Rd	Stop	0.13	12.4 sec (Berrigan Road [E])	A	3.9 m (Berrigan Road [E])
Murray Street and Tuppal Street	Give Way	0.07	6.7 sec (Tuppal Street [W])	A	1.7 m (Tuppal Street [W])
Finley Road and Wanderer Street	Give Way	0.18	7.4 sec (Wanderer Street [N])	A	5.5 m (Wanderer Street [N])
Hay Road and Finley Road	Roundabout	0.20	9.3 sec (Hay Road [NW])	A	8.4 m (Finley Road [E])
Hardinge Street and Charlotte Street	Give Way	0.19	5.9 sec (Charlotte Street [E])	A	6.9 m (Charlotte Street [E])

Intersection	Control	Road network peak			
		Degree of Saturation (DoS)	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach
Hardinge Street and Ochertyre Street	Roundabout	0.20	8.6 sec (Ochertyre Street [W])	A	8.9 m (Hardinge Street [N])
Cobb Highway and Wanganella-Moulamein Road	Give Way	0.02	8.2 sec (Cobb Highway [S])	A	0.1 m (Cobb Highway [N])
Cedar Avenue and Moulamein Road	Give Way	0.04	5.6 sec (Cedar Avenue [W])	A	1.2 m (Moulamein Road [S])
Swan Hill Road and Cunninyeuk Road	Give Way	0.03	8 sec (Swan Hill Road [S])	A	0.7 m (Swan Hill Road [S])
Balranald Road and Berrambong Railway Road	Give Way	0.01	7.9 sec (Berrambong Railway Road [N])	A	0 m (Balranald Road [E])
Conargo Road and Carrathool Road	Give Way	0.05	6 sec (Conargo Road [E])	A	1.7 m (Conargo Road [E])
Conargo Road and Jerilderie Street	Give Way	0.12	7 sec (Newell Highway [S])	A	4.1 m (Newell Highway [S])
Moulamein Road and Swan Hill Road	Give Way	0.03	8.1 sec (Moulamein Road [N])	A	1 m (Moulamein Road [N])
Swan Hill Road and Noorong Road	Give Way	0.08	11.5 sec (Noorong Road [E])	A	2.1 m (Swan Hill Road [S])
Swan Hill Road and Pike Pike Lane	Give Way	0.02	7.9 sec (Swan Hill Road [W])	A	0.1 m (Swan Hill Road [W])
Swan Hill Road and Kaylock Road	Give Way	0.02	7.9 sec (Kaylock Road [N])	A	0.1 m (Swan Hill Road [E])
Tchelery Road and Tallow Street	Give Way	0.03	6.9 sec (Tchelery Road [N])	A	0.1 m (Tchelery Road [N])
Maude Road and Wanganella-Moulamein Road	Give Way	0.02	7.9 sec (Wanganella-Moulamein Road [S])	A	0.1 m (Maude Road [W])
Tumbarumba Road and Gregadoo East Road	Give Way	0.04	8.3 sec (Gregadoo East Road [W])	A	0.5 m (Gregadoo East Road [W])

Table 4.9 2024 Weekday PM intersection performance

Intersection	Control	Road network peak			
		DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach
Sturt Highway and Maude Road	Give Way	0.05	10 sec (Sturt Highway [W])	A	0.2 m (Maude Road [S])
Sturt Highway and Cobb Highway	Roundabout	0.10	10 sec (Cobb Highway [S])	A	3.8 m (Cobb Highway [N])
Sturt Highway and Kidman Way	Give Way	0.06	8.4 sec (Kidman Way [S])	A	0.2 m (Kidman Way [S])
Sturt Highway and Newell Highway (west)	Give Way	0.12	9.4 sec (Newell Highway [S])	A	5 m (Newell Highway [S])
Sturt Highway and Newell Highway (east)	Give Way	0.12	10.1 sec (Sturt Highway [W])	A	4.9 m (Newell Highway [N])
Sturt Highway and Lockhart Road	Give Way	0.11	10.6 sec (Lockhart Road [S])	A	3.4 m (Lockhart Road [S])
Sturt Highway and Tumbarumba Road	Give Way	0.15	17.8 sec (Tumbarumba Road [S])	A	2.5 m (Sturt Highway [W])
Newell Highway and Kidman Way	Give Way	0.06	10.8 sec (Kidman Way [W])	A	2.2 m (Kidman Way [W])
Jerilderie Street and Southey Street	Give Way	0.13	6.8 sec (Southey Street [S])	A	4.9 m (Southey Street [S])
Newell Highway and Berrigan Road	Give Way	0.07	11.2 sec (Berrigan Road [S])	A	0.8 m (Berrigan Road [S])
Jerilderie Street and Chanter Street	Give Way	0.08	5.3 sec (Chanter Street [W])	A	2.3 m (Chanter Street [W])
Murray Street and Berrigan Road	Stop	0.12	13.4 sec (Berrigan Road [E])	A	3 m (Murray Street [S])
Murray Street and Tuppal Street	Give Way	0.09	7.3 sec (Tuppal Street [W])	A	2.7 m (Tuppal Street [W])
Finley Road and Wanderer Street	Give Way	0.20	8 sec (Wanderer Street [N])	A	6.6 m (Wanderer Street [N])
Hay Road and Finley Road	Roundabout	0.20	9.6 sec (Hay Road [NW])	A	8.7 m (Davidson Street [SW])
Hardinge Street and Charlotte Street	Give Way	0.19	6 sec (Charlotte Street [E])	A	6.8 m (Charlotte Street [E])
Hardinge Street and Ochertyre Street	Roundabout	0.23	9.1 sec (Ochertyre Street [W])	A	10.3 m (Hardinge Street [N])
Cobb Highway and Wanganella-Moulamein Road	Give Way	0.01	8.2 sec (Cobb Highway [S])	A	0.1 m (Wanganella-Moulamein Road [W])

Intersection	Control	Road network peak			
		DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach
Cedar Avenue and Moulamein Road	Give Way	0.04	6.1 sec (Paterson Street [N])	A	1.2 m (Moulamein Road [S])
Swan Hill Road and Cunninyeuk Road	Give Way	0.02	8.4 sec (Swan Hill Road [S])	A	0.8 m (Swan Hill Road [S])
Balranald Road and Berrambong Railway Road	Give Way	0.01	7.9 sec (Berrambong Railway Road [N])	A	0.1 m (Balranald Road [E])
Conargo Road and Carrathool Road	Give Way	0.04	6.3 sec (Conargo Road [E])	A	1.7 m (Carrathool Road [S])
Conargo Road and Jerilderie Street	Give Way	0.13	6.8 sec (Newell Highway [S])	A	4.9 m (Newell Highway [S])
Moulamein Road and Swan Hill Road	Give Way	0.02	8.5 sec (Moulamein Road [N])	A	0.7 m (Moulamein Road [N])
Swan Hill Road and Noorong Road	Give Way	0.05	9.3 sec (Swan Hill Road [S])	A	2 m (Swan Hill Road [S])
Swan Hill Road and Pike Pike Lane	Give Way	0.02	7.9 sec (Swan Hill Road [W])	A	0.1 m (Swan Hill Road [W])
Swan Hill Road and Kaylock Road	Give Way	0.02	7.9 sec (Kaylock Road [N])	A	0.1 m (Swan Hill Road [E])
Tchelery Road and Tallow Street	Give Way	0.02	6.9 sec (Tallow Street [E])	A	0.2 m (Tchelery Road [N])
Maude Road and Wanganella-Moulamein Road	Give Way	0.01	7.9 sec (Wanganella-Moulamein Road [S])	A	0.1 m (Maude Road [W])
Tumbarumba Road and Gregadoo East Road	Give Way	0.03	9.2 sec (Gregadoo East Road [W])	A	0.6 m (Gregadoo East Road [W])

4.3 Heavy vehicle road network restrictions

The heavy vehicle restrictions (based on a 25/26 metre B-Double vehicle) on construction routes within the traffic and transport study area are depicted in Figure 4.3. Vehicles known as General Access Vehicles (GAV) which comply with mass and dimension requirements do not require a notice or permit to operate on the road network. Heavy vehicles other than GAV are subject to road network restrictions according to the vehicle types:

- restricted access vehicles (RAV) (i.e. 19 m, 23 m and 25/26 m B-doubles)
- road trains (Type 1 A-double, modular B-triple, B-triple, AB-triple and Type 2 A-triple)
- OSOM vehicles are defined as vehicles (or vehicle combinations) that exceed any general access mass or dimension limits.

The State and regional roads that would be utilised as construction routes are part of the existing approved RAV, road train and OSOM network. Heavy vehicles do not require a notice or permit to access this approved road network.

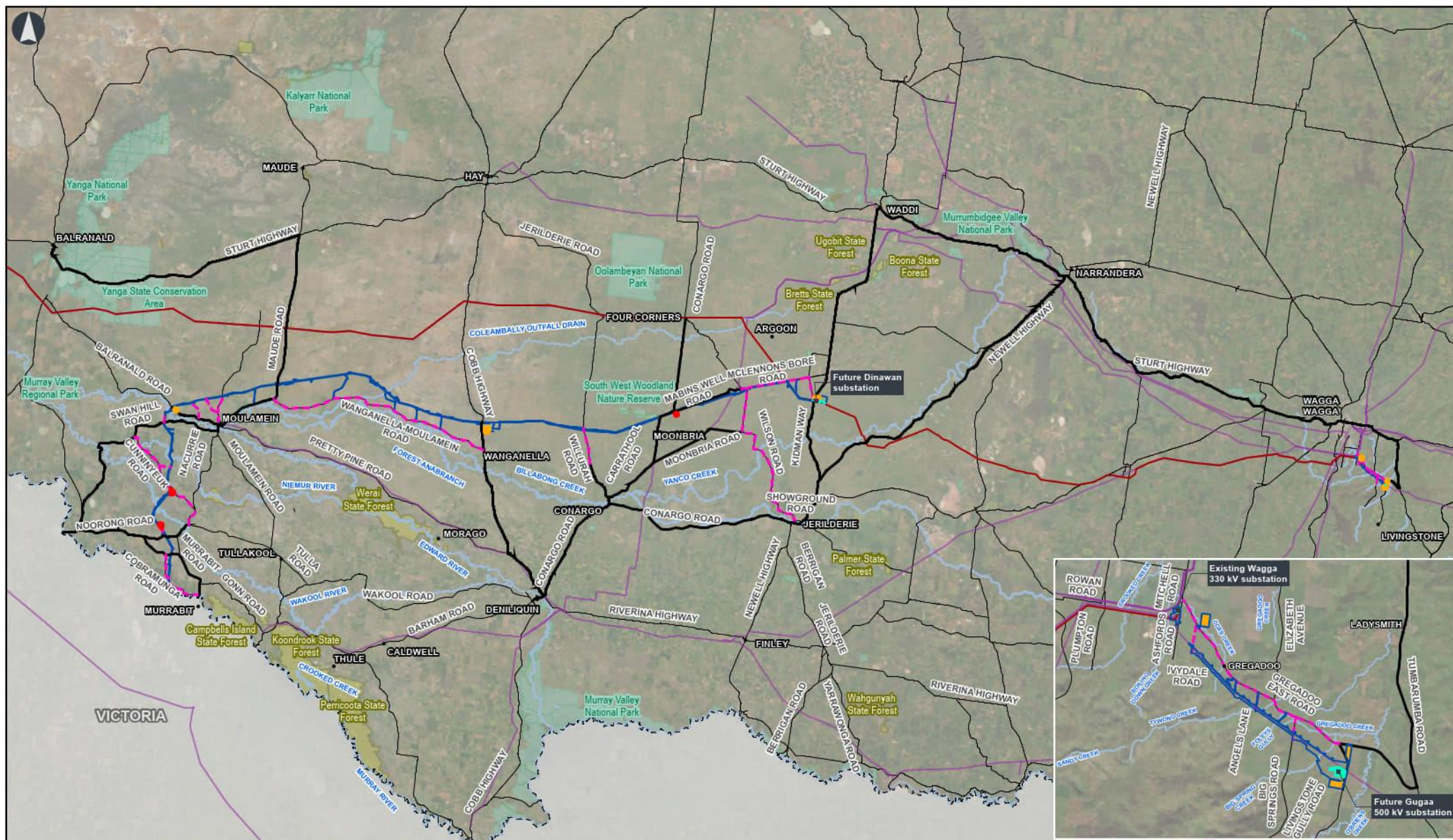
The following roads that would be utilised as construction routes are not part of the existing RAV or OSOM network:

- | | |
|---------------------------|-----------------------------|
| — Angels Lane | — McLennons Bore Road |
| — Berrambong Railway Road | — Nacurrie Road North |
| — Big Springs Road | — Nacurrie Road South |
| — Cadell Road | — Pike Pike Lane |
| — Cobramunga Road | — Robb Road |
| — Cunninyeuk Road | — Wanganella-Moulamein Road |
| — Fisher Lane | — Willurah Road |
| — Ivydale Road | — Wilson Road |
| — Kaylock Road | — Wood Lane. |

As such, specific permits would need to be requested via National Heavy Vehicle Regulator (NHVR) and local councils to allow vehicles to travel these routes to site. Please refer to feedback received from local councils on roads proposed to be used for construction traffic in Chapter 5 (Stakeholder and community engagement) of the EIS.

4.3.1 *Bridges and culverts*

The construction routes include a number of bridges and culverts. These routes are divided between B-Double-approved and non-approved roads. Bridge and culvert crossings on B-Double approved roads are assumed to be adequate as they would have been assessed as part of the approval process. Bridges and culvert crossings on non-approved roads would require further assessment to identify if they are adequate for use by heavy vehicles during construction. Inspections of bridge and culverts are proposed to determine any concerns regarding their condition and to identify any issues with respect to heavy vehicles travelling over these types of infrastructure. This will also be included as part of the construction contractor investigation as part of RAV access approvals as well as ongoing maintenance inspection schedules, with corresponding mitigation measures provided in Chapter 8.



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Figure 4.3
Heavy vehicle restrictions on
construction traffic routes

Legend

— Main road
— Named waterway
— EnergyConnect (NSW - Eastern section) project (under construction)

— Existing transmission line
— Dinawan substation works - proposed 500 kV
— Dinawan substation works - existing 330 kV
— Substation
— National park
— State forest

— Project footprint
— NSW/Victorian border
— Combined temporary worker accommodation facility
— Construction compound

Heavy vehicle restrictions

— 25/26m B-Double Approved
— Not approved for B-Doubles

0 20 40 1:1,400,000 GDA2020 GDA2020 MGA Zone 55

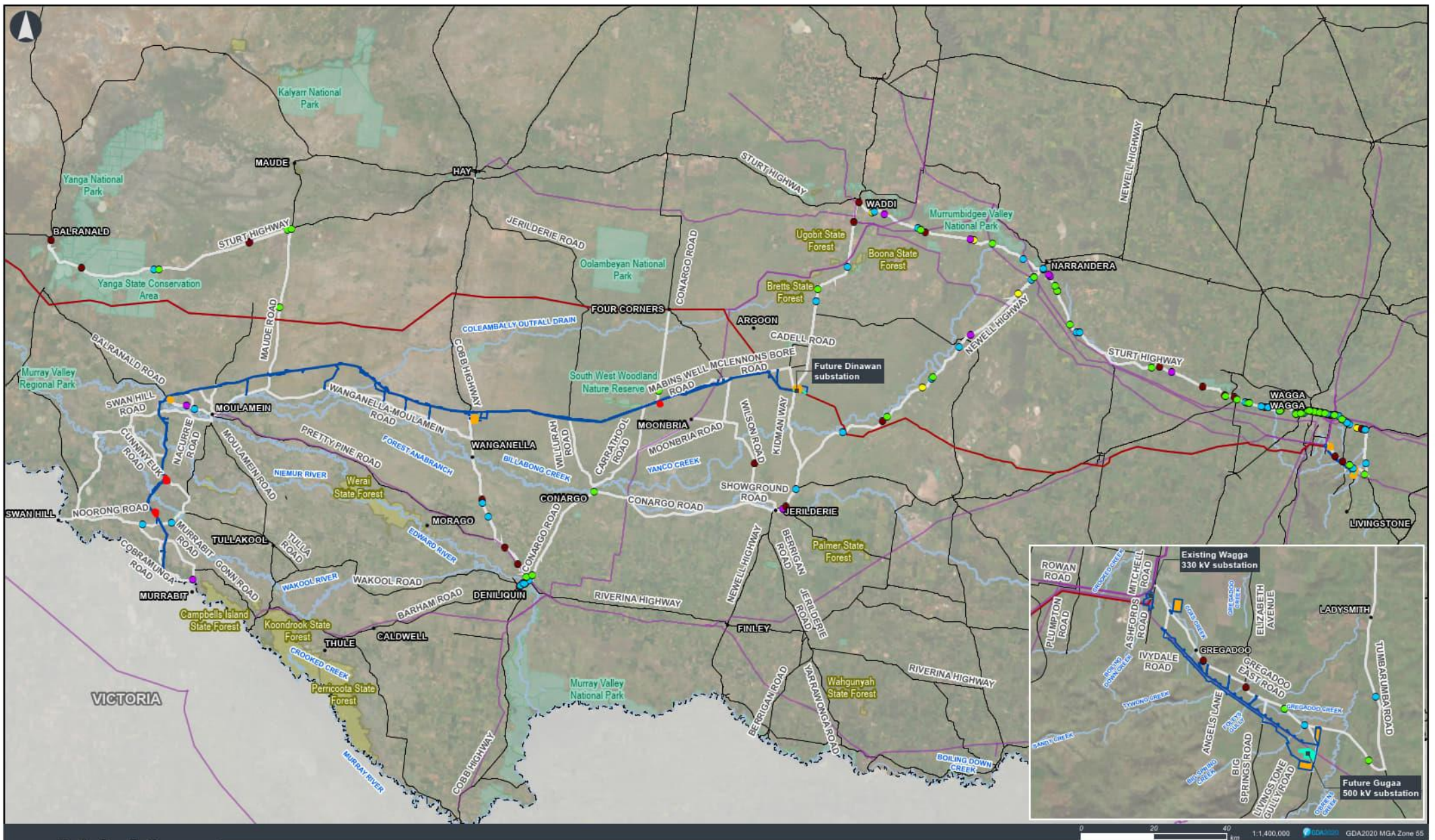


4.4 Crash history analysis

This section summarises the crash history along the construction routes, reported by the degree of crash severity and crash location. The crash history data is separated according to administrative NSW Road Classifications (State, regional and local) given the large traffic and transport study area. Each road classification has a different function. Highways are State roads which facilitate large volumes of traffic including freight, therefore they are more likely to have more crashes than a local road which facilitates local access.

There was a total of 325 crashes, between 2019 and 2023, along the construction routes that are proposed to be used for pre-construction and construction vehicles, with crashes commonly occurring at both mid-block locations (66 per cent) and intersections (34 per cent).

Figure 4.4 shows the recorded crashes along the construction routes within the traffic and transport study area recorded between 2019 and 2023.



0 20 40 km 1:1,400,000 GDA2020 MGA Zone 55

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Figure 4.4
Historic crash data on the construction
routes within the traffic and transport
study area

Legend

- | | | | | |
|--|--|--|--------------------------------------|-----------------------------|
| — Main road | — Existing transmission line | □ Project footprint | — All project-related traffic routes | ● Crashes within study area |
| — Named waterway | — Dinawan substation works - proposed 500 kV | — NSW/Victorian border | | ● Fatal |
| — EnergyConnect (NSW - Eastern section) project (under construction) | — Dinawan substation works - existing 330 kV | — Combined temporary worker accommodation facility | | ● Minor/Other Injury |
| | ■ Substation | ■ Construction compound | | ● Moderate Injury |
| | ■ National park | | | ● Non-casualty (towaway) |
| | ■ State forest | | | ● Serious Injury |



Data sources: NSW EPI, DELWP, WSP, EnergyConnect

4.4.1 Crashes on State roads

Table 4.10 to Table 4.14 presents the crash data for State roads within the traffic and transport study area for sections of road used by pre-construction and construction traffic.

Sturt Highway recorded 210 crashes with 52 crashes (30 per cent) classified as fatal and serious injury. The majority of these crashes occurred off-path on straights or curves (76 crashes (36 per cent)). In this high-speed environment, these types of crashes tend to result in fatality and serious injury.

Table 4.10 Crash summary along the Sturt Highway by degree of severity and location

Severity	Total	Pedestrian	Intersection	Head-on	Rear-ends	U-turn/ Parking	Overtaking	On-path	Off-path on straight	Off-path on curve	Others
Fatal	12	0	0	8	1	1	0	0	1	1	0
Serious injury	40	1	8	6	4	1	0	1	7	12	0
Moderate injury	59	0	6	5	20	3	1	5	9	10	0
Minor injury/other injury	25	0	6	1	4	3	0	0	10	1	0
No casualty	74	0	13	12	12	6	2	4	11	14	0
Total	210	1	33	32	41	14	3	10	38	38	0

Newell Highway recorded 35 crashes with eight crashes (35 per cent) classified as fatal and serious injury, with the majority occurring off-path on straights at 15 crashes (43 per cent). In this high-speed environment, these types of crashes tend to result in fatality and serious injury.

Table 4.11 Crash summary along the Newell Highway by degree of severity and location

Severity	Total	Pedestrian	Intersection	Head-on	Rear-ends	U-turn/ Parking	Overtaking	On-path	Off-path on straight	Off-path on curve	Others
Fatal	3	0	0	0	0	0	0	0	1	1	1
Serious injury	5	0	0	0	0	0	0	2	2	1	0
Moderate injury	6	0	1	0	2	0	1	0	1	1	0
Minor injury/other injury	3	0	0	1	0	0	0	0	2	0	0
No casualty	18	0	1	0	1	1	0	3	9	3	0
Total	35	0	2	1	3	1	1	5	15	6	1

The Cobb Highway recorded 29 crashes with one crash (four per cent) classified as serious injury. The majority of crashes occurred off-path on straights (eight crashes (28 per cent)). In this high-speed environment, these types of crashes tend to result in fatality and serious injury.

Table 4.12 Crash summary along the Cobb Highway by degree of severity and location

Severity	Total	Pedestrian	Intersection	Head-on	Rear-ends	U-turn/ Parking	Overtaking	On-path	Off-path on straight	Off-path on curve	Others
Fatal	0	0	0	0	0	0	0	0	0	0	0
Serious injury	1	0	0	0	0	0	0	0	0	1	0
Moderate injury	12	0	0	0	3	1	0	0	2	3	0
Minor injury/other injury	3	0	0	0	1	0	0	0	1	0	0
No casualty	13	0	0	0	2	0	0	2	5	1	0
Total	29	0	0	0	6	1	0	2	8	5	0

The Riverina Highway recorded two crashes with no crashes classified as fatal and serious injury. One crash occurred off-path on straight and one at an intersection. The lower crash incidents is a result of limited use of Riverina Highway being only through the town of Berrigan.

Table 4.13 Crash summary along the Riverina Highway by degree of severity and location

Severity	Total	Pedestrian	Intersection	Head-on	Rear-ends	U-turn/ Parking	Overtaking	On-path	Off-path on straight	Off-path on curve	Others
Fatal	0	0	0	0	0	0	0	0	0	0	0
Serious injury	0	0	0	0	0	0	0	0	0	0	0
Moderate injury	1	0	1	0	0	0	0	0	0	0	0
Minor injury/other injury	1	0	0	0	0	0	0	0	1	0	0
No casualty	0	0	0	0	0	0	0	0	0	0	0
Total	2	0	0	0	0	0	0	0	0	0	0

Kidman Way recorded six crashes. Three of these crashes were classified as serious injury, with two of these occurring off-path on straights. In this high-speed environment, these types of crashes tend to result in fatality and serious injury.

Table 4.14 Crash summary along the Kidman Way by degree of severity and location

Severity	Total	Pedestrian	Intersection	Head-on	Rear-ends	U-turn/ Parking	Overtaking	On-path	Off-path on straight	Off-path on curve	Others
Fatal	0	0	0	0	0	0	0	0	0	0	0
Serious injury	3	0	0	0	0	0	0	1	2	0	0
Moderate injury	1	0	0	0	1	0	0	0	0	0	0
Minor injury/other injury	0	0	0	0	0	0	0	0	0	0	0
No casualty	2	0	0	0	0	0	0	0	2	0	0
Total	6	0	0	0	1	0	0	1	4	0	0

4.4.2 Crashes on regional roads

Table 4.15 summarises the crash data for regional roads that would be used by the project in the traffic and transport study area for sections of road used by pre-construction and construction traffic.

Regional roads recorded 29 crashes with eight crashes (28 per cent) classified as serious injury crashes, with the majority occurring off-path on straights or curves at 21 crashes (72 per cent). In this high-speed environment, these types of crashes tend to result in fatality and serious injury.

Table 4.15 Crash summary along the regional roads by degree of severity and location

Severity	Total	Pedestrian	Intersection	Head-on	Rear-ends	U-turn/ Parking	Overtaking	On-path	Off-path on straight	Off-path on curve	Others
Fatal	0	0	0	0	0	0	0	0	0	0	0
Serious injury	8	0	1	0	0	0	0	1	3	3	0
Moderate injury	9	0	0	0	0	0	0	3	4	2	0
Minor injury/other injury	8	0	0	0	1	0	0	0	2	5	0
No casualty	4	0	0	0	0	1	0	1	2	0	0
Total	29	0	1	0	1	1	0	5	11	10	0

4.4.3 Crashes on local roads

Table 4.16 summarises the crash data for local roads that would be used by the project in the traffic and transport study area for sections of road used by pre-construction and construction traffic.

Local roads recorded 22 crashes with six crashes (22 per cent) classified as fatal and serious injury, with the majority occurring due to rear ends, off-path on straights and curves at two crashes each (33 per cent). In this high-speed environment, these types of crashes tend to result in fatality and serious injury.

Table 4.16 Crash summary along the local roads by degree of severity and location

Severity	Total	Pedestrian	Intersection	Head-on	Rear-ends	U-turn/ Parking	Overtaking	On-path	Off-path on straight	Off-path on curve	Others
Fatal	0	0	0	0	0	0	0	0	3	0	0
Serious injury	3	0	0	0	0	0	0	0	3	0	0
Moderate injury	4	0	0	0	0	0	0	0	2	2	0
Minor injury/other injury	1	0	0	0	0	0	0	0	0	1	0
No casualty	6	0	0	0	0	0	0	1	3	2	0
Total	14	0	0	0	0	0	0	1	8	5	0

4.5 Public transport

4.5.1 Bus services

Bus services are provided in some of the larger towns within the traffic and transport study area whilst coach services operate between towns to provide connectivity throughout the region.

4.5.1.1 Bus services in Wagga Wagga

The Wagga Wagga LGA is generally well serviced by a local bus network. Buses are operated by Busabout Wagga and other local private bus operators including Junee Buses (providing services to Junee, north-east of Wagga Wagga).

The bus network relative to the construction routes is depicted in Figure 4.5. The bus routes, operator and service frequencies in Wagga Wagga are detailed in Table 4.17.

Table 4.17 Bus services in Wagga Wagga LGA

Bus route number	Bus route name	Operator	Service frequencies
921	Junee to Wagga Wagga Wagga Wagga to Junee	Junee Buses	1 per day in each direction
922	Junee to Wagga Wagga Wagga Wagga to Junee		1 per day in each direction
923	Junee to Wagga Wagga Wagga Wagga to Junee		1 per day in each direction
924	Junee to Wagga Wagga Wagga Wagga to Junee		1 per day in each direction
930	Ganmain/Coolamon to Wagga Wagga Wagga Wagga to Ganmain/Coolamon	Allens Coaches	5 per day to Wagga Wagga 4 per day to Ganmain/Coolamon
931	Ganmain/Coolamon to Wagga Wagga Wagga Wagga to Ganmain/Coolamon		1 per day to Wagga Wagga 2 per day to Ganmain/Coolamon
960	Lake Albert to Wagga Wagga, Estella & University	Busabout Wagga	1 per hour
961	Wagga Wagga – Bourkelands – Wagga Wagga		1 per hour
962	Wagga Wagga – Glenfield Park – Wagga Wagga (Anticlockwise loop)		1 per hour, 2 per hour in the AM and PM peak hour
963	Wagga Wagga – Glenfield Park – Wagga Wagga (Clockwise loop)		1 per hour, 2 per hour in the AM and PM peak hour
965	Forest Hill to Wagga Wagga		1 every 2 hours
966	Wagga Wagga – Estella – Wagga Wagga		1 every 2 hours
969	Tatton to Wagga Wagga		1 per hour

4.5.1.2 Bus services in Deniliquin

Dyson Group operates a town service within Deniliquin. The service runs three times per day on weekdays.

The bus service relative to the construction routes is depicted in Figure 4.5 and detailed in Table 4.18.

Table 4.18 Bus services in Deniliquin within the traffic and transport study area

Bus Route number	Bus route name	Operator	Service Frequencies
N/A	Deniliquin Town Service	Dyson Group	3 times a day commencing at 9:00 am and ending at 2:00 pm on weekdays

4.5.1.3 School bus services

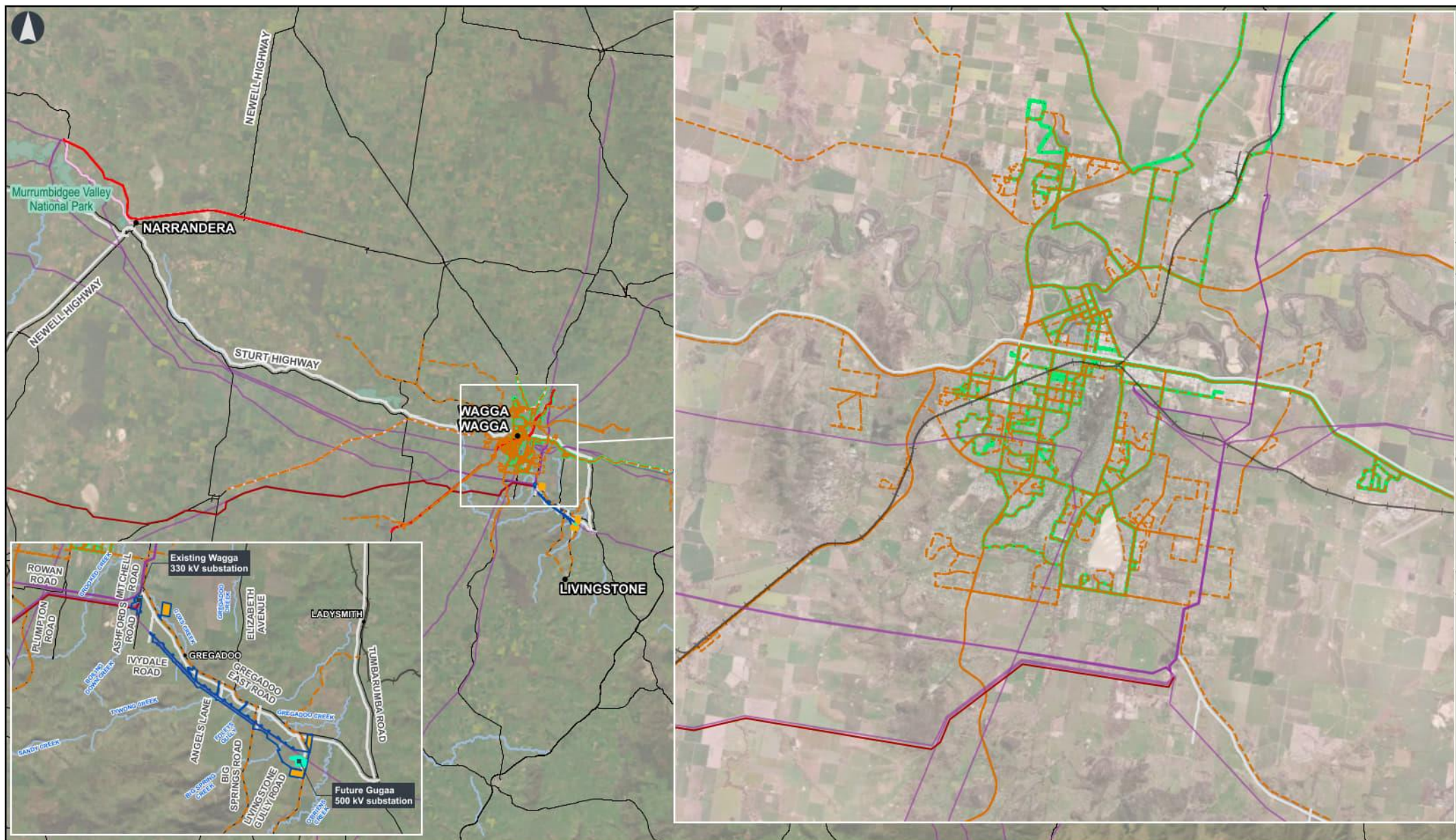
Within the traffic and transport study area, multiple operators run school buses on school days. These services operate once in the AM and once in the PM for each school day. The school bus network relative to the construction routes is depicted in Figure 4.5. There is only one existing public transport service that may interact with the project – a school bus service that travels on Big Springs Road (Route S196 South Wagga Wagga Primary to Big Springs).



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Figure 4.5a
Public transport elements that intersect with construction routes within the traffic and transport study area





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Figure 4.5b

Public transport elements that intersect with
construction routes within the traffic and
transport study area

Legend

- Main road
- Named waterway
- EnergyConnect (NSW - Eastern section) project (under construction)
- Existing transmission line
- Substation
- National park

- Project footprint
- Combined temporary worker accommodation facility

All project-related traffic routes

Public Transport

- Bus
- NSW TrainLink (Coach)
- NSW TrainLink (Rail)
- School bus



4.5.2 Coach services

Coach services provide the primary public transport service in the towns in the traffic and transport study area. These services travel through towns such as Hay (with the Hay Coach Stop located on Sturt Highway), Balranald (with the Balranald Coach Stop located on Sturt Highway), and Deniliquin (with the Deniliquin Coach Stop located on Whitelock Street via Cobb Highway).

These coach services form part of the NSW TrainLink Regional Trains and coaches network which generally runs an infrequent return trip (via Sturt Highway and Cobb Highway) of one service every day to every couple of days. The network map is shown in Figure 4.6 and the route services and frequencies are detailed in Table 4.19. Some of these route services are also shown Figure 4.5.



Source: Transport for NSW (<https://transportnsw.info/regional-network-map>)

Figure 4.6 Public transport network relevant to the traffic and transport study area

Table 4.19 Coach services within the traffic and transport study area

Bus number	Route	Network operator	Service frequency
725	Cootamundra to Mildura	NSW TrainLink	One service per day on weekdays, during the evening
726	Mildura to Cootamundra	NSW TrainLink	One service per day on weekdays, during the morning
733	Wagga Wagga to Echuca	NSW TrainLink	One service on Monday, Wednesday, Friday, and Sunday, during the evening
734	Echuca to Wagga Wagga	NSW TrainLink	One service on Monday, Wednesday, Friday, and Sunday, during the morning
741	Albury to Echuca	NSW TrainLink	One service on Tuesday, Thursday, and Saturday, during the evening
742	Echuca to Albury	NSW TrainLink	One service on Tuesday, Thursday, and Saturday, during the morning

4.5.3 Regional rail services

The regional rail services provided by NSW TrainLink as part of TfNSW at Wagga Wagga Railway Station are the only public passenger services in the traffic and transport study area. The project does not interact with this rail services.

The passenger rail service between Moama and Deniliquin is currently replaced by a coach (bus) service (V/Line, 2025).

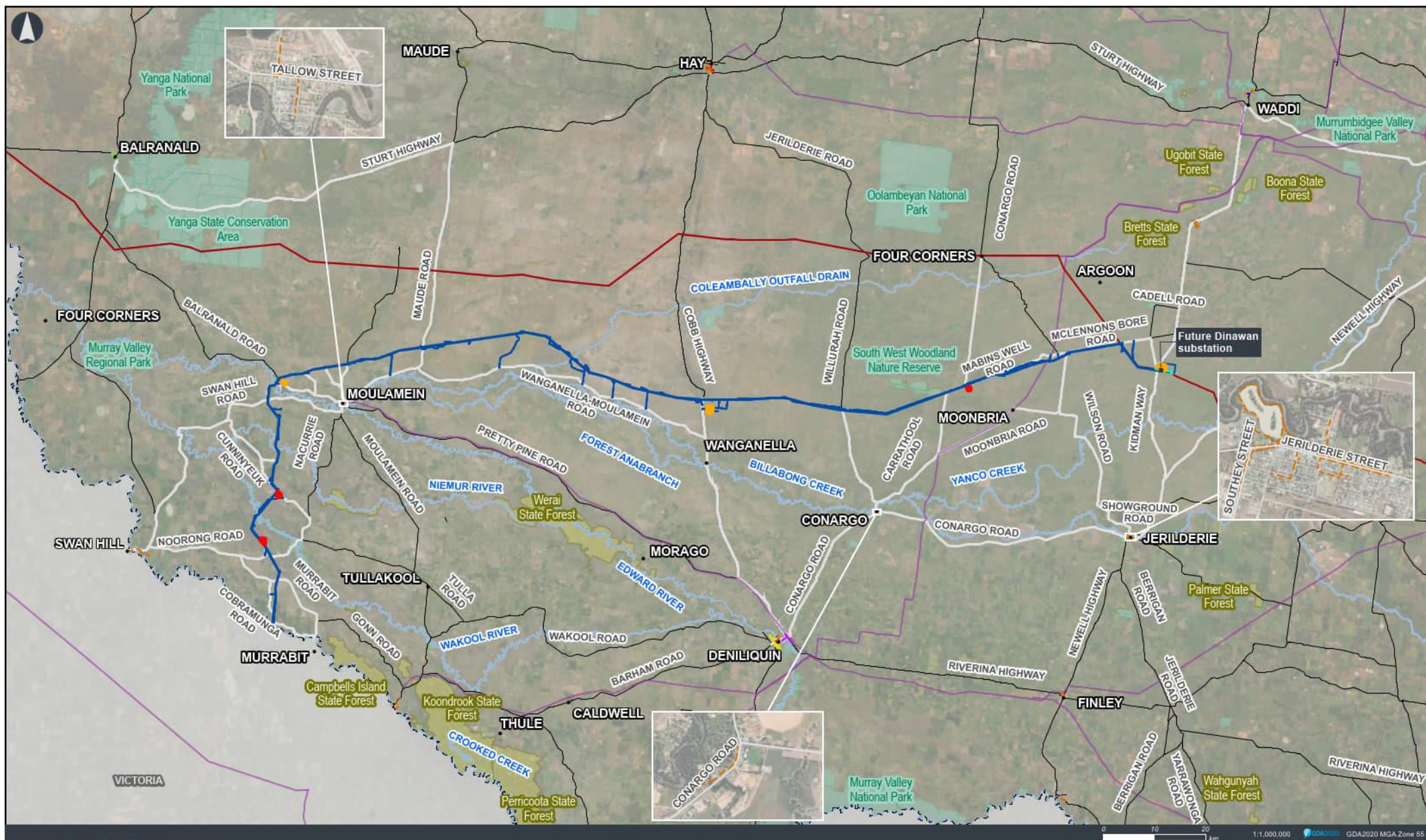
4.6 Active transport

Active transport infrastructure is defined as allocated off-road or on-road facilities for pedestrians and cyclists to travel. These can be provided in a mix of forms including visually separated, physically separated or segregated from the main traffic lanes or public transport corridor.

In the traffic and transport study area, active transport facilities are typically available within the following town centres, as summarised in Table 4.20. Cycleways in the traffic and transport study area are shown in Figure 4.7.

Table 4.20 Active transport within the traffic and transport study area

Town	Description of active transport infrastructure
Balranald	Market Street (a mixture of 50 kilometres per hour and 40 kilometres per hour) is a construction route and has wide parking lanes with space for cyclists. It also has intermittent footpaths i.e. the footpath does not run the full length of Market Street.
Moulamein	There are no active transport facilities beyond some footpaths on the construction routes of Moulamein Road and Tallow Street.
Deniliquin	Cobb Highway (Hardinge Street, Charlotte Street, Davidson Street and Hay Road) is the haulage route. Parts of Hay Street and Davidson Street (50 kilometres per hour) have wide parking lanes with space for cyclists. Cressy Street and Harfleur Street (50 kilometres per hour) which intersects with Hardinge Street also have wide parking lanes with space for cyclists. Cressy Street, and Harfleur Street north of Hardinge Street, have footpaths.
Conargo	Conargo Road and Carrathool Road (60 kilometres per hour) are part of the construction routes. These both have wide shoulders for cyclists. Only Conargo Road has footpaths.
Finley	On the construction route through the town, there are intermittent shoulders for cyclists along Murray Street (a mixture of 50 kilometres per hour and 40 kilometres per hour). The street also has some footpaths most around the town centre and housing.
Jerilderie	The construction routes are Southey Street, Conargo Road, Jerilderie Street and Bolton Street (all 50 kilometres per hour). These roads all have wide shoulders for cyclists. There are intermittent footpaths on Jerilderie Street, Bolton Street and Southey Street.
Berrigan	There are wide shoulders with space for cyclists along parts of the construction route Jerilderie Street (50 kilometres per hour) as well as some footpaths.
Wagga Wagga	The Sturt Highway is the construction route, which has intermittent footpaths for pedestrians. Lake Albert Road, Tarcutta Street, Murray Street and Moorong Street have active transport facilities that intersect with the construction route. Marked shoulders accommodate cyclists on Lake Albert Road and Tarcutta Street (50 kilometres per hour), and there are footpaths. Murray Street has a wide parking lane with space for cyclists, and footpaths. Moorong Street (80 kilometres per hour) has a narrow high-speed shoulder.



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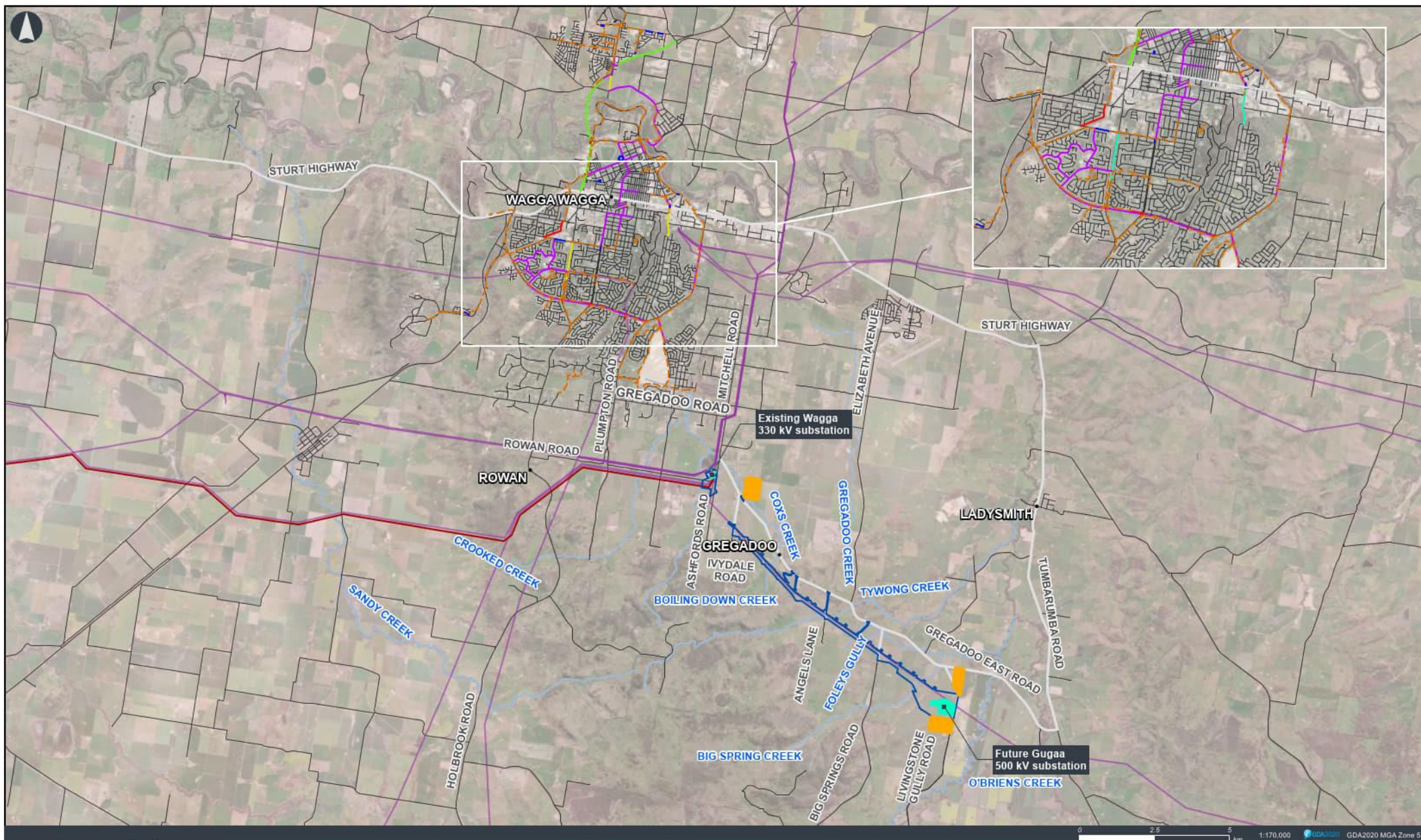
Figure 4.7a
Active transport elements that intersect
with construction traffic route within
the traffic and transport study area

Legend

- | | | | | |
|--|--|--|--------------------------------------|-------------------|
| — Main road | — Existing transmission line | □ Project footprint | — All project-related traffic routes | — Shared use path |
| — Named waterway | — Dinawan substation works - proposed 500 kV | — NSW/Victorian border | Active transport | — Others |
| — EnergyConnect (NSW - Eastern section) project (under construction) | — Dinawan substation works - existing 330 kV | ■ Combined temporary worker accommodation facility | — Bicycle lane | |
| | ■ National park | ■ Construction compound | — High-speed shoulder | |
| | ■ State forest | | — Mixed traffic | |
| | | | — Parking lane | |



Data sources: NSW EPI, DELWP, WSP, EnergyConnect



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Figure 4.7b

Active transport elements that intersect
with construction traffic route within
the traffic and transport study area

Legend

- | | | | | |
|--|------------------------------|--|--------------------------------------|-------------------|
| — Main road | — Existing transmission line | □ Project footprint | — All project-related traffic routes | — Parking lane |
| — Named waterway | ■ Substation | ■ Combined temporary worker accommodation facility | Active transport | — Shared use path |
| — EnergyConnect (NSW - Eastern section) project (under construction) | ■ State forest | ■ Construction compound | — Bicycle lane | — Others |
| | | | — High-speed shoulder | |
| | | | — Mixed traffic | |



4.7 Rail lines and level crossings

There are nine rail lines in the traffic and transport study area including from east to west (UGL Regional Linx, 2022):

- the disused rail line between Balranald and Caldwell
- the operational rail line between Moama and Deniliquin
- the disused rail line between Tocumwal and Narrandera
- the disused rail line between Oaklands and Boree Creek
- the operational rail line between Boree Creek and the Rock (part of the Country Rail Network)
- the disused rail line between Kywong and Uranquinty
- the operational rail line between Narrandera and Junee (part of the Country Rail Network)
- the operational rail line between Albury and Junee (part of the Australian Rail Track Corporation network)
- the disused rail line between Wagga Wagga and Tarcutta.

The project footprint crosses one closed rail line between Balranald and Caldwell and there are two level rail crossings located on construction routes within the traffic and transport study area. Level crossings can often impose limitations on vehicles using the network such as limiting a vehicle's width, length, or mass.

Rail level crossings control falls into three categories:

- passive protection – uses signs (stop or give way) to warn motorists about a level crossing
- active protection – uses either flashing lights only or flashing lights and boom gates to warn motorists that a train is approaching a level crossing.
- grade separation – separating the train track and road alignment through the use of underpasses or over-bridges.

Details of rail lines and associated level crossings are available through TfNSW's *Public Level Crossing Finder* (2025).

Within the traffic and transport study area, the Balranald rail line traverses the southwestern portion of the traffic and transport study area, running from Barnes to Balranald. Only the portion the rail line from Barnes to Moulamein is in use. From Moulamein to Balranald this is a disused rail line. This rail line crosses Tallow Street, east of Moulamein which is part of the construction route. The crossing is a single track with passive protection and is operated by VicTrack.

In addition, the Moama to Deniliquin rail line runs through the southern portion of the traffic and transport study area, running from the Victorian border to the NSW town of Deniliquin. This rail line is in use. The rail line crosses Ochertyre Street (also known as Cobb Highway), southeast of Barham Road, which is part of the construction route for heavy vehicle movements. The crossing is a single track with active controls in the form of flashing lights. It is operated by V/Line (V/Line, 2025).

5 Construction impact assessment

This chapter presents an assessment of the potential impacts that are expected to occur during the peak of pre-construction and construction phases of the project. This included an assessment of the performance of the pre-construction and construction routes based on the increase in peak project-related traffic along the road, at intersections and at site accesses, and an assessment of potential impacts to road users including public transport user, cyclists and pedestrians.

5.1 Pre-construction

5.1.1 *Pre-construction activities*

Pre-construction work for the purposes of this assessment is defined as the site establishment works for the construction compounds and the combined temporary worker accommodation facilities. This includes (but is not limited to) clearing vegetation and topsoil, delivery of modular units and other construction materials (such as concrete), construction of these facilities (including establishment of hardstand areas), and removal of construction waste or spoil.

Further details on the works to establish the construction compounds and the combined temporary worker accommodation facilities is provided in Chapter 3 (Project description) of the EIS.

5.1.2 *Construction program*

Pre-construction work would commence in late 2026 and is expected to take around 24 weeks. Pre-construction work may still be underway while the main construction works have commenced elsewhere within the project footprint.

5.1.3 *Working hours*

Works associated with pre-construction activities would generally occur between 7 am and 6 pm weekdays, 8 am and 1 pm Saturdays and no work on Sundays or Public Holidays.

A series of work outside the proposed standard construction hours for the project are anticipated including (but not limited to) the following:

- work where a road occupancy licence (or similar) is required, depending on the licence conditions
- the delivery of equipment or materials outside standard hours requested by police or other authorities for safety reasons (such as the delivery of transformer units)
- emergency work to avoid the loss of lives and/or property and/or to prevent environmental harm
- situations where agreement is reached with affected sensitive receivers
- potential utilities adjustment works (in consultation with the requirements of the relevant asset operators)
- large concrete pours (including concrete batching plant operation which may require commencement before 7am for early pours)
- operation of combined temporary worker accommodation facilities
- activities that do not generate noise that exceeds the applicable noise management level at any sensitive receiver.

During detailed construction planning, a program would be determined to identify the required night work periods (including dates and durations). Except for emergencies, construction works would be carried out in accordance with the out of hours work protocol (where required) and would not take place outside construction hours without prior notification in accordance with the protocol.

5.1.4 Accommodation arrangements for workers

During pre-construction work, it is anticipated that up to 30 to 40 workers in total would be accommodated locally within the traffic and transport study area. While there are number of towns within and adjacent to the traffic and transport study area that could accommodate the pre-construction workers, for the purposes of this assessment, it has been assumed that the towns would include Wagga Wagga, Deniliquin, Swan Hill and Balranald.

5.1.5 Pre-construction traffic movements

5.1.5.1 Traffic origin and destinations

The pre-construction works would generate movements of both heavy and light vehicles travelling to/from the regional centres (which accommodate the workers) to the work sites at construction compounds and the combined temporary worker accommodation facilities.

The routes that these pre-construction traffic movements take are illustrated in Figure 5.1 and the origins and destinations of these movements are detailed below.

Origins

The origins of vehicle movements relating to pre-construction are expected to be from the towns of:

- Wagga Wagga – for network augmentation works
- Deniliquin – for transmission line work from NSW/Victorian border to the Dinawan substation
- Balranald – for transmission line work from NSW/Victorian border to the Dinawan substation
- Swan Hill – for transmission line work from NSW/Victorian border to the Dinawan substation.

Destinations

The destination of vehicle movements relating to pre-construction activities is expected to be the sites for construction compounds and combined temporary worker accommodation facilities. These sites include:

- Fisher Lane, Wetuppa (western option 1) or Cunninyeuk Road, Cunninyeuk (western option 2): These are both options for construction compounds. For a worst-case scenario, both the options have been assessed.
- Balranald Road, Moulamein: This is a combined temporary worker accommodation facility and construction compound.
- Cobb Highway, Wanganella (north): This is a combined temporary worker accommodation facility and construction compound.
- Cobb Highway, Wanganella (south): This is a combined temporary worker accommodation facility and construction compound.
- Mabins Well Road, Mabins Well: This is a construction compound.
- Dinawan substation, Coleambally: This is a combined temporary worker accommodation facility and construction compound.
- The following Wagga options (which have been assessed as one location):
 - Gregadoo Road, A (Wagga option 2): This is a combined temporary worker accommodation facility and construction compound.
 - Gregadoo Road, B (Wagga option 3): This is a combined temporary worker accommodation facility and construction compound.
 - Livingstone Gully Road (Wagga option 4): This is a combined temporary worker accommodation facility and construction compound.



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Figure 5.1
Pre-construction routes

Legend

- | | | | |
|--|--|--|-----------------------------------|
| — Main road | — Existing transmission line | □ Project footprint | — Pre-Construction traffic routes |
| — Named waterway | — Dinawan substation works - proposed 500 kV | — NSW/Victorian border | |
| — EnergyConnect (NSW - Eastern section) project (under construction) | — Dinawan substation works - existing 330 kV | ■ Combined temporary worker accommodation facility | |
| | ■ Substation | ■ Construction compound | |
| | ■ National park | | |
| | ■ State forest | | |



5.1.5.2 Pre-construction vehicle types

Pre-construction traffic vehicles would generally comprise light vehicles (such as cars and utility vehicles) and heavy vehicles (such as B-Double vehicles).

5.1.5.3 Pre-construction traffic generation and distribution

The roads used for pre-construction work to/from Balranald, Deniliquin, Swan Hill and Wagga Wagga, and the expected volume on each road are summarised in Table 5.1.

During the morning peak hour period, outbound pre-construction traffic is expected to mostly travel in one direction, from the towns to the sites. This assessment assumed the following traffic movements from each town:

- two heavy vehicles per hour during the clearing of vegetation and topsoil at the construction compounds
- five light vehicles per hour would be used for the establishment of construction compounds and combined temporary worker accommodation facilities
- three heavy vehicles per hour would be used for accommodation setup and concrete works.

During the afternoon peak hour period, inbound pre-construction traffic is expected to return from the sites to the towns. Similarly to the morning peak period, this would be expected to generate ten vehicle movements (one inbound and nine outbound), travelling from the sites to each of the towns.

Table 5.1 Pre-construction routes and movement during weekday peak hours

Road name	Pre-construction route to/from Swan Hill	Pre-construction route to/from Balranald	Pre-construction route to/from Deniliquin	Pre-construction route to/from Wagga Wagga	Total vehicles per hour (one-way)
Balranald Road		x			10
Carrathool Road			x		10
Cedar Avenue		x			10
Charlotte Street			x		10
Cobb Highway (between Pretty Pine and Wanganella)			x		10
Conargo Road (in Conargo)			x		10
Cunninyeuk Road	x	x			10
Davidson Street			x		10
Edward Street				x	10
Fisher Lane		x			10
Gregadoo East Road				x	10
Hammond Avenue				x	10
Hardinge Street			x		10
Hay Road			x		10
Jerilderie Street (in Jerilderie)			x		10
Kidman Way			x		10
Kyeamba Street				x	10

Road name	Pre-construction route to/from Swan Hill	Pre-construction route to/from Balranald	Pre-construction route to/from Deniliquin	Pre-construction route to/from Wagga Wagga	Total vehicles per hour (one-way)
Livingstone Gully Road				x	10
Maude Road		x			10
Moulamein Road (north of Swan Hill Road)	x	x			10
Nacurrie Road North (south of Cunninyeuk Road)	x				10
Newell Highway (Narrandera to Jerilderie)			x		10
Noorong Road	x				10
Sturt Highway (Balranald to Hay)		x			10
Sturt Highway (Gumly Gumly to Alfredtown)				x	10
Swan Hill Road	x				10
Tallow Street		x			10
Tumbarumba Road (Alfredtown to Ladysmith)				x	10
Tumbarumba Road (Ladysmith to Gregadoo East Road)				x	10
Wanderer Street			x		10

5.1.6 *Pre-construction impact assessment*

5.1.6.1 Impacts on road capacity and efficiency

The roads and intersections assessed are those being traversed by project-related traffic during the pre-construction phase. The roads and intersections used as part of pre-construction activities are indicative and may be subject to change based on detailed design and further construction planning. The road capacity assessment has been focused on State and regional roads as they are significant roads which facilitate higher volumes of traffic and provide vital connectivity between cities, towns and regions. Local roads primarily serve local traffic within towns and suburbs, where they would have lower traffic volumes and road capacity is less likely to be affected by pre-construction traffic.

The mid-block performance impact of adding pre-construction traffic on State and regional roads is provided in Table 5.2. With the addition of pre-construction traffic, the impact on the road network's capacity and efficiency would be minimal, with all assessed routes continuing to operate at the same LoS A as they do under existing conditions. This can be attributed to the already low traffic volumes and the low construction traffic on each route with respect to the spare road capacity.

Considering the construction traffic generated during the peak hours, minimal existing traffic volumes, and the existing LoS, it would be unlikely that the remaining road network would experience any noticeable changes in its LoS.

Table 5.2 Mid-block volume to capacity ratio and LoS for pre-construction traffic within the traffic and transport study area (2026)

Survey ID	Location	Road hierarchy	Peak hour volume (veh/hour) with 2026 pre-construction traffic				Lane capacity (vph / lane)	Volume/capacity ratio and LoS with pre-construction traffic			
			AM peak		PM peak			AM peak		PM peak	
			NB/WB	SB/EB	NB/WB	SB/EB		NB/WB	SB/EB	NB/WB	SB/EB
M-01	Sturt Highway west of Pevensey Rest Area, Hay	Highway	81	64	73	84	1,800	0.04 (LoS A)	0.04 (LoS A)	0.04 (LoS A)	0.05 (LoS A)
M-02	Cobb Highway north of 16 Mile Gums Rest Area	Highway	33	28	31	31	1,800	0.02 (LoS A)	0.02 (LoS A)	0.02 (LoS A)	0.02 (LoS A)
M-03	Kidman Way south of Fairlie Grange Road	Arterial	54	51	51	61	1,400	0.04 (LoS A)	0.04 (LoS A)	0.04 (LoS A)	0.04 (LoS A)
M-04	Newell Highway near Yanco Creek	Highway	44	48	40	50	1,800	0.02 (LoS A)	0.03 (LoS A)	0.02 (LoS A)	0.03 (LoS A)
M-08	Cedar Avenue east of Gwynne Street	Local	31	18	20	33	900	0.03 (LoS A)	0.02 (LoS A)	0.02 (LoS A)	0.04 (LoS A)
M-09	Balranald Road south of Property 1479 Yanga Road	Arterial	19	12	11	22	1,400	0.01 (LoS A)	0.01 (LoS A)	0.01 (LoS A)	0.02 (LoS A)
M-10	Conargo Road east of Property 5174	Arterial	39	30	33	42	1,400	0.03 (LoS A)	0.02 (LoS A)	0.02 (LoS A)	0.03 (LoS A)
M-12	Swan Hill Road east of Coobool Island Road	Arterial	23	25	27	19	1,400	0.02 (LoS A)	0.02 (LoS A)	0.02 (LoS A)	0.01 (LoS A)
M-13	Maude Road approx. 4 km north of Dry Lake	Arterial	9	19	23	14	1,400	0.01 (LoS A)	0.01 (LoS A)	0.02 (LoS A)	0.01 (LoS A)
M-14	Wanderer Street north of Mulumbah Road	Collector	56	52	45	61	1,000	0.06 (LoS A)	0.05 (LoS A)	0.04 (LoS A)	0.06 (LoS A)

Survey ID	Location	Road hierarchy	Peak hour volume (veh/hour) with 2026 pre-construction traffic				Lane capacity (vph / lane)	Volume/capacity ratio and LoS with pre-construction traffic			
			AM peak		PM peak			AM peak		PM peak	
			NB/WB	SB/EB	NB/WB	SB/EB		NB/WB	SB/EB	NB/WB	SB/EB
M-20	Nacurrie Road North south of Windarra Lane	Local	2	10	10	3	900	0.00 (LoS A)	0.01 (LoS A)	0.01 (LoS A)	0.00 (LoS A)
M-22	Tallow Street outside Property 63	Local	54	38	40	51	900	0.06 (LoS A)	0.04 (LoS A)	0.04 (LoS A)	0.06 (LoS A)
M-24	Moulamein Road north of Swan Hill Road	Collector	40	49	46	37	1,000	0.04 (LoS A)	0.05 (LoS A)	0.05 (LoS A)	0.04 (LoS A)

5.1.6.2 Impacts on intersection operation and safety

Table 5.3 and Table 5.4 provide a comparison of intersection performance at base traffic volumes against performance with predicted growth and construction traffic. This assessment was conducted for intersections on State and regional roads (as detailed in section 5.1.6.1) that have pre-construction traffic passing through them. Given the negligible volumes at local road intersections, these intersections would continue to operate at good levels of service and have not been considered further.

With the addition of pre-construction traffic, the impact on intersection capacity and efficiency would be minimal, with all intersections continuing to operate at the same LoS as they do under existing conditions. This result can be attributed to the already low traffic volumes and the low pre-construction traffic volumes.

Based on the LoS, the project would not adversely affect the performance of any assessed intersections as well as local road intersections.

A turn warrant assessment of relevant intersections has been conducted (refer to Table 5.5). This assessment found that all intersections are compliant with requirements.

Table 5.3 Weekday AM pre-construction intersection performance

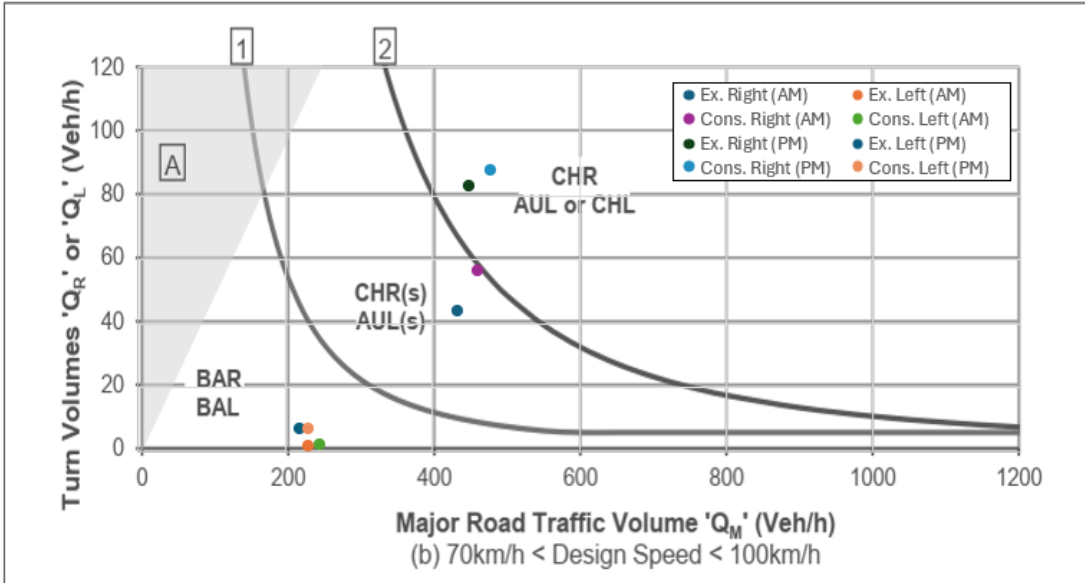
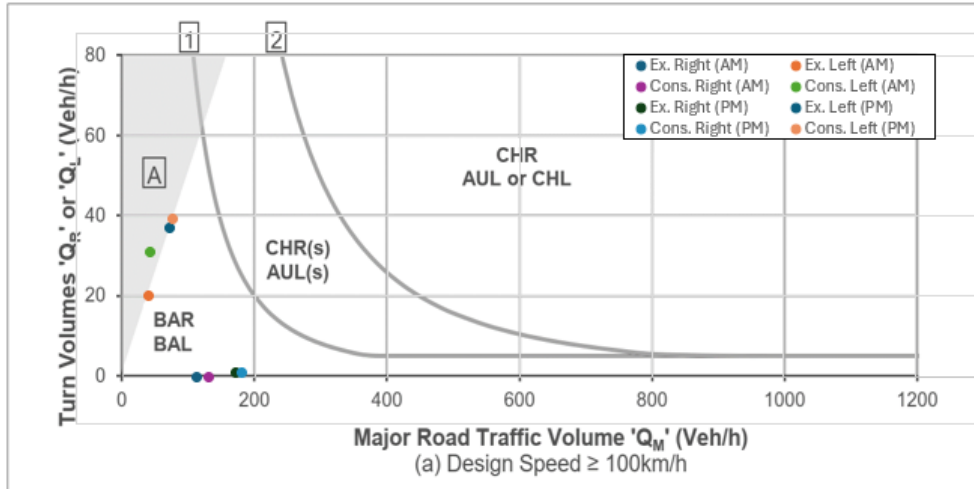
Intersection	Control	2024 road network peak				2026 Pre-construction traffic peak			
		DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach	DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach
Sturt Highway and Maude Road	Give Way	0.04	10.4 sec (Maude Road [S])	A	0.3 m (Maude Road [S])	0.04	11.1 sec (Maude Road [S])	A	0.8 m (Sturt Highway [W])
Sturt Highway and Tumbarumba Road	Give Way	0.15	16.5 sec (Tumbarumba Road [S])	A	2 m (Tumbarumba Road [S])	0.15	17.6 sec (Tumbarumba Road [S])	A	2.1 m (Tumbarumba Road [S])
Newell Highway and Kidman Way	Give Way	0.09	10.5 sec (Kidman Way [W])	A	3.6 m (Kidman Way [W])	0.09	10.6 sec (Kidman Way [W])	A	3.9 m (Kidman Way [W])
Hardinge Street and Charlotte Street	Give Way	0.19	5.9 sec (Charlotte Street [E])	A	6.9 m (Charlotte Street [E])	0.20	6.2 sec (Charlotte Street [E])	A	7.4 m (Charlotte Street [E])

Table 5.4 Weekday PM pre-construction intersection performance

Intersection	Control	2024 road network peak				2026 Pre-construction traffic peak			
		DoS	Delay	LoS	Worst 95 th percentile queue (m) & approach	DoS	Delay	LoS	Worst 95 th percentile queue (m) & approach
Sturt Highway and Maude Road	Give Way	0.05	10 sec (Sturt Highway [W])	A	0.2 m (Maude Road [S])	0.06	10.1 sec (Sturt Highway [W])	A	0.5 m (Maude Road [S])
Sturt Highway and Tumbarumba Road	Give Way	0.15	17.8 sec (Tumbarumba Road [S])	A	2.5 m (Sturt Highway [W])	0.15	19 sec (Tumbarumba Road [S])	A	2.7 m (Sturt Highway [W])
Newell Highway and Kidman Way	Give Way	0.06	10.8 sec (Kidman Way [W])	A	2.2 m (Kidman Way [W])	0.11	11 sec (Kidman Way [W])	A	3 m (Kidman Way [W])
Hardinge Street and Charlotte Street	Give Way	0.19	6 sec (Charlotte Street [E])	A	6.8 m (Charlotte Street [E])	0.21	6.2 sec (Charlotte Street [E])	A	7.8 m (Charlotte Street [E])

Table 5.5 Pre-construction intersection turn warrant assessments

Intersection	Control	Turn warrant assessment	Impact
Sturt Highway and Maude Road	Give Way	Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed ≥ 100km/h CHR AUL or CHL CHR(s) AUL(s) BAR BAL Ex. Right (AM) Ex. Left (AM) Cons. Right (AM) Cons. Left (AM) Ex. Right (PM) Ex. Left (PM) Cons. Right (PM) Cons. Left (PM)	Currently BAR and AUL are provided and is compliant to current demand requirements of BAR/BAL. During construction, the requirement for BAR/BAL is maintained.

Intersection	Control	Turn warrant assessment	Impact
Sturt Highway and Tumbarumba Road	Give Way		Currently CHR and BAL are provided and is compliant to current demand. During construction, the requirement for CHR/BAL is maintained.
Newell Highway and Kidman Way	Give Way		Currently BAR and AUL are provided and is compliant to current demand requirements of BAR/BAL. During construction, the requirement for BAR/BAL is maintained.

5.1.6.3 Impacts on Safe Intersection Sight Distance compliance

An SISD assessment of each intersection was completed and is summarised in Table 5.6. All intersections are compliant.

Table 5.6 Safe Intersection Sight Distance compliance for pre-construction routes

Intersection location	Local Government Area (LGA)	SISD Compliance
Sturt Highway and Maude Road	Hay	Yes
Sturt Highway and Tumbarumba Road	Wagga Wagga	Yes
Swan Hill Road and Cunninyeuk Road	Murray River	Yes
Moulamein Road and Swan Hill Road	Murrumbidgee	Yes
Swan Hill Road and Noorong Road	Murray River	Yes
Noorong Road and Nacurrie Road North	Murray River	Yes
Carrathool Road and Mabins Well Road	Edward River	Yes

5.1.6.4 Impacts from heavy vehicle access

For pre-construction traffic routes, when RAV access is required for a road that is not part of the existing approved network, the construction contractor would be required to apply for a heavy vehicle access permit to be issued by the National Heavy Vehicle Regulator (NHVR).

In this process, the suitability of each pre-construction traffic route under assessment would be checked by the relevant road authorities in terms of the vehicle characteristics, road geometry constraints, load limits, pavement condition and other amenity considerations. It may also require the construction contractor to adjust the construction route or fulfill certain conditions.

As described in section 4.3.1, there are bridge and culvert crossings along pre-construction routes. Bridges and culverts would require further investigation prior to pre-construction works, which would form part of the road pre-condition survey. Heavy vehicles would comply with bridge load and height limits and hence the safety impacts associated with heavy vehicles would be minor. Roads that have been approved for RAV access have been deemed appropriate for access.

The pre-construction traffic roads which are not currently approved for RAV access, which involve bridge and culvert crossings over creeks and irrigation channels, include Cunninyeuk Road and Nacurrie Road North. The construction contractor will be required to further investigate these roads as part of the approval process for RAV access (refer to Chapter 8 for mitigation measures).

5.1.6.5 Impacts on property access and emergency services

Access to properties for residents (including for emergency vehicle access and egress) would be maintained throughout the pre-construction phase. In some limited circumstances, short-term restrictions for a particular property may be required with prior consultation with the landholder. Temporary alternative access arrangements would be provided following consultation with affected landholders. This would be mitigated by establishing a communication process with landholders and keeping them informed of the work schedule.

5.1.6.6 Impacts on road safety

A number of factors can contribute to crashes, including vehicle design, speed of operation, road design, weather, road environment, driving skills, and driver behaviours. Only crash attributors that can increase in likelihood because of the project have been considered.

As demonstrated in section 5.1.5.3, the traffic increase associated with the pre-construction activities is so low that the road network capacity and intersections on pre-construction routes would not be adversely impacted. The unchanged road efficiency would be unlikely to result in increased vehicle overtaking, or lane changing and hence would unlikely increase crashes.

5.1.6.7 Impacts on road pavement condition

Pavement fatigue may occur as a result of repeated heavy vehicle traffic movements. The corresponding contribution of light vehicle movements from pre-construction on road pavement conditions is negligible.

Although the project would only generate a minor increase in heavy vehicle movements (as discussed in sections 5.1.6.1 and 5.1.6.2), there would likely be road condition impacts on the unsealed roads used by pre-construction vehicles. This includes the following unsealed roads:

- Fisher Lane or Cunninyeuk Road
- Livingstone Gully Road
- Mabins Well Road.

The construction contractor will be required to undertake a road pre-condition survey for sealed roads to record the pavement condition along pre-construction routes.

Routine inspections and maintenance (where required) will be completed for all unsealed roads to ensure that pre-construction routes are maintained to a safe standard during pre-construction, in consultation with the relevant roads authority.

Mitigation measures have been identified in Chapter 8 to manage impacts to road condition during pre-construction.

5.1.6.8 Impacts on rail level crossings

As described in section 4.7, within the traffic and transport study area there are two active rail crossings. Neither of these rail crossings would be impacted by project-related pre-construction traffic.

5.1.6.9 Impacts on public transport

The impact to existing public transport services is expected to be minimal. Bus services would not experience any delays on the pre-construction routes given the negligible adverse impact identified from the road network performance review. All existing bus zones and bus stop facilities would not require any modifications such as bus stop relocations.

5.1.6.10 Impacts on active transport

During pre-construction, it is anticipated that project related traffic would have limited interactions with pedestrians and cyclists, with only limited active transport infrastructure within the traffic and transport study area. This potential interaction occurs when a pre-construction route forms part of the main street through a town. The impacts from these additional pre-construction traffic movements are considered minor given the low number of movements and the off-road active transport facilities provided on select routes, enabling separation between vehicles and pedestrians/cyclists.

5.2 Construction

This section provides a description of the key construction work for the project as it related to traffic and transport. Detailed construction planning, including timing, phasing and work sequencing, would be refined and confirmed by the construction contractors during detailed design. A full description of the project is provided in Chapter 3 (Project description) of the EIS.

5.2.1 Construction activities

For the purposes of this assessment, construction includes the balance of construction activities that are not categorised as pre-construction as described in section 5.1.1. This includes the construction or upgrade of access tracks within the construction footprint, and the associated connections to the road network, and the OSOM deliveries for substation transformers and other large substation infrastructure.

Construction of the transmission line component of the project is expected to require around 1,500 construction workers across multiple work fronts (potentially up to 1,100 working onsite at any given time during peak periods). Additionally, up to around 400 construction workers would also be required for the substation works. However, construction workers at any one time would vary depending on the stage of construction and associated activities.

The construction activities associated with the project are described in section 1.2.2.1. They would comprise of:

- transmission line construction between the NSW/Victorian border and the Dinawan substation including erection of the transmission line structures and stringing of the conductors, overhead earth wires and optical ground wire
- network augmentation works including replacing around nine kilometres of existing transmission lines
- construction associated with proposed Dinawan substation expansion
- construction of up to two telecommunication facilities.

This assessment takes into consideration the following project-related traffic movements:

- movements of workers which would mainly occur in the morning and afternoon peak
- material transfers distributed throughout the day and general deliveries.

5.2.2 Construction program

Construction work is expected to peak in 2027, where the works associated with transmission line construction is spread over 2026 to 2028 and the works associated with the proposed Dinawan substation expansion taking place from the end of 2026 to the end of 2028. Pre-construction work may still be underway while the main construction works have commenced elsewhere within the project footprint.

5.2.3 Working hours

Works associated with construction activities would generally occur, between 7:00 am and 6:00 pm weekdays, 8:00 am and 1:00 pm Saturdays and no work on Sundays or Public Holidays. The temporary worker accommodation facilities (once established) would operate 24 hours a day seven days a week.

A series of work outside the proposed standard construction hours for the project are anticipated including (but not limited to) the following:

- transmission line construction at crossings of a main road as these locations are expected to have restricted construction hours requiring some night work for activities such as conductor stringing over the crossing(s)
- work where a road occupancy licence (or similar) is required, depending on the licence conditions
- transmission line cutover and commissioning

- the delivery of equipment or materials outside standard hours requested by police or other authorities for safety reasons (such as the delivery of transformer units)
- limited substation assembly work (such as oil filling of the transformers)
- emergency work to avoid the loss of lives and/or property and/or to prevent environmental harm
- work timed to correlate with system planning outages (likely 24-hour operations when required to minimise impact to electrical supply services)
- situations where agreement is reached with affected sensitive receivers
- potential utilities adjustment works (in consultation with the requirements of the relevant asset operators)
- large concrete pours (including concrete batching plant operation which may require commencement before 7 am for early pours)
- operation of combined temporary worker accommodation facilities
- activities that do not generate noise that exceeds the applicable noise management level at any sensitive receiver.

During detailed construction planning, a program would be determined to identify the required night work periods (including dates and durations). Except for emergencies, construction works would be carried out in accordance with the out of hours work protocol (where required) and would not take place outside construction hours without prior notification in accordance with the protocol.

5.2.4 *Construction compounds and combined temporary accommodation facilities*

Five combined temporary worker accommodation facilities, as well as two standalone construction compounds would be required to support the project (refer to Table 5.7). Where an option has been identified, the preferred site location would be identified as part of the detailed construction planning and in consultation with landowners.

The project would use, if possible, the temporary worker accommodation facilities established at Dinawan substation for the EnergyConnect (NSW – Eastern section) project and established access point with Kidman Way. If the Dinawan substation accommodation facility cannot be used, a new facility would be constructed for this project. This assessment is based on the new facility being required and constructed including a new access point.

Each of the locations have been selected based on a number of factors including proximity to work sites along the routes, proximity to distribution (low voltage) lines, sealed roads to facilitate journeys to construction sites and airports and proximity to local services.

Access points would be constructed for each new site, except for the Cobb Highway where one new access would be shared for the northern and southern site. Access points would be designed in consultation with the relevant road authority and relevant Austroads road design guidelines. Please refer to Appendix C which includes strategic designs prepared for access points along State roads. Strategic designs have been prepared for the following access point locations for temporary worker accommodation facilities:

- Cobb Highway / new site access to the combined temporary worker accommodation facilities at Cobb Highway, Wanganella
- Kidman Way / new site access to the Dinawan combined temporary worker accommodation in Coleambally.

Table 5.7 Construction compounds and temporary worker accommodation facilities – location, size and access

Site and location	Type	Bed capacity (approx.)	Office size (approx. people)	Access
Fisher Lane, Wetuppa (western option 1)	Construction compound	N/A	35	Fisher Lane, Wetuppa (local, unsealed road)
Cunninyeuk Road, Cunninyeuk (western option 2)				Cunninyeuk Road, Cunninyeuk (local, unsealed road)
Balranald Road, Moulamein	Combined temporary worker accommodation facility and construction compound	500	100	Balranald Road, Moulamein (regional, sealed road at access connection)
Cobb Highway, Wanganella (north)	Combined temporary worker accommodation facility and construction compound	340	100	Cobb Highway, Wanganella (State, sealed road). Shared access for the northern and southern sites
Cobb Highway, Wanganella (south)		500	100	
Mabins Well Road, Mabins Well	Construction compound	N/A	35	Mabins Well Road, Mabins Well (local, unsealed road)
Dinawan substation, Coleambally	Combined temporary worker accommodation facility and construction compound	470	100	Kidman Way (State, sealed road)
Gregadoo Road, A (Wagga option 2)	Combined temporary worker accommodation facility and construction compound	150	100	Gregadoo East Road, Gregadoo (local, sealed road)
Gregadoo Road, B (Wagga option 3)				Gregadoo East Road, Gregadoo (local, sealed road)
Livingstone Gully Road (Wagga option 4)				Livingstone Gully Road, Gregadoo (local, unsealed road).

5.2.4.1 Dinawan substation expansion

A new 500 kV switchyard would be constructed adjoining the future 330 kV switchyard (currently under construction as part of the EnergyConnect (NSW – Eastern section) project). Civil and electrical works would be required at this site, including earthworks. Access would be via Kidman Way (a State sealed road).

5.2.4.2 Transmission line

Access tracks would need to be established to accommodate safe access for construction machinery and vehicles to the transmission line structures and other construction work within the project transmission line corridor. This would require the upgrade of existing access tracks or the construction of new access tracks.

New access tracks would need to be connected to the existing road network and existing tracks may require upgrades to existing connections. These access points may require works such as:

- the creation of widened lanes or widened road shoulders
- pavement alterations including minor earthworks (e.g. infill, grading and rolling, etc) in adjacent unsealed surfaces
- drainage work at the point of connection to maintain existing roadside drainage, e.g. installation of pipe culvert or gutter
- minor vegetation clearing to ensure required sight distances are achieved where required
- new/or altered line marking and signage.

The final design of the new or upgraded access points would be undertaken in consultation with the relevant road authority and relevant Austroads road design guidelines within the road reserve and would be constructed in accordance with road occupancy licence(s). Please refer to Appendix C which includes strategic designs prepared for access points along State roads. Strategic designs have been prepared for two access points on the Cobb Highway in Wanganella.

Stringing of transmission lines would occur over roads where the transmission line crosses roads as well as over disused rail tracks. Line stringing would occur using ground-based methods using brake and winch sites or aerial-based methodologies. Transmission lines would typically be strung by either a ground pulled draw wire, or through aerial methods such as a helicopter or a line stringing drone (with brake and winch sites). This is likely to cause short-term disruptions and is further discussed in section 5.2.6.5. Table 5.8 below details where line stringing would occur over roads.

Table 5.8 Line stringing locations

Line stringing works	Road locations	Local Government Area (LGA)	Road classification
Proposed 500 kV transmission line stringing between the NSW/Victorian border and Dinawan substation	Cobramunga Road	Murray River	Local road
	Murrabit Road	Murray River	Local road
	Noorong Road	Murray River	Local Road
	Cunninyeuk Road	Murray River	Local road
	Wood Lane	Murray River	Local road
	Swan Hill Road	Murray River	Regional road
	Balranald Road	Murray River	Regional road
	Berrambong railway Road (Keri Keri Road)	Murray River	Local road
	Robb Road	Murray River	Local road
	Tchelery Road (Baldon Road)	Murray River	Local road
	Moulamein Road (Maude Road)	Edward River	Regional road
	Cobb Highway	Edward River	State road

Line stringing works	Road locations	Local Government Area (LGA)	Road classification
	Willurah Road	Edward River	Local road
	Carrathool Road	Edward River	Local road
	Mabins Well Road (two locations)	Edward River	Local road
	Wilson Road	Murrumbidgee	Local road
	Kidman Way	Murrumbidgee	State road
Existing Wagga 330 kV substation to the future Gugaa 500 kV substation, Livingstone Gully Road network augmentation works	Ivydale Road	Wagga Wagga	Local road
	Angels Lane	Wagga Wagga	Local road
	Big Springs Road	Wagga Wagga	Local road

5.2.5 Construction traffic movements

5.2.5.1 Traffic origin and destinations

Construction works would generate the following movements:

- heavy and light vehicle movements between the project transmission line corridor (via the road network and access tracks), the proposed Dinawan substation expansion, combined temporary worker accommodation facilities and construction compounds
- heavy and light vehicle movements to/from the combined temporary worker accommodation facilities and construction compounds to/from locations within the traffic and transport study area or beyond such as the movement of staff, deliveries of materials, water, plant and equipment, and removal of waste
- OSOM vehicle movements associated with the delivery of transformers and other large substation infrastructure and equipment to the future Dinawan substation from intrastate or interstate ports (Newcastle, Melbourne or Adelaide).

Construction materials, modular units, substation transformers and other large substation infrastructure would be transported to the project footprint from ports located in Newcastle, Melbourne and/or Adelaide. As shipping locations are not confirmed at this stage, a preliminary assessment has considered movements to/from all three ports.

Other construction materials (such as quarry products and concrete) or excess spoil or construction waste would be sourced from or disposed of at regional destinations. For the purposes of this assessment, this is expected to include the towns such as Wagga Wagga, Warburn, Berrigan, Rankin Springs or Youanmite in Victoria.

In addition, water (both non-potable and potable) would be sourced from a number of different locations as detailed in Chapter 3 (Project description) of the EIS. External sources of water include local council standpipes/filling stations, and purchase of water allocations from existing water users. Water sourced external to the project footprint would be transported to combined worker accommodation and construction compounds as well as various locations along the transmission line corridor via water carts/tankers.

5.2.5.2 Construction vehicle types

The construction traffic vehicles would generally comprise general access vehicles (GAV) and restricted access vehicles (RAV) as classified by the NHVR. These vehicles would use the correspondingly approved roads to travel between origins and destinations (such as construction compounds and worker accommodation facilities, substations, access gate locations along the transmission line, and quarries).

General access vehicles do not require a permit to operate on the NSW road network. These comprise all the light vehicles (such as cars and utility vehicles) used for construction. This type of vehicle can operate on any road unless the road is sign-posted otherwise.

Restricted access vehicles are classified as vehicles that are greater in mass and dimension than general access vehicles and are restricted to approved roads. For the project, these generally comprise B-Double vehicles and are captured under heavy vehicles in the assessment.

OSOM vehicles which are high risk heavy vehicles would only travel to the proposed Dinawan substation expansion site. The only difference in vehicle types between pre-construction and construction work is that no OSOM vehicles are utilised during pre-construction.

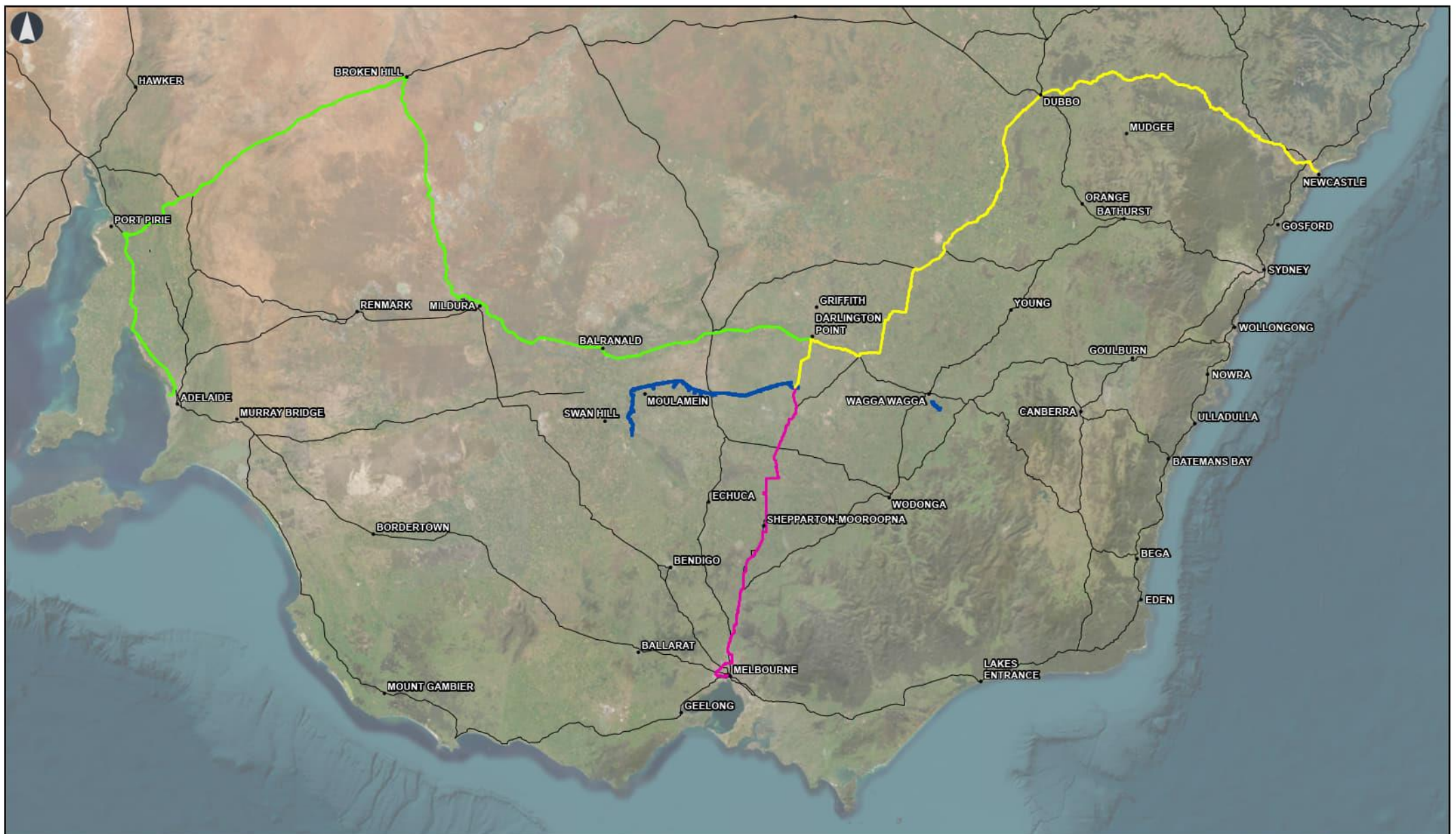
As shuttle buses have not been confirmed for use during construction, the use of shuttle buses has not been assessed. The assessment of light vehicle use by workers for commutes represents a worst-case scenario for the purposes of the assessment. Should shuttle buses be considered during construction, it would reduce the number of light vehicles from the project and marginally increase the heavy vehicle numbers.

5.2.5.3 Construction vehicle routes

Routes for construction work are depicted in Figure 4.1 and outlined in Table 5.10. The construction routes would generally use roads that have been classified as RAV by the NHVR or as GAV.

OSOM vehicles would only travel to the proposed Dinawan substation expansion site from the potential ports of origin (refer to Figure 5.2) which includes a wider area map of NSW showing all potential port locations. The ports that are currently designated are Port of Newcastle in NSW, Port of Melbourne in Victoria and Port Adelaide in South Australia. The routes used are illustrated in Figure 5.3 to Figure 5.5, which show the extent of the routes within the traffic and transport study area. These heavy vehicle movements from port, also include OSOM vehicle movements that only travel to the Dinawan substation site with a total of 13 OSOM vehicle movements expected. The OSOM vehicles would generally travel using State road and regional road routes along OSOM-approved roads (within NSW) to access the proposed Dinawan substation expansion site via the Kidman Way.

Local roads are not proposed to be used by OSOM vehicles.



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Figure 5.2
Restricted access and oversize
and overmass vehicle routes

Legend

— Major Road

□ Project footprint

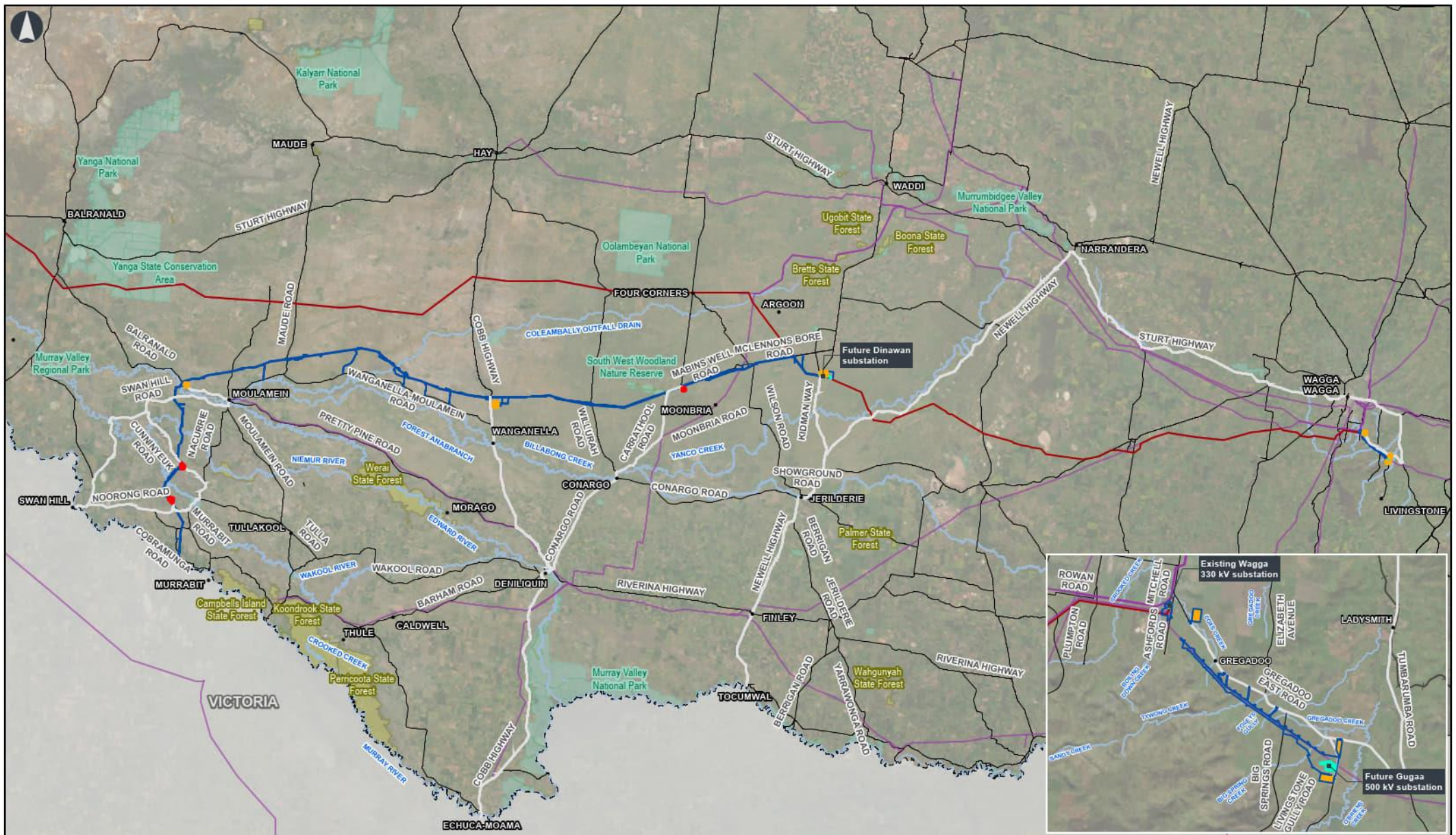
Access routes

— Port of Adelaide

— Port of Melbourne

— Port of Newcastle





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Figure 5.3
Construction routes from Port
of Melbourne to sites

Legend

- Main road
- Named waterway
- EnergyConnect (NSW - Eastern section) project (under construction)
- Existing transmission line
- Dinawan substation works - proposed 500 kV
- Dinawan substation works - existing 330 kV
- Substation
- National park
- State forest
- Project footprint
- NSW/Victorian border
- Combined temporary worker accommodation facility
- Construction compound
- Port of Melbourne to site construction traffic routes

0 20 40 km 1:1,400,000 GDA2020 MGA Zone 55



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Figure 5.4
Construction routes from
Port Adelaide to sites

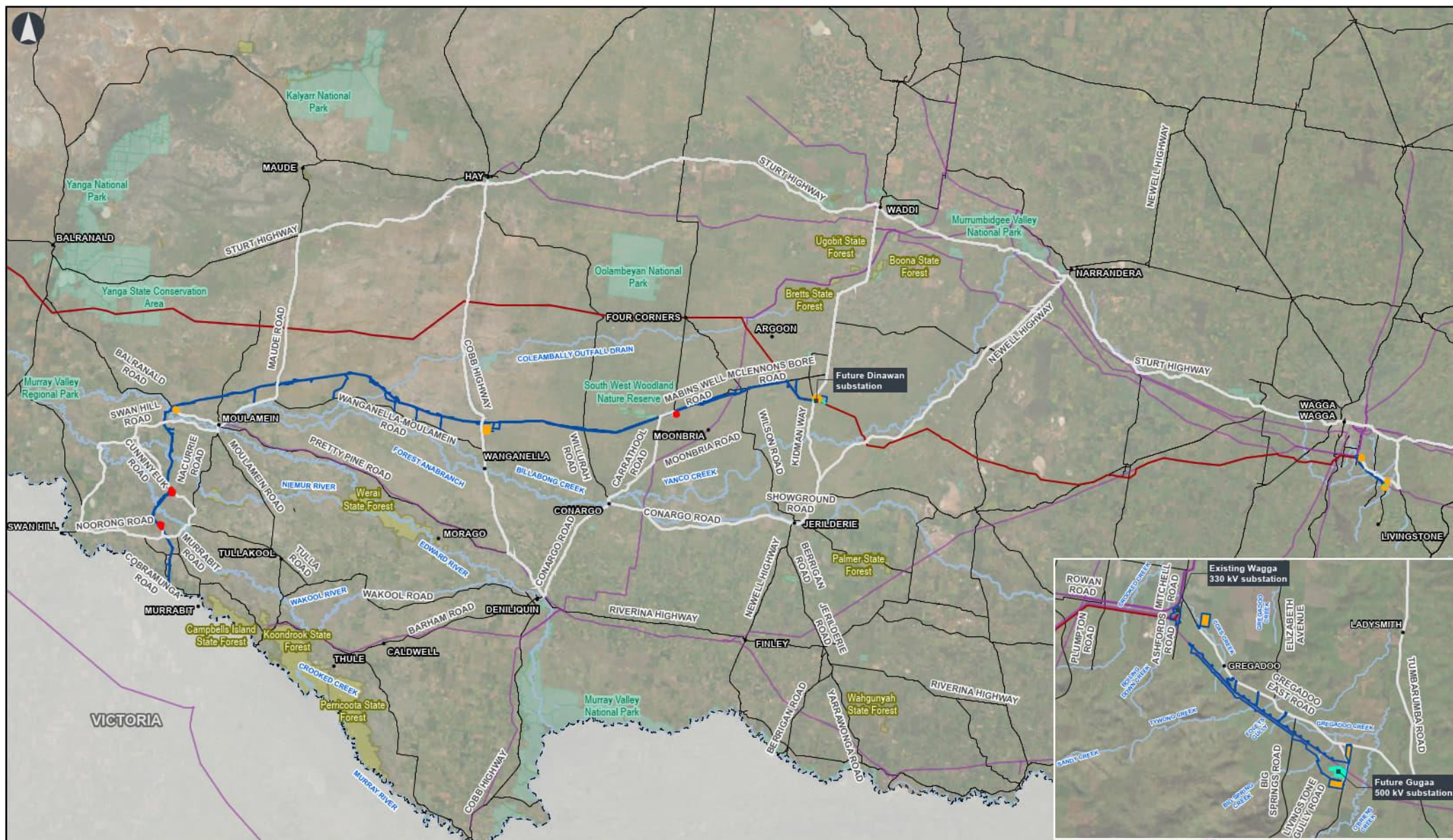
Legend

- | | | | |
|--|--|--|---|
| — Main road | — Existing transmission line | □ Project footprint | — Port Adelaide to site construction traffic routes |
| — Named waterway | — Dinawan substation works - proposed 500 kV | — NSW/Victorian border | |
| — EnergyConnect (NSW - Eastern section) project (under construction) | — Dinawan substation works - existing 330 kV | ■ Combined temporary worker accommodation facility | |
| | ■ Substation | ■ Construction compound | |
| | ■ National park | | |
| | ■ State forest | | |



0 20 40 1:1,400,000 GDA2020 GDA2020 MGA Zone 55





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Figure 5.5
Construction routes from
Port of Newcastle to site

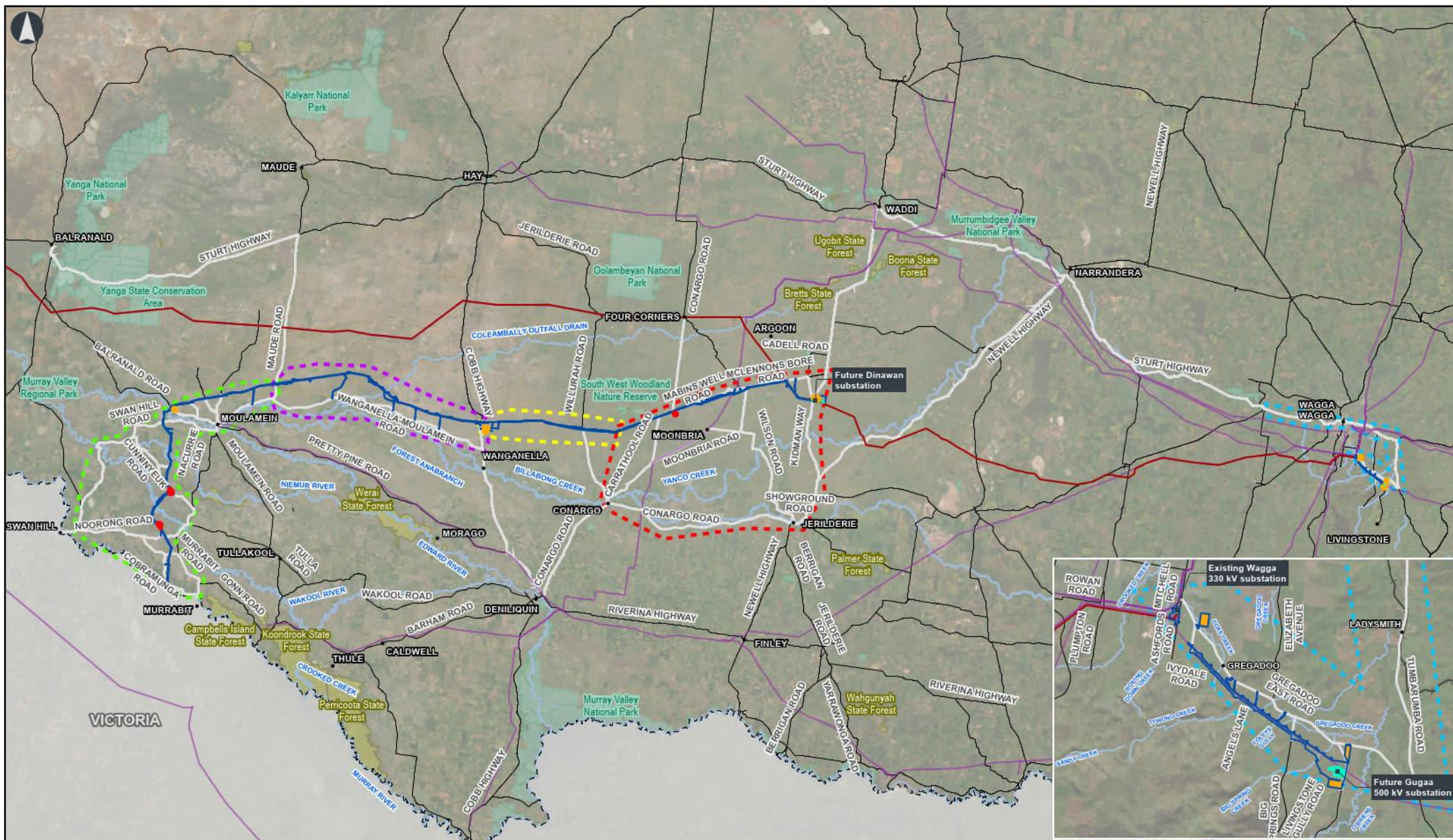
Legend

- Main road
- Named waterway
- EnergyConnect (NSW - Eastern section) project (under construction)
- Existing transmission line
- Dinawan substation works - proposed 500 kV
- Dinawan substation works - existing 330 kV
- Substation
- National park
- State forest
- Project footprint
- NSW/Victorian border
- Combined temporary worker accommodation facility
- Construction compound
- Port of Newcastle to site construction traffic routes

5.2.5.4 Construction traffic catchments

Construction vehicles would travel from the temporary worker accommodation facilities within the range of their defined catchment area. These catchment areas represent an approximate 60 minute driving catchment for movements to/from construction compounds and combined temporary worker accommodation facilities to areas of construction within the project footprint. These vehicles would only use the roads within this catchment. There may be some construction vehicles that travel between or beyond the driving catchment, however these volumes would be negligible and have not been assessed further. The roads within each driving catchment are shown in Figure 5.6, and have been defined as follows:

- The Balranald catchment, where construction vehicles would travel to/from the transmission line corridor as well as to/from:
 - Balranald Road, Moulamein combined temporary worker accommodation facility
 - Fisher Lane, Wetuppa (western option 1) construction compound
 - Cunninyeuk Road, Cunninyeuk (western option 2) construction compound.
- Cobb Highway West catchment, where construction vehicles would travel between the Cobb Highway Wanganella (north) combined temporary worker accommodation facility to the transmission line corridor only. Construction vehicles in this catchment would primarily use Wanganella-Moulamein Road as well as access tracks and access roads along the transmission line corridor.
- Cobb Highway East catchment, where construction vehicles would travel between the Cobb Highway, Wanganella (south) combined temporary worker accommodation facility to the transmission line corridor only. Construction vehicles in this catchment would primarily use the access tracks and access roads along the transmission line corridor.
- Dinawan catchment, where construction vehicles would travel between the Dinawan substation, Coleambally combined temporary worker accommodation facility and the project transmission line corridor as well as to the Mabins Well Road, Mabins Well construction compound.
- Wagga Wagga catchment, where construction vehicles would travel between the Wagga combined temporary worker accommodation facility options to the transmission line corridor only. Vehicles would primarily use Gregadoo East Road and Livingstone Gully Road to reach the transmission line corridor.



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Figure 5.6

Construction traffic routes within
catchments along the project corridor

Legend

- Main road
- Named waterway
- EnergyConnect (NSW - Eastern section) project (under construction)

- Existing transmission line
- Dinawan substation works - proposed 500 kV
- Dinawan substation works - existing 330 kV
- Substation
- National park
- State forest

- Project footprint
- NSW/Victorian border
- Combined temporary worker accommodation facility
- Construction compound

- Construction traffic routes

Catchments

- Balranald Catchment
- Cobb Highway East Catchment
- Cobb Highway West Catchment
- Dinawan Catchment
- Wagga Wagga Catchment



Construction traffic movements relating to water supply

The project would source water from a number of sources as described in section 5.2.5.1. Water sourced external to the project footprint would be transported to combined worker accommodation and construction compounds as well as various locations along the transmission line corridor. This includes site locations in Moulamein, Wanganella, Gregadoo, Coleambally and stretches of the transmission line corridor.

A quantity of 1.25 gigalitres of water would be transported over the two year years of construction, between 2026 to 2028.

Using a conversion rate of 10 per cent used for daily movements to peak hourly then there is expected to be nine truck movements per hour over the whole project area.

Given that there are up to seven sites (standalone construction compounds as well as combined worker accommodation and construction compounds), this would result in one to two truck movements per hour (in the morning and afternoon peak period) generated by each site. In conclusion, the impacts of water truck movements, during construction activities, is expected to be negligible.

Construction traffic movements relating to quarry materials

It is estimated that each of the seven sites (standalone construction compounds as well as combined worker accommodation and construction compounds), would generate up to 10 quarry material truck movements per day. This would equate to approximately one quarry truck movement per hour (in the peak hour) from each site.

Therefore, it is expected that the low number of vehicle movements travelling to and from quarries are expected to have a negligible effect on the road network. These quarry locations include the following as shown in Figure 5.7:

- Warburn – 2363 Stevenson Road, Warburn NSW 2680
- Berrigan – 1969 Berrigan Road, Berrigan NSW 2712
- Fuzzards – Old Cobram Road, Berrigan NSW 2712 (Lot 2 DP1082869)
- Western Riverina – Munros Road, Rankins Springs NSW 2669 (Lot 12 DP1286927)
- Yabba – Marungi Road, Youanmite Victoria 3646.



5.2.5.5 Construction traffic generation and distribution

The peak hours of project-related construction movements from the temporary accommodation facility sites would occur between 6:00 am to 7:00 am and 5:00 pm to 6:00 pm. The construction traffic movement is slightly less during the weekday pm peak period (four less heavy vehicles are returning to the facility).

The traffic generation of peak construction activities, during the peak hour, is detailed in Table 5.9. It highlights the hourly traffic movements generated to/from each origin, which has been used to assess the worst-case impact of the project. We have only assessed the peak of construction and therefore the peak of construction traffic generated by the project as this would be the worst-case scenario.

It is also noted that the construction compounds, have a significantly lower amount of peak construction traffic movement that would primarily travel outside of road network peak periods. Construction traffic movements associated with construction compounds have a peak of 11 to 12 vehicles per hour and would occur at 8:00 am to 9:00 am and 1:00 pm to 2:00 pm. Therefore, construction traffic movements associated with construction compounds are not included in the peak hourly traffic impact assessment.

Construction traffic movements associated with travelling from a port of origin (Port of Melbourne, Port of Newcastle or Port Adelaide) are assumed to travel outside of the road network peak hour. This is because they are expected to generally be heavy vehicles classified as OSOM, which are high risk heavy vehicles, are required to travel outside of normal construction working hours, as part of access approval, to minimise their effect on the road network.

Table 5.9 Project-related peak construction traffic generation during weekday peak hour

Combined temporary worker accommodation facility and construction compound (origin)	Light vehicle (traffic movements per hour)	Heavy vehicle (traffic movements per hour)	Total vehicle (traffic movements per hour)
Dinawan substation, Coleambally	30	38	68
Cobb Highway, Wanganella (north)	30	38	68
Cobb Highway, Wanganella (south)	30	38	68
Balranald Road, Moulamein	30	38	68
Wagga options	30	38	68

The estimated construction traffic movement by the relevant road and catchment is summarised in Table 5.10.

Table 5.10 Project-related construction traffic movement by road during weekday peak hour

Road name	Dinawan catchment	Cobb Highway West catchment	Cobb Highway East catchment	Balranald catchment	Wagga Wagga catchment	Vehicle movement (AM and PM peaks)
Angels Lane					x	<5 ¹
Balranald Road				x		68
Berrambong Railway Road				x		68
Big Springs Road					x	<5 ¹
Carrathool Road	x					68
Cedar Avenue				x		68
Cobb Highway (Hay South to Deniliquin)			x			68
Cobramunga Road				x		68
Conargo Road (in Conargo)	x					68
Cunninyeuk Road				x		68
Edward Street						68
Fisher Lane				x		68
Gregadoo East Road					x	68
Hammond Avenue						68
Ivydale Road					x	<5 ¹
Jerilderie Street (in Jerilderie)	x					68
Kaylock Road				x		68
Kidman Way	x					68
Kyeamba Street						68

Road name	Dinawan catchment	Cobb Highway West catchment	Cobb Highway East catchment	Balranald catchment	Wagga Wagga catchment	Vehicle movement (AM and PM peaks)
Livingstone Gully Road					x	68
Lockhart Road						68
Mabins Well Road	x					68
Maude Road			x	x		136
McLennons Bore Road	x					68
Moonbria Road	x					68
Moulamein Road (north of Swan Hill Road)				x		68
Murrabit Road				x		68
Nacurrie Road North (south of Cunninyeuk Road)				x		68
Nacurrie Road South				x		68
Newell Highway (Narrandera to Jerilderie)	x					68
Noorong Road				x		68
Pike Pike Lane				x		68
Swan Hill Road				x		68
Tallow Street				x		68
Tchelery Road				x		68
Wanganella-Moulamein Road			x			68
Wilson Road	x					68
Willurah Road				x		68
Wood Lane				x		68

Note: 1 – this volume is for network augmentation works only.

5.2.6 *Construction impact assessment*

5.2.6.1 Impacts on road capacity and efficiency

The roads and intersections (both existing and new) assessed have been identified as those being traversed by project-related traffic during construction of the project and include State, regional and local roads. The roads and intersections to be utilised as part of construction activities are indicative and may be subject to change based on more detailed design and further construction planning.

The road capacity assessment has been focused on State and regional roads as they are significant roads which facilitate high volumes of traffic and provide vital connectivity between cities, towns and regions. Local roads primarily serve local traffic within towns, where they would have lower traffic volumes and road capacity is less likely to be affected by construction traffic.

Table 5.11 provides the road traffic performance forecasted during construction. This assessment has been completed for construction routes to be used for access between the combined temporary worker accommodation facilities and work sites that had a mid-block count survey conducted.

With the addition of forecasted construction traffic, the impact on the capacity and efficiency of the assessed roads would be minimal, with all assessed roads continuing to operate at the same LoS A as they do under existing conditions. This can be attributed to the already low traffic volumes, the low construction traffic on each road and the spare road capacity.

Considering the construction traffic generated during the peak hours, minimal existing traffic volumes, and the existing LoS, it would be unlikely that the remaining road network would experience any noticeable changes in its LoS.

Table 5.11 Mid-block volume to capacity ratio and level of service during construction within the traffic and transport study area

Survey ID	Location	Road hierarchy	Peak hour volume (veh/hour)				Lane capacity (vph / lane)	Volume/capacity ratio and LoS			
			AM peak		PM peak			AM peak		PM peak	
			NB/WB	SB/EB	NB/WB	SB/EB		NB/WB	SB/EB	NB/WB	SB/EB
M-02	Cobb Highway north of 16 Mile Gums Rest Area	Highway	31	88	91	29	1,800	0.02 (LoS A)	0.05 (LoS A)	0.05 (LoS A)	0.02 (LoS A)
M-03	Kidman Way south of Fairlie Grange Road	Arterial	52	111	111	59	1,400	0.04 (LoS A)	0.08 (LoS A)	0.08 (LoS A)	0.04 (LoS A)
M-04	Newell Highway near Yanco Creek	Highway	42	108	100	48	1,800	0.02 (LoS A)	0.06 (LoS A)	0.06 (LoS A)	0.03 (LoS A)
M-08	Cedar Avenue east of Gwynne Street	Local	29	78	80	31	900	0.03 (LoS A)	0.09 (LoS A)	0.09 (LoS A)	0.03 (LoS A)
M-09	Balranald Road south of Property 1479 Yanga Road	Arterial	44	45	44	47	1,400	0.03 (LoS A)	0.03 (LoS A)	0.03 (LoS A)	0.03 (LoS A)
M-10	Conargo Road east of Property 5174	Arterial	91	36	39	94	1,400	0.06 (LoS A)	0.03 (LoS A)	0.03 (LoS A)	0.07 (LoS A)
M-12	Swan Hill Road east of Coobool Island Road	Arterial	29	77	79	25	1,400	0.02 (LoS A)	0.05 (LoS A)	0.06 (LoS A)	0.02 (LoS A)
M-13	Maude Road approx. 4 km north of Dry Lake	Arterial	76	78	82	81	1,400	0.05 (LoS A)	0.06 (LoS A)	0.06 (LoS A)	0.06 (LoS A)
M-22	Tallow Street outside Property 63	Local	79	71	73	76	900	0.09 (LoS A)	0.08 (LoS A)	0.08 (LoS A)	0.08 (LoS A)
M-24	Moulamein Road north of Swan Hill Road	Collector	46	101	98	43	1,000	0.05 (LoS A)	0.10 (LoS A)	0.10 (LoS A)	0.04 (LoS A)

5.2.6.2 Impacts on intersection operation and safety

This section assesses the impact of the project on network performance at intersections along construction routes. Table 5.12 and Table 5.13 provide a comparison of intersection performance at base traffic volumes against performance with predicted growth and construction traffic. This assessment was conducted for intersections having construction traffic passing through them, which involve State and regional roads as per assessment requirements. Given the negligible volumes at local road intersections, it is anticipated that these intersections would continue to operate at good levels of service (i.e. LoS A).

With the addition of forecasted construction traffic, the impact on intersection capacity and efficiency would be minimal, with all intersections continuing to operate at the same LoS as they do under existing conditions. This result can be attributed to the already low traffic volumes, the low construction traffic and the spare intersection capacity.

Based on the LoS, the project would not adversely affect the performance of any assessed intersections as well as local road intersections.

Turn warrant assessments of relevant intersections for construction traffic are shown in Table 5.14. This assessment found that all intersections are compliant with requirements.

Table 5.12 Weekday AM construction intersection performance

Intersection	Control	2024 road network peak				2027 Construction traffic peak			
		DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach	DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach
Sturt Highway and Lockhart Road	Give Way	0.12	9.8 sec (Lockhart Road [S])	A	3.5 m (Lockhart Road [S])	0.26	11.8 sec (Lockhart Road [S])	A	9.6 m (Lockhart Road [S])
Sturt Highway and Tumbarumba Road	Give Way	0.15	16.5 sec (Tumbarumba Road [S])	A	2 m (Tumbarumba Road [S])	0.15	19.3 sec (Tumbarumba Road [S])	A	4.3 m (Sturt Highway [W])
Newell Highway and Kidman Way	Give Way	0.09	10.5 sec (Kidman Way [W])	A	3.6 m (Kidman Way [W])	0.18	10.7 sec (Kidman Way [W])	A	7.9 m (Kidman Way [W])
Cobb Highway and Wanganella-Moulamein Road	Give Way	0.02	8.2 sec (Cobb Highway [S])	A	0.1 m (Cobb Highway [N])	0.07	10 sec (Wanganella-Moulamein Road [W])	A	3.1 m (Cobb Highway [N])
Cedar Avenue and Moulamein Road	Give Way	0.04	5.6 sec (Cedar Avenue [W])	A	1.2 m (Moulamein Road [S])	0.05	5.6 sec (Moulamein Road [S])	A	3 m (Cedar Avenue [W])
Swan Hill Road and Cunninyeuk Road	Give Way	0.03	8 sec (Swan Hill Road [S])	A	0.7 m (Swan Hill Road [S])	0.08	9.3 sec (Swan Hill Road [N])	A	0.8 m (Swan Hill Road [S])
Balranald Road and Berrambong Railway Road	Give Way	0.01	7.9 sec (Berrambong Railway Road [N])	A	0 m (Balranald Road [E])	0.06	9.4 sec (Berrambong Railway Road [N])	A	0.3 m (Berrambong Railway Road [N])
Conargo Road and Carrathool Road	Give Way	0.05	6 sec (Conargo Road [E])	A	1.7 m (Conargo Road [E])	0.12	6.6 sec (Conargo Road [E])	A	4.4 m (Conargo Road [E])
Conargo Road and Jerilderie Street	Give Way	0.12	7 sec (Newell Highway [S])	A	4.1 m (Newell Highway [S])	0.15	8.3 sec (Newell Highway [S])	A	5.1 m (Newell Highway [S])
Moulamein Road and Swan Hill Road	Give Way	0.03	8.1 sec (Moulamein Road [N])	A	1 m (Moulamein Road [N])	0.06	8.9 sec (Swan Hill Road [W])	A	3 m (Moulamein Road [N])

Intersection	Control	2024 road network peak				2027 Construction traffic peak			
		DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach	DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach
Swan Hill Road and Noorong Road	Give Way	0.08	11.5 sec (Noorong Road [E])	A	2.1 m (Swan Hill Road [S])	0.13	12.6 sec (Noorong Road [E])	A	2.5 m (Swan Hill Road [S])
Swan Hill Road and Pike Pike Lane	Give Way	0.02	7.9 sec (Swan Hill Road [W])	A	0.1 m (Swan Hill Road [W])	0.07	9.3 sec (Swan Hill Road [E])	A	0.3 m (Pike Pike Lane [S])
Swan Hill Road and Kaylock Road	Give Way	0.02	7.9 sec (Kaylock Road [N])	A	0.1 m (Swan Hill Road [E])	0.07	9.4 sec (Kaylock Road [N])	A	3.2 m (Swan Hill Road [E])
Tchelery Road and Tallow Street	Give Way	0.03	6.9 sec (Tchelery Road [N])	A	0.1 m (Tchelery Road [N])	0.06	7.4 sec (Tchelery Road [N])	A	2.9 m (Tallow Street [E])
Maude Road and Wanganella-Moulamein Road	Give Way	0.02	7.9 sec (Wanganella-Moulamein Road [S])	A	0.1 m (Maude Road [W])	0.08	10 sec (Wanganella-Moulamein Road [S])	A	2.6 m (Wanganella-Moulamein Road [S])
Tumbarumba Road and Gregadoo East Road	Give Way	0.04	8.3 sec (Gregadoo East Road [W])	A	0.5 m (Gregadoo East Road [W])	0.08	9.6 sec (Gregadoo East Road [W])	A	3.5 m (Tumbarumba Road [N])
New site access at Fisher Lane	Give Way	-	-	-	-	0.06	9 sec (Noorong Road [E])	A	2.8 m (Noorong Road [E])
New site access at Cunninyeuk Road	Give Way	-	-	-	-	0.08	9 sec (Cunninyeuk Road [W])	A	3.5 m (Cunninyeuk Road [W])
New site access at Balranald Road	Give Way	-	-	-	-	0.05	9.1 sec (Balranald Road [E])	A	2.2 m (Site Access Road [N])
New site access at Cobb Highway	Give Way	-	-	-	-	0.05	9.5 sec (Cobb Highway [S])	A	2.2 m (Site Access Road [E])

Intersection	Control	2024 road network peak				2027 Construction traffic peak			
		DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach	DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach
New site access at Mabins Well Road	Give Way	-	-	-	-	0.09	8.3 sec (Mabins Well Road [W])	A	3.9 m (Mabins Well Road [W])
New site access at Dinawan Camp	Give Way	-	-	-	-	0.06	8.9 sec (Kidman Way [N])	A	2.5 m (Kidman Way [S])
New site access at Gregadoo East Road	Give Way	-	-	-	-	0.05	9.4 sec (Gregadoo East Road [S])	A	2.2 m (Site Access Road [E])
New site access at Gregadoo East Road	Give Way	-	-	-	-	0.05	9.1 sec (Gregadoo East Road [W])	A	2.2 m (Site Access Road [S])
New site access at Livingstone Gully Road	Give Way	-	-	-	-	0.05	9.2 sec (Livingstone Gully Road [N])	A	2.3 m (Site Access Road [W])

Table 5.13 Weekday PM construction intersection performance

Intersection	Control	2024 road network peak				2027 Construction traffic peak			
		DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach	DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach
Sturt Highway and Lockhart Road	Give Way	0.11	10.6 sec (Lockhart Road [S])	A	3.4 m (Lockhart Road [S])	0.15	12.2 sec (Lockhart Road [S])	A	4.9 m (Lockhart Road [S])
Sturt Highway and Tumbarumba Road	Give Way	0.15	17.8 sec (Tumbarumba Road [S])	A	2.5 m (Sturt Highway [W])	0.15	19.9 sec (Tumbarumba Road [S])	A	4.6 m (Tumbarumba Road [S])
Newell Highway and Kidman Way	Give Way	0.06	10.8 sec (Kidman Way [W])	A	2.2 m (Kidman Way [W])	0.08	11.5 sec (Kidman Way [W])	A	3 m (Kidman Way [W])
Cobb Highway and Wanganella-Moulamein Road	Give Way	0.01	8.2 sec (Cobb Highway [S])	A	0.1 m (Wanganella-Moulamein Road [W])	0.05	9.9 sec (Wanganella-Moulamein Road [W])	A	2.2 m (Wanganella-Moulamein Road [W])
Cedar Avenue and Moulamein Road	Give Way	0.04	6.1 sec (Paterson Street [N])	A	1.2 m (Moulamein Road [S])	0.10	7.1 sec (Paterson Street [N])	A	3.6 m (Moulamein Road [S])
Swan Hill Road and Cunninyeuk Road	Give Way	0.02	8.4 sec (Swan Hill Road [S])	A	0.8 m (Swan Hill Road [S])	0.08	9.1 sec (Swan Hill Road [N])	A	2.6 m (Cunninyeuk Road [E])
Balranald Road and Berrambong Railway Road	Give Way	0.01	7.9 sec (Berrambong Railway Road [N])	A	0.1 m (Balranald Road [E])	0.07	9.2 sec (Berrambong Railway Road [N])	A	2.3 m (Berrambong Railway Road [N])
Conargo Road and Carrathool Road	Give Way	0.04	6.3 sec (Conargo Road [E])	A	1.7 m (Carrathool Road [S])	0.06	6.6 sec (Conargo Road [E])	A	1.9 m (Carrathool Road [S])
Conargo Road and Jerilderie Street	Give Way	0.13	6.8 sec (Newell Highway [S])	A	4.9 m (Newell Highway [S])	0.16	8.1 sec (Newell Highway [S])	A	6 m (Newell Highway [S])
Moulamein Road and Swan Hill Road	Give Way	0.02	8.5 sec (Moulamein Road [N])	A	0.7 m (Moulamein Road [N])	0.07	9.2 sec (Swan Hill Road [W])	A	2.7 m (Swan Hill Road [W])

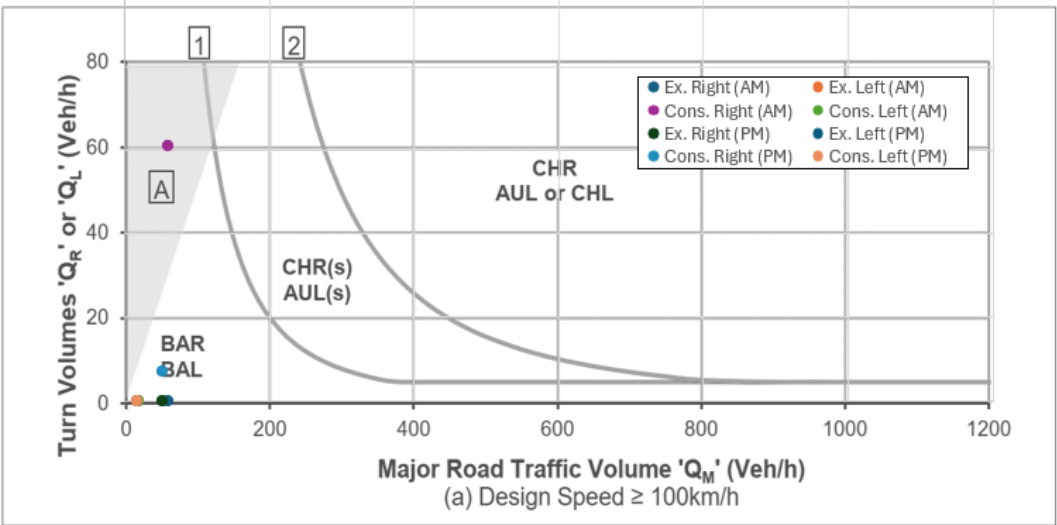
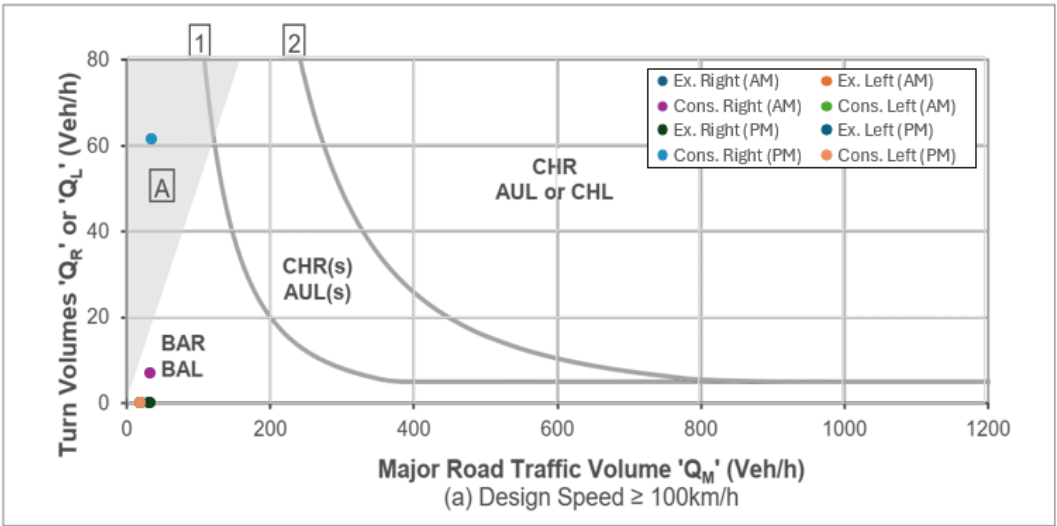
Intersection	Control	2024 road network peak				2027 Construction traffic peak			
		DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach	DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach
Swan Hill Road and Noorong Road	Give Way	0.05	9.3 sec (Swan Hill Road [S])	A	2 m (Swan Hill Road [S])	0.11	11.3 sec (Noorong Road [E])	A	4.4 m (Noorong Road [E])
Swan Hill Road and Pike Pike Lane	Give Way	0.02	7.9 sec (Swan Hill Road [W])	A	0.1 m (Swan Hill Road [W])	0.07	9.3 sec (Swan Hill Road [E])	A	2.4 m (Pike Pike Lane [S])
Swan Hill Road and Kaylock Road	Give Way	0.02	7.9 sec (Kaylock Road [N])	A	0.1 m (Swan Hill Road [E])	0.05	9.4 sec (Kaylock Road [N])	A	2.2 m (Kaylock Road [N])
Tchelery Road and Tallow Street	Give Way	0.02	6.9 sec (Tallow Street [E])	A	0.2 m (Tchelery Road [N])	0.06	7.3 sec (Tchelery Road [N])	A	2.4 m (Tchelery Road [N])
Maude Road and Wanganella-Moulamein Road	Give Way	0.01	7.9 sec (Wanganella-Moulamein Road [S])	A	0.1 m (Maude Road [W])	0.11	10 sec (Wanganella-Moulamein Road [S])	A	0.3 m (Wanganella-Moulamein Road [S])
Tumbarumba Road and Gregadoo East Road	Give Way	0.03	9.2 sec (Gregadoo East Road [W])	A	0.6 m (Gregadoo East Road [W])	0.08	9.4 sec (Gregadoo East Road [W])	A	2.9 m (Gregadoo East Road [W])
New site access at Fisher Lane	Give Way	-	-	-	-	0.05	6.3 sec (Fisher Lane [N])	A	2.2 m (Fisher Lane [N])
New site access at Cunninyeuk Road	Give Way	-	-	-	-	0.05	6.2 sec (Site Access Road [S])	A	2.2 m (Site Access Road [S])
New site access at Balranald Road	Give Way	-	-	-	-	0.06	6 sec (Site Access Road [N])	A	2.8 m (Balranald Road [E])
New site access at Cobb Highway	Give Way	-	-	-	-	0.06	8.2 sec (Cobb Highway [N])	A	2.9 m (Cobb Highway [S])

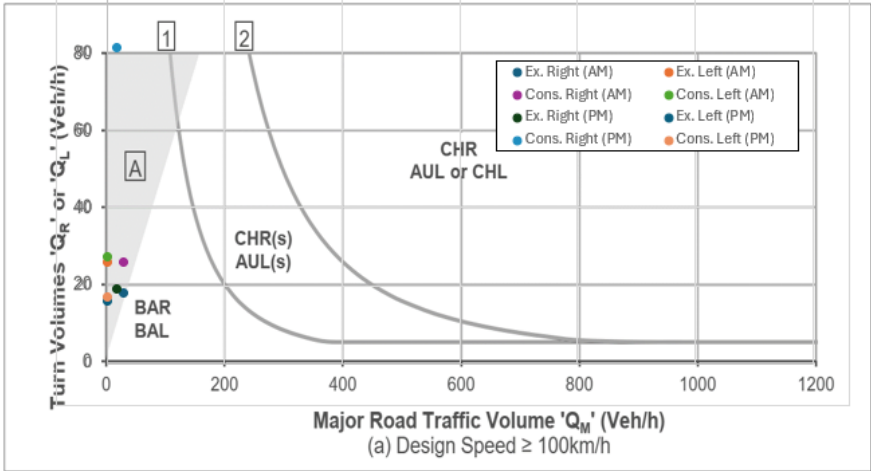
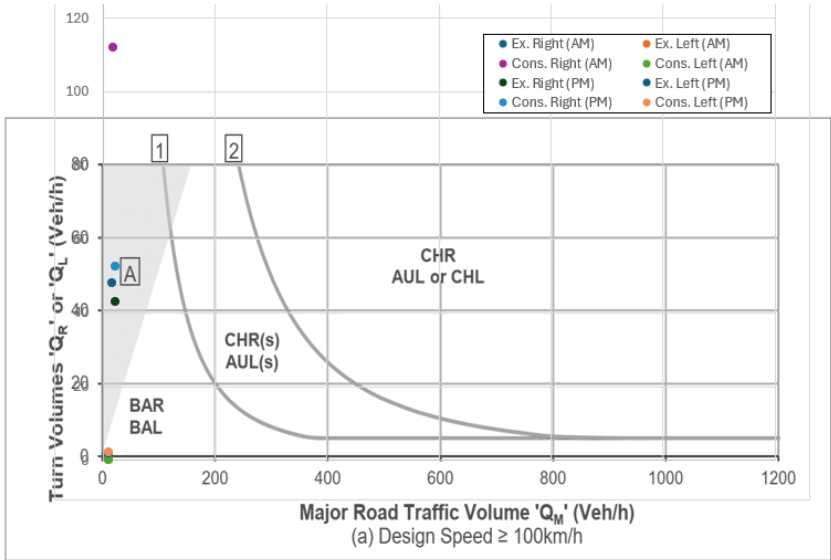
Intersection	Control	2024 road network peak				2027 Construction traffic peak			
		DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach	DoS	Delay (secs) for worst performing vehicle movement	LoS	Worst 95 th percentile queue (m) & approach
New site access at Mabins Well	Give Way	-	-	-	-	0.05	7.1 sec (Carrathool Road [S])	A	2.2 m (Site Access Road [E])
New site access at Dinawan Camp	Give Way	-	-	-	-	0.10	8.3 sec (Kidman Way [N])	A	4.5 m (Kidman Way [S])
New site access at Gregadoo Road	Give Way	-	-	-	-	0.11	6.7 sec (Site Access Road [S])	A	0.6 m (Site Access Road [S])

Table 5.14 Construction intersection turn warrant assessments

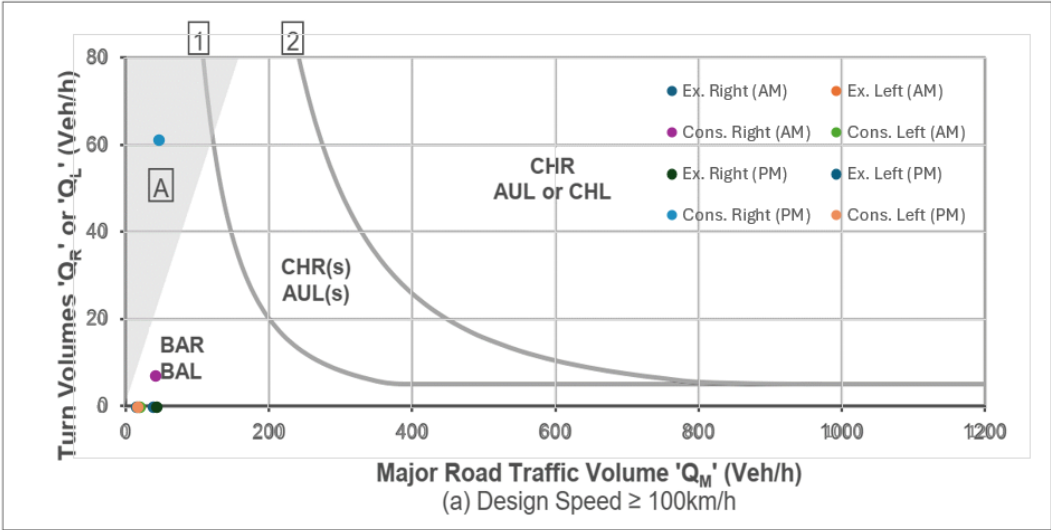
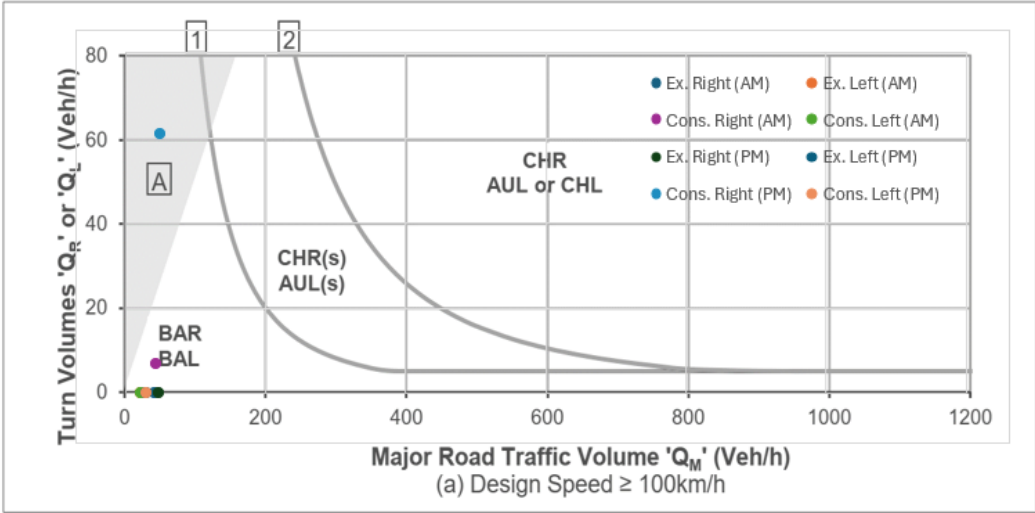
Intersection	Control	Turn warrant assessment	Impact
Sturt Highway and Tumbarumba Road	Give Way		Currently CHR and BAL are provided and is compliant to the current demand. During construction, the requirement for CHR/BAL is maintained.
Newell Highway and Kidman Way	Give Way		Currently BAR and BAL are provided and is compliant to the current demand. During construction, the requirement for BAR/BAL is maintained.

Intersection	Control	Turn warrant assessment	Impact
Cobb Highway and Wanganella-Moulamein Road	Give Way		Currently BAR and BAL are provided and is compliant to the current demand. During construction, the requirement for BAR/BAL is maintained.
New site access at Fisher Lane	Give Way		Construction demand would only require a BAR/BAL treatment at this new access road.

Intersection	Control	Turn warrant assessment	Impact
New site access at Cunninyeuk Road	Give Way	 Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$	Construction demand would only require a BAR/BAL treatment at this new access road.
New site access at Balranald Road	Give Way	 Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$	Construction demand would only require a BAR/BAL treatment at this new access road.

Intersection	Control	Turn warrant assessment	Impact
New site access at Cobb Highway	Give Way	 Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$	Construction demand would only require a BAR/BAL treatment at this new access road.
New site access at Mabins Well Road	Give Way	 Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$	Construction demand would only require a BAR/BAL treatment at this new access road.

Intersection	Control	Turn warrant assessment	Impact
New site access at Kidman Way (Dinawan Camp)	Give Way	The graph plots Turn Volumes 'Q_R' or 'Q_L' (Veh/h) on the y-axis (0 to 140) against Major Road Traffic Volume 'Q_M' (Veh/h) on the x-axis (0 to 1200). It features three main curves: a top curve for 'CHR AUL or CHL', a middle curve for 'CHR(s) AUL(s)', and a bottom shaded area for 'BAR BAL'. A legend identifies data points for existing (Ex.) and construction (Cons.) scenarios for Right (R) and Left (L) turns in AM and PM. A box labeled 'A' highlights the BAR BAL region, and a box labeled '2' points to the CHR(s) AUL(s) curve.	Construction demand would only require a BAR/BAL treatment at this new access road.

Intersection	Control	Turn warrant assessment	Impact
New site access at Gregadoo East Road	Give Way	 Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$	Construction demand would only require a BAR/BAL treatment at this new access road.
New site access at Gregadoo East Road	Give Way	 Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$	Construction demand would only require a BAR/BAL treatment at this new access road.

Intersection	Control	Turn warrant assessment	Impact
New site access at Livingstone Gully Road	Give Way	Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$	Construction demand would only require a BAR/BAL treatment at this new access road.

5.2.6.3 Impacts on Safe Intersection Sight Distance compliance

The project would require the creation of new intersections between access tracks to the project footprint and the existing road network. An SISD assessment of each new intersection were completed and results are shown in Table 5.15.

Where an intersection is non-compliant, mitigation measures have been identified in Chapter 8. Mitigation measures to improve sight distance could include a reduction in posted speed limit, traffic management and control, minor vegetation clearing/trimming, minor intersection treatments or a combination of these solutions. The final mitigation response will be confirmed in consultation with the relevant roads authority. The introduction of these mitigations would either remove the sight distance non-compliance in its entirety or ameliorate sight distance impacts improving road safety.

For the network augmentation works, the access strategy has been based on using approved access tracks proposed as part of the HumeLink project as far as possible. These access tracks include Gregadoo East Road and access track (1), Gregadoo East Road and access track (2) and Gregadoo East Road and access track (3). For the purposes of this assessment, it is assumed that new access track intersections would be established and/or managed to comply with SISD criteria. Where these access tracks are amended as part of ongoing construction planning (as part of the HumeLink project) or further feedback from the relevant roads authority (i.e. Wagga Wagga City Council), the changes are considered as part of VNI West and the process outlined in Chapter 25 (Environmental management) of the EIS would be followed to assess the change(s).

The detailed SISD assessment of each intersection listed is in Appendix B.

Table 5.15 New access intersection SISD compliance

Intersection	Local Government Area (LGA)	SISD Compliance
I-Site-01 New site access to Fisher Lane construction compound	Murray River	Yes
I-Site-02 New site access to Cunninyeuk Road construction compound	Murray River	Yes
I-Site-03 New site access Balranald Road temporary worker accommodation facility	Murray River	Yes
I-Site-04 New site access Cobb Highway temporary worker accommodation facility	Edward River	Yes
I-Site-05 New site access Mabins Well Road construction compound	Edward River	Yes
I-Site-06 New site access Kidman Way temporary worker accommodation facility	Murrumbidgee	Yes
I-Site-08 Option 2 New site access Gregadoo East Road temporary worker accommodation facility	Wagga Wagga	No
I-Site-08 Option 3 New site access Gregadoo East Road temporary worker accommodation facility	Wagga Wagga	Yes
I-Site-08 Option 4 New site access Livingstone Gully Road temporary worker accommodation facility	Wagga Wagga	Yes
Fisher Lane and access track (1)	Murray River	No
McLennons Bore Road and access track east of Kulki Lane	Murrumbidgee	Yes
McLennons Bore Road and access track west of Kulki Lane	Murrumbidgee	Yes
McLennons Bore Road and access track near Wilson Road	Murrumbidgee	Yes

Intersection	Local Government Area (LGA)	SISD Compliance
Wilson Road and access track	Murrumbidgee	Yes
Mabins Well Road and access track west of Wilson Road	Edward River	Yes
Mabins Well Road and access track (1)	Edward River	Yes
Mabins Well Road and access track (2)	Edward River	Yes
Mabins Well Road and access track (3)	Edward River	Yes
Mabins Well Road and access track (4)	Edward River	Yes
Mabins Well Road and access track (5)	Edward River	Yes
Mabins Well Road and access track (6)	Edward River	Yes
Mabins Well Road and access track (7)	Edward River	Yes
Mabins Well Road and access track (8)	Edward River	Yes
Mabins Well Road and access track (9)	Edward River	Yes
Mabins Well Road and access track (10)	Edward River	Yes
Mabins Well Road and access track (11)	Edward River	Yes
Mabins Well Road and access track (12)	Edward River	Yes
Mabins Well Road and access track (13)	Edward River	Yes
Mabins Well Road and access track (14)	Edward River	Yes
Mabins Well Road and access track (15)	Edward River	Yes
Mabins Well Road and access track (16)	Edward River	Yes
Mabins Well Road and access track (17)	Edward River	Yes
Mabins Well Road and access track (18)	Edward River	Yes
Mabins Well Road and access track (19)	Edward River	Yes
Carrathool Road and access track (1)	Edward River	Yes
Carrathool Road and access track (2)	Edward River	Yes
Carrathool Road and access track (3)	Edward River	Yes
Carrathool Road and access track (4)	Edward River	Yes
Carrathool Road and access track (5)	Edward River	Yes
Carrathool Road and access track (6)	Edward River	Yes
Carrathool Road and access track (7)	Edward River	Yes
Carrathool Road and access track (8)	Edward River	Yes
Cobb Highway and proposed access track	Edward River	Yes
Cobb Highway and access track	Edward River	Yes

Intersection	Local Government Area (LGA)	SISD Compliance
Wanganella-Moulamein Road and access track (1)	Edward River	Yes
Wanganella-Moulamein Road and access track (2)	Edward River	Yes
Wanganella-Moulamein Road and access track (3)	Edward River	Yes
Wanganella-Moulamein Road and access track (4)	Edward River	Yes
Maude Road and access track west of Wanganella-Moulamein Road	Edward River	Yes
Maude Road and access track near alignment (east)	Edward River	Yes
Maude Road and access track near alignment (west)	Edward River	Yes
Willurah Road and access track (north)	Edward River	Yes
Willurah Road and access track (south)	Edward River	Yes
Balranald Road and access track (1)	Murray River	Yes
Balranald Road and access track (2)	Murray River	Yes
Pike Pike Lane and access track (1)	Murray River	Yes
Pike Pike Lane and access track (2)	Murray River	Yes
Pike Pike Lane and access track (3)	Murray River	Yes
Pike Pike Lane and access track (4)	Murray River	Yes
Pike Pike Lane and access track (5)	Murray River	Yes
Pike Pike Lane and access track (6)	Murray River	Yes
Pike Pike Lane and access track (7)	Murray River	Yes
Pike Pike Lane and access track (8)	Murray River	Yes
Pike Pike Lane and access track (9)	Murray River	Yes
Cunninyeuk Road and access track (1)	Murray River	No
Cunninyeuk Road and access track (2)	Murray River	Yes
Cunninyeuk Road and access track (3)	Murray River	Yes
Cunninyeuk Road and access track (4)	Murray River	Yes
Cunninyeuk Road and access track (5)	Murray River	Yes
Cunninyeuk Road and access track (6)	Murray River	Yes
Cunninyeuk Road and access track (7)	Murray River	Yes
Cunninyeuk Road and access track (8)	Murray River	Yes
Cunninyeuk Road and access track (9)	Murray River	Yes
Noorong Road and access track (1)	Murray River	Yes
Noorong Road and access track (2)	Murray River	Yes

Intersection	Local Government Area (LGA)	SISD Compliance
Murrabit Road and access track	Murray River	Yes
Cobramunga Road and access track (1)	Murray River	Yes
Cobramunga Road and access track (2)	Murray River	Yes
Cobramunga Road and access track (3)	Murray River	Yes
Cobramunga Road and access track (4)	Murray River	Yes
Cobramunga Road and access track (5)	Murray River	Yes
Cobramunga Road and access track (6)	Murray River	Yes
Kaylock Road and access track (1)	Murray River	Yes
Kaylock Road and access track (2)	Murray River	Yes
Kaylock Road and access track (3)	Murray River	Yes
Kaylock Road and access track (4)	Murray River	Yes
Kaylock Road and access track (5)	Murray River	Yes
Kaylock Road and access track (6)	Murray River	Yes
Berrambong Railway Road and access track	Murray River	Yes
Robb Road and access track (east)	Murray River	Yes
Robb Road and access track (west)	Murray River	Yes
Gregadoo East Road and access track (1)	Wagga Wagga	No ¹
Gregadoo East Road and Angels Lane	Wagga Wagga	Yes
Gregadoo East Road and access track (2)	Wagga Wagga	No ¹
Gregadoo East Road and access track (3)	Wagga Wagga	No ¹
Livingstone Gully Road and access track	Wagga Wagga	Yes
Big Springs Road and access track (north)	Wagga Wagga	Yes
Big Springs Road and access track (south)	Wagga Wagga	Yes
Angels Lane and access track (north)	Wagga Wagga	Yes
Angels Lane and access track (south)	Wagga Wagga	Yes
Ivydale Road and access track (north)	Wagga Wagga	Yes
Ivydale Road and access track (south)	Wagga Wagga	Yes
Wood Lane and access track	Murray River	Yes

Note: 1 – As noted above, this access track was proposed as part of the HumeLink project and it assumed to have been established to comply with SISD criteria. Any traffic control management measures proposed as part of the HumeLink, project would be implemented for the project as required and in agreement with the relevant roads authority (i.e Wagga Wagga City Council).

5.2.6.4 Impacts from heavy vehicle access

Construction access relating to approved restricted access vehicle routes

For construction traffic routes, when RAV access is required for a road that is not part of the existing approved network, the construction contractor would be required to apply for a heavy vehicle access permit to be issued by the NHVR.

These roads are as follows:

- | | |
|---------------------------|-----------------------------|
| — Angels Lane | — McLennons Bore Road |
| — Berrambong Railway Road | — Nacurrie Road North |
| — Big Springs Road | — Nacurrie Road South |
| — Cadell Road | — Pike Pike Lane |
| — Cobramunga Road | — Robb Road |
| — Cunninyeuk Road | — Wanganella-Moulamein Road |
| — Fisher Lane | — Willurah Road |
| — Ivydale Road | — Wilson Road |
| — Kaylock Road | — Wood Lane. |

In this process, the suitability of each construction traffic route under assessment would be checked by the relevant road authorities in terms of the vehicle characteristics, road geometry constraints, load limits, pavement condition and other amenity considerations. It may also require the construction contractor to adjust the construction route or fulfill certain conditions.

Construction access for OSOM vehicles

A preliminary transport route assessment of the proposed OSOM (high risk heavy vehicles) traffic routes from ports to the proposed Dinawan substation expansion site was conducted (Deugro Projects, 2024). This identified that the majority of routes from each port of origin (Newcastle, Melbourne and Adelaide) are already part of the approved RAV and OSOM network. However, it is noted that the Port to Adelaide movement would be the most suitable to the Dinawan substation expansion site due to less constraints encountered along the travel route. Despite being the longest, this route presents the least risk and requires minimal modifications to existing infrastructure, making it the most viable option in regard to less risks, fewer obstacles, ease of access points and less cost associated with movement of traffic furniture and engineering / civil works. Notwithstanding, the preferred port of origin would be selected by the construction contractor in consultation with the NHVR, TfNSW and local councils during detailed design and further construction planning.

Construction access relating to bridges and culvert crossings

As described in section 4.3.1, there are bridge and culvert crossings along construction routes. Bridges and culverts are important infrastructure forms that would also require further investigations for their structural adequacy prior to construction by way of a transport route assessment and bridge loading capacity assessment. Heavy vehicles must strictly comply with bridge load and height limits (with bridge width and height limit clearances identified in the transport route assessment) and hence the safety impacts associated with heavy vehicles are minor with respect to bridges. However, to manage potential safety impacts associated with culverts, their structural integrity will be confirmed for construction vehicles prior to construction in consultation with the relevant roads authority. Culverts may need to be upgraded to ensure safe access. Roads that have been approved for RAV access will have considered these factors and been deemed appropriate for access.

Construction access relating to geometric constraints

Swept path analyses has been conducted at intersections on the existing State road network, to check whether there is sufficient room for construction-related heavy vehicles to make turning movements. The heavy vehicles analysed include the 19 metre long semi-trailer as well as the 25 / 26 metre long B-Double truck, which is the largest expected vehicle.

Intersection modifications and road widenings as part of the project are required at the following State road intersections to allow heavy vehicle turning manoeuvres including:

- Sturt Highway and Maude Road
- Newell Highway and Kidman Way
- Cobb Highway and Wanganella-Moulamein Road
- Kidman Way and Cadell Road.

Appendix C details the heavy vehicle swept path analyses, where it illustrates the required intersection modifications to enable heavy vehicle turning movement.

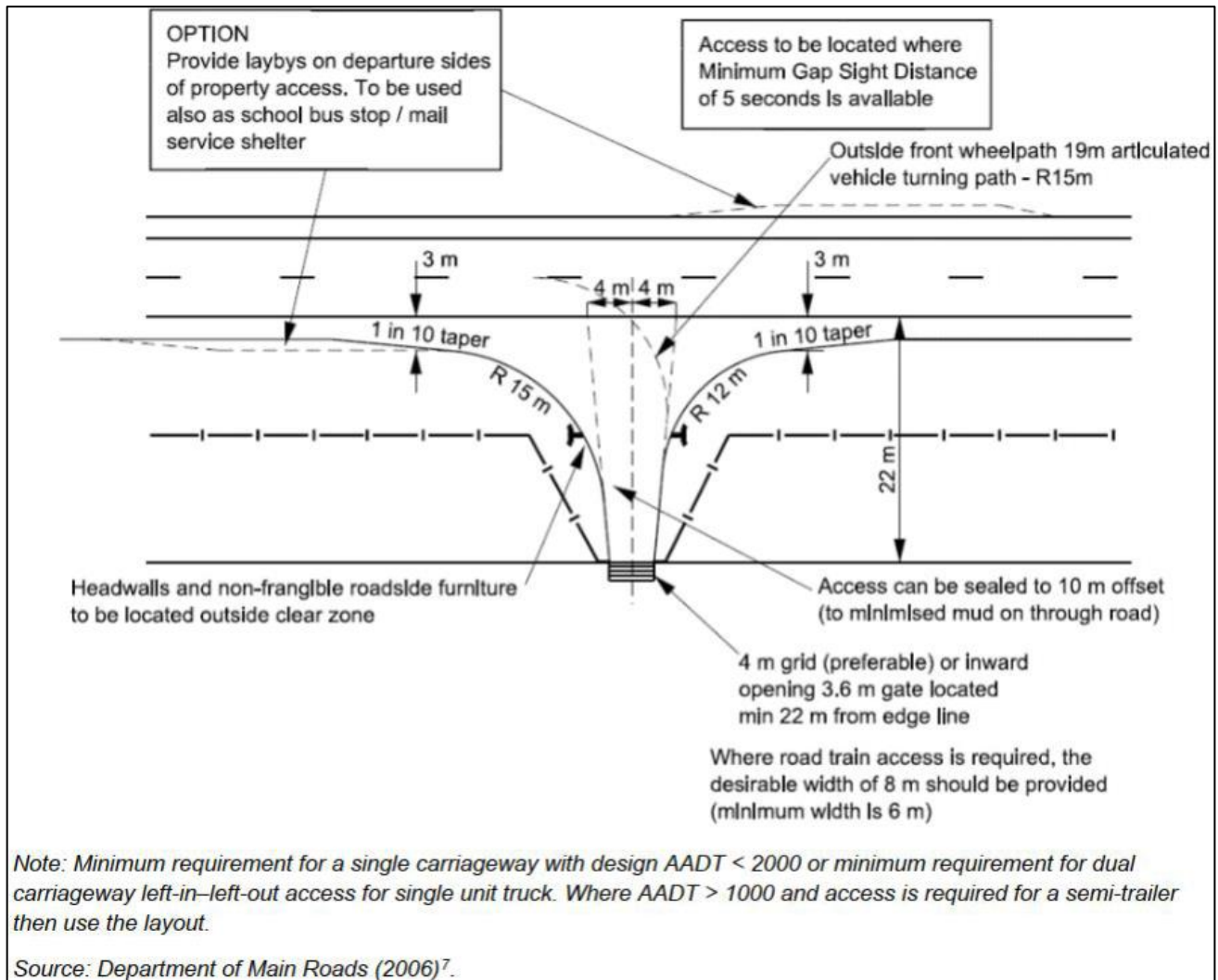
Construction access relating to new sites and access tracks to the transmission line

As described in section 5.2.4 and section 5.2.4.2, the project would involve the construction of access tracks to the new sites (standalone construction compounds as well as combined construction compound and temporary accommodation facilities) and access tracks that connect the existing road network to the transmission line. The access tracks would allow safe access during construction and operation of the project.

Access tracks would comprise use of existing access tracks, upgraded access tracks and new access tracks. New or upgraded connections would be required to facilitate safe vehicular access to the project.

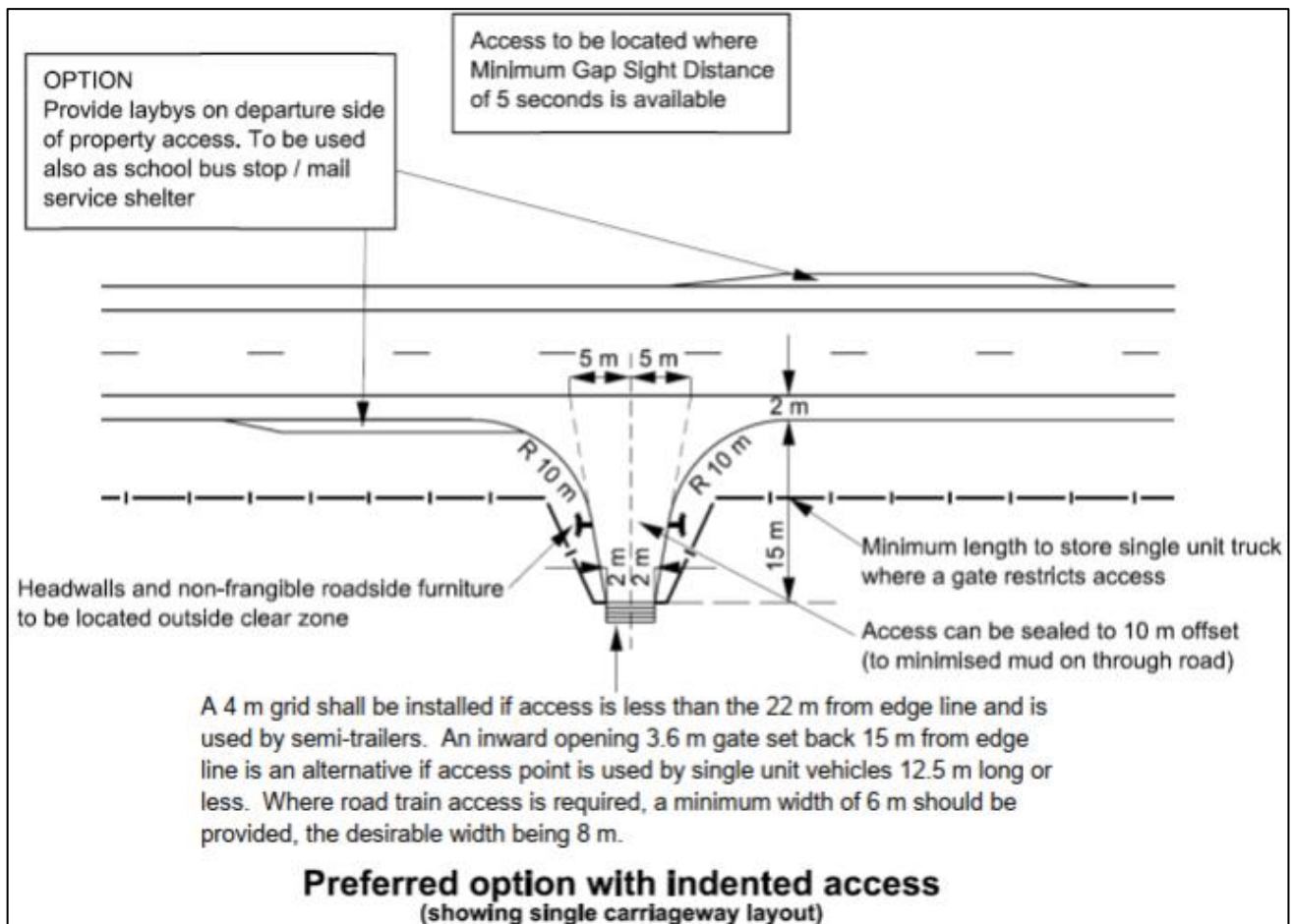
The final design of the new or upgraded access points would be carried out in accordance with the relevant Austroads Guides, any road occupancy licence(s), and in consultation with the relevant road authority. Relevant Austroads Guides include the *Guide to Road Design (Austroads, 2023)*, which provides examples of intersection designs for new rural site access. These are illustrated in Figure 5.8 and Figure 5.9.

New and upgraded connection to State roads (i.e. Cobb Highway and Kidman Way site access points) are shown in Appendix C. New and/or upgraded site access points to the road network are listed in Appendix E (Schedule of road improvement works, new or upgraded intersection treatments and management requirements) and shown on Figure 5.10.



Source: Austroads Guide to Road Design Part 4: Intersections and Crossings

Figure 5.8 Example of rural property access designed for articulated vehicles



Source: Austroads Guide to Road Design Part 4: Intersections and Crossings

Figure 5.9 Example of rural property access layout – preferred option with indented access

5.2.6.5 Impacts of stringing transmission lines

The project would cross several State, regional and local roads as described in section 5.2.4.2. Several crossing methodology options are available for stringing transmission lines over roads. Potential impacts to road users would be related to delays and extended travel distances but would be dependent on the methodology selected.

The crossing methodology options available for stringing transmission lines over roads include:

- short-term partial or full road or lane closure with an appropriate detour (other than for State and regional roads)
- implementation of traffic management, which could consist of a stop-go arrangement at the crossing location
- the use of additional temporary infrastructure, such as ‘hurdles’.

The selection of the preferred crossing methodology would be considered on a case-by-case basis depending on the type of road to be crossed and other factors such as, but not limited to, traffic volumes, topography, and acceptability of the method to the relevant road authority. Based on consultation with TfNSW and to minimise potential impacts to road users, the use of the hurdle method is preferred for crossing State and regional roads. The crossing of local roads may utilise any of the above options subject to further investigation during detailed design and construction planning and consultation with the relevant road authority.

The use of hurdles with the potential for safety netting spanning the road crossing as a safety measure to protect the road and traffic beneath during the stringing is a proven and industry-standard mitigation measure to undertake transmission line stringing over roads. Once established, this would enable free-flowing traffic to minimise impacts on road users.

Depending on site constraints and protection requirements, hurdles may consist of semi-permanent or modular hurdle arrangements. Semi-permanent hurdle arrangements (such as scaffolding) are typically required for distances greater than 50 metres and could be in place for a period of greater than three months. Modular hurdles (such as poles) are portable and would only be utilised during a short stringing period at distances less than 50 metres. Cranes may also be used instead of poles as part of the modular hurdles.

The hurdles would be installed from the adjoining properties rather than the road reserve/clear zone to minimise impacts on road users, where possible. It should also be noted that traffic management and/or intermittent closures may still be required to facilitate the installation, operation and removal of either semi-permanent or modular hurdle arrangements. Intermittent closures would likely only be needed during the installation and removal of the hurdles. They would be limited to a maximum ten-minute duration, no more than six times per day, occurring outside of network peak hours unless otherwise agreed by the relevant roads authority. However, traffic management during operation would likely be limited to speed reductions on the approach to and beneath the hurdles.

The final crossing methodology for stringing the transmission lines over each road would be confirmed during detailed design and construction planning. Confirmation would include consultation with the relevant roads authority prior to lodgement of the applicable Road Occupancy Licence application and/or application for consent under section 138 of the *Roads Act 1993*.

5.2.6.6 Impacts on property access and emergency services

Upgrades to access tracks and establishment of new access track within properties along the project footprint is proposed. Temporary property access arrangements, and installation or adjustment of gates and fences, would be required at some locations along the project footprint to enable access from the nearest roadway to construction areas. These would be constructed in consultation with the relevant local council and/or landholder.

Access to properties for residents (including emergency vehicle access and egress) would be maintained throughout construction. In some limited circumstances, short-term restrictions for a particular property may be required. Temporary alternative access arrangements would be provided following consultation with affected landowners. This would be mitigated by establishing a communication process with landowners and keeping them informed of construction staging and work schedule.

5.2.6.7 Impacts on Crown roads

Transgrid acknowledges the requirement to occupy and use some Crown roads during the construction period and will continue to engage with NSW Crown Lands on the requirements for access and/or use of Crown roads. In the event that access over a Crown road is required, it would likely be undertaken by utilising Transgrid's powers under section 45 of the *Electricity Supply Act 1995* (NSW).

5.2.6.8 Impacts on road pavement condition and road suitability

For construction traffic, pavement fatigue may occur as a result of repeated heavy vehicle traffic movements. The corresponding contribution of light vehicle movements on road pavement conditions is negligible.

Although the project would only generate a minor increase in heavy vehicle movements (as discussed in sections 5.2.6.1 and 5.2.6.2), there would likely be road condition impacts on regional and local roads used by construction vehicles. However, the unsealed roads are likely to experience greater impact compared the sealed regional and local roads. This includes the following unsealed roads:

- | | |
|---|--|
| — Angels Lane | — Moonbria Road |
| — Balranald Road (some sections sealed) | — Murrabit Road |
| — Berrambong Railway Road | — Nacurrie Road North |
| — Cobramunga Road | — Nacurrie Road South |
| — Cunninyeuk Road | — Pike Pike Lane |
| — Fisher Lane | — Robb Road |
| — Ivydale Road | — Tchelery Road (some sections sealed) |
| — Kaylock Road | — Wanganella-Moulamein Road |
| — Livingstone Gully Road | — Wilson Road |
| — Mabins Well Road | — Willurah Road |
| — McLennons Bore Road | — Wood Lane. |

Due to the above and considering feedback from local councils during preparation of this technical paper, several mitigation measures have been identified in Chapter 8 to manage impacts to road condition during construction. The main mitigation measures include:

- Prior to construction, road condition surveys will be carried out for all sealed regional and local roads to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority.
- Prior to construction, an inspection and maintenance schedule for all unsealed roads to be used during construction will be developed and implemented in consultation with the relevant roads authority. The inspection and maintenance schedule will detail the inspection frequency and maintenance works (e.g. grading or resurfacing) to be undertaken during construction.

In addition to potential impacts on road condition, feedback from local councils have also raised concerns on road suitability associated with heavy vehicle movements, particularly for key local roads such as Wanganella-Moulamein Road, Carrathool Road, Mabins Well Road, Moonbria Road and Willurah Road. Concerns include, but are not limited to, road widths to enable safe passing of heavy vehicles and heavy vehicle loads impacting existing cattle grids.

Consultation with local councils will continue during EIS exhibition to identify any potential upgrades or improvement works to address concerns over road suitability, where reasonable and feasible. Where potential upgrades or improvement works are identified, these will be undertaken prior to the commencement of construction.

5.2.6.9 Impacts on road safety

Many factors can contribute to crashes, including vehicle design, speed of operation, road design, weather, road environment, driving skills, and driver behaviours.

The project footprint is extensive and frequently interacts with the road network. There are several key items that may impact road safety:

- *Road network efficiency*: As demonstrated in sections 5.2.6.1 and 5.2.6.2, the traffic increase associated with the construction activities is low, and the road network capacity on the construction routes would not be adversely impacted. The unchanged road efficiency would unlikely result in increased vehicle overtaking, sudden speed reductions, or lane changing and hence would unlikely increase crashes. The impact on road network efficiency during construction is therefore considered to be low.
- *Multiple construction site locations and associated access points on the road network*: The project footprint is spread out across the project with vehicle access required at construction compounds, temporary worker accommodation facilities, and along the project transmission line corridor. This increases the interaction with the road network. As such, appropriate traffic management would be implemented to minimise this impact. The impact of the proposed access points during construction is therefore considered to be low.
- *Driver fatigue*: The construction routes to the compound sites from all shipping ports would each require extensive travel time and drivers undertaking the haulage activities may be at risk of fatigue. As such, fatigue management measures would be implemented to minimise road safety issues. The impact of driver fatigue during construction is therefore considered to be moderate.
- *Road conditions*: As discussed in sections 5.2.6.1 and 5.2.6.2, the increase in traffic demand due to the construction activities are unlikely to impact the condition of the road network pavement. To further reduce the likelihood of impact, routine inspections and maintenance would be completed along all nominated routes to ensure that construction routes are maintained to a safe standard during construction. The impact on road conditions during construction is therefore considered to be low.
- *OSOM deliveries* (which are high risk heavy vehicles): Transfer of materials from port to the proposed Dinawan substation expansion site would be undertaken on a designated travel route. Appropriate approval would be obtained to use OSOM vehicles on the road network as guided by the NHVR and local councils. Mitigation measures would be implemented to minimise road safety impacts associated with OSOM movement. The impact of OSOM movement during construction is therefore considered to be low.

5.2.6.10 Impacts on rail level crossings

As described in section 4.7, within the traffic and transport study area there are two rail level crossings present, where construction traffic movements would cross. These include Tallow Street in Moulamein and Ochertyre Street (also known as Cobb Highway), in Deniliquin. Minimal impacts are envisaged at Moulamein due to limited train movements. No impacts are envisaged at Deniliquin due to this service now being operated by coach (bus) service instead of train service.

5.2.6.11 Impacts on public transport

A school bus service that travels on Big Springs Road (Route S196 South Wagga Wagga Primary to Big Springs) may be impacted by construction of the project. Potential impacts may be associated with stringing transmission lines over Big Springs Road, or the interaction with construction vehicles using Big Springs Road to access the construction site. However, given the limited operation of the school bus service (i.e. short periods in the morning and afternoons during weekdays), it is expected that impacts could be effectively managed through consultation with the school bus operator prior to construction to understand timetables and pick-up/set-down locations. The outcomes of the consultation would be considered as part of selecting the final crossing methodology for stringing the transmission lines over Big Springs Road (refer to section 5.2.6.5) and/or documented in the Traffic and transport management sub-plan prepared for the project.

Other bus services would not experience any delays on the construction routes given the negligible adverse impact identified from the road network performance review. All existing bus zones and bus stop facilities would not require any modifications such as bus stop relocations.

5.2.6.12 Impacts on active transport

During construction, it is anticipated that construction traffic would have limited interactions with pedestrians and cyclists, with only limited active transport infrastructure within the traffic and transport study area. This potential interaction occurs when a construction route forms part of the main street through a town. The impacts from these additional construction traffic movements are considered minor given the low number of movements and the off-road active transport facilities provided on select routes enabling separation between vehicles and pedestrians/cyclists.

6 Operational impact assessment

This chapter summarises the ongoing maintenance works required for the project, provides an assessment of the impact of these works and outlines the measures to avoid and minimise impacts to the road network.

6.1 Operational activities

The proposed Dinawan substation expansion and new transmission lines would be inspected by field staff and contractors on a regular basis, with other operational activities occurring in the event of an emergency.

Project vehicle movements during operation are not expected to generate large amounts of vehicular traffic. Any operational traffic is likely to be up to five light and two heavy vehicles a day for the duration of the activity. Maintenance and inspection activities would occur infrequently at various locations along the project footprint and be short-term in nature.

Operational activities that would require use of the road network include:

- transmission line maintenance. Regular maintenance activities will be required for the transmission lines during operation. This would typically involve two to three maintenance crews driving a light vehicle from public roads to the easement utilising access tracks, then along the easement inspecting each transmission line structure in turn.
- reactive transmission line maintenance in response to unexpected issues identified during routine inspections. This would typically involve maintenance workers using light vehicles, an elevated work platform and a medium sized truck to rectify any defects found during routine inspections. Generally, this would occur within the same maintenance cycles as the routine infrastructure inspection.
- vegetation management. Vegetation removal is required to maintain appropriate clearances between ground vegetation and transmission lines and is expected to require about five light vehicle trips and one heavy vehicle trip for transmission line maintenance.

6.1.1 *Dinawan substation operation and maintenance*

The proposed Dinawan substation expansion would not accommodate full-time staff or contractors. Maintenance at the substation site would typically include ad-hoc attendance (up to around three times a month) to undertake planned and unplanned equipment inspection and/or maintenance. It is expected that these activities would only require light vehicles and/or small to medium plant (depending on the works required). Any waste generated during operation would be minimal and disposed of on an 'as need' basis by the attending maintenance personnel.

Additional maintenance activities at the Dinawan substation site include:

- routine substation infrastructure inspection (such as transformers and other electrical plant and equipment) throughout the year by two to three personnel. This would equate to two to three light vehicle trips.
- routine/planned substation maintenance of equipment, property, and switchyard areas on a scheduled basis. This would typically be monthly and undertaken by three to five maintenance personnel. This would equate to three to five light vehicle trips.
- ad hoc fault and emergency works for repair of any damaged infrastructure (for example through a weather event or other failure of infrastructure). The amount of maintenance and/or crew required for the repair of any damaged infrastructure would depend on the extent of repairs required.

Maintenance would be regularly undertaken for the different infrastructure components and plant items such as transformers. These components would be replaced/refurbished towards the end of their serviceable life, allowing the service life of the substation to be maximised. This would equate to three to five light vehicle trips.

6.1.2 *Existing Wagga 330 kV substation and future Gugaa 500 kV substation operation and maintenance*

The project would not change the existing operational or maintenance requirements that currently occur or will occur (with respect to the future Gugaa 500 kV substation, Livingstone Gully Road) for the proposed connections.

6.1.3 *Operational workers*

The project would employ around 10 to 25 workers, including existing Transgrid employees and around six new fulltime equivalent workers. This includes the workers traffic movements relating to operational activities that have been discussed in section 6.1.

6.1.4 *Access*

Access to the proposed easement for operational purposes would preferably use existing public and private roads and tracks. Access tracks created for construction may be retained during the operation of the project to provide safe access or where requested by the landholder to remain. Access easements may be required to provide Transgrid with access from the nearest public road to the easement. These access easements would be negotiated with landholders as necessary. Transgrid may install locked or signed access gates to enable access to the easement should a landholder not have a suitable gate nearby.

6.2 *Operational impact assessment*

6.2.1 *Impacts on the road capacity and efficiency*

The proposed activities required during operation, as described in section 6.1, would be carried out at routine intervals but infrequently. The traffic generation during the operational and maintenance phases is insignificant. Any operational traffic is likely to be up to five light and two heavy vehicles a day for the duration of the activity.

Overall, the traffic generation during the operational and maintenance phase would have a negligible impact on the efficiency of the road network in the traffic and transport study area.

6.2.2 *Impacts on intersection operation and safety*

The negligible traffic movements associated with the maintenance activities would not affect the intersection capacity.

6.2.3 *Impacts on property access and emergency services*

Access to properties for residents (including emergency vehicle access and egress) would be maintained throughout the operational and maintenance phase. Should there be a requirement for a short-term restriction for a particular property, prior consultation with the affected party would be undertaken.

6.2.4 *Impacts on road safety*

Due to the low volumes of light vehicle traffic generated over the operational phase of the project, this would have a negligible impact on road safety in the traffic and transport study area.

6.2.5 *Impacts on road pavement condition and road suitability*

Due to the low volumes of light vehicle traffic generated over the operational phase of the project, this would have a negligible impact on road condition in the traffic and transport study area.

6.2.6 *Impacts on public transport*

Similar to active transport, the maintenance activities will have limited interactions with a wider road network including existing public transport services.

The additional light vehicle traffic generated over the operational and maintenance phase of the project is expected to have a negligible impact on the public transport network in the traffic and transport study area.

6.2.7 *Impacts on active transport*

Most maintenance and operational activities are anticipated to occur near the transmission lines, substations, and associated assets which may involve direct travel from the worker's office/home to the site. These activities have limited interactions with a wider road network including the existing active transport facilities.

The additional light vehicle traffic generated over the operational and maintenance phase of the proposal is expected to have a negligible impact on the active transport network in the traffic and transport study area.

7 Cumulative impact assessment

The cumulative impact assessment considers other nearby developments along with the project and assesses the scale and nature of the cumulative impacts on key issues.

The assessment is consistent with the requirements of the *Cumulative Impact Assessment Guidelines for State Significant Projects* (NSW Department of Planning, Industry and Environment (DPIE), 2022). These guidelines define cumulative impacts as those arising as a result of incremental, sustained and combined effects of human action and natural variations over time that can be both positive and negative. These impacts can be caused by the compounding effects of a single project or multiple projects in an area, and by the accumulation of effects from past, current and future activities as they arise. Further detail on cumulative impact assessment approach and the other projects considered in the cumulative impact assessment is provided in Chapter 24 (Cumulative impacts) of the EIS.

7.1 Projects considered

The relevant future projects that were considered as having the potential to result in cumulative impacts with the project are listed in Table 7.1. The location of the major relevant future projects is shown in Figure 7.1.

Table 7.1 Projects with the potential for cumulative impacts

Related developments		
1. VNI West (Victoria)	2. EnergyConnect (NSW – Eastern section) (SSI-9172452)	3. HumeLink (SSI-36656827)
Projects currently subject to environmental assessment		
4. Junction Rivers Wind Farm (SSD-30448824)	11. Pottinger Wind Farm (SSD-59235464)	18. Dinawan Solar Farm (SSD-50725959)
5. Keri Keri Wind Farm (SSD-38358962)	12. Pottinger Solar Farm (SSD-59254709)	19. Dinawan Wind Farm (SSD-50725708)
6. Wilan Wind Farm (SSD-51306206)	13. Billabong Creek Environmental Water Regulators (SSI-50831979)	20. Argoon Wind Farm (SSD-64935522)
7. Baldon Wind Farm (SSD-40138508)	14. Bullawah Wind Farm (SSD-50505215)	21. Belhaven Battery Energy Storage System (SSD-57575973)
8. Tchelery Wind Farm (SSD-59701722)	15. Romani Solar Farm (SSD-67105475)	22. Livingstone Solar Farm (SSD-80114208)
9. Abercrombie Wind Farm (SSD-77340978)	16. West Nyangay Solar Farm (SSD-74990235)	23. Mangoplah Battery Energy Storage System (SSD-77527735)
10. Wanganella Wind Farm (SSD-78102208)	17. Conargo Wind Farm (SSD-70611708)	
Approved or changed projects		
24. Yanco Delta Wind Farm (SSD-41743746)	25. Gregadoo Solar Farm (SSD-8825)	25. Inland Rail (Albury to Illabo) (SSI-10055)

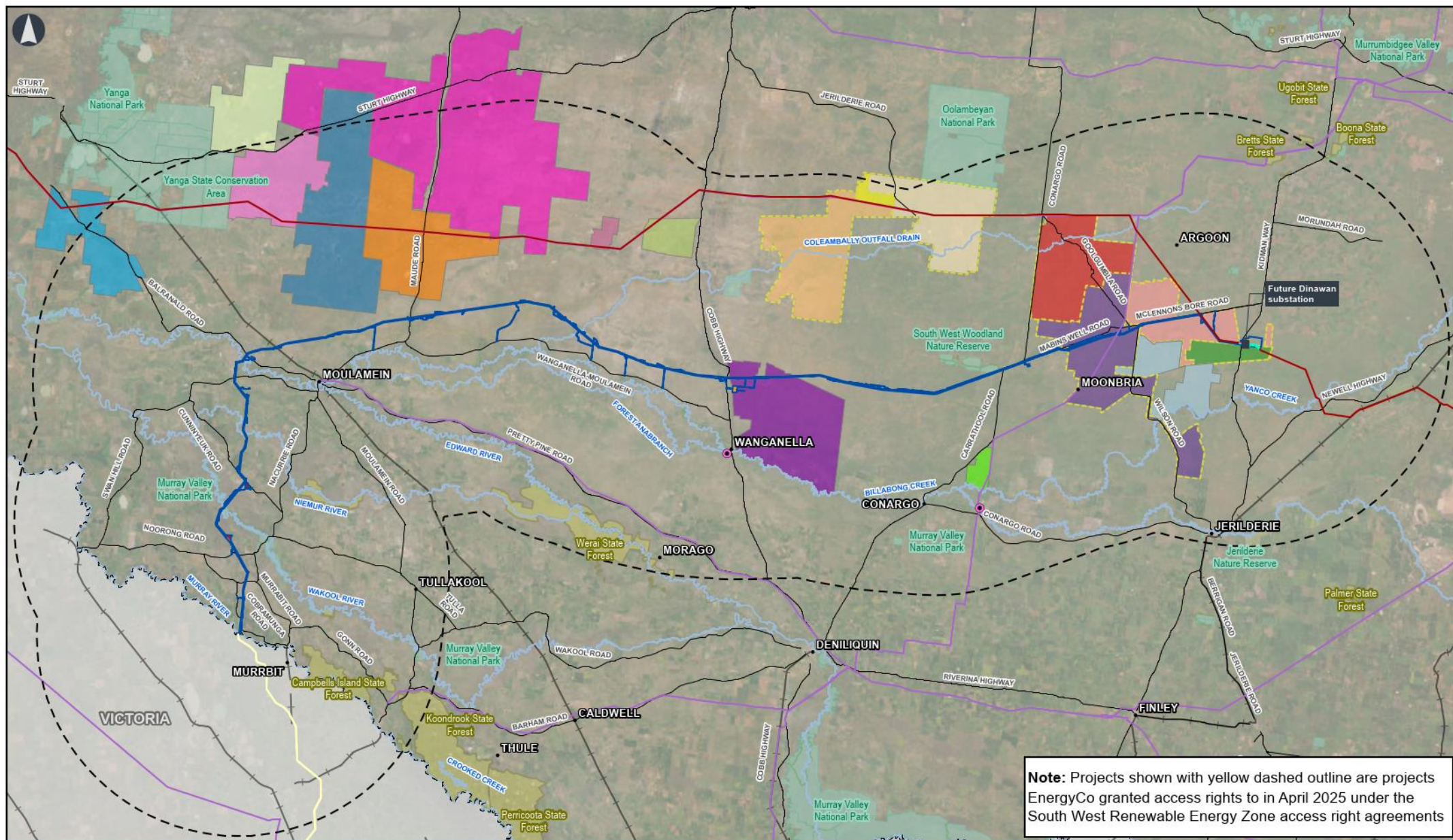
7.1.1 South West Renewable Energy Zone access right agreements

In April 2025, EnergyCo granted access rights to six wind, solar and large-scale battery projects with a combined generation capacity of 3.56 gigawatts. These projects consisted of the following as shown previously in Table 7.1:

- Yanco Delta Wind Farm (project 24)
- Dinawan Energy Hub – consisting of the Dinawan Solar Farm and Dinawan Wind Farm (projects 18 and 19 respectively)
- Pottinger Energy Park – consisting of the Pottinger Solar Farm and Pottinger Wind Farm (projects 11 and 12 respectively)
- Bullawah Wind Farm (project 14).

The combined generation capacity of these proposed or approved projects represents the initial allocation of access rights under the South West Renewable Energy Zone access scheme. In making this decision, the maximum capacity for access rights assigned to each proposed renewable energy project is lower than what has been identified in planning assessment documentation for those projects, and it would alter the likelihood of some of the remaining projects in the South West Renewable Energy Zone proceeding in the short-term.

The six projects listed above would create minor cumulative traffic impacts on the shared road network with the traffic and transport study area, with adequate road capacity to accommodate all of the identified projects cumulative traffic comfortably. However, for the purposes of this cumulative assessment it is assumed that all identified projects would proceed as described in the relevant planning assessment documentation available at the time of the assessment (in line with the *Cumulative Impact Assessment Guidelines for State Significant Projects* (NSW DPIE, 2022)).



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VNI West – EIS

Figure 7.1a
Cumulative impact projects

Legend

- Rail line
- Main road
- Named waterway
- EnergyConnect (NSW - Eastern section) project (under construction)

- Existing transmission line
- Dinawan substation works - proposed 500 kV
- Dinawan substation works - existing 330 kV
- National park
- State forest

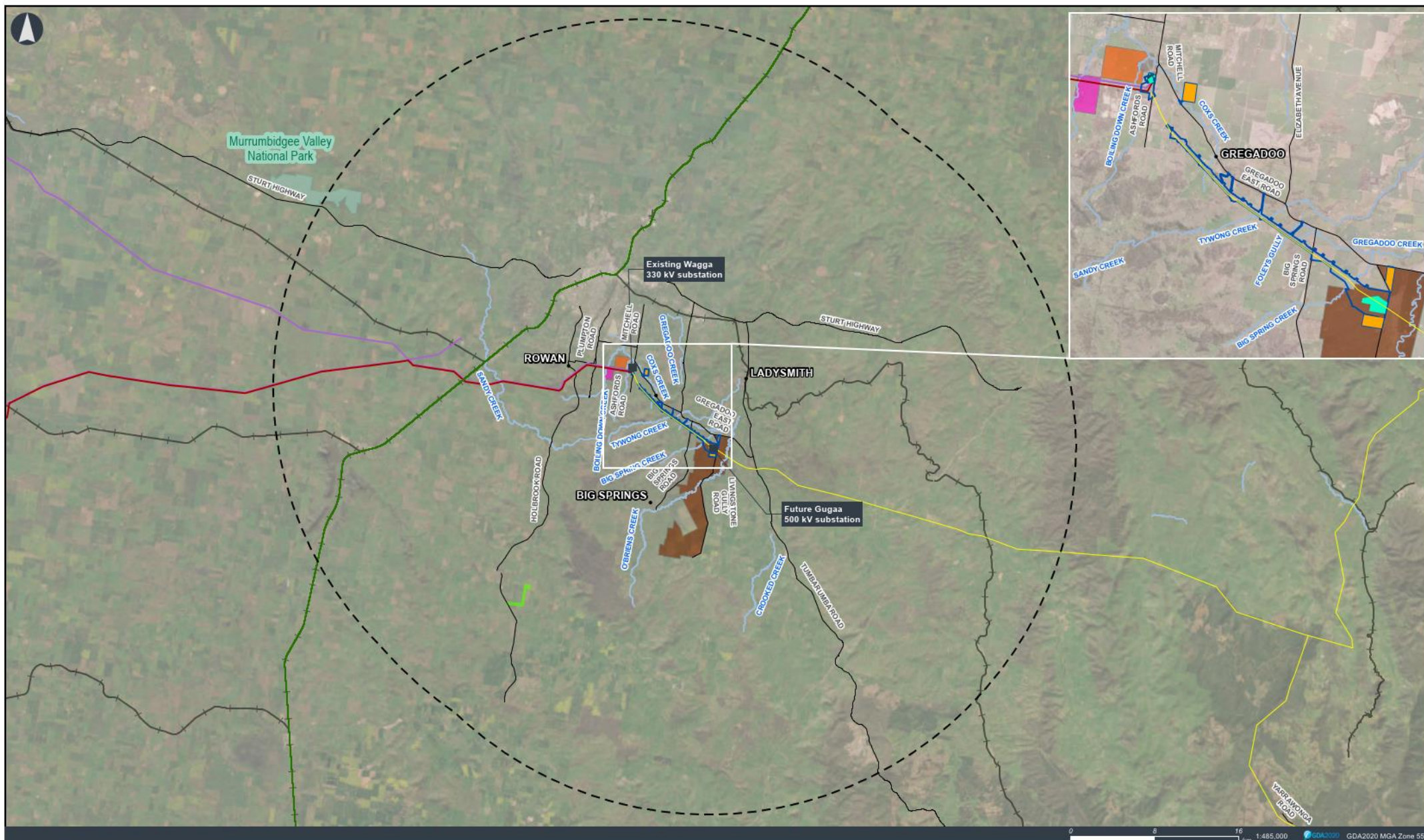
- Project footprint
- NSW/Victorian border
- Cumulative Study area
- Combined temporary worker accommodation facility
- Construction compound

- Relevant future projects**
- Billabong Creek Environmental Water Regulators
 - Abercrombie Wind Farm
 - Argoon Wind Farm
 - Baldon Wind Farm
 - Dinawan Solar Farm

- Dinawan Wind Farm (East)
- Dinawan Wind Farm (West)
- Pottinger Wind Farm
- Tchery Wind Farm
- Yanco Delta Wind Farm
- Wilan Wind Farm
- Bullawah Wind Farm

- Junction Rivers Wind Farm
- Keri Keri Wind Farm
- Pottinger Solar Farm
- Romani Solar Farm
- West Nyangay Solar Farm
- Conargo Wind Farm
- Wanganella Wind Farm





wsp

VNI West – EIS

Figure 7.1b
Cumulative impact projects

Legend

- Rail line
- Main road
- Named waterway
- EnergyConnect (NSW - Eastern section) project (under construction)

- Existing transmission line
- Substation
- National park

- Project footprint
- Cumulative Study area
- Combined temporary worker accommodation facility

- HumeLink
- Albury to Illabo
- Relevant future projects**
 - Livingstone Solar Farm
 - Belhaven Battery Energy Storage System
 - Gregadoo Solar Farm

- Mangoplah Battery Energy Storage System



7.2 Assessment of cumulative traffic and transport impacts

Table 7.2 presents details of the relevant future projects with potential for cumulative impacts, approximate year of construction and operation (where available) and further detail of the traffic generated during construction and operation. The potential for cumulative impacts is predominantly during construction of the project. As the traffic and transport impacts from the project are greatest during construction of the project, that is when cumulative impacts are most likely to occur. Relevant future projects with construction routes that overlap with this project have the potential to increase the number of construction vehicles on the road network if the construction schedules overlap.

The relevant future projects with potential for cumulative impacts are at various stages of planning approval with some still in planning, others in preparation, under assessment, already determined, under construction or in operation. Some of those in planning or preparation have limited publicly available information. Those under construction or in operation would already have project traffic travelling on the road network.

The traffic generated by existing operational mining projects in the region would form part of the existing environment and be captured in the traffic counts in Chapter 4. No proposed new or modified mining projects have been identified in the region with the potential to have cumulative impacts with the project.

Table 7.2 Relevant future projects interacting with the project – cumulative traffic and transport impacts

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Related developments				
VNI West (Victoria)	Transmission Company Victoria	Victorian component of the VNI West project. VNI West (Victoria) would consist of around 240 km of new 500 kV transmission line between the connection point with VNI West (Victoria) and Bulgana, Victoria. Project approval and commencement of construction is expected to occur in 2026.	Provides a direct connection to the project at the NSW border.	There are negligible cumulative traffic and transport impacts between VNI West (Victoria) and the project. This is due to the work being completed in Victoria therefore not interacting with the road network in NSW.
EnergyConnect (NSW – Eastern section) project (SSI-9172452)	Transgrid	Development of a new transmission line connecting Buronga Substation and Wagga Wagga Substation, and construction of the new Dinawan Substation (around 170 km west of Wagga Wagga) as well as upgrade to existing Wagga 330 kV substation. Construction began in early 2023 and is expected to continue until around mid to late 2025.	Provides a direct connection into the project at the future Dinawan substation (being constructed as part of Energy Connect (NSW – Eastern section) project) and existing Wagga 330 kV substation.	There may be minor overlapping cumulative traffic and transport impacts between EnergyConnect (NSW – Eastern section) project and the project. The EnergyConnect (NSW – Eastern section) project would likely complete construction or be winding up construction when the project commences construction. Consecutive impacts are envisaged due to back-to-back construction programs which would mean increased traffic in the region over a longer period of time without a break.
HumeLink (SSI-36656827)	Transgrid	Construction and operation of new transmission lines between the existing substations at Wagga Wagga and Bannaby, the proposed Maragle substation, and a new substation at Gugaa.	The project overlaps the HumeLink footprint.	Minor cumulative traffic and transport impacts are expected between Humelink and the project. The HumeLink construction traffic would overlap within the Wagga Wagga LGA. The total traffic generated by the Humelink project across its many sites is 425 light vehicles and 325 heavy vehicles at the peak of construction.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
		Construction is proposed to commence in 2025 and is expected to take around 2.5 years to complete		The Humelink project would add the following amounts of light and heavy vehicles onto roads that are also proposed for the project including: — Sturt Highway would have a 32 vehicle increase in each direction in the peak hour (16 heavy vehicles and 16 light vehicles). — Big Springs Road would have a 50 vehicle increase in each direction in the peak hour (20 heavy vehicles and 30 light vehicles). — Gregadoo East Road would have a 90 vehicle increase in each direction in the peak hour (50 heavy vehicles and 40 light vehicles). — Livingstone Gully Road would have a 50 vehicle increase in each direction in the peak hour (30 heavy vehicles and 20 light vehicles). While there is some overlap with construction traffic, cumulative effects are unlikely to result in any issues due to the residual capacity of the Sturt Highway. Likewise on the local roads of Angels Lane, Big Springs Road, Gregadoo East Road and Livingstone Gully Road, ample capacity is available and good levels of service are expected to be maintained. All the above roads are sealed with the exception of Angels Lane and Livingstone Gully Road. The existing gravel surface would need ongoing routine maintenance to ensure the road is kept in good condition for heavy vehicle use. Refer to Mitigation measure in Chapter 8. Increased heavy vehicle turning at the Gregadoo East Road, Angels Lane and Livingstone Gully Road is likely to see gravel tracking and may require traffic management to accommodate simultaneous heavy vehicle turning traffic. The Traffic and transport management sub-plan would include measures to avoid and minimise cumulative impacts, including addressing road maintenance and traffic controls.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Proposed projects				
Junction Rivers Wind Farm (formerly Burrawong Wind Farm) (SSD-30448824)	BayWare. Projects Australia Pty Ltd	Development of a 750 MW wind farm, including 96 turbines (up to 300 m), battery storage and ancillary infrastructure. Construction is proposed to commence in Q3 2025 and take two years.	Approximately 20 km northwest of the project	Minor cumulative traffic and transport impacts are expected between Junction Rivers Wind Farm and the project. Peak daily bidirectional traffic in Stage 1 Construction (2025-2026): — Sturt Highway: 120 vehicles per day — Balranald Road: 286 vehicles per day — Swan Hill Road: 166 vehicles per day Peak daily bidirectional traffic in Stage 2 Construction (2027-2029): — Sturt Highway: 216 vehicles per day (96 vehicles in the AM and PM peak hour) — Balranald Road: 354 vehicles per day (134 vehicles in the AM and PM peak hour) — Swan Hill Road: 192 vehicles per day (AM and PM peak hour vehicle unavailable). The construction periods of the two projects overlap. Considering the geographical extent of the VNI West project, cumulative transport impacts are anticipated on the roads above and include OSOM vehicles (although they are not expected to be operational during peak hours). Given the substantial residual capacity available on these roads, should the peak construction work of both projects coincide, the traffic impacts are considered low and manageable within the existing road network capacity. Increased OSOM vehicle movements, although outside of peak hours, are anticipated to reduce road network efficiency and limit and restrict both following and passing vehicle movements. General road safety is not expected to be compromised due to OSOM vehicles travelling under escort vehicles which would manage traffic ahead and behind the OSOM vehicle.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
				With the implementation of the traffic and transport management sub-plan and mitigation measures listed in Chapter 8 for the project and similar measures for Junction Rivers Wind Farm, it is expected that potential cumulative impacts would be effectively managed.
Keri Keri Wind Farm (SSD-38358962)	Acciona Energy Australia	Development of a wind energy generation project with up to 155 wind turbines, with transmission connection, energy storage and associated infrastructure. Construction is proposed to commence in late 2027 and take two years.	The site is around 22 km north of the project	Moderate cumulative traffic and transport impacts are expected between Keri Keri Wind Farm and the project. Peak construction period daily vehicle movements from the Keri Keri Wind farm on the Sturt Highway are 776 vehicles daily (186 vehicles in the AM and PM peak hours). The construction periods of the two projects overlap. Given the substantial residual capacity available on Sturt Highway, should the peak construction work of both projects coincide, the traffic impacts are considered low and manageable within the existing road network capacity. Increased OSOM vehicle movements, although outside of peak hours, are anticipated to reduce road network efficiency and limit and restrict both following and passing vehicle movements. General road safety is not expected to be compromised due to OSOM vehicles travelling under escort vehicles which would manage traffic ahead and behind the OSOM vehicle. With the implementation of the traffic and transport management sub-plan and mitigation measures listed in Chapter 8 for the project and similar measures for Keri Keri Wind Farm, it is expected that potential cumulative impacts would be effectively managed.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Wilan Wind Farm (SSD-51306206)	Kilara	Development of a wind farm with up to 138 wind turbines, energy storage and associated infrastructure. Construction is proposed to begin in early 2025, but is now likely to be delayed, and is expected to take around 24 to 30 months once construction is commenced.	The site is around 34 km north of the project	The SEARs for Wilan Wind Farm were issued in December 2024 and the EIS is currently being prepared, therefore a detailed traffic assessment has not been completed yet. Sturt Highway would be utilised by the project. An increase in construction traffic during the construction phase is anticipated on the above roads including OSOM vehicle movements. During the operational phase, minimal traffic is anticipated and would have negligible impact on the road network. The construction of this project is due to be completed in 2027. There is a small overlap with VNI West. While an assessment has not been completed, consultation with the proponent would be conducted to coordinate and avoid where possible cumulative traffic impacts (refer to Chapter 8). Increased OSOM vehicle movements, although outside of peak hours, are anticipated to reduce road network efficiency and limit and restrict both following and passing vehicle movements. General road safety is not expected to be compromised due to OSOM vehicles travelling under escort vehicles which would manage traffic ahead and behind the OSOM vehicle. With the implementation of the traffic and transport management sub-plan and mitigation measures listed in Chapter 8 for the project and similar measures for Wilan Wind Farm, it is expected that potential cumulative impacts would be effectively managed.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Baldon Wind Farm (SSD-40138508)	Goldwind Australia	Construction and operation of a wind farm with up to 180 wind turbines, battery storage and associated infrastructure. Construction is expected to begin in early 2026 and take around 36 months if constructed in one stage.	The site is around 2 km north of the project.	Minor cumulative traffic and transport impacts are expected between Baldon Wind Farm and the project. Peak construction period daily vehicle movements from the Baldon Wind Farm on the Sturt Highway would be 276 vehicles daily (87 vehicles in the AM and PM peak hours) This project overlaps with the VNI West project. Given the substantial residual capacity available on Sturt Highway, should the peak construction work of both projects coincide, the traffic impacts are considered low and manageable within the existing road network capacity. Increased OSOM vehicle movements, although outside of peak hours, are anticipated to reduce road network efficiency and limit and restrict both following and passing vehicle movements. General road safety is not expected to be compromised due to OSOM vehicles travelling under escort vehicles which would manage traffic ahead and behind the OSOM vehicle. With the implementation of the traffic and transport management sub-plan and mitigation measures listed in Chapter 8 for the project and similar measures for Baldon Wind Farm, it is expected that potential cumulative impacts would be effectively managed.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Tchelery Wind Farm (SSD-59701722)	Neoen	Construction and operation of a wind farm with up to 120 wind turbines and associated infrastructure. Construction is proposed to commence in early 2026 and is expected to take around 30 months	The site is around 2.2 km north of the project	The SEARs for Tchelery Wind Farm were issued in July 2023 and the EIS is currently being prepared, therefore a detailed traffic assessment has not been completed yet. Major roads in the traffic and transport study area that are relevant are: — Sturt Highway — Maude Road — Cobb Highway An increase in construction traffic during the construction phase is anticipated on the above roads including OSOM vehicle movements. During the operational phase, minimal traffic is anticipated and would have negligible impact on the road network. The construction of this project is due to be completed in 2028 which overlaps with VNI West. While an assessment has not been completed, consultation with the proponent would be conducted to understand the likely cumulative traffic impacts. Increased OSOM vehicle movements, although outside of peak hours, are anticipated to reduce road network efficiency and limit and restrict both following and passing vehicle movements. General road safety is not expected to be compromised due to OSOM vehicles travelling under escort vehicles which would manage traffic ahead and behind the OSOM vehicle. With the implementation of the traffic and transport management sub-plan and mitigation measures listed in Chapter 8 for the project and similar measures for Tchelery Wind Farm, it is expected that potential cumulative impacts would be effectively managed.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Abercrombie Wind Farm (SSD-77340978)	Abercrombie Wind Farm Pty Ltd	Development of a proposed 2.5 GW wind farm comprising around 348 wind turbines (maximum tip height of up to 300 m), BESS and associated infrastructure across an area of around 91,365 ha. An EIS is being prepared for this project. Construction is proposed to commence in early 2028 and is expected to take around five years.	Abercrombie Wind Farm is located around 12 km north of the project	The construction of the Abercrombie Wind Farm is currently planned to partially overlap with the project and based on the location in relation to the project there is potential for overlapping construction routes. However, traffic assessment of the Abercrombie Wind Farm has not been undertaken at the time this report was prepared, and as such further quantitative assessment of cumulative construction traffic impacts is limited.
Wanganella Wind Farm (SSD-78102208)	Equis Wind Australia Pty Ltd	Development of a proposed 840 MW wind farm comprising around 105 wind turbines (with a maximum tip height of 270 m), BESS and associated infrastructure. An EIS is being prepared for this project. Construction is expected to begin in late 2026 and is expected to take around 55 months	The project traverses through the Wanganella Wind Farm	The construction of the Wanganella Wind Farm is currently planned to partially overlap with the project and based on the location in relation to the project there is potential for overlapping construction routes. However, traffic assessment of the Wanganella Wind Farm has not been undertaken at the time this report was prepared, and as such further quantitative assessment of cumulative construction traffic impacts is limited.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Pottinger Wind Farm (SSD-59235464)	Someya Renewables	This project has been recommended to be referred to the Independent Planning Commission for assessment (12th May 2025) Construction and operation of a wind farm with up to 247 wind turbines, battery storage and associated infrastructure. Project construction would likely occur over approximately 55 months from commencement to commissioning.	Approximately 10 km north of the project	Moderate cumulative traffic and transport impacts are expected between Pottinger Wind Farm and the project. Peak construction traffic volumes are 1,960 daily trips (675 vehicles in the peak hour of which 600 are light vehicles) utilising roads including: — Cobb Highway (north of Jerilderie Road)– 284 vehicles in the peak hour — Cobb Highway (south of Warwillah Road) – 248 vehicles per hour — Conargo Road (north of Kidman Way) – 81 vehicles in the peak hour — Conargo Road (south of Kidman Way) – 329 vehicles in the peak hour — Kidman Way – 52 vehicles in the peak hour. While the construction start date is unknown, there is likely to be an overlap between this project and VNI West. While the vehicle movements are higher compared to other projects, the increase in peak construction traffic would be felt locally. Given the large area of VNI West, once construction schedules are known for the two projects, these should be shared to minimise cumulative traffic impacts. Cumulatively the traffic impacts are considered manageable within the existing road network capacity. Increased OSOM vehicle movements, although outside of peak hours, are anticipated to reduce road network efficiency and limit and restrict both following and passing vehicle movements. General road safety is not expected to be compromised due to OSOM vehicles travelling under escort vehicles which would manage traffic ahead and behind the OSOM vehicle. With the implementation of the traffic and transport management sub-plan and mitigation measures listed in Chapter 8 for the project and similar measures for Pottinger Wind Farm, it is expected that potential cumulative impacts would be effectively managed.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Pottinger Solar Farm (SSD-59254709)	Someva Renewables	Construction and operation of a solar farm of up to 300 MW, including associated infrastructure. Construction is proposed to commence in 2026 and is expected to take around 24 months.	The site is around 20 km north of the project	The SEARs for Pottinger Solar Farm were issued in July 2023 and the EIS is currently being prepared, therefore a detailed traffic assessment has not been completed yet. Major roads in the traffic and transport study area that are relevant are: — Cobb Highway — Jerilderie Road. An increase in construction traffic during the construction phase is anticipated on the above roads. During the operational phase, minimal traffic is anticipated and would have negligible impact on the road network. The construction of this project is due to be completed in 2028 which overlaps with VNI West. While an assessment has not been completed, consultation with the proponent would be conducted to understand the likely cumulative traffic impacts (refer to Chapter 8).

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Billabong Creek Environmental Water Regulators (SSI-50831979)	New South Wales Department of Climate Change, Energy, the Environment and Water	Replacing two existing weirs along Billabong Creek with two new environmental water regulators. The new regulators would allow for flow regulation and fish passage. Construction is proposed to start in 2025 and take 18 months to complete.	Approximately 7 km south of the project	Minor cumulative traffic and transport impacts are expected between Billabong Creek Environmental Water Regulators and the project. The peak daily movement for each regulator using each relevant road is: — Hartwood Regulator: 90 vehicles using Conargo Road (78 in the AM and PM peak hours) — Wanganella Regulator 131 vehicles using Cobb Highway (68 in the AM and PM peak hours) There is likely to be an overlap between this project and VNI West in 2026 when pre-construction commences. Given the focus of pre-construction activity on alternate roads such as the Sturt Highway, it is unlikely that pre-construction vehicle movements for VNI West would coincide with peak construction movements for this project. Additional traffic on Conargo Road and Cobb Highway is unlikely to impact the existing road capacity given the substantial residual capacity available. With the implementation of the traffic and transport management sub-plan and mitigation measures listed in Chapter 8 for the project and similar measures for Billabong Creek Environmental Water Regulators, it is expected that potential cumulative impacts would be effectively managed.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Bullawah Wind Farm (SSD-50505215)	BayWare Projects Australia	This project is in the assessment process and current status is stating more information required. Construction and operation of a wind farm with up to 143 wind turbines and associated infrastructure. Construction is proposed to begin in late 2025 and is expected to take around 44 months.	The site is around 19 km north / northwest of the project	Moderate cumulative traffic and transport impacts are expected between Bullawah Wind Farm and the project. Peak construction traffic volumes are 362 daily trips and 66 peak hourly trips in total and distributed onto the following roads. Construction routes include the following relevant roads: — Sturt Highway – 64 peak hourly trips — Cobb Highway – 97 peak hourly trips — Jerilderie Road – 97 peak hourly trips — Conargo Road – 97 peak hourly trips. There would be a construction overlap between VNI West and this project. It is expected that combined traffic would be accommodated within the existing road network due to the substantial residual capacity and that impacts are low and manageable. With the implementation of the traffic and transport management sub-plan and mitigation measures listed in Chapter 8 for the project and similar measures for Bullawah Wind Farm, it is expected that potential cumulative impacts would be effectively managed.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Romani Solar Farm (SSD-67105475)	Samsung C&T Renewable Energy Australia Pty Ltd	The construction, operation and decommissioning of a solar photovoltaic energy generating facility (250 MW) with an associated battery energy storage system (150MW / 300MWh) Construction is proposed to start in 2025 and take 18 months to complete.	Approximately 12 km north of the project	The SEARs for the Romani Solar Farm were issued in March 2024 and the EIS is currently being prepared, therefore a detailed traffic assessment has not been completed yet. Major roads in the traffic and transport study area that are relevant are: — Sturt Highway — Cobb Highway — Maude Road. An increase in construction traffic during the construction phase is anticipated on the above roads. During the operational phase, minimal traffic is anticipated and would have negligible impact on the road network. There would be a small overlap in construction programs with VNI West and this project. While information is limited, any cumulative traffic increases on Sturt Highway, Cobb Highway and Maude Road should be able to be accommodated due to the substantial residual capacity. While an assessment has not been completed, consultation with the proponent would be conducted to understand the likely cumulative traffic impacts.
West Nyangay Solar Farm (SSD-74990235)	Australian solar farms	Development of an 800MW solar farm with energy storage and associated infrastructure. The construction start date is unknown but expected to take 12 to 18 months to complete.	Approximately 19 km north of the project	The SEARs for the West Nyangay Solar Farm were issued in September 2024 and the EIS is currently being prepared, therefore a detailed traffic assessment has not been completed yet. Major roads in the traffic and transport study area that are relevant include the Cobb Highway. An increase in construction traffic during the construction phase is anticipated on the above roads. During the operational phase, minimal traffic is anticipated and would have negligible impact on the road network.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Conargo Wind Farm (SSD-70611708)	Squadron Renewable Energy Developments Pty Ltd	Construction and operation of a 300 MW wind farm, including 53 WTGs up to 270 m in height and a 150MW/1200MWh BESS. Construction is proposed to start in 2027 and take two years to complete.	Approximately 17 km south of the project	The SEARs for the Conargo Wind Farm were issued in December 2024 and the EIS is currently being prepared, therefore a detailed traffic assessment has not been completed yet. Major roads in the traffic and transport study area that are relevant are: — Carrathool Road — Conargo Road. An increase in construction traffic during the construction phase is anticipated on the above roads including OSOM vehicle movements. During the operational phase, minimal traffic is anticipated and would have negligible impact on the road network. There will be a construction overlap between VNI West and this project. While an assessment has not been completed, consultation with the proponent would be conducted to understand the likely cumulative traffic impacts. It is expected any combined traffic can be catered to within the existing road network due to the substantial residual capacity. Increased OSOM vehicle movements, although outside of peak hours, are anticipated to reduce road network efficiency and limit and restrict both following and passing vehicle movements. General road safety is not expected to be compromised due to OSOM vehicles travelling under escort vehicles which would manage traffic ahead and behind the OSOM vehicle.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Dinawan Solar Farm (SSD-50725959)	Spark Renewables	Development of an 800 MW solar farm, associated infrastructure and battery storage. Construction is proposed to start in 2025 and take 18 to 36 months to complete.	100 m south of the project	Moderate cumulative traffic and transport impacts are expected between Dinawan Solar Farm and the project. Peak construction would generate 586 vehicles a day (134 vehicles in the peak hour). Kidman Way would be one of the roads utilised that interface with our projects traffic. There would be an overlap with this project and VNI West in 2026 when pre-construction commences. It is unlikely that pre-construction vehicle movements for VNI West would coincide with peak construction movements for this project given Kidman Way would not be used for pre-construction traffic. Additional traffic on Kidman Way can be catered to within the existing road capacity due to the substantial residual capacity. With the implementation of the traffic and transport management sub-plan and mitigation measures listed in Chapter 8 for the project and similar measures for Dinawan Solar Farm, it is expected that potential cumulative impacts would be effectively managed.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Dinawan Wind Farm (SSD-50725708)	Spark Renewables	Construction and operation of a wind farm with up to 200 wind turbines and associated infrastructure. Construction is proposed to start in 2025 and take five years to complete.	Dinawan Wind Farm (west) around 4 km north of the project The project traverses Dinawan Wind Farm (east)	Moderate cumulative traffic and transport impacts are expected between Dinawan Wind Farm and the project. During construction 638 daily traffic movements with 462 light vehicles and 176 heavy vehicles. With 201 vehicles in the AM and PM peak hours are forecast for Stage 1. Regional light and heavy vehicle traffic would use either: — Sturt Highway – 82 vehicles in the peak hour — Kidman Way – 201 vehicles in peak hour — Newell Highway– 80 vehicles in peak hour. Locally the road used include: — McLennons Bore Road – 86 vehicles in peak hour — Cadell Road – 115 vehicles in peak hour. It was assessed that traffic would be split equally across the two routes. The construction periods of the two projects overlap. Given the substantial residual capacity available on these roads, should the peak construction work of both projects coincide, the traffic impacts are considered manageable within the existing road network capacity. Increased OSOM vehicle movements, although outside of peak hours, are anticipated to reduce road network efficiency and limit and restrict both following and passing vehicle movements. General road safety is not expected to be compromised due to OSOM vehicles travelling under escort vehicles which would manage traffic ahead and behind the OSOM vehicle. With the implementation of the traffic and transport management sub-plan and mitigation measures listed in Chapter 8 for the project and similar measures for Dinawan Wind Farm, it is expected that potential cumulative impacts would be effectively managed.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Argoon Wind Farm (SSD-64935522)	Argoon Wind Farms	Construction and operation of a wind farm with up to 106 wind turbines, battery storage and associated infrastructure. Construction is proposed to commence within one year of approval and take 24 to 36 months to complete.	Approximately 1 km south of the project	The SEARs for the Argoon Wind Farm were issued in December 2023 and the EIS is currently being prepared, therefore a detailed traffic assessment has not been completed yet. Major roads in the traffic and transport study area that are relevant are: — Newell Highway — Kidman Way — Wilson Road. An increase in construction traffic during the construction phase is anticipated on the above roads including OSOM vehicle movements. During the operational phase, minimal traffic is anticipated and would have negligible impact on the road network. The construction periods of the two projects overlap. While an assessment has not been completed, consultation with the proponent would be conducted to understand the likely cumulative traffic impacts. It is expected any combined traffic can be catered to within the existing road network due to the substantial residual capacity. Increased OSOM vehicle movements, although outside of peak hours, are anticipated to reduce road network efficiency and limit and restrict both following and passing vehicle movements. General road safety is not expected to be compromised due to OSOM vehicles travelling under escort vehicles which would manage traffic ahead and behind the OSOM vehicle.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Approved projects and changes to existing projects				
Yanco Delta Wind Farm (SSD-41743746)	ViRYA Energy	Development of a wind farm with up to 208 wind turbines, energy storage and associated infrastructure. Construction is proposed to begin in 2026 and is expected to take around 36 months.	The project traverses the Yanco Delta Wind Farm.	Moderate cumulative traffic and transport impacts are expected between Yanco Delta Wind Farm and the project. Peak construction is expected to generate 776 daily trips (310 peak hour trips) with the following peak hour impacts: — Kidman Way (310 in the AM and PM peaks) — Sturt Highway (22 in the AM and PM peaks). The construction periods of the two projects overlap. Given the substantial residual capacity available on these roads, should the peak construction work of both projects coincide, the traffic impacts are considered manageable within the existing road network capacity. Increased OSOM vehicle movements, although outside of peak hours, are anticipated to reduce road network efficiency and limit and restrict both following and passing vehicle movements. General road safety is not expected to be compromised due to OSOM vehicles travelling under escort vehicles which would manage traffic ahead and behind the OSOM vehicle. With the implementation of the traffic and transport management sub-plan and mitigation measures listed in Chapter 8 for the project and similar measures for Yanco Delta Wind Farm, it is expected that potential cumulative impacts would be effectively managed.
Gregadoo Solar Farm (SSD-8825)	Gregadoo Solar Farm Pty Ltd	Existing solar farm with increased generating capacity of around 65 MW (AC) and 75 MW (DC). Construction would start in 2025 and is expected to take up to around 9 months.	Adjacent to the project at Wagga 330 kV substation (Line 51 works).	Peak construction is expected to generate 80 vehicle movements per day and utilise the Sturt Highway for access. There are negligible traffic and transport impacts. This is due to this project finishing before VNI West commences pre-construction. Consecutive impacts are envisaged due to back-to-back construction programs.

Relevant future project	Proponent	Scope/status/timeframe	Location/distance to project	Cumulative traffic and transport impacts
Belhaven Battery Energy Storage System (SSD-57575973)	Vena Energy	Construction and operation of a 400 MW / 800 MWh Battery Energy Storage System including transmission connection and associated infrastructure. Construction is anticipated between 2025 and 2026.	Around 2 km west of the project (Line 51 works)	Peak construction is expected to generate 20 light vehicle movements and 4 heavy vehicle movements during peak periods and utilise the Sturt Highway for access. There would be a small overlap in construction programs with VNI West and this project. Any cumulative traffic increases on the Sturt Highway should be able to be accommodated due to the substantial residual capacity.
Livingstone Solar Farm (SSD-80114208)	Brunsdon Pastoral Co	Development of a proposed 300 to 600 MW solar farm comprising PV panels. BESS and associated infrastructure across an area of around 2,700 ha. An EIS is being prepared for the project would be constructed over a period of around 12 to 24 months	Future Gugaa 500 kV substation, Livingstone Gully Road is adjacent to the Livingstone Solar Farm project area.	The construction of the Livingstone Solar Farm may partially overlap with the project and based on the location in relation to the project there is potential for overlapping construction routes. However, traffic assessment of the Livingstone Solar Farm has not been undertaken at the time this report was prepared, and as such further quantitative assessment of cumulative construction traffic impacts is limited.
Mangoplah Battery Energy Storage System (BESS) (SSD-77527735)	Samsun C&T Renewable Energy Australia Pty Ltd	Development of a proposed 100 MW / 400 MWh BESS including transmission connection and associated infrastructure. An EIS is being prepared for the project.	Mangoplah BESS project is located around 21 km south of the project.	The construction of the Mangoplah BESS may partially overlap with the project and based on the location in relation to the project there is potential for overlapping construction routes. However, traffic assessment of the Mangoplah BESS has not been undertaken at the time this report was prepared, and as such further quantitative assessment of cumulative construction traffic impacts is limited.
Inland Rail (Albury to Illabo)	ARTC	Enhancement works to structures and sections of track along 185 kilometres of existing operational standard gauge rail from the Victorian/New South Wales border to Illabo in regional NSW. The project forms part of the Inland Rail project. Construction is proposed to commence in 2025 and take 16 months to complete.	11.5 km northwest of the project and 14 km west of the project (Line 51 works).	Peak construction is expected to generate 100 vehicles in the peak hour on Edward Street (Sturt Highway). There are negligible traffic and transport impacts. This is due to this project finishing before VNI West commences pre-construction.

7.3 Summary of cumulative project traffic and transport impacts

Key traffic and transport cumulative impacts have been identified from detailed project information in Table 7.2. Some of the roads are identified for use by multiple relevant future projects within the traffic and transport study area. The approximate peak hour cumulative project traffic volume totals and associated capacities of each road by lane and by direction shown in Table 7.3.

Based on Table 7.3 the total cumulative project traffic indicates it can be accommodated comfortably on the road network with ample residual road mid-block capacity with all road reporting a LoS A or B with exception of Sturt Highway, Kidman Way and Conargo Road with a LoS C which is still good operation. It should be noted that this assumes a worst-case scenario whereby all the projects' construction peaks occur at the same time, (month/year), the traffic occurs in the same peak hour and that they are travelling in the same direction at the same section of the road assessed.

There is also potential for cumulative traffic generation along overlapping construction routes by multiple relevant future projects to impact road conditions. Regional and local roads which may be jointly used by the project and relevant future projects in the traffic and transport study area have been conservatively identified in Appendix E (Schedule of road improvement works, new or upgraded intersection treatments and management requirements). Where a likely cumulative road condition impact has been identified, multi-party consultation and coordination will be carried out with the proponents of relevant future projects and the relevant roads authority to establish coordination requirements associated with managing use, damage and maintenance/rectification works during overlapping construction periods (refer to Chapter 8).

In addition to managing the potential cumulative impact to road conditions, other cumulative traffic and transport impacts due to overlapping construction schedules are expected to be managed through general coordination and engagement with proponents and/or construction contractors of relevant future projects. This would occur during detailed design and construction and would confirm the potential cumulative impacts and timing of activities that have potential cumulative impacts. Coordination and engagement would include:

- providing regular construction program updates
- identifying potential conflict points with other relevant future projects, e.g. proximity of work sites, or shared construction access routes and traffic management requirements
- developing mitigation strategies to manage conflicts that may arise.

Turn warrants were completed for cumulative project traffic at existing and new access point intersections to be used by turning project traffic along the Cobb Highway and also Kidman Way. These are shown and summarised in Table 7.4.

Table 7.3 Relevant future projects interacting with the project – cumulative traffic and transport generation in peak hour on key road network

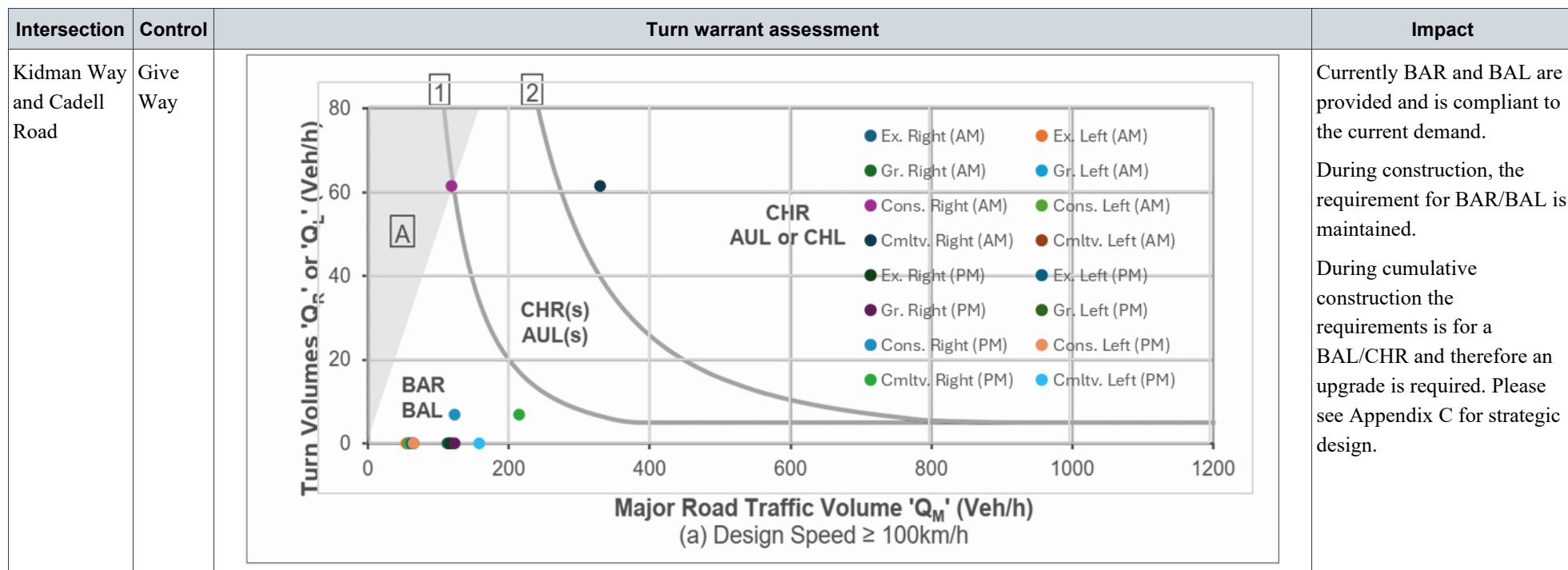
Relevant future project	Road name	Sturt Highway	Cobb Highway	Kidman Way	Conargo Road	Cadell Road	McLennons Bore Road	Gregadoo East Road	Livingstone Gully Road	Big Springs Road
		1800 veh/h	1800 veh/h	1400 veh/h	1000 veh/h	900 veh/h	900 veh/h	1000 veh/h	900 veh/h	900 veh/h
VNI West NSW		68	68	68	68	68	68	68	68	5
Humelink		32						90	50	50
Junction Rivers Wind Farm		96								
Keri Keri Wind Farm		186								
Baldon Wind Farm		87								
Pottinger Wind Farm			284	52	329					
Bullawah Wind Farm		64	97		97					
Dinawan Solar Farm				136						
Dinawan Wind Farm		82		201		115	86			
Yanco Delta Wind Farm		22		310						
Gregadoo Solar Farm		80								
Belhaven BESS		24								
Inland Rail (Albury to Illabo)		100								
Cumulative Project Traffic		841 veh/h	449 veh/h	767 veh/h	494 veh/h	183 veh/h	154 veh/h	158 veh/h	118 veh/h	55 veh/h
Existing Traffic#		78 veh/h	28 veh/h	49 veh/h	31 veh/h	^1	^5	*100	*20	*50
Existing Traffic# + Cumulative Project Traffic - Volume/Capacity Ratio V/C		919/1800 0.51	477/1800 0.27	816/1400 0.58	525/1000 0.53	184/900 0.20	159/900 0.18	258/1000 0.26	138/900 0.15	105/900 0.12
Existing Traffic# + Cumulative Project Traffic - Level of Service (LoS)		C	A	C	C	A	A	B	A	A

Notes: # Existing traffic count data – WSP; ^ Traffic count data – Dinawan Wind Farm TIA; * Traffic count data – Humelink TIA

Table 7.4 Cumulative construction intersection turn warrant assessments

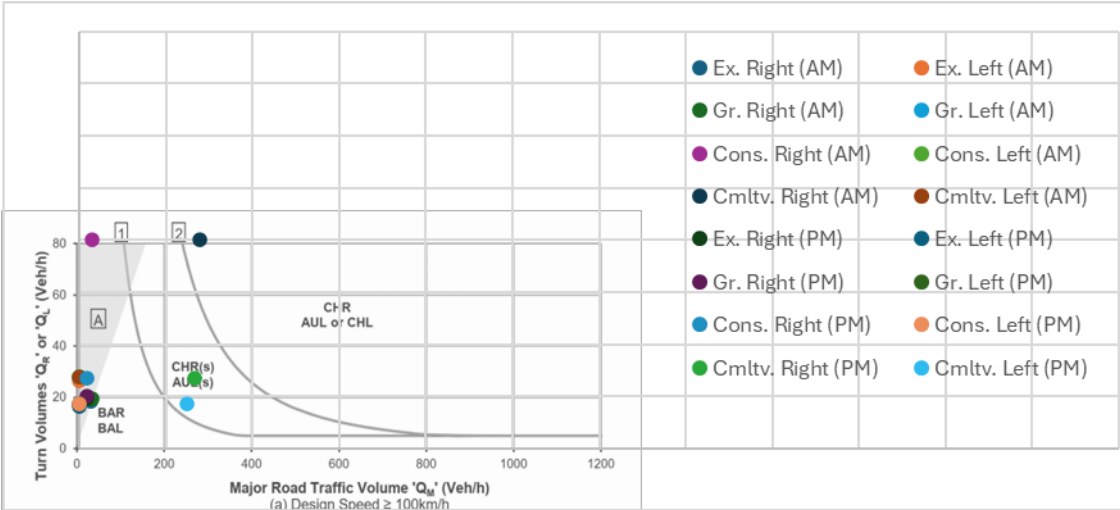
Intersection	Control	Turn warrant assessment	Impact
Newell Highway and Kidman Way	Give Way	Turn Volumes 'Q_c' or 'Q_s' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed ≥ 100km/h	Currently BAR and BAL are provided and is compliant to the current demand. During construction, the requirement for BAR/BAL is maintained. During cumulative construction, the requirement for BAR/BAL is maintained.

Intersection	Control	Turn warrant assessment	Impact
Cobb Highway and Wanganella-Moulamein Road	Give Way	(a) Design Speed $\geq 100\text{km/h}$	Currently BAR and BAL are provided and is compliant to the current demand. During construction, the requirement for BAR/BAL is maintained. During cumulative construction the requirements is for a BAL/CHR and therefore an upgrade is required. Please see Appendix C for strategic design.



Intersection	Control	Turn warrant assessment	Impact
New site access at Cobb Highway	Give Way	Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$ Legend: - Ex. Right (AM) - Gr. Right (AM) - Cons. Right (AM) - Cmltv. Right (AM) - Ex. Right (PM) - Gr. Right (PM) - Cons. Right (PM) - Cmltv. Right (PM) - Ex. Left (AM) - Gr. Left (AM) - Cons. Left (AM) - Cmltv. Left (AM) - Ex. Left (PM) - Gr. Left (PM) - Cons. Left (PM) - Cmltv. Left (PM)	Construction demand would only require a BAR/BAL treatment at this new access road. During cumulative construction the requirements is for a AUL(s)/CHR(s) and therefore an upgrade is required. Please see Appendix C for strategic design.

Intersection	Control	Turn warrant assessment	Impact
New site access at Kidman Way (Dinawan Camp)	Give Way	Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed ≥ 100km/h	Construction demand would only require a BAR/BAL treatment at this new access road. During cumulative construction the requirements is for a BAL/CHR(s) and therefore an upgrade is required. Please see Appendix C for strategic design.

Intersection	Control	Turn warrant assessment	Impact
Cobb Highway / Proposed Access Track in Wanganella	Give Way		Construction demand would only require a BAR/BAL treatment at this new access road. During cumulative construction the requirements is for a AUL(s)/CHR and therefore an upgrade is required. Please see Appendix C for strategic design.

Intersection	Control	Turn warrant assessment	Impact
Cobb Highway/ Access Track in Wanganella	Give Way	Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$	Construction demand would only require a BAR/BAL treatment at this new access road. During cumulative construction the requirements is for a AUL(s)/BAR and therefore an upgrade is required. Please see Appendix C for strategic design.

8 Management and mitigation

8.1 Environmental management

This chapter describes how the project would be managed to reduce potential environmental impacts throughout detailed design, construction and operation.

The approach to environmental management and mitigation of potential traffic and transport impacts for the construction of the project would be carried out through the development of a project specific Construction Environmental Management Plan (CEMP) for the main construction works and the implementation of individual property management plans developed in consultation with landowners.

Operation of the project would be managed through Transgrid's EMS, which is accredited to ISO 14001 requirements. The EMS includes an Environmental Assessment Framework, which contains checklists, procedures, guidance notes and an *Environmental Handbook* (Transgrid, 2021d) to assess and manage the potential impacts of maintenance activities.

A traffic and transport management sub-plan would be prepared as part of the CEMP to mitigate and manage the impacts associated with pre-construction and construction work respectively. The traffic and transport management sub-plan would be prepared in consultation with the local councils and TfNSW, and implemented prior to the commencement of those works.

The traffic and transport management sub-plan would identify the management measures to minimise potential delays and disruptions that may arise due to the project. It would include (as a minimum):

- management of safe vehicle access/egress from construction compounds, combined temporary worker accommodation facilities and other construction work areas
- measures to minimise disruption to pedestrians, cyclists and motorists
- measures to manage OSOM movements during construction, which will consider activities of adjoining land uses and safety of the public, such as entering urban areas from rural highways
- management of long-distance travel and driver fatigue management measures
- measures to ensure safe access to existing properties during construction, or provision of suitable alternatives.

8.2 Actions already undertaken to avoid and minimise impacts

Impacts from the generation and distribution of traffic during construction of the project has been minimised through construction planning primarily by:

- utilising the state and regional road network for construction routes where possible
- the siting of construction compounds and temporary worker accommodation facilities adjacent to suitable construction routes
- locating construction compounds and temporary worker accommodation facilities to minimise long journeys for the construction workforce.

8.3 Road and intersection improvements and maintenance

As a result of the assessment of potential construction traffic impacts in section 5.2.6 and feedback from local councils and TfNSW during the preparation of this technical paper, several infrastructure upgrades and mitigation measures are proposed to facilitate project-related traffic. Specifically, this includes:

- intersection treatments for existing State road intersections to facilitate heavy vehicle movements
- intersection treatments for proposed access points to State, regional and local roads
- mitigation measures to manage potential impacts to road conditions during construction, including approaches to sealed and unsealed regional and local roads and management of cumulative impacts
- mitigation measures to manage potential road safety impacts at existing and new/upgraded intersections.

Appendix E (Schedule of road improvement works, new or upgraded intersection treatments and maintenance requirements) provides a complete schedule of infrastructure upgrades and associated mitigation measures for each project-related road.

Additionally, feedback from local councils has raised concerns about the suitability of roads for heavy vehicle movements and access points to the road network. Consultation with local councils will continue during the EIS exhibition to identify any additional road improvement works to address concerns over road suitability and access points, where reasonable and feasible. Ongoing consultation will also confirm the need for any road maintenance contributions with local councils. The final scope of road improvement works will address the types of construction vehicles and the likely use of the road.

8.4 Mitigation measures

Site-specific mitigation measures have been proposed to minimise traffic impacts associated with the project. Mitigation measures are presented in Table 8.1.

Table 8.1 Mitigation measures

Ref.	Impact category and impact	Mitigation measure	Timing	Applicable location
TT1	Road network heavy vehicle access	Where required, permits will be obtained from the National Heavy Vehicle Regulator and local councils for the use of roads that are currently not approved for OSOM vehicle movements. Permit applications will be supported by a transport route assessment prepared by a OSOM accredited transport contractor.	Pre-construction and construction	Pre-construction and construction routes
TT2	Road safety – driver-related	The following road safety measures will be implemented regarding driver management during construction: — A Driver Code of Conduct will be developed and implemented. The code would define acceptable driver behaviour for project personnel to promote road safety and ensure that the impacts of construction-related vehicle movements on local roads and the local community are minimised. — In-vehicle monitoring systems (IVMS) will be installed in relevant vehicles to monitor load limits and fatigue management. — A Driver Fatigue Management Plan would be developed and implemented and will incorporate appropriate measures to manage driver fatigue risks, including, but not limited to, planning of regular breaks and mapping locations of driver rest areas along the proposed construction routes.	Construction	Pre-construction and construction routes
TT3	Road and traffic management	Traffic control plans will be prepared in consultation with the relevant road authorities in accordance with <i>Traffic Control at Work Sites – Technical Manual Version 6.1</i> (TfNSW, 2022). The plans would be implemented by licenced traffic management contractors.	Construction	Pre-construction and construction routes

Ref.	Impact category and impact	Mitigation measure	Timing	Applicable location
TT4	Road condition – sealed roads	Prior to construction, road condition surveys will be carried out for all sealed local and regional roads to be used during construction. The surveys will assess the current condition of the road surface and will be documented in a road condition report, with a copy being provided to the relevant roads authority. Road condition surveys will be undertaken during and following construction to assess the damage to roads accessed by project-related traffic. The frequency of road condition surveys during construction will be annually or as otherwise agreed with the relevant roads authority. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority.	Pre-construction Construction	Sealed local and regional roads to be used during construction
TT5	Temporary lane or road closures	Road Occupancy Licence(s) will be sought for all temporary lane or road closures (as required). Where lane or road closures are likely to result in a significant traffic impact (e.g. short-term full road closure and long-term temporary lane/road closures), prior consultation will be undertaken with potentially affected stakeholders (e.g. landholders, emergency services, transport services) and relevant approval(s) obtained from the relevant roads authority. Where feasible, temporary lane or road closures will be planned to occur outside of the traffic peak periods to minimise impacts to the road network.	Construction	All roads that intersect with the project transmission line corridor (for stringing of transmission lines) or on pre-construction routes and construction routes.
TT6	Access to properties	Access to properties will be maintained throughout construction where feasible. Where this is not feasible, temporary alternative access arrangements will be provided following consultation with affected landholders and in accordance with the requirements of the individual Property Management Plan (refer to mitigation measure G2 in Appendix F (Summary mitigation measures) of the EIS).	Construction	All areas affected by construction
TT7	Pedestrian and cyclist access	Safe pedestrian and cyclist access will be maintained where the project interacts with existing pedestrian or bicycle facilities. Where this is not feasible, temporary alternative access arrangements will be provided following consultation with affected stakeholders and the relevant roads authority.	Construction	All areas affected by construction.

Ref.	Impact category and impact	Mitigation measure	Timing	Applicable location
TT8	Existing and new intersection SISD compliance	The following temporary speed reductions on approach to relevant intersections, which will be removed after construction works, will be implemented in consultation with the relevant roads authority to ensure SISD compliance: — Cunninyeuk Road and access track (1). Cunninyeuk Road to reduce speed from 100 kilometres per hour to 80 kilometres per hour — Fisher Lane and access track. Fisher Lane to reduce speed from 100 kilometres per hour to 80 kilometres per hour — New site access to Gregadoo East Road temporary worker accommodation facility (Option 2). Gregadoo East Road to reduce speed from 100 kilometres per hour to 50 kilometres per hour. Additional or alternative mitigation measures, such as clearing/trimming vegetation or intersection treatments to improve sight distance will be investigated in consultation with relevant roads authority where required and considered reasonable.	Construction	Pre-construction and construction routes
TT9	School bus service impact during construction	The school bus operator of Route S196 South Wagga Wagga Primary to Big Springs will be consulted prior to construction to inform the selection of the final crossing methodology for stringing the transmission lines and any potential construction vehicle management requirements for Big Springs Road.	Preconstruction Construction	Big Springs Road
TT10	Road condition – unsealed roads	Prior to construction, an inspection and maintenance schedule for all unsealed roads to be used during construction will be developed and implemented in consultation with the relevant roads authority. The inspection and maintenance schedule will supplement existing maintenance programs carried out by the relevant roads authority and will ensure the road is inspected every six months as a minimum during construction with maintenance works (e.g. grading or resurfacing) undertaken as required or as otherwise agreed with the relevant roads authority. The inspection and maintenance schedule will also detail the responsible parties to undertake the inspections and maintenance works and/or compensation requirements as required.	Pre-construction Construction	Unsealed local and regional roads to be used during construction

Ref.	Impact category and impact	Mitigation measure	Timing	Applicable location
TT11	Road suitability and intersection adequacy	Prior to construction, road improvement works and new and upgraded intersection treatments will be carried out in accordance with Appendix E (Schedule of road improvement works, new or upgraded intersection treatments and management requirements). The final scope of road improvement works and intersection connection works will be confirmed in consultation with the relevant roads authority(s) and will address the types of construction vehicles, the likely use of the road/intersection, and responsible parties.	Pre-construction	As per Appendix E (Schedule of road improvement works, new or upgraded intersection treatments and management requirements)
TT12	Road condition – road structures	Prior to construction, existing road structures, such as culverts, on local and regional roads that are not approved restricted access vehicle routes, will be assessed by an appropriately qualified engineer for suitability considering structure type, condition, vehicle types, loading and frequency of use. Where structures are deemed unsuitable, the following alternatives will be considered and implemented where practicable and appropriate: — use of alternative vehicle types (smaller loads) — temporary works (e.g. propping, or similar) in consultation with asset owners/relevant roads authority — replacement works in consultation with the asset owner/relevant roads authority.	Pre-construction	Local and regional roads to be used during construction that are not approved restricted access vehicle routes
TT13	Road condition – cumulative impact	Prior to construction, multi-party consultation and coordination will be carried out regarding local and regional roads that have been identified as likely being used by the project and relevant future projects. Consultation will include proponents of relevant future projects and the relevant roads authority and will establish coordination requirements associated with managing use, damage and maintenance/rectification works of local and regional roads during overlapping construction periods.	Pre-construction Construction	Local and regional roads that may experience cumulative road condition impacts as listed in Appendix E (Schedule of road improvement works, new or upgraded intersection treatments and management requirements)

8.5 Residual impacts

Construction routes have been identified through a desktop analysis and refined through engagement with key stakeholders with some field verification. It is possible that construction routes may change during further design development to accommodate design refinements or changes to construction methodology, or due to the outcomes of the identified mitigation measures or severe wet weather events.

The continued engagement with key stakeholders, namely local councils and TfNSW, would inform the mitigation strategies identified in Chapter 8. This includes the management of pavement condition, particularly unsealed roads. The final construction routes would be confirmed during finalisation of the project design and construction planning and included in the traffic and transport management sub-plan.

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Appendix A

Detailed assessment of existing road intersections



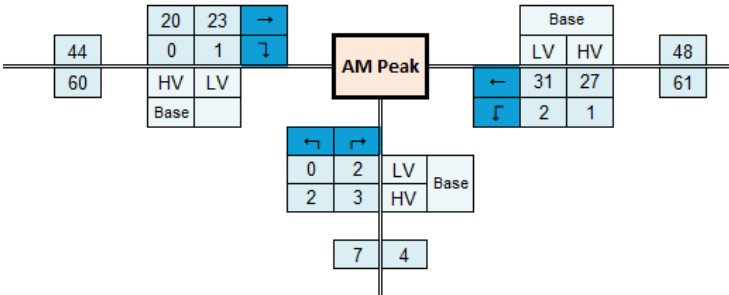
A1 I-01 Sturt Highway/Maude Road

Table A.1 Sturt Highway/Maude Road – layout, existing traffic volumes and turn treatment assessment

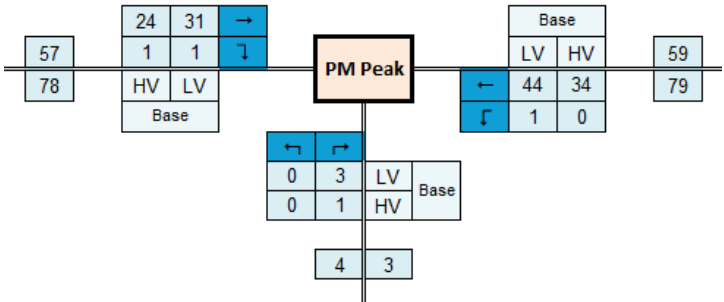
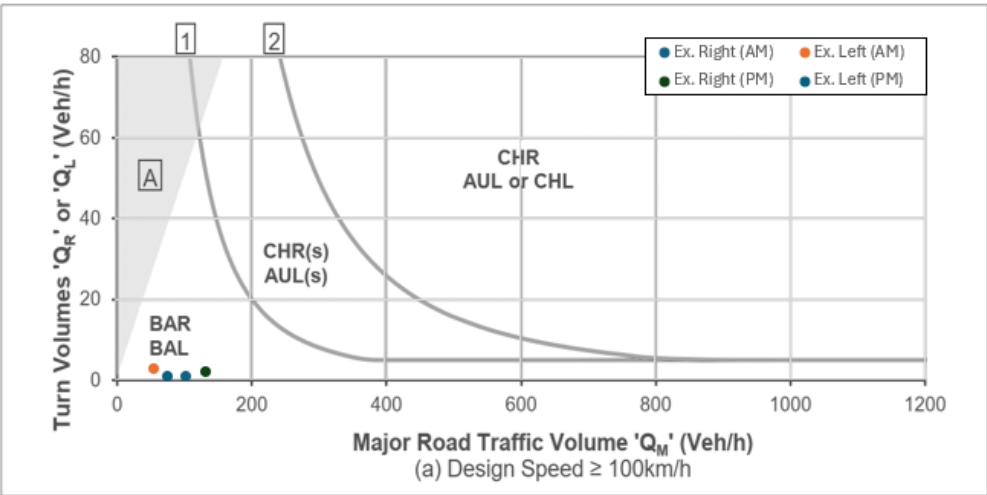
The Sturt Highway/Maude Road intersection is a T-intersection with priority given to Sturt Highway in the east-west direction. Maude Road continues north 90 metres east of this intersection. Approaches to the intersection are sealed and only Sturt Highway has line markings.

The land use nearby is rural with an aggregate storage area immediately east of Maude Road.

The speed limit of Sturt Highway is 110 kilometres per hour and Maude Road is 100 kilometres per hour. On the Sturt Highway, a left turn treatment into Maude Road is provided through an auxiliary left turn lane (AUL) of about 135 metres long. The right turn into Maude Road is a basic right turn however there is an AUL of about 135 metres for the traffic to use to pass right turn traffic safely. This intersection layout is compliant to existing vehicle demands.



Intersection traffic counts by movement (straight, left or right) and road mid-block traffic counts (straight only) are included in the figures above (AM peak) and below (PM peak) and as following in same format.



A2 I-02 Sturt Highway/Cobb Highway

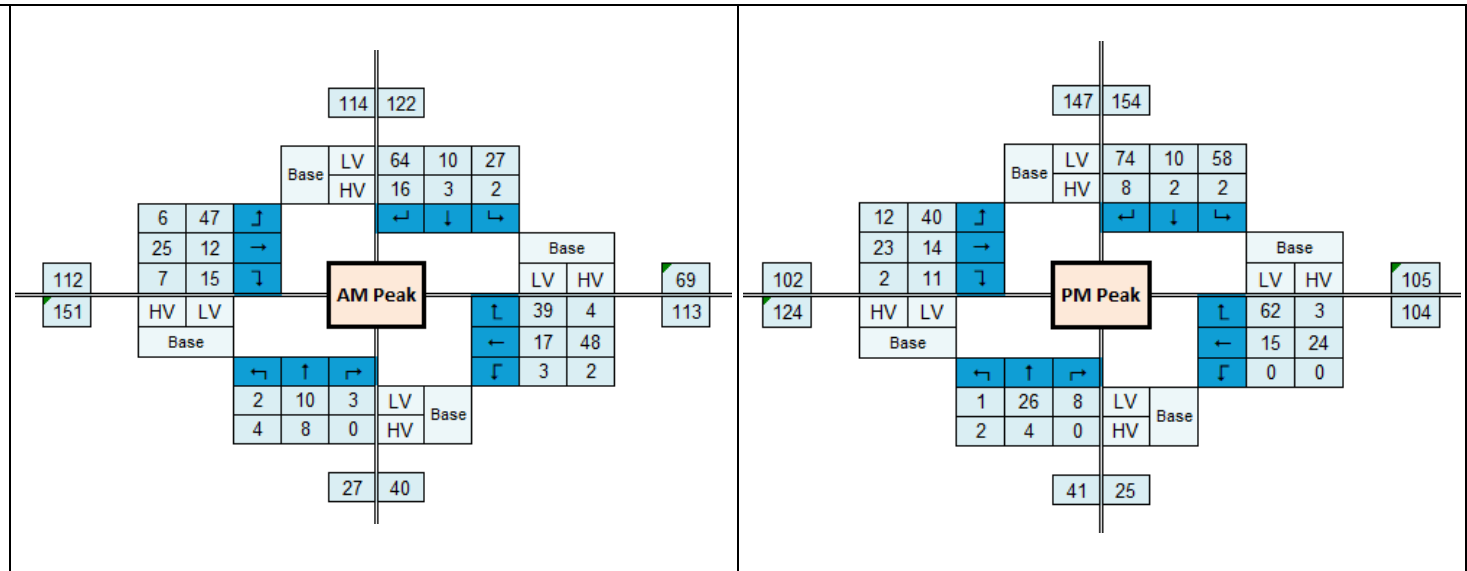
Table A.2 Sturt Highway/Cobb Highway – layout and existing traffic volumes

The Sturt Highway/Cobb Highway intersection is a four-legged single-lane round-a-bout. Approaches to the intersection are sealed and have line markings.

Rural land uses and a tourist use occur to the south of the Sturt Highway and a mix of commercial, industrial and residential land uses are located to the north of Sturt Highway.

The speed limit at and on approach to the Sturt Highway and Cobb Highway intersection is 60 kilometres per hour.

No turn warrant assessment required given it is a roundabout.



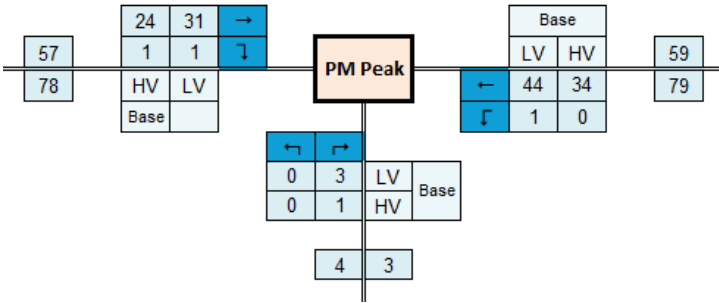
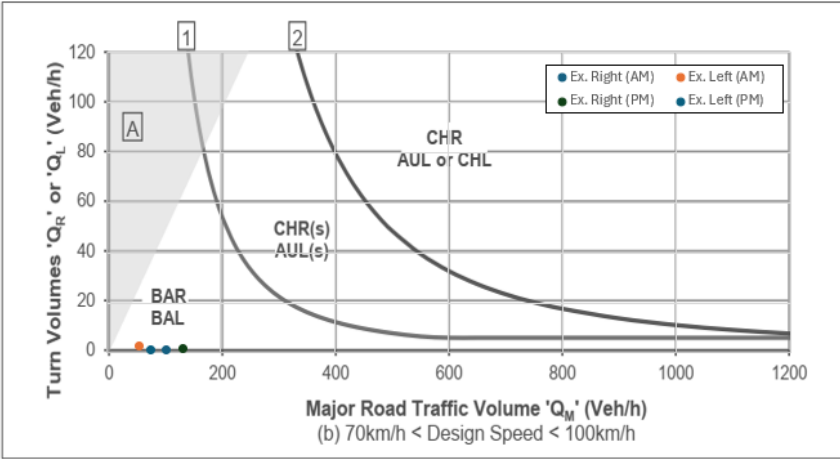
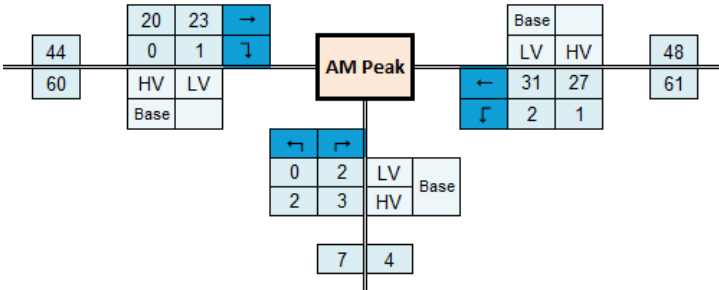
A3 I-03 Sturt Highway/Kidman Way

Table A.3 Sturt Highway/Kidman Way – layout, existing traffic volumes and turn treatment assessment

The Sturt Highway/Kidman Way intersection is a T-intersection with priority given to Sturt Highway in the east-west direction. Kidman Way continues north 220 metres west of this intersection. All approaches to the intersection are sealed and have line markings.

The land use nearby is rural with a BP truck stop east of the intersection.

The speed limit on the Sturt Highway and Kidman Way is 80 km/h. On the Sturt Highway, the left turn treatment into Kidman Way is a basic left turn. The right turn into Kidman Way is provided through a channelised right turn (CHR) of about 80 metres. This intersection layout is compliant to existing vehicle demands.



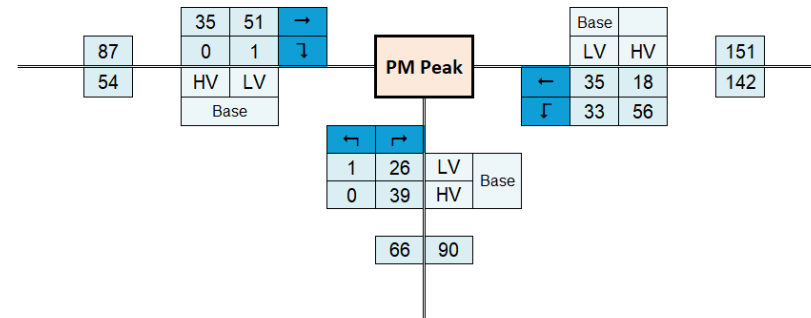
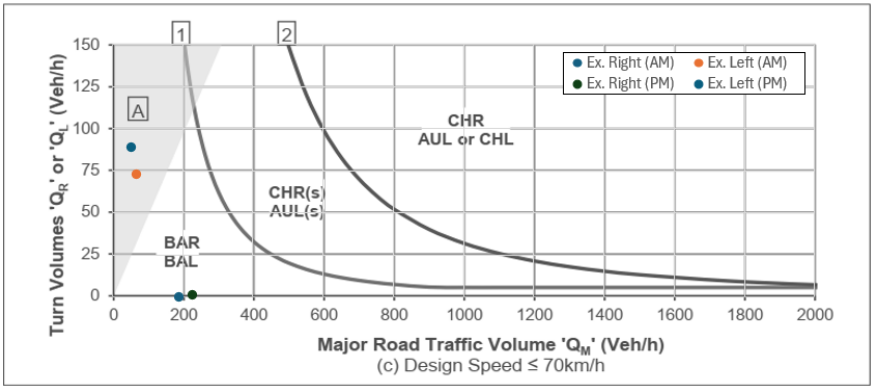
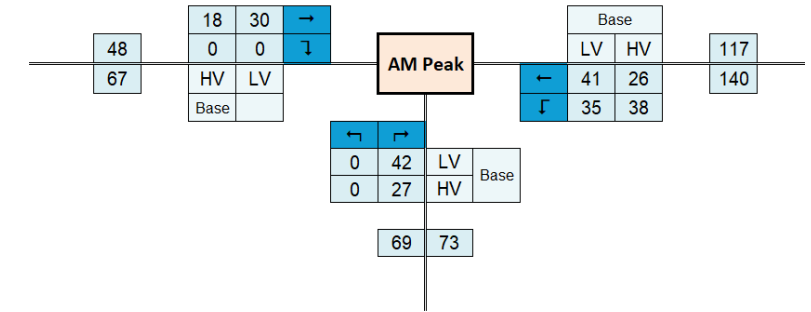
A4 I-04 Sturt Highway/Newell Highway (west)

Table A.4 Sturt Highway/Newell Highway (west) – layout, existing traffic volumes and turn treatment assessment

The Sturt Highway/Newell Highway (west) intersection is a T-intersection with priority given to Sturt Highway in the east-west direction. All approaches to the intersection are sealed and have line markings.

The land use nearby is rural with multiple fuel facilities and accommodations east of the intersection.

The speed limit of Sturt Highway and Newell Highway is 60 km/h. On the Sturt Highway, a left turn treatment into Newell Highway is provided through an AUL of about 130 metres. The right turn into Kidman Way is provided through a CHR of about 70 metres. This intersection layout is compliant to existing vehicle demands.



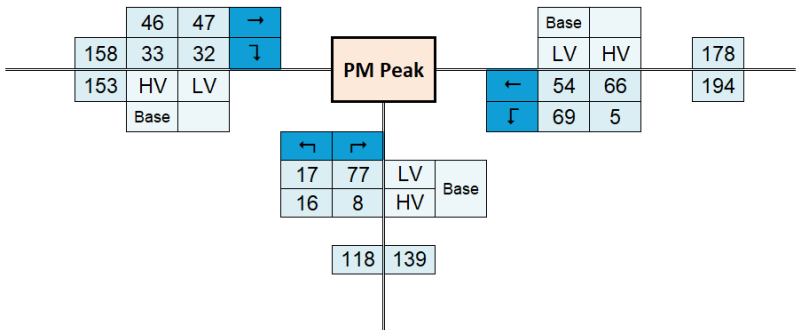
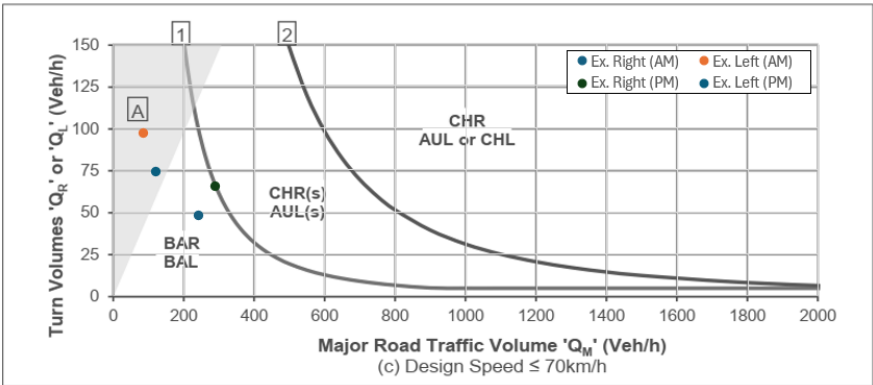
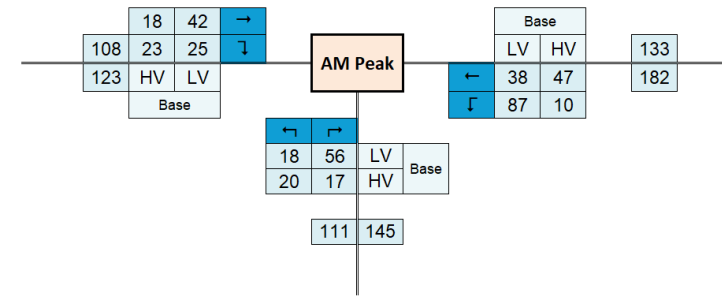
A5 I-05 Sturt Highway/Newell Highway (east)

Table A.5 Sturt Highway/Newell Highway (east) – layout, existing traffic volumes and turn treatment assessment

The Sturt Highway/Newell Highway (east) intersection is a T-intersection with priority given to vehicles travelling in a north-south direction. All approaches to the intersection are sealed and have line markings.

The land use nearby is rural with multiple fuel facilities and commercial (accommodations) land uses west of the intersection.

The speed limit of the Sturt Highway and Newell Highway is 60 kilometres per hour. On the Sturt Highway, the left turn treatment continuing through to Sturt Highway is a slip lane. The right turn into the Sturt Highway is provided through a CHR of about 125 metres. This intersection layout is compliant to existing vehicle demands.



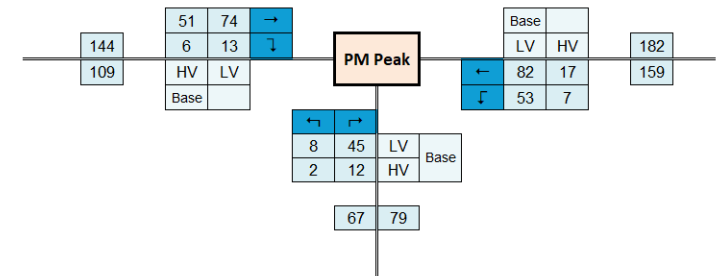
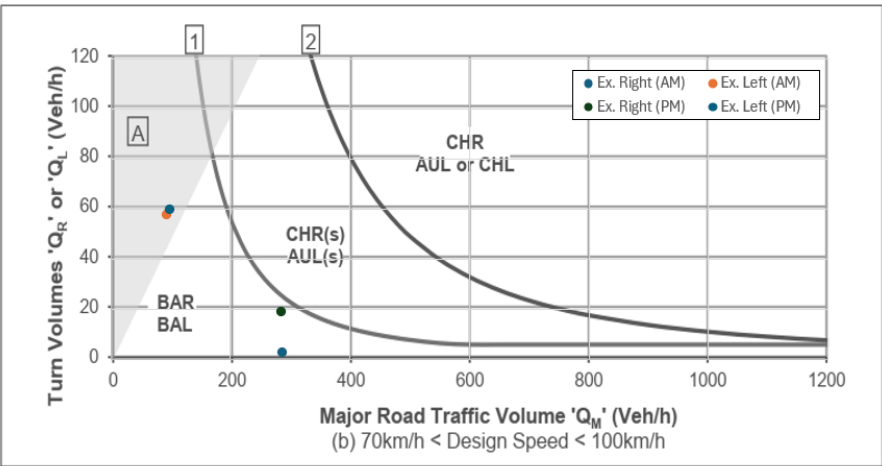
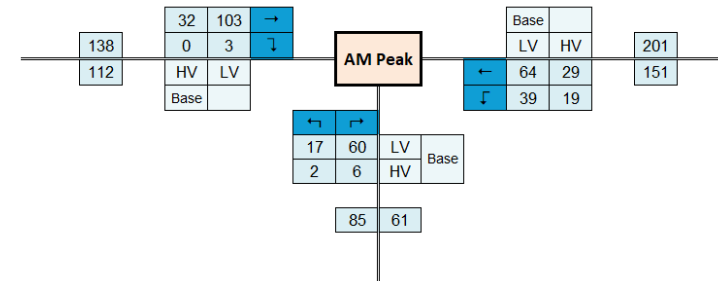
A6 I-07 Sturt Highway/Lockhart Road

Table A.6 Sturt Highway/Lockhart Road – layout, existing traffic volumes and turn treatment assessment

The Sturt Highway/Lockhart Road (east) intersection is a T-intersection with priority given to the Sturt Highway in the east-west direction. All approaches to the intersection are sealed and have line markings.

The land use nearby is semi-rural and adjacent to the town of Collingullie.

The speed limit of the Sturt Highway and Lockhart Road is 80 kilometres per hour. On the Sturt Highway, a left turn treatment into Lockhart Road is provided through an AUL of about 45 metres. The right turn into Lockhart Road is provided through a CHR of about 45 metres. This intersection layout is compliant to existing vehicle demands.



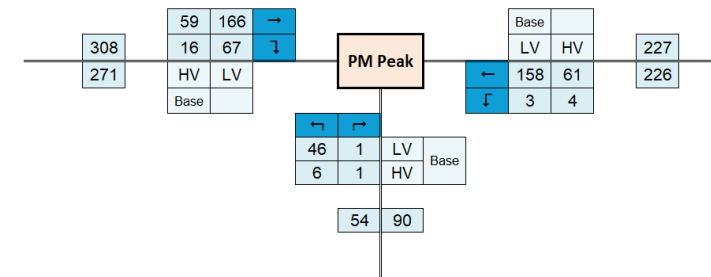
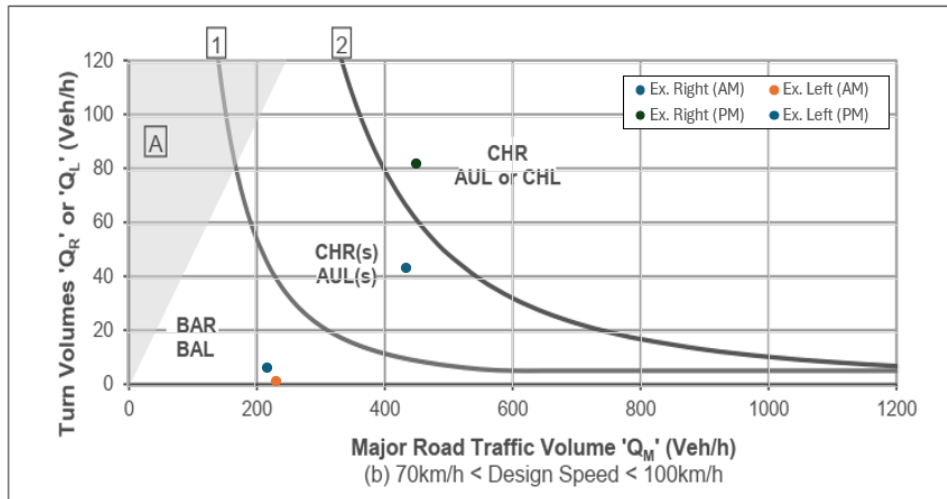
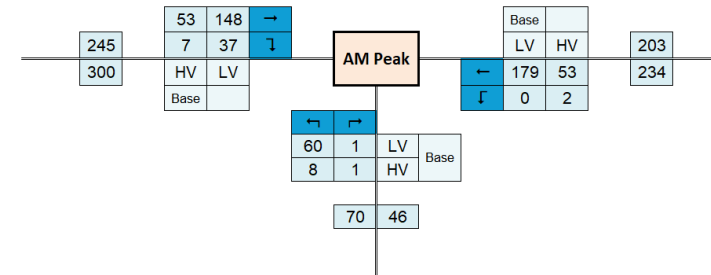
A7 I-08 Sturt Highway/Tumbarumba Road

Table A.7 Sturt Highway/Tumbarumba Road – layout, existing traffic volumes and turn treatment assessment

The Sturt Highway/Tumbarumba Road intersection is a T-intersection with priority given to the Sturt Highway in the east-west direction. All approaches to the intersection are sealed and have line markings.

The land use nearby is rural with a fuel station and hotel west of the intersection.

The speed limit of the Sturt Highway and Tumbarumba Road is 100 kilometres per hour. On the Sturt Highway, the left turn treatment into Tumbarumba Road is a basic left turn. The right turn into Lockhart Road is provided through a CHR of about 95 metres. This intersection layout is compliant to existing vehicle demands.



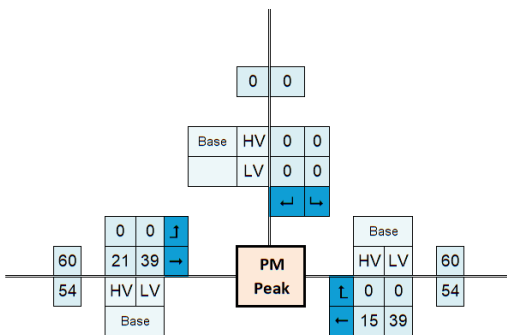
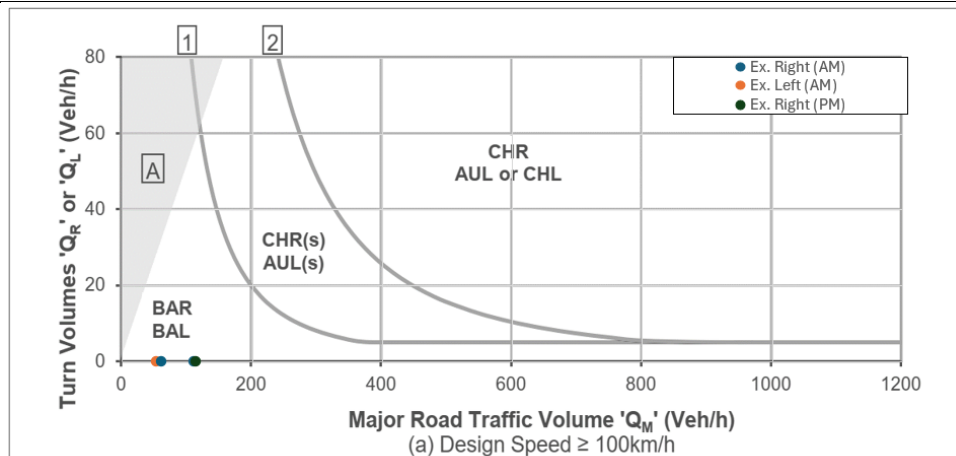
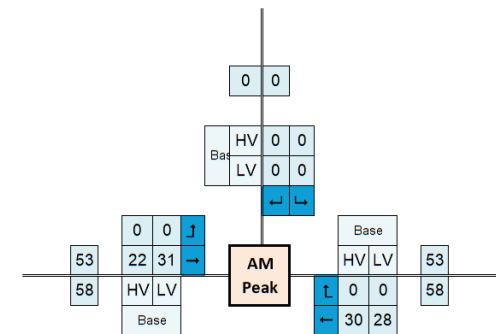
A8 I-09 Kidman Way/McLennons Bore Road

Table A.8 Kidman Way/McLennons Bore Road – layout, existing traffic volumes and turn treatment assessment

The Kidman Way/McLennons Bore Road intersection is a T-intersection with priority given to Kidman Way in the north-south direction. Approaches to the intersection are sealed on Kidman Way and unsealed on McLennons Bore Road. Only Kidman Way has line markings.

The land use nearby is rural.

The speed limit of Kidman Way and McLennons Bore Road is 100 km/h. On Kidman Way, the left turn into McLennons Bore Road is a basic left turn. The right turn into McLennons Bore Road is a basic right turn. This intersection layout is compliant to existing vehicle demands. McLennons Bore Road is a dry-weather road only with people using it during wet weather, responsible for all repair costs. This is signposted on McLennons Bore Road,



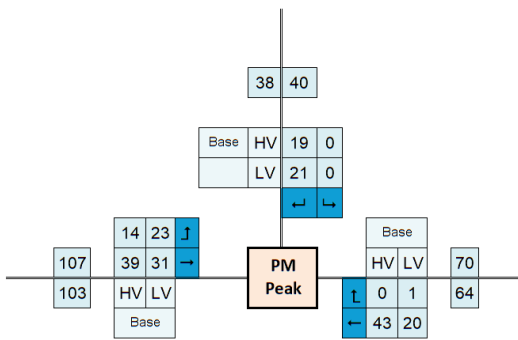
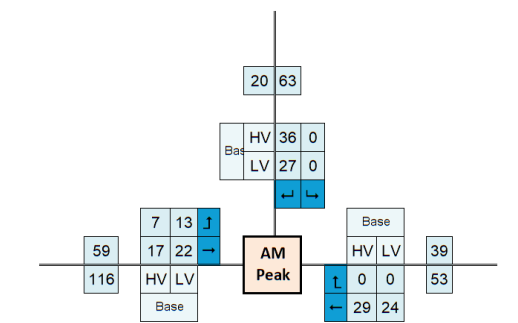
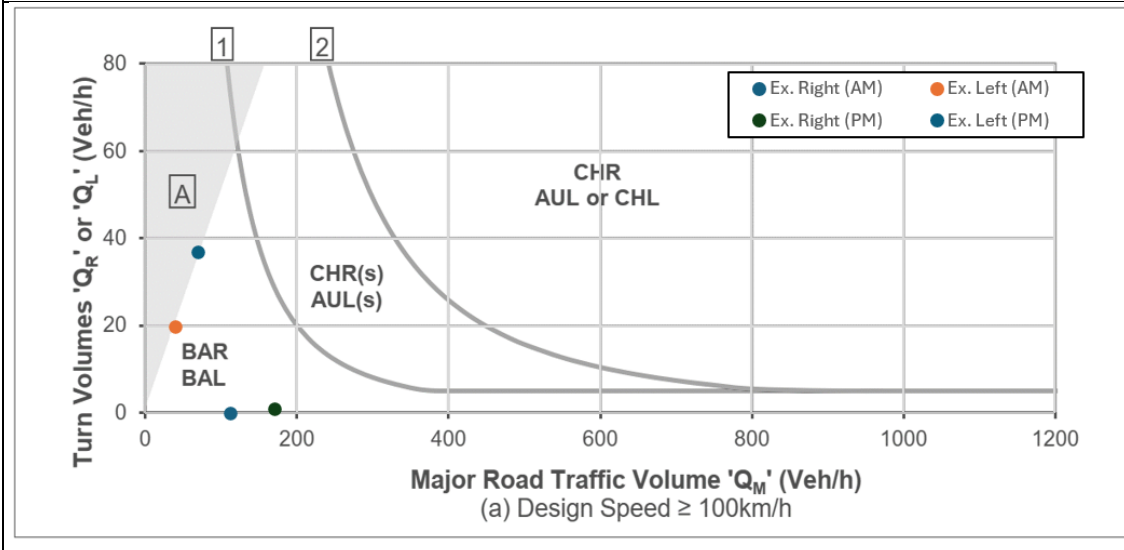
A9 I-10 Kidman Way/Newell Highway

Table A.9 Kidman Way/Newell Highway – layout, existing traffic volumes and turn treatment assessment

The Kidman Way/Newell Highway intersection is a T-intersection with priority given to Newell Highway in the north-south direction. All approaches to the intersection are sealed and have line markings.

The land use nearby is rural.

The speed limit of Kidman Way is 100 kilometres per hour and Newell Highway is 110 kilometres per hour. On the Newell Highway, a left turn treatment into Kidman Way is provided through an AUL of about 110 metres. The right turn into Kidman Way is a basic right turn from Newell Highway. This intersection layout is compliant to existing vehicle demands.



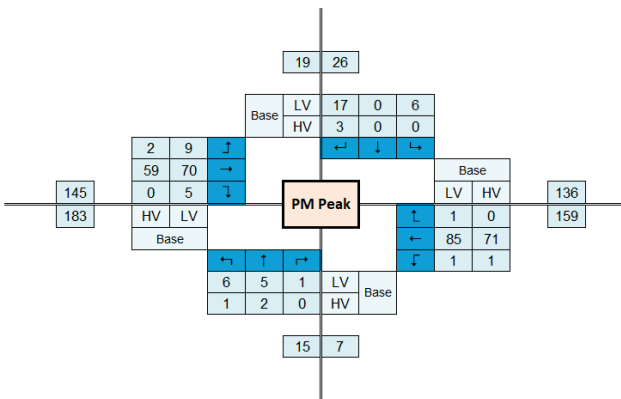
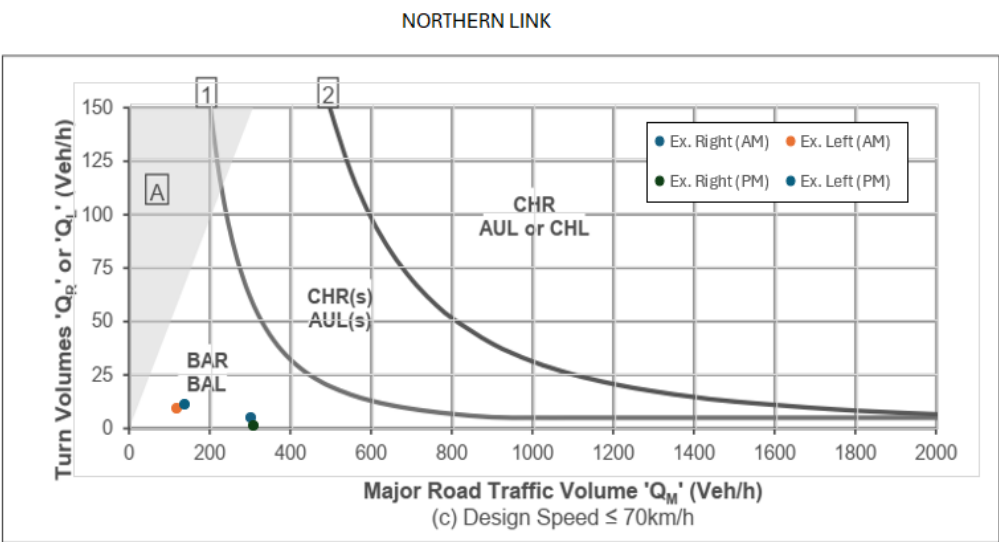
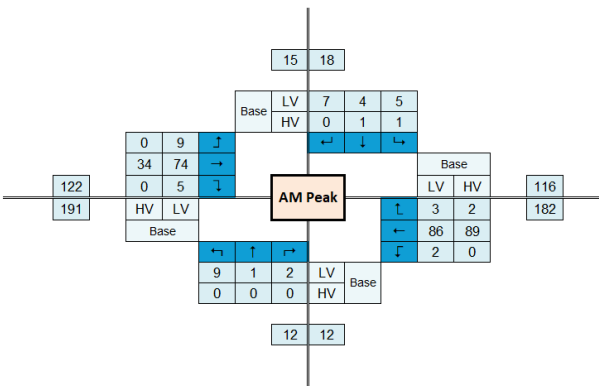
A10 I-11 Jerilderie Street/Bolton Street

Table A.10 Jerilderie Street/Bolton Street – layout, existing traffic volumes and turn treatment assessment

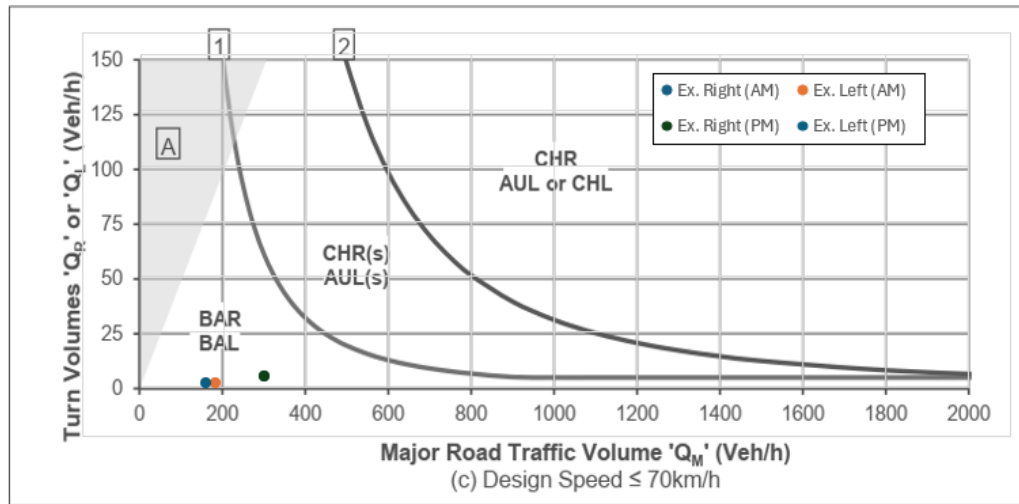
The Jerilderie Street/Bolton Street intersection is a four-legged intersection with priority given to Newell Highway in the east-west direction. All approaches to the intersection are sealed and have line markings.

The land use nearby is urban as it is in the town of Jerilderie. There is a pedestrian crossing immediately west of the intersection.

The speed limit of Jerilderie Street and Bolton Street is 50 kilometres per hour. On Jerilderie Street, the left turn treatment into Bolton Street is a basic left turn. The right turn into Bolton Street is a basic right turn from Jerilderie Street. This intersection layout is compliant to existing vehicle demands.



SOUTHERN LINK



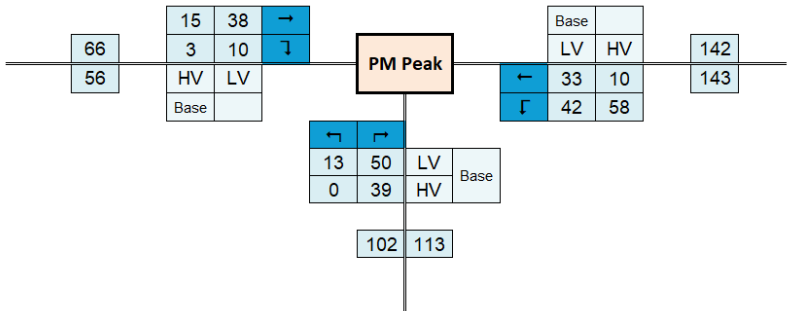
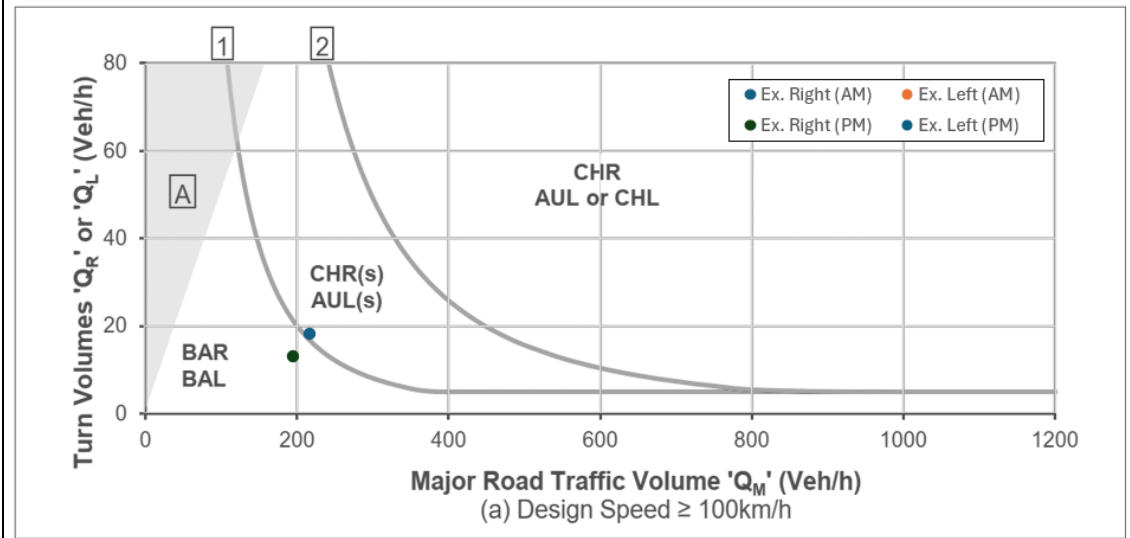
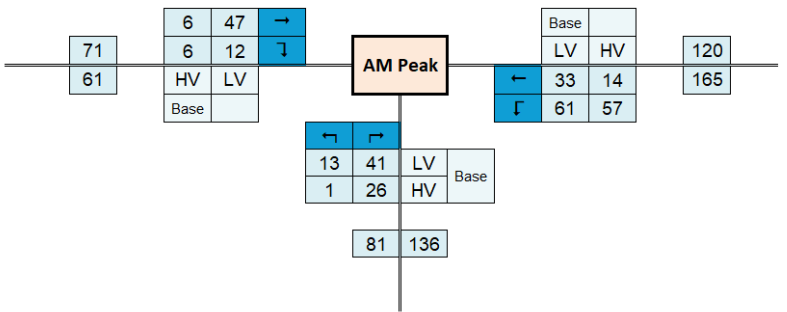
A11 I-12 Jerilderie Street//Southey Street

Table A.11 Jerilderie Street/Southey Street – layout, existing traffic volumes and turn treatment assessment

The Jerilderie Street/Southey Street intersection is a T-intersection with priority given to Jerilderie Street/Conargo Road in an east-west direction. All approaches to the intersection are sealed and have line markings.

The land use nearby is urban as the intersection is in the western part of Jerilderie. The Jerilderie District Hospital is immediately southwest of the intersection.

The speed limit of Southey Street and Conargo Road is 50 kilometres per hour and Newell Highway is 110 kilometres per hour. On Jerilderie Street, the left turn treatment into Southey Street Way is provided with a slip lane. The right turn into Southey Street is provided through a CHR of about 25 metres. This intersection layout is compliant to existing vehicle demands.



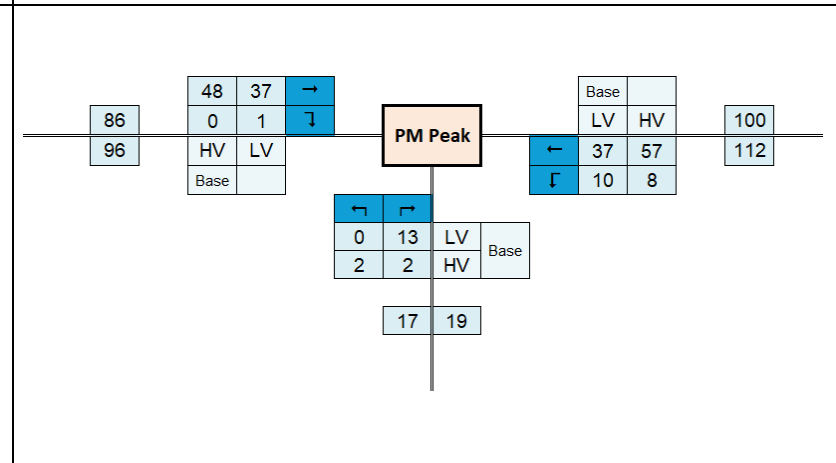
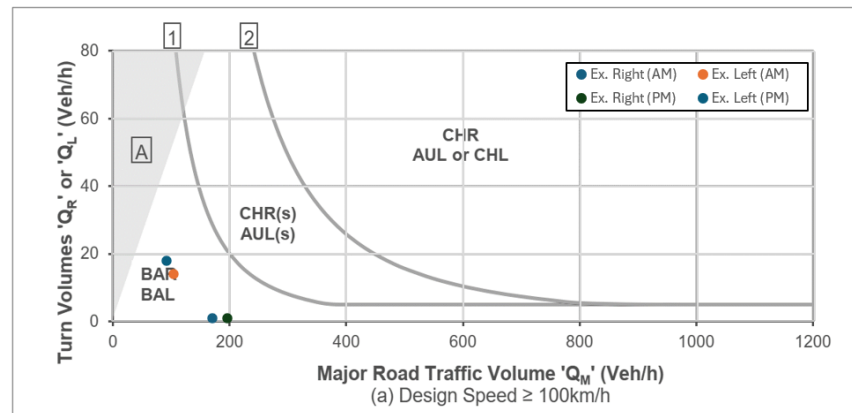
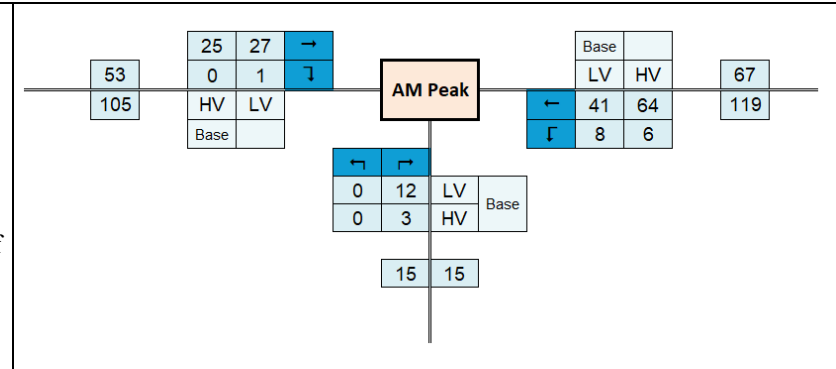
A12 I-13 Newell Highway/Berrigan Road

Table A.12 Newell Highway/Berrigan Road – layout, existing traffic volumes and turn treatment assessment

The Newell Highway/Berrigan Road intersection is a T-intersection with priority given to Newell Highway in the north-south direction. All approaches to the intersection are sealed and have line markings.

The land use nearby is rural.

The speed limit of the Newell Highway is 110 kilometres per hour and Berrigan Road is 100 kilometres per hour. On Newell Highway, the left turn treatment into Berrigan Road is provided through an AUL of about 90 metres. The right turn into Berrigan Road is provided through a CHR of about 40 metres. This intersection layout is compliant to existing vehicle demands.



A13 I-14 Jerilderie Street/Chanter Street

Table A.13 Jerilderie Street/Chanter Street – layout and existing traffic volumes

The Jerilderie Street/Chanter Street intersection is a T-intersection with priority given to Jerilderie Street in the north-south direction. All approaches to the intersection are sealed and have line markings. The land use nearby is urban as the intersection is in the town of Berrigan. There is a hotel and museum to the north, and the Berrigan Police Station is south of the intersection. The speed limit of both Jerilderie Street and Chanter Street is 50 kilometres per hour. On Jerilderie Street, the left turn treatment into Chanter Street is provided through a basic left turn. The right turn into Jerilderie Street is provided through a basic right turn. The Riverina Highway (B58) runs west of the intersection along Chanter Street, and south along Jerilderie Street.		
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A14 I-15 Murray Street/Berrigan Road

Table A.14 Murray Street/Berrigan Road – layout and existing traffic volumes

The Murray Street/Berrigan Road intersection is a T-intersection with priority given to Murray Street in the north-south direction. All approaches to the intersection are sealed and have line markings. The land use nearby is urban as the intersection is in the town of Finley. There is a hotel immediately east, a war memorial immediately south, and Finley Rural Fire Brigade north of the intersection. The speed limit on both Murray Street and Berrigan Road is 50 kilometres per hour. Heading south on Murray Street, the left turn treatment into Berrigan Road is provided through an AUL of about 90m. The right turn into Murray Street is provided through a basic left turn. The Newell Highway (A39) runs along Murray Street, and the Riverina Highway (B58) along Berrigan Road.	Diagram illustrating the layout and existing traffic volumes for the Murray Street/Berrigan Road intersection during the AM Peak. The intersection is a T-junction with Murray Street running north-south and Berrigan Road running east-west. Traffic volumes are provided for each approach, categorized by vehicle type (HV for Heavy Vehicle, LV for Light Vehicle) and movement (straight, left turn, right turn). <table border="1"><thead><tr><th>Approach</th><th>Movement</th><th>Volume</th></tr></thead><tbody><tr><td rowspan="3">Northbound (Murray St)</td><td>Straight</td><td>82</td></tr><tr><td>Left Turn</td><td>88</td></tr><tr><td>Right Turn</td><td>7</td></tr><tr><td rowspan="3">Southbound (Murray St)</td><td>Straight</td><td>25</td></tr><tr><td>Left Turn</td><td>48</td></tr><tr><td>Right Turn</td><td>1</td></tr><tr><td rowspan="3">Eastbound (Berrigan Rd)</td><td>Straight</td><td>153</td></tr><tr><td>Left Turn</td><td>102</td></tr><tr><td>Right Turn</td><td>18</td></tr><tr><td rowspan="3">Westbound (Berrigan Rd)</td><td>Straight</td><td>176</td></tr><tr><td>Left Turn</td><td>48</td></tr><tr><td>Right Turn</td><td>26</td></tr></tbody></table>	Approach	Movement	Volume	Northbound (Murray St)	Straight	82	Left Turn	88	Right Turn	7	Southbound (Murray St)	Straight	25	Left Turn	48	Right Turn	1	Eastbound (Berrigan Rd)	Straight	153	Left Turn	102	Right Turn	18	Westbound (Berrigan Rd)	Straight	176	Left Turn	48	Right Turn	26	Diagram illustrating the layout and existing traffic volumes for the Murray Street/Berrigan Road intersection during the PM Peak. The intersection is a T-junction with Murray Street running north-south and Berrigan Road running east-west. Traffic volumes are provided for each approach, categorized by vehicle type (HV for Heavy Vehicle, LV for Light Vehicle) and movement (straight, left turn, right turn). <table border="1"><thead><tr><th>Approach</th><th>Movement</th><th>Volume</th></tr></thead><tbody><tr><td rowspan="3">Northbound (Murray St)</td><td>Straight</td><td>72</td></tr><tr><td>Left Turn</td><td>65</td></tr><tr><td>Right Turn</td><td>4</td></tr><tr><td rowspan="3">Southbound (Murray St)</td><td>Straight</td><td>15</td></tr><tr><td>Left Turn</td><td>41</td></tr><tr><td>Right Turn</td><td>4</td></tr><tr><td rowspan="3">Eastbound (Berrigan Rd)</td><td>Straight</td><td>152</td></tr><tr><td>Left Turn</td><td>104</td></tr><tr><td>Right Turn</td><td>20</td></tr><tr><td rowspan="3">Westbound (Berrigan Rd)</td><td>Straight</td><td>170</td></tr><tr><td>Left Turn</td><td>40</td></tr><tr><td>Right Turn</td><td>4</td></tr></tbody></table>	Approach	Movement	Volume	Northbound (Murray St)	Straight	72	Left Turn	65	Right Turn	4	Southbound (Murray St)	Straight	15	Left Turn	41	Right Turn	4	Eastbound (Berrigan Rd)	Straight	152	Left Turn	104	Right Turn	20	Westbound (Berrigan Rd)	Straight	170	Left Turn	40	Right Turn	4
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A15 I-16 Murray Street/Tuppal Street

Table A.15 Murray Street/Tuppal Street

The Murray Street/Tuppal Street intersection is a T-intersection with priority given to Murray Street in the north-south direction. All approaches to the intersection are sealed and have line markings. The land use nearby is urban as the intersection is in the northern part of Finley. The Finley Rural Fire Brigade is immediately west of the intersection. The speed limit of both Murray Street and Tuppal Street is 50 kilometres per hour. On Murray Street, the left turn treatment into Tuppal Street is provided through a slip lane. The right turn into Murray Street is provided through a CHR. The Riverina Highway (B58) runs along Tuppal Street.	Diagram illustrating the intersection layout and traffic flow for the AM Peak. The intersection is a T-junction where Tuppal Street (horizontal) meets Murray Street (vertical). Traffic flows are indicated by arrows. Vehicle counts are provided for each approach. A central box labeled 'AM Peak' is present.	Diagram illustrating the intersection layout and traffic flow for the PM Peak. The intersection is a T-junction where Tuppal Street (horizontal) meets Murray Street (vertical). Traffic flows are indicated by arrows. Vehicle counts are provided for each approach. A central box labeled 'PM Peak' is present.
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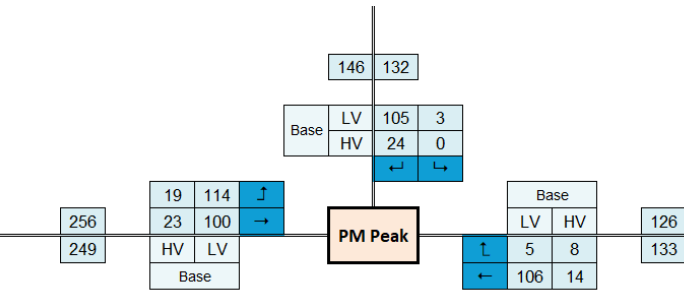
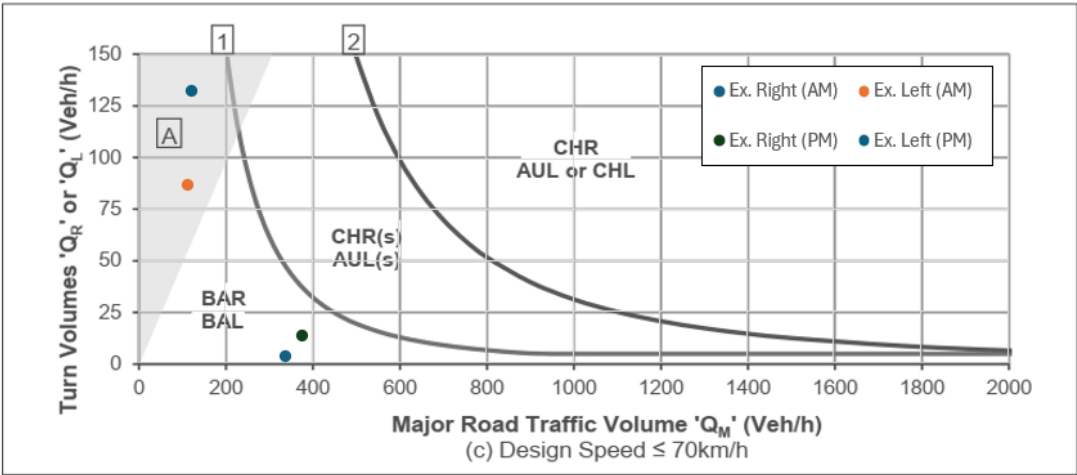
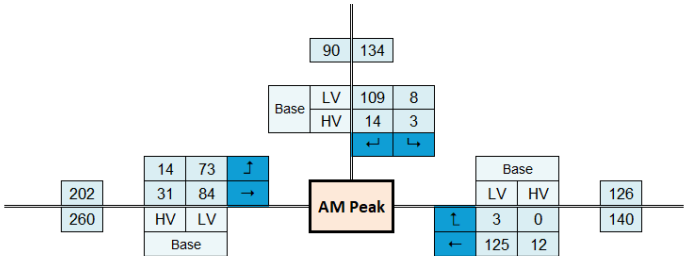
A16 I-17A Finley Road/Wanderer Street

Table A.16 Finley Road/Wanderer Street – layout, existing traffic volumes and turn treatment assessment

The Finley Road/Wanderer Street intersection is a single-lane T-way intersection near the Hay Road/Davidson Street roundabout. Approaches to the intersection are sealed with line markings. There is an 80-metre CHR from Finley Road onto Wanderer Street. This intersection layout is compliant to existing vehicle demands.

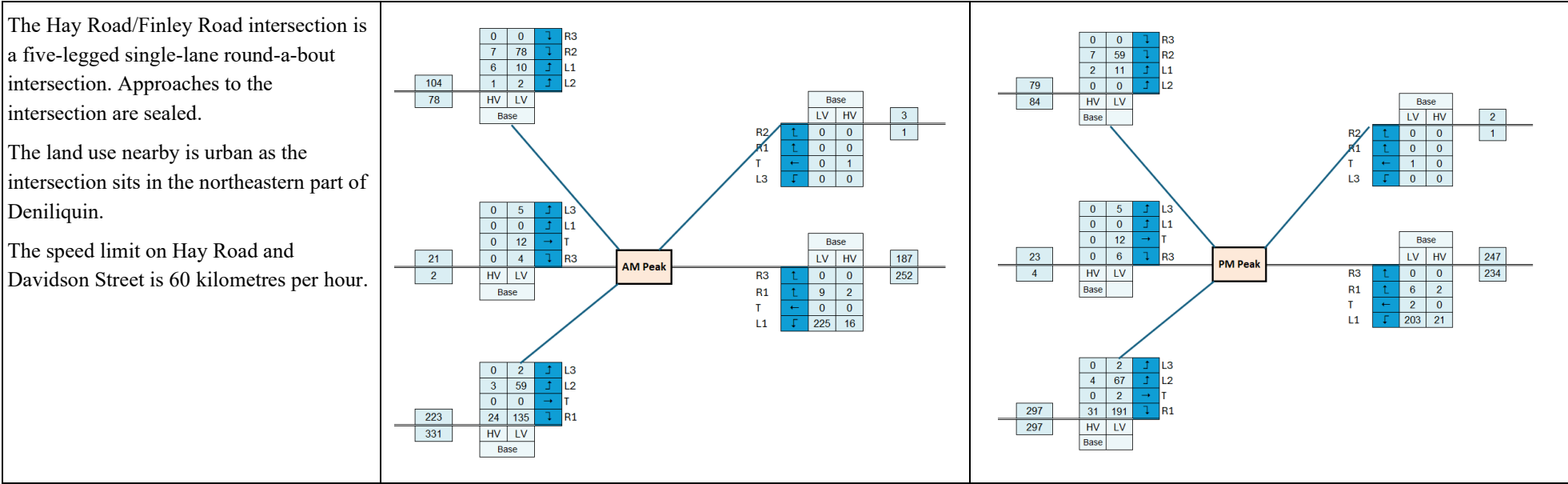
The land use nearby is urban as the intersection sits in the northeastern part of Deniliquin.

The speed limit on Finley Road and Wanderer Street is 60 kilometres per hour.



A17 I-17B Hay Road/Finley Road

Table A.17 Hay Road/Finley Road – layout and existing traffic volumes



A18 I-18 Hardinge Street/Charlotte Street

Table A.18 Hardinge Street/Charlotte Street – layout and existing traffic volumes

The Charlotte Street/Hardinge Street intersection is a four-legged intersection with priority given to traffic making the 90-degree turns between Charlotte Street and Hardinge Street. All approaches to the intersection are sealed and have line markings.

The land use nearby is urban as it is in the town of Deniliquin.

The speed limit on Charlotte Street and Hardinge Street is 60 kilometres per hour. On Charlotte Street, the left turn treatment into Hardinge Street is a basic left turn with all other traffic giving way. The right turn into Charlotte Street is a basic right turn from Hardinge Street with all other traffic giving way.

Diagram illustrating the intersection layout and existing traffic volumes for the AM Peak. The diagram shows a four-legged intersection with Charlotte Street running vertically and Hardinge Street running horizontally. Traffic volumes are provided for each approach, including base volumes and peak volumes. The AM Peak is indicated by an orange box.

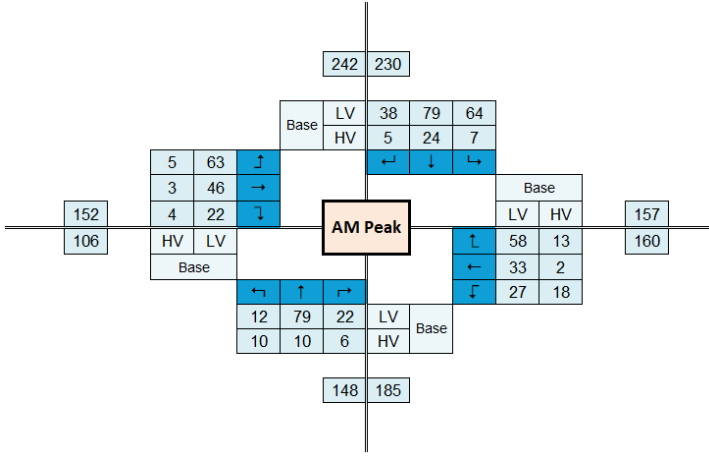
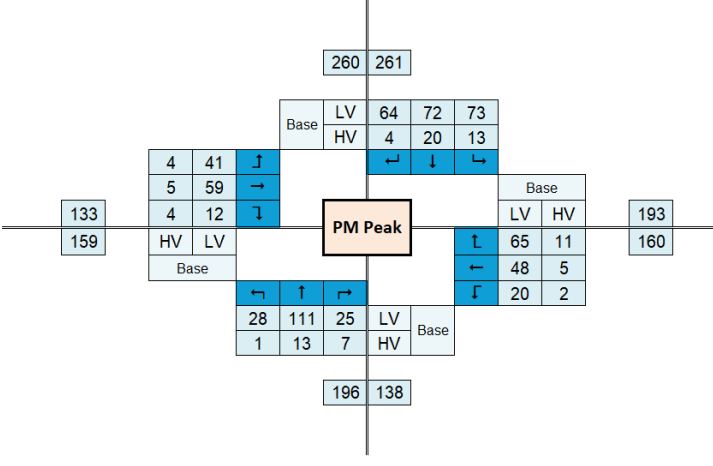
Approach	Base	LV	HV	Base	LV	HV
North	22	0	0	0	0	0
South	231	213	0	0	0	0
East	229	249	0	0	0	0
West	66	82	0	0	0	0

Diagram illustrating the intersection layout and existing traffic volumes for the PM Peak. The diagram shows a four-legged intersection with Charlotte Street running vertically and Hardinge Street running horizontally. Traffic volumes are provided for each approach, including base volumes and peak volumes. The PM Peak is indicated by an orange box.

Approach	Base	LV	HV	Base	LV	HV
North	18	0	0	0	0	0
South	228	249	0	0	0	0
East	251	261	0	0	0	0
West	79	50	0	0	0	0

A19 I-19 Ochertyre Street/Hardinge Street

Table A.19 Ochertyre Street/Hardinge Street – layout and existing traffic volumes

The Ochertyre Street/Hardinge Street intersection is a four-legged single-lane roundabout. Approaches to the intersection are sealed and have line markings. The land use nearby is predominantly industrial. The speed limit on Ochertyre Street and Hardinge Street is 60 kilometres per hour.		
		

A20 I-21 Cobb Highway/Wanganella-Moulamein Road

Table A.20 Cobb Highway/Wanganella-Moulamein Road – layout, existing traffic volumes and turn treatment assessment

The Cobb Highway/Wanganella-Moulamein Road intersection is a T-intersection with priority given to Cobb Highway in the north-south direction. Approaches to the intersection are sealed and only Cobb Highway has line markings. The land use nearby is rural. The speed limit on the Cobb Highway and Wanganella-Moulamein Road is 100 kilometres per hour. On the Cobb Highway, the left turn treatment into Wanganella-Moulamein Road is a basic left turn. The right turn into Wanganella-Moulamein Road is a basic right turn. This intersection layout is compliant to existing vehicle demands.	

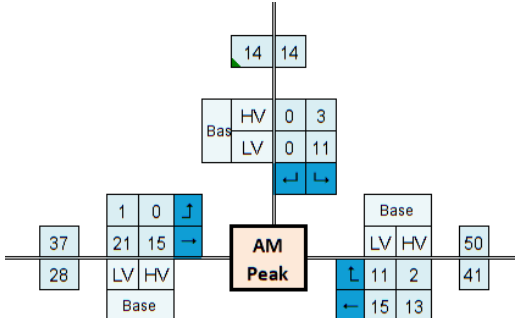
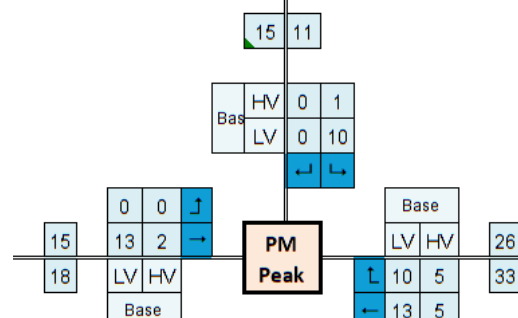
A21 I-22 Cedar Avenue/Moulamein Road

Table A.21 Cedar Avenue/Moulamein Road – layout and existing traffic volumes

The Cedar Avenue/Moulamein Road intersection is a four-legged intersection with priority given to Cedar Avenue in the east-west direction. All approaches to the intersection are sealed and have line markings. The land use nearby is urban as it is in the town of Moulamein. The speed limit of Cedar Avenue and Moulamein Road is 50 kilometres per hour. On Cedar Avenue Street, the left turn treatment into Moulamein Road is a basic left turn. The right turn into Moulamein Road is a basic right turn from Cedar Avenue.	AM Peak	PM Peak
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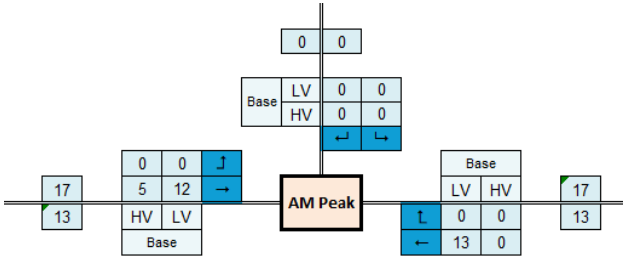
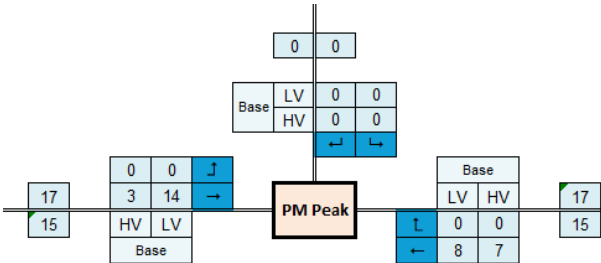
A22 I-23 Swan Hill Road/Cunninyeuk Road

Table A.22 Swan Hill Road/Cunninyeuk Road – layout and existing traffic volumes

The Swan Hill Road/Cunninyeuk Road intersection is a T-intersection with priority given to Swan Hill Road in the north-south direction. Approaches to the intersection are sealed and have line markings. The land use nearby is rural. The speed limit on Swan Hill Road and Cunninyeuk Road is 100 kilometres per hour. On Swan Hill Road, the left turn treatment into Cunninyeuk Road is a basic left turn. The right turn into Cunninyeuk Road is a basic right turn.		
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A23 I-24 Balranald Road/Berrambong Railway Road

Table A.23 Balranald Road/Berambong Railway Road – layout and existing traffic volumes

The Balranald Road/Berrambong Railway Road intersection is a T-intersection with priority given to Balranald Road in the east-west direction. Balranald Road is sealed and has line markings, and Berrambong Railway Road is unsealed. The land use nearby is rural. The speed limit of Balranald Road and Berrambong Railway Road is 100 kilometres per hour. On Balranald Road, the left turn treatment into Berrambong Railway Road is a basic left turn. The right turn into Berrambong Railway Road is a basic right turn.		
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A24 I-25 Conargo Road/Carrathool Road

Table A.24 Conargo Road/Carrathool Road – layout and existing traffic volumes

The Conargo Road/Carrathool Road intersection is a T-intersection with priority given to Carrathool Road which becomes Conargo Road in the north-south direction. All approaches to the intersection are sealed and have line markings. The land use nearby is semi-rural as the intersection is within the town of Conargo. The speed limit on Conargo Road and Carrathool Road is 60 kilometres per hour. On Carrathool Road, the left turn treatment into Conargo Road is a basic left turn. The right turn into Conargo Road from Conargo Road is a basic right turn.	Diagram illustrating the layout and existing traffic volumes for the Conargo Road/Carrathool Road intersection during the AM Peak. The intersection is a T-junction with Carrathool Road (vertical) intersecting Conargo Road (horizontal). Carrathool Road has traffic volumes of 48 (left) and 58 (right). Conargo Road has traffic volumes of 10 (left) and 9 (right). The intersection is labeled 'AM Peak'.	Diagram illustrating the layout and existing traffic volumes for the Conargo Road/Carrathool Road intersection during the PM Peak. The intersection is a T-junction with Carrathool Road (vertical) intersecting Conargo Road (horizontal). Carrathool Road has traffic volumes of 45 (left) and 37 (right). Conargo Road has traffic volumes of 12 (left) and 12 (right). The intersection is labeled 'PM Peak'.
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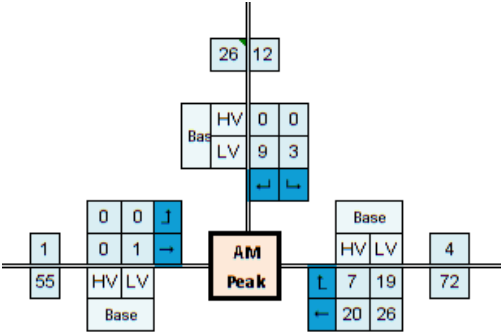
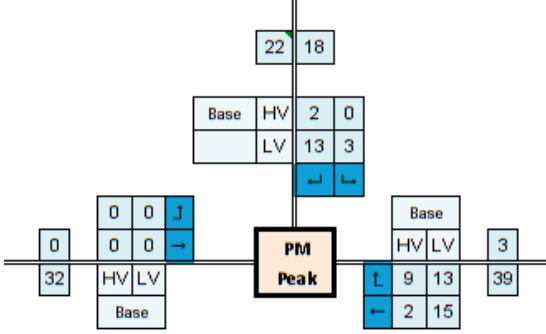
A25 I-26 Conargo Road/Jerilderie Street

Table A.25 Conargo Road/Jerilderie Street – layout and existing traffic volumes

The Conargo Road/Jerilderie Street intersection is a T-intersection with Jerilderie Street in the form of a left-turn bend. All approaches to the intersection are sealed and have line markings. The land use nearby is residential and commercial. The speed limit on Jerilderie Street and Conargo Road is 50 kilometres per hour. On Jerilderie Street, the left turn treatment into Jerilderie Street is a channelised right turn. The right turn into Jerilderie Street from Conargo Road is a basic right turn.	Diagram illustrating the layout and existing traffic volumes at the Conargo Road/Jerilderie Street intersection during the AM Peak. The intersection is a T-intersection with Jerilderie Street in the form of a left-turn bend. The diagram shows the intersection layout with traffic volumes for each approach and movement. <table border="1"><thead><tr><th>Approach</th><th>Movement</th><th>Volume</th></tr></thead><tbody><tr><td>Conargo Road (Left)</td><td>Left</td><td>79</td></tr><tr><td>Conargo Road (Through)</td><td>Through</td><td>70</td></tr><tr><td>Conargo Road (Right)</td><td>Right</td><td>140</td></tr><tr><td>Jerilderie Street (Left)</td><td>Left</td><td>97</td></tr><tr><td>Jerilderie Street (Right)</td><td>Right</td><td>171</td></tr></tbody></table>	Approach	Movement	Volume	Conargo Road (Left)	Left	79	Conargo Road (Through)	Through	70	Conargo Road (Right)	Right	140	Jerilderie Street (Left)	Left	97	Jerilderie Street (Right)	Right	171	Diagram illustrating the layout and existing traffic volumes at the Conargo Road/Jerilderie Street intersection during the PM Peak. The intersection is a T-intersection with Jerilderie Street in the form of a left-turn bend. The diagram shows the intersection layout with traffic volumes for each approach and movement. <table border="1"><thead><tr><th>Approach</th><th>Movement</th><th>Volume</th></tr></thead><tbody><tr><td>Conargo Road (Left)</td><td>Left</td><td>66</td></tr><tr><td>Conargo Road (Through)</td><td>Through</td><td>56</td></tr><tr><td>Conargo Road (Right)</td><td>Right</td><td>142</td></tr><tr><td>Jerilderie Street (Left)</td><td>Left</td><td>102</td></tr><tr><td>Jerilderie Street (Right)</td><td>Right</td><td>113</td></tr></tbody></table>	Approach	Movement	Volume	Conargo Road (Left)	Left	66	Conargo Road (Through)	Through	56	Conargo Road (Right)	Right	142	Jerilderie Street (Left)	Left	102	Jerilderie Street (Right)	Right	113
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Jerilderie Street (Right)	Right	113																																				

A26 I-27 Swan Hill Road/Moulamein Road

Table A.26 Swan Hill Road/Moulamein Road – layout and existing traffic volumes

The Swan Hill Road/Moulamein Road intersection is a T-intersection with priority given to Moulamein Road in the north-south direction. All approaches are sealed and have line markings. The land use nearby is rural. The speed limit on Swan Hill Road and Moulamein Road is 100 kilometres per hour. On Moulamein Road, the left turn treatment into Swan Hill Road is a basic left turn. The right turn into Swan Hill Road is a basic right turn.		
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A27 I-28 Swan Hill Road/Noorong Road

Table A.27 Swan Hill Road/Noorong Road – layout and existing traffic volumes

The Swan Hill Road/Noorong Road intersection is a T-intersection with priority given to Swan Hill Road in the north-south direction. Approaches to the intersection are sealed and have line markings. The land use nearby is rural. The speed limit on Swan Hill Road and Noorong Road is 100 kilometres per hour. On Swan Hill Road, the left turn treatment into Noorong Road is a basic left turn. The right turn into Noorong Road is a basic right turn.		
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A28 I-29 Swan Hill Road/Pike Pike Lane

Table A.28 Swan Hill Road/Pike Pike Lane – layout and existing traffic volumes

The Swan Hill Road/Pike Pike Lane intersection is a T-intersection with priority given to Swan Hill Road in the east-west direction. Swan Hill Road is sealed and has line markings, Pike Pike Lane is unsealed. The land use nearby is rural. The speed limit on Swan Hill Road and Pike Pike Lane is 100 kilometres per hour. On Swan Hill Road, the left turn treatment into Pike Pike Lane is a basic left turn. The right turn into Pike Pike Lane is a basic right turn.		
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A29 I-30 Swan Hill Road/Kaylock Road

Table A.29 Swan Hill Road/Kaylock Road – layout and existing traffic volumes

The Swan Hill Road/Kaylock Road intersection is a T-intersection with priority given to Swan Hill Road in the north-south direction. Swan Hill Road is sealed and has line markings, and Kaylock Road is unsealed. The land use nearby is rural. The speed limit on Swan Hill Road and Kaylock Road is 100 kilometres per hour. On Swan Hill Road, the left turn treatment into Kaylock Road is a basic left turn. The right turn into Kaylock Road is a basic right turn.		
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A30 I-31 Tallow Street/Tchelery Road

Table A.30 Tallow Street/Tchelery Road – layout and existing traffic volumes

The Tallow Street/Tchelery Road intersection is a T-intersection with priority given to Tallow Street in the east-west direction. All approaches to the intersection are sealed and have line markings. The land use nearby is mostly rural with a grain storage facility northwest of the intersection. There is a rail line west of the intersection that is proposed to be used to service the grain storage facility. The speed limit on Tallow Street and Tchelery Road is 70 kilometres per hour. On Tallow Street, the left turn treatment into Tchelery Road is a basic left turn. The right turn into Tchelery Road from Tallow Street is a basic right turn.		
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A31 I-32 Maude Road/Wanganella-Moulamein Road

Table A.31 Maude Road/Wanganella-Moulamein Road – layout and existing traffic volumes

The Maude Road/Wanganella-Moulamein Road intersection is a T-intersection with priority given to Maude Road in the east-west direction. Approaches to the intersection are sealed and no approaches have line markings. The land use nearby is rural. The speed limit on Maude Road and Wanganella-Moulamein Road is 100 kilometres per hour. On Maude Road, the left turn treatment into Wanganella-Moulamein Road is a basic left turn. The right turn into Wanganella-Moulamein Road is a basic right turn.		
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A32 I-33 Tumbarumba Road/Gregadoo East Road

Table A.32 Tumbarumba Road/Gregadoo East Road – layout and existing traffic volumes

The Tumbarumba Road/Gregadoo East Road intersection is a T-intersection with priority given to Tumbarumba Road in the north-south direction. Approaches to the intersection are sealed and the Tumbarumba Road approaches have line markings.

The land use nearby is rural.

The speed limit on Tumbarumba Road and Gregadoo East Road is 100 kilometres per hour. On Tumbarumba Road, the left turn treatment into Gregadoo East Road is a basic left turn. The right turn into Gregadoo East Road is a basic right turn.

Diagram illustrating the intersection layout and existing traffic volumes for the AM Peak. The diagram shows a T-intersection where Tumbarumba Road (North-South) meets Gregadoo East Road (East-West). Traffic volumes are provided for each approach, categorized by Base, HV (Heavy Vehicle), and LV (Light Vehicle). Arrows indicate the direction of traffic flow.

Approach	Base	HV	LV	Total
Northbound (Tumbarumba Rd)	21	21	0	42
Southbound (Tumbarumba Rd)	17	4	0	21
Eastbound (Gregadoo East Rd)	38	0	0	38
Westbound (Gregadoo East Rd)	59	11	27	97

Diagram illustrating the intersection layout and existing traffic volumes for the PM Peak. The diagram shows a T-intersection where Tumbarumba Road (North-South) meets Gregadoo East Road (East-West). Traffic volumes are provided for each approach, categorized by Base, HV (Heavy Vehicle), and LV (Light Vehicle). Arrows indicate the direction of traffic flow.

Approach	Base	HV	LV	Total
Northbound (Tumbarumba Rd)	18	29	0	47
Southbound (Tumbarumba Rd)	27	1	1	29
Eastbound (Gregadoo East Rd)	14	0	0	14
Westbound (Gregadoo East Rd)	63	31	17	111

Appendix B

Safe Intersection Sight Distance compliance
checks



Sturt Highway and Maude Road

Requirement: an SISD of 341 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 110 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



I-03 Sturt Highway and Kidman Way

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Sturt Highway and Lockhart Road

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Sturt Highway and Tumbarumba Road

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Newell Highway and Kidman Way

Requirement: an SISD of 341 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 110 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Newell Highway and Berrigan Road

Requirement: an SISD of 341 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 110 kilometres per hour signposted speed.

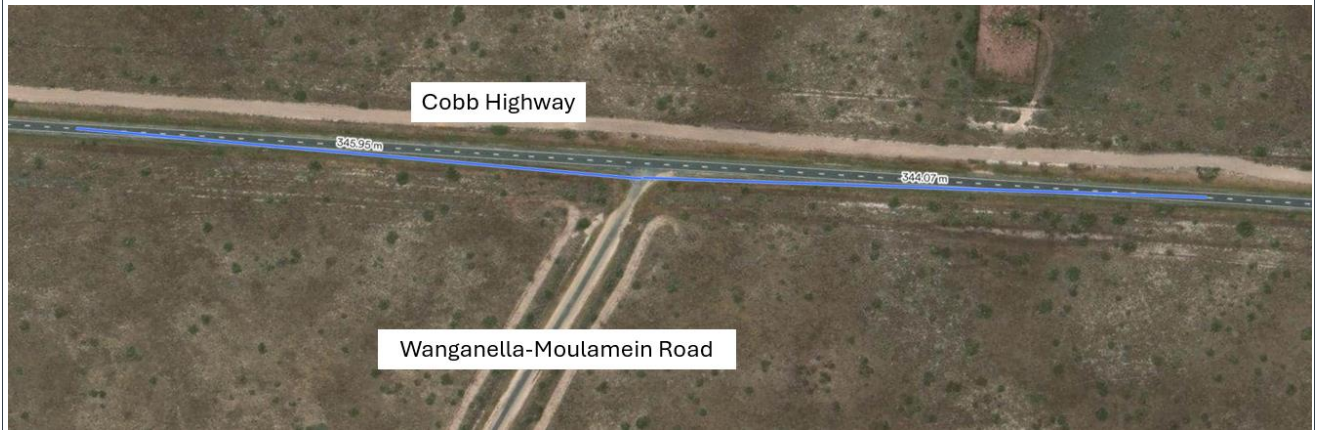
Compliance check: Satisfactory SISD and no adjustments required.



Cobb Highway and Wanganella-Moulamein Road

Requirement: an SISD of 341 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 110 kilometres per hour signposted speed.

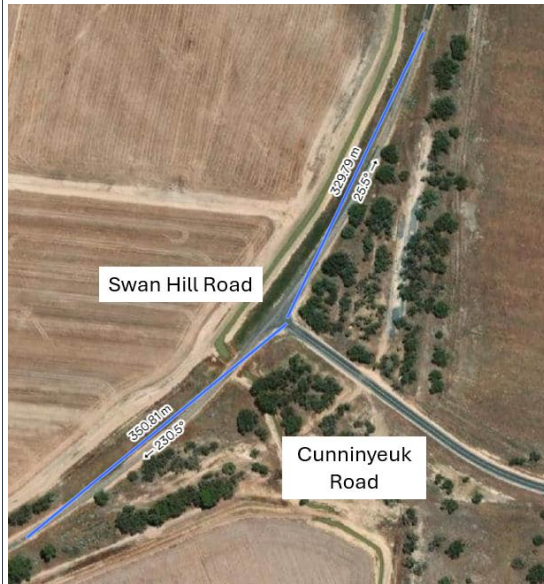
Compliance check: Satisfactory SISD and no adjustments required.



Swan Hill Road and Cunninyeuk Road

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Balranald Road and Berrambong Railway Road

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Moulamein Road and Swan Hill Road

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Swan Hill Road and Noorong Road

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Swan Hill Road and Pike Pike Lane

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Swan Hill Road and Kaylock Road

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

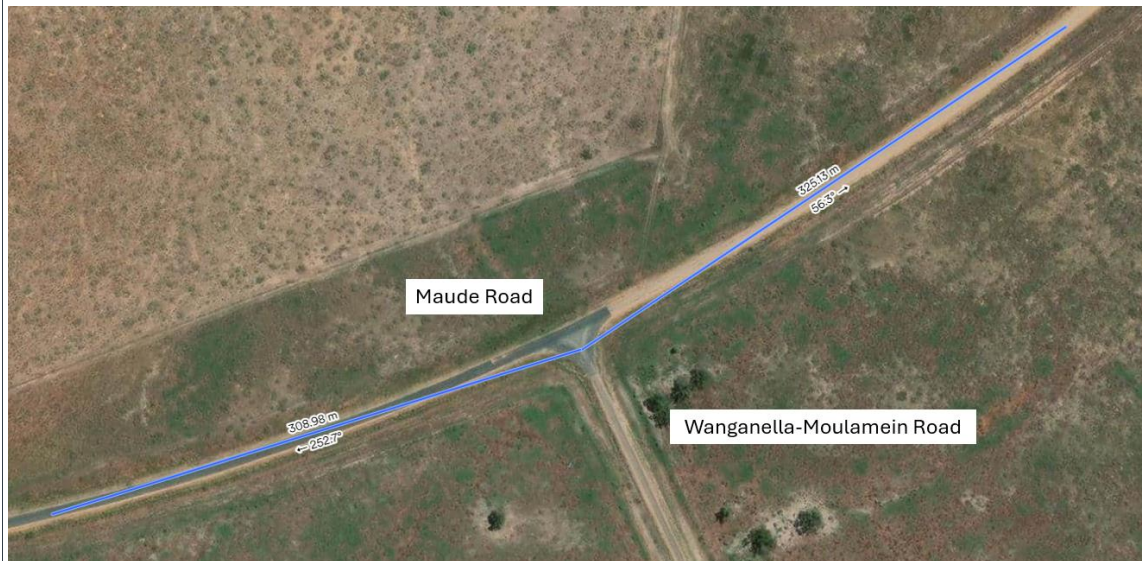
Compliance check: Satisfactory SISD and no adjustments required.



Maude Road and Wanganella-Moulamein Road

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Tumbarumba Road and Gregadoo East Road

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

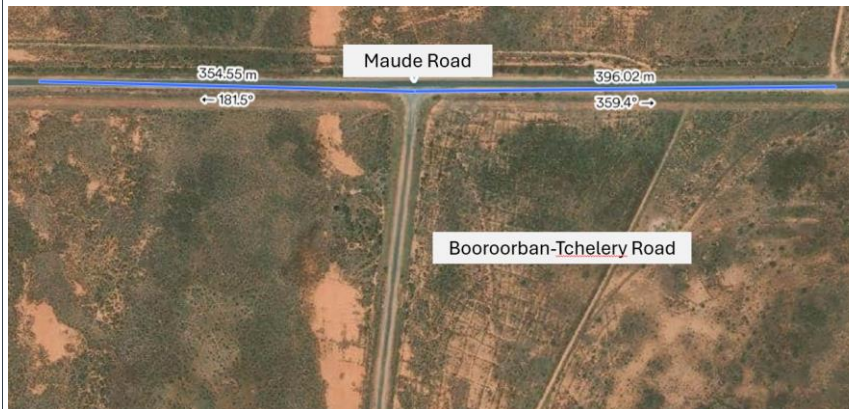
Compliance check: Satisfactory SISD and no adjustments required.



Maude Road and Booroorban-Tchelery Road

Requirement: an SISD of 300m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Maude Road and access track west of Wanganella-Moulamein Road

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Maude Road and access track near alignment (east)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

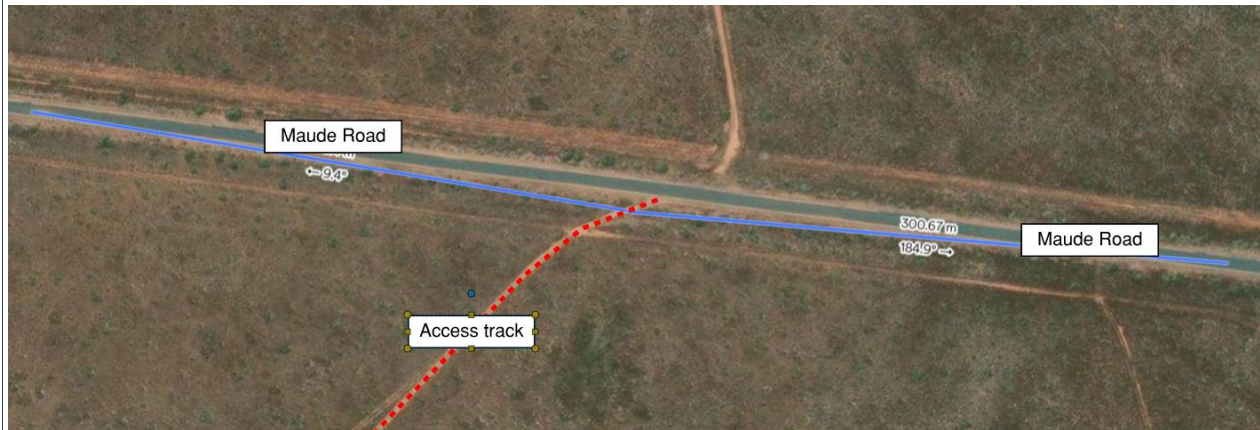
Compliance check: Satisfactory SISD and no adjustments required.



Maude Road and access track near alignment (west)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Noorong Road and Murrabit Road

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

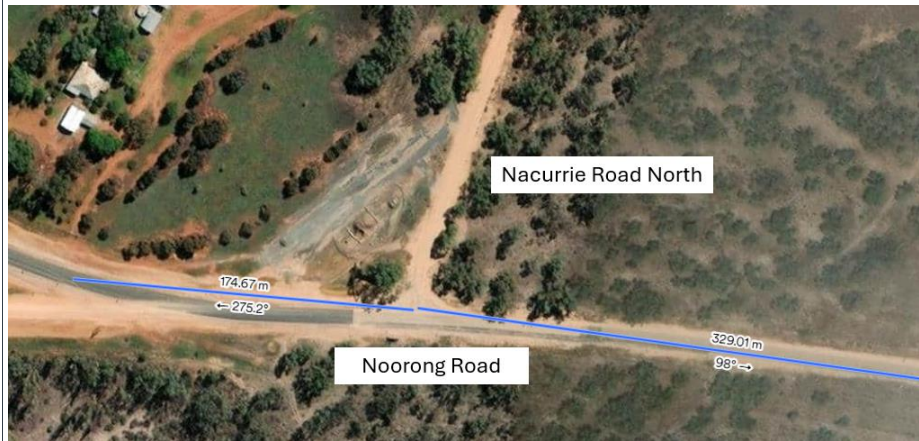
Compliance check: Satisfactory SISD and no adjustments required.



Noorong Road and Nacurrie Road North

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed (90 kilometres per hour design speed).

Compliance check: Satisfactory SISD and no adjustments required.



Noorong Road and Moulamein Road

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Cunninyeuk Road and Wood Lane

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Murrabit Road and Cobramunga Road (North)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Murrabit Road and Gonn Road

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Murrabit Road and Cobramunga Road (South)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Moulamein Road and Gonn Road

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Moulamein Road and Barham Road

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

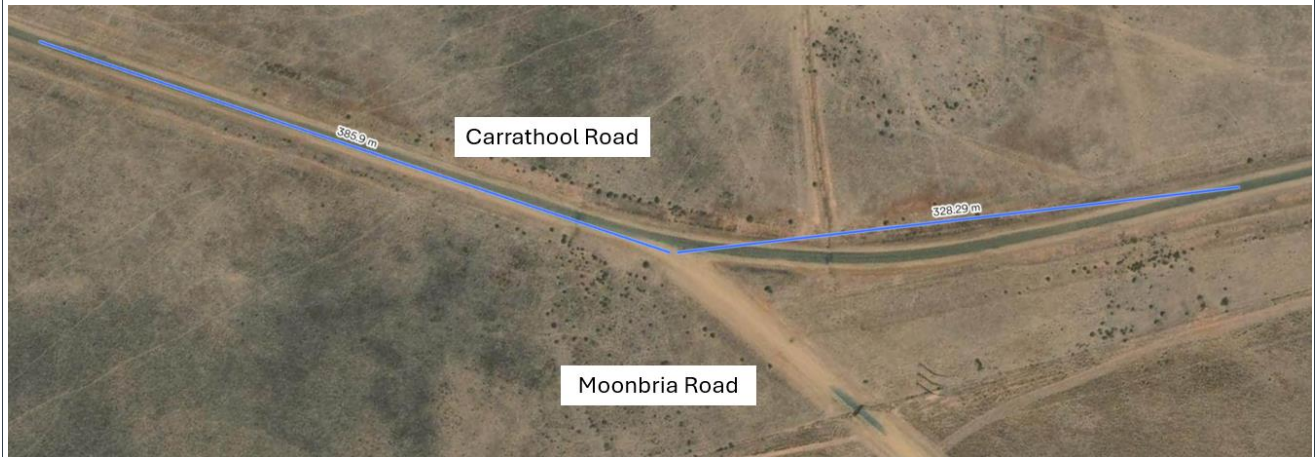
Compliance check: Satisfactory SISD and no adjustments required.



Carrathool Road and Moonbria Road

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

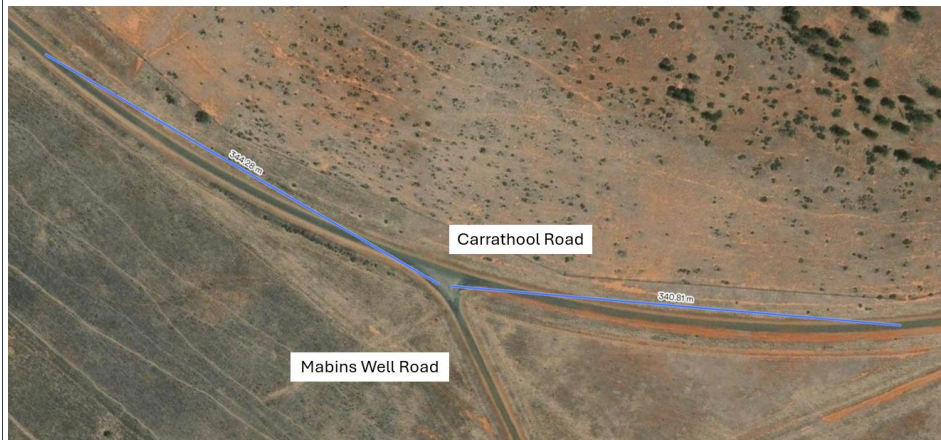
Compliance check: Satisfactory SISD and no adjustments required.



Carrathool Road and Mabins Well Road

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Wilson Road and Mabins Well Road

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Wilson Road and McLennons Bore Road

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Wilson Road and Moonbria Road

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Wilson Road and access track

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

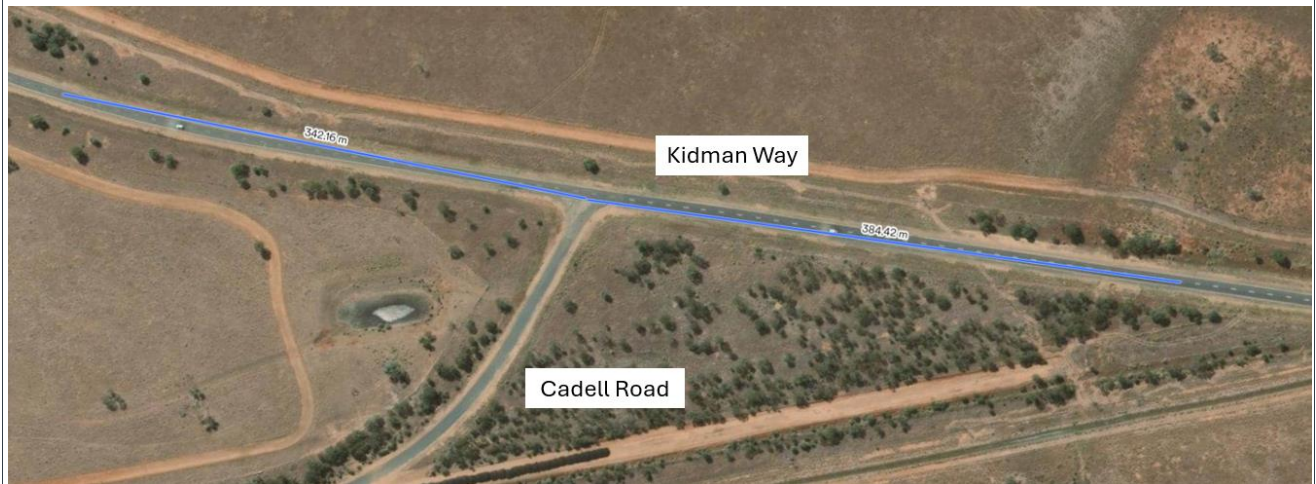
Compliance check: Satisfactory SISD and no adjustments required.



Kidman Way and Cadell Road

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Newell Highway and Burley Griffin Way

Requirement: an SISD of 341 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 110 kilometres per hour signposted speed.

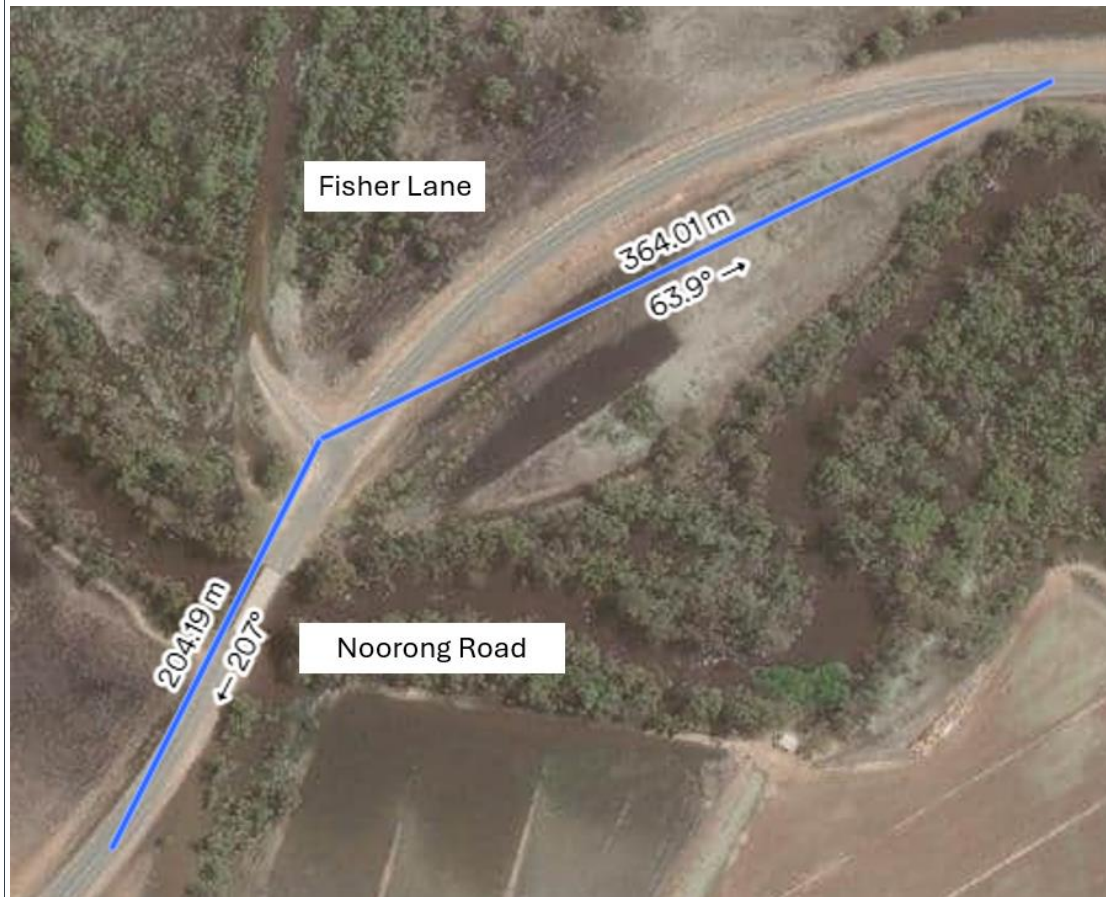
Compliance check: Satisfactory SISD and no adjustments required.



I-Site-01 New site access to Fisher Lane construction compound, via Noorong Road

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

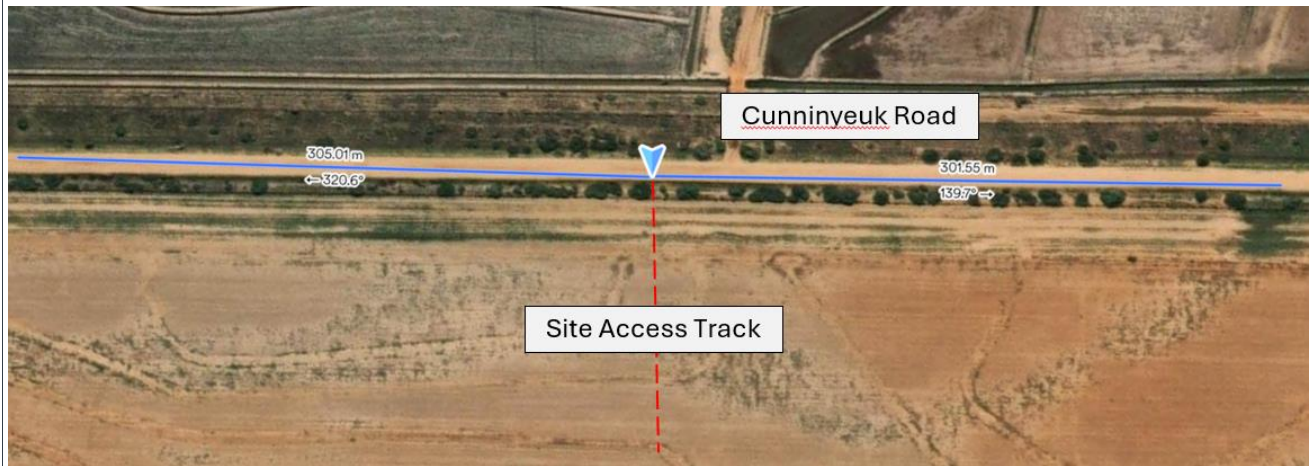
Compliance check: Satisfactory SISD and no adjustments required.



I-Site-02 New site access to Cunninyeuk Road construction compound

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



I-Site-03 New site access Balranald Road temporary worker accommodation facility

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

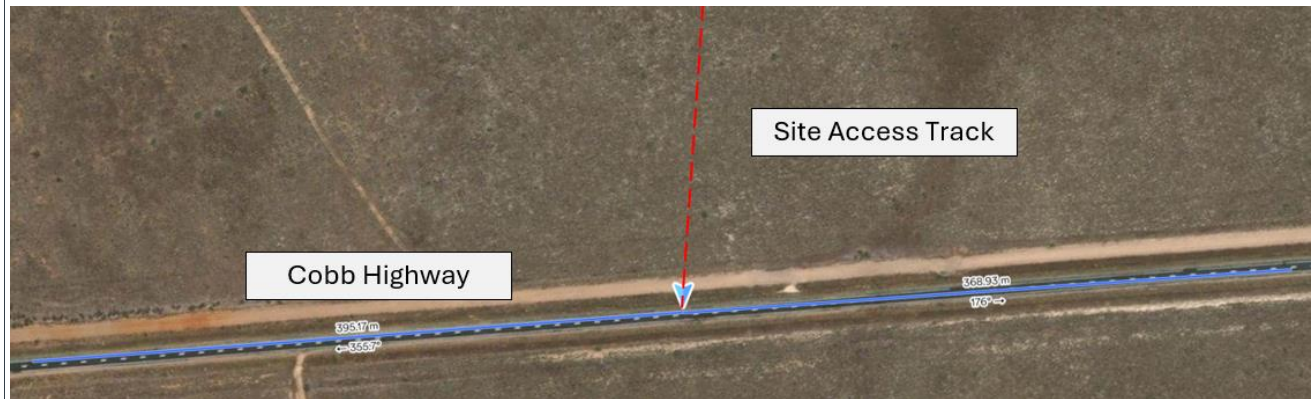
Compliance check: Satisfactory SISD and no adjustments required.



I-Site-04 New site access Cobb Highway temporary worker accommodation facility

Requirement: an SISD of 341 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 110 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



I-Site-05 New site access Mabins Well Road construction compound

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



I-Site-06 New site access Kidman Way temporary worker accommodation facility

Requirement: an SISD of 300m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



I-Site-08 Option 2 New site access Gregadoo East Road temporary worker accommodation facility

Requirement: an SISD of 300m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Unsatisfactory SISD due to the sightline of the south approach being blocked by trees.



I-Site-08 Option 3 New site access Gregadoo East Road temporary worker accommodation facility

Requirement: an SISD of 300m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



I-Site-08 Option 4 New site access Livingstone Gully Road temporary worker accommodation facility

Requirement: an SISD of 300m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



McLennons Bore Road and access track east of Kulki Lane

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



McLennons Bore Road and access track west of Kulki Lane

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



McLennons Bore Road and access track near Wilson Road

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track west of Wilson Road

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (1)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (2)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

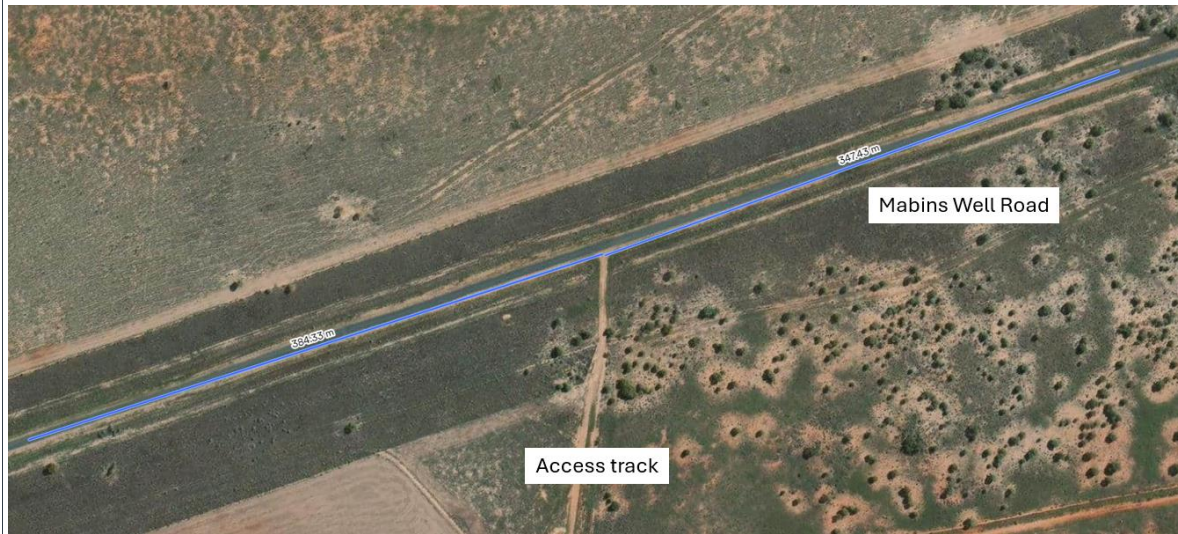
Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (3)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (4)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

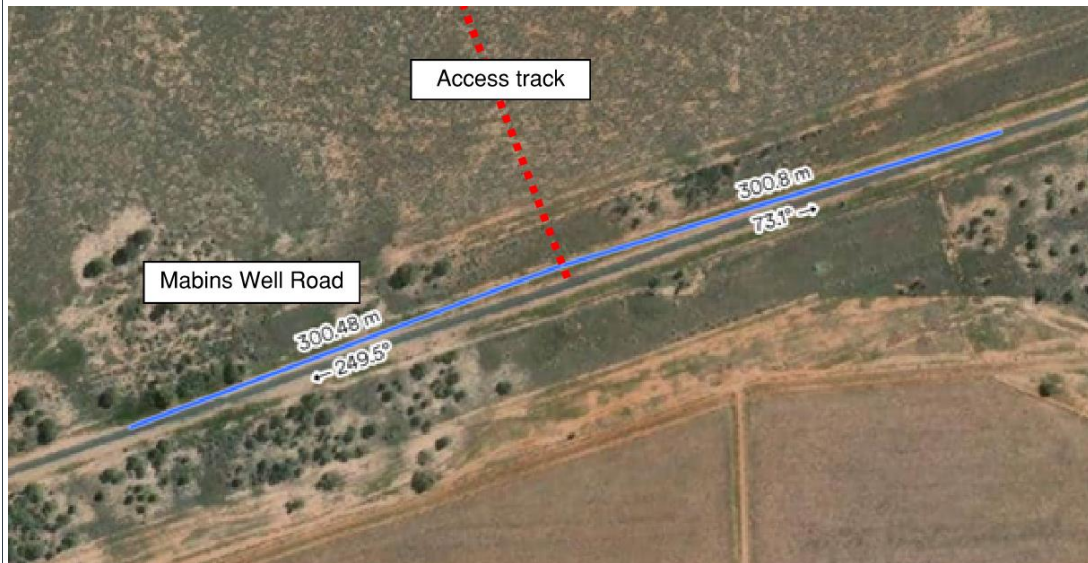
Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (5)

Requirement: an SISD of 300m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

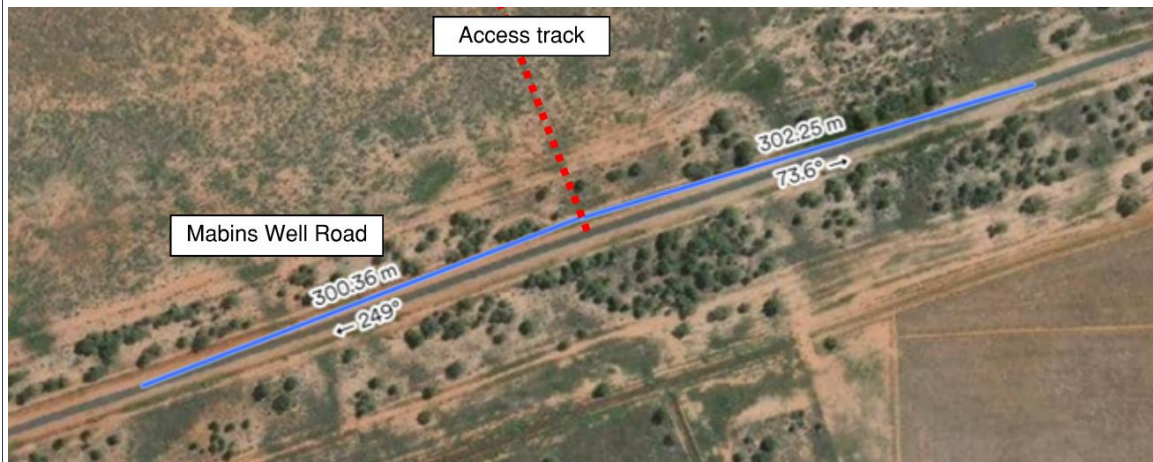
Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (6)

Requirement: an SISD of 300m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

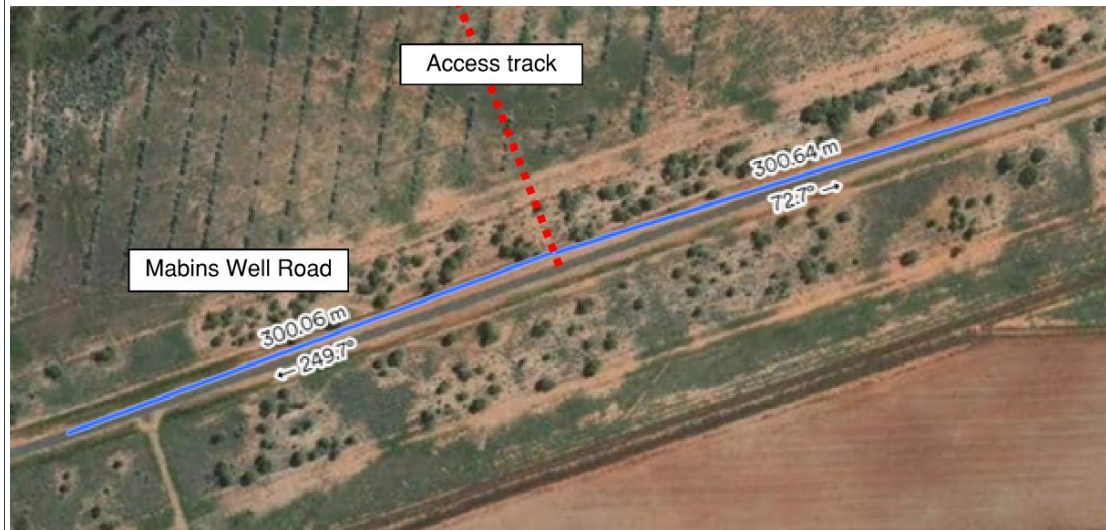
Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (7)

Requirement: an SISD of 300 m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (8)

Requirement: an SISD of 300 m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

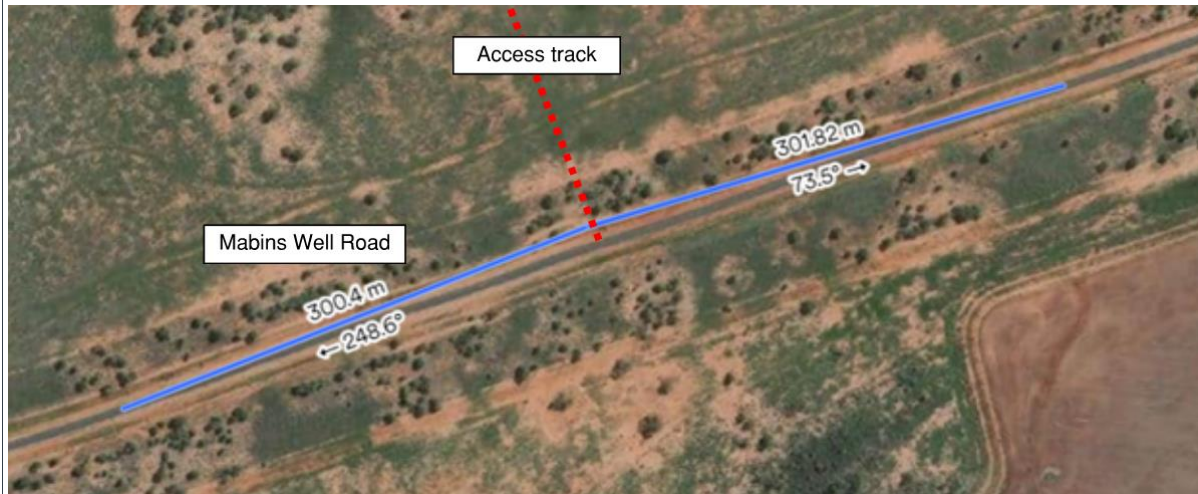
Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (9)

Requirement: an SISD of 300 m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

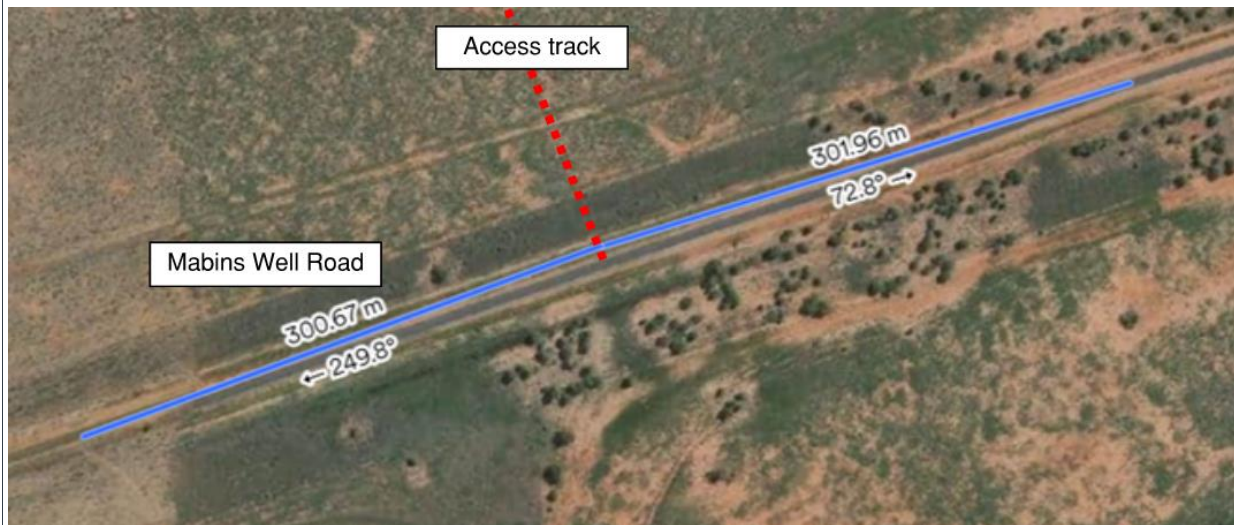
Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (10)

Requirement: an SISD of 300 m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

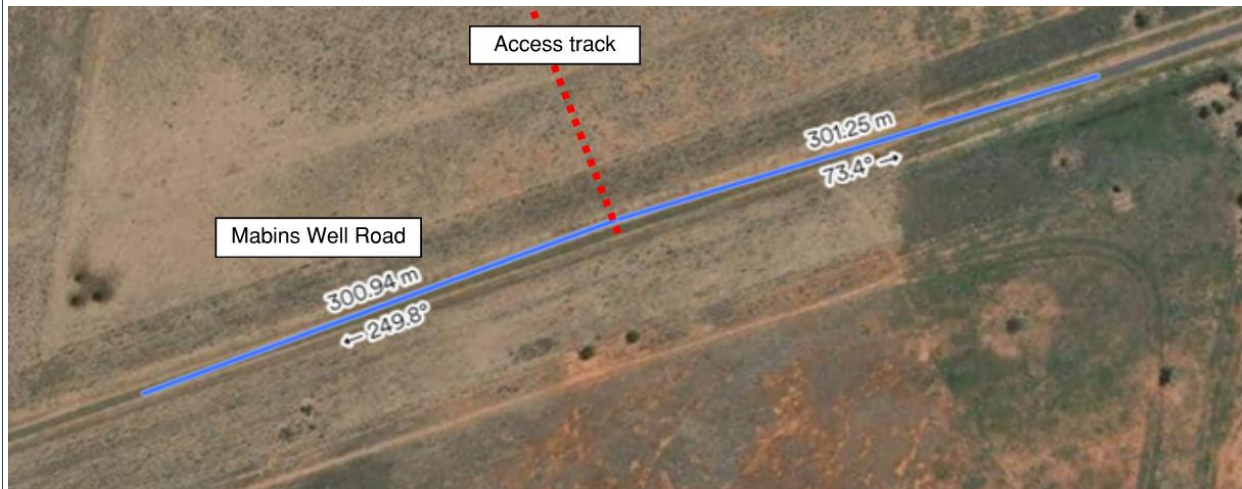
Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (11)

Requirement: an SISD of 300 m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

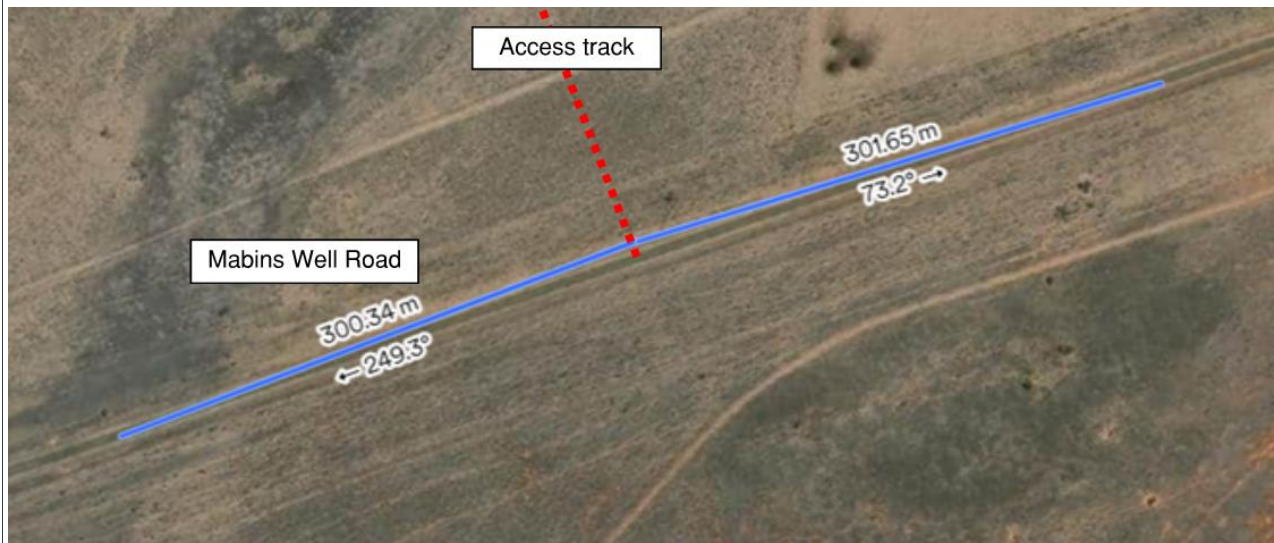
Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (12)

Requirement: an SISD of 300 m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

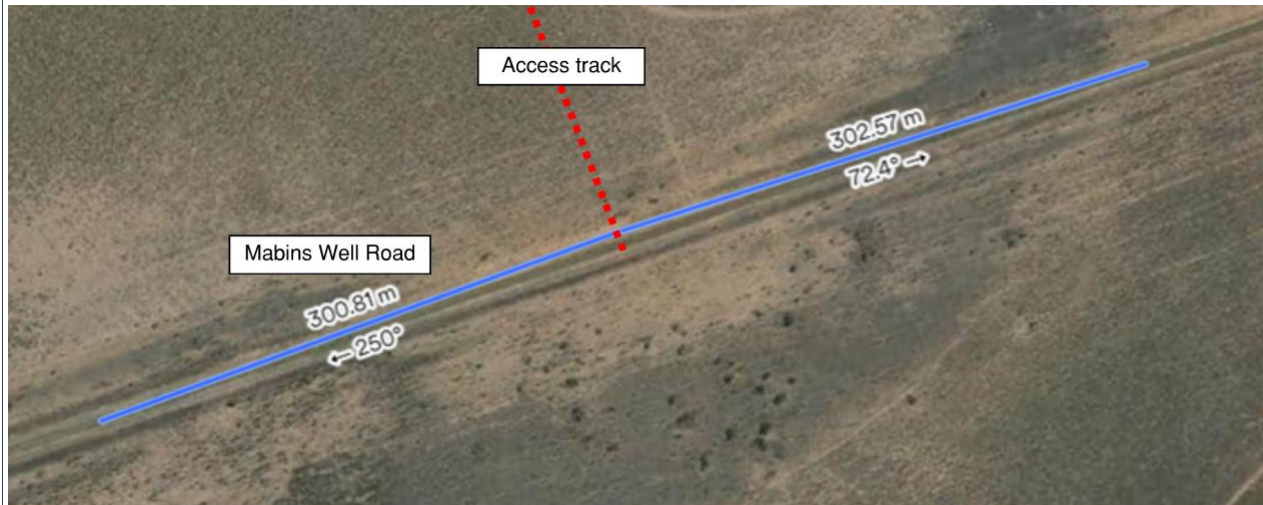
Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (13)

Requirement: an SISD of 300 m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

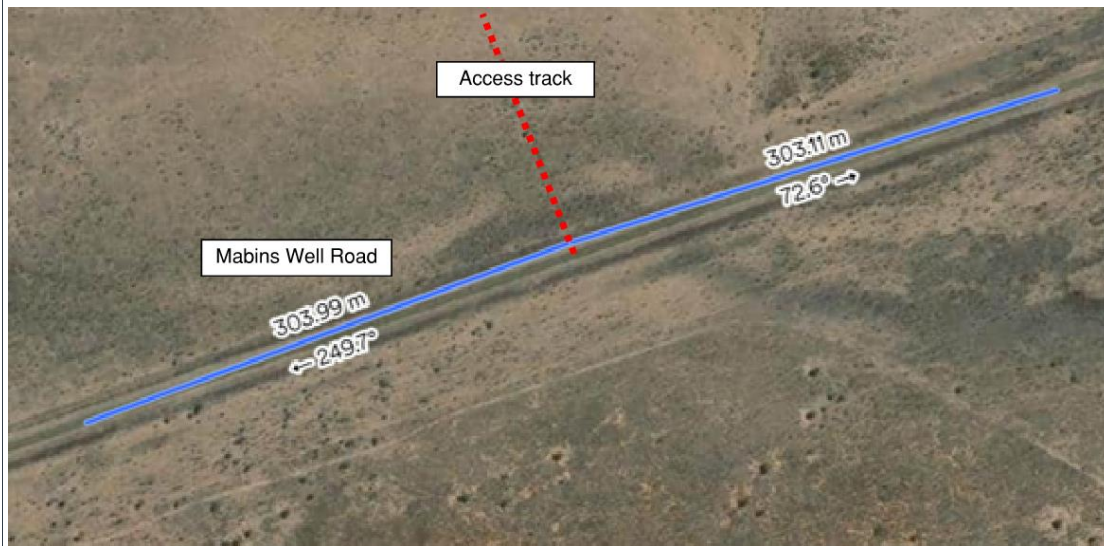
Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (14)

Requirement: an SISD of 300 m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

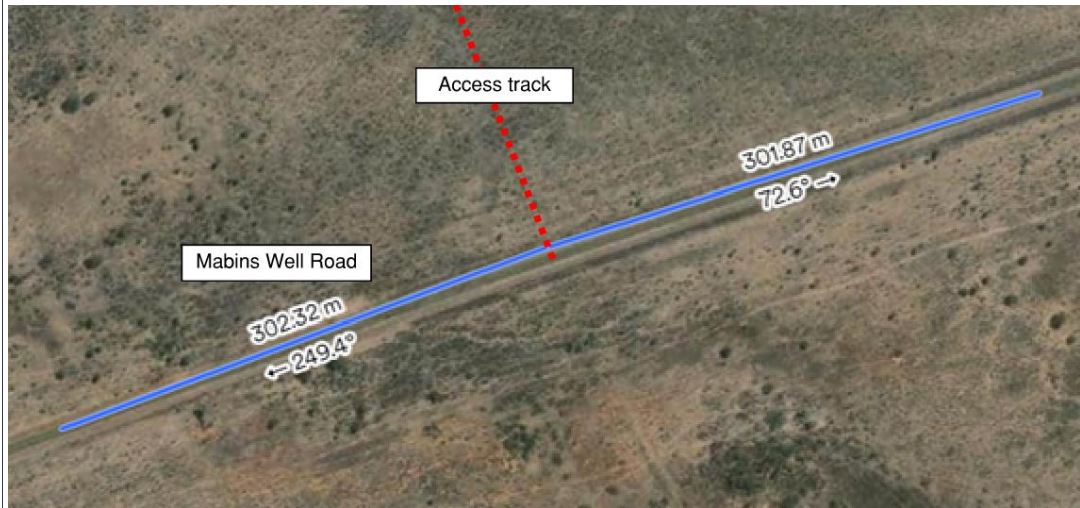
Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (15)

Requirement: an SISD of 300 m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

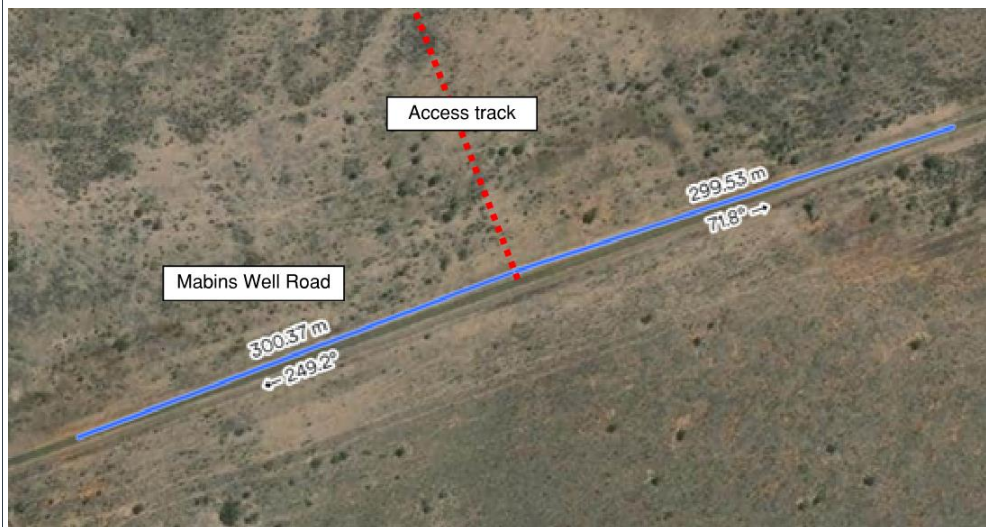
Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (16)

Requirement: an SISD of 300 m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

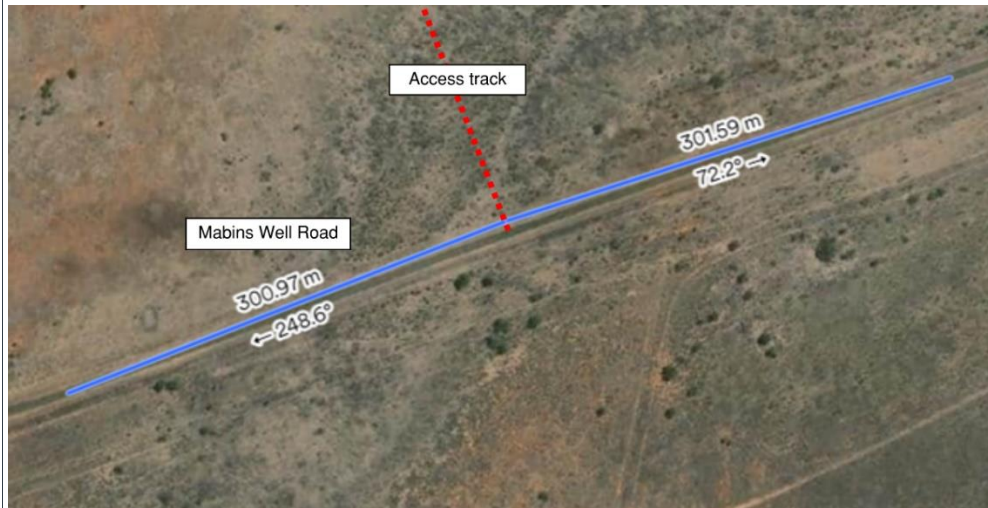
Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (17)

Requirement: an SISD of 300 m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (18)

Requirement: an SISD of 300 m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

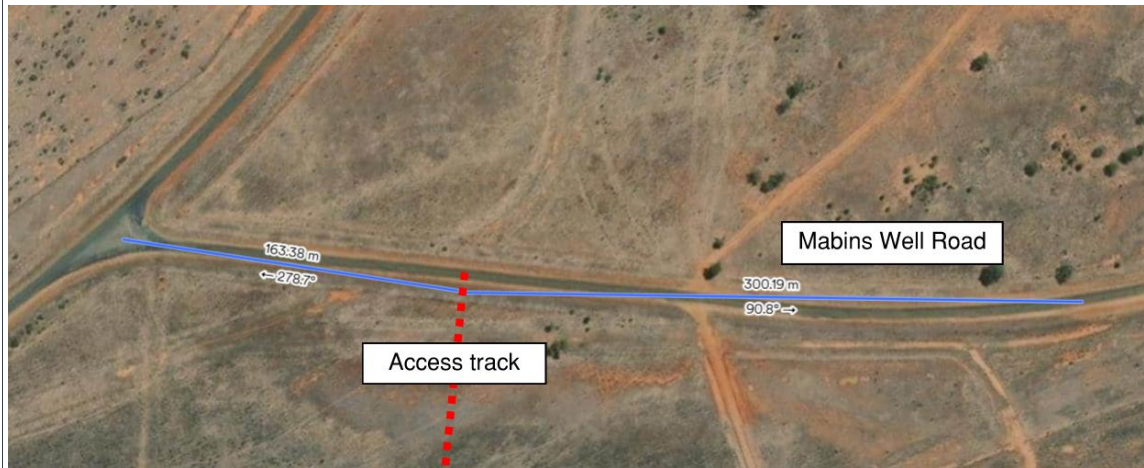
Compliance check: Satisfactory SISD and no adjustments required.



Mabins Well Road and access track (19)

Requirement: an SISD of 300 m is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

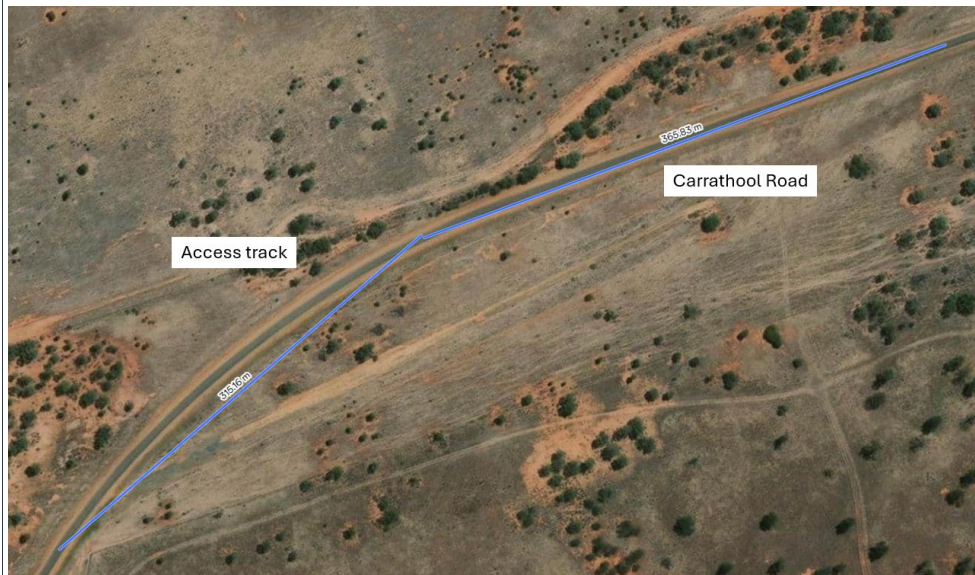
Compliance check: Satisfactory SISD and no adjustments required.



Carrathool Road and access track (1)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

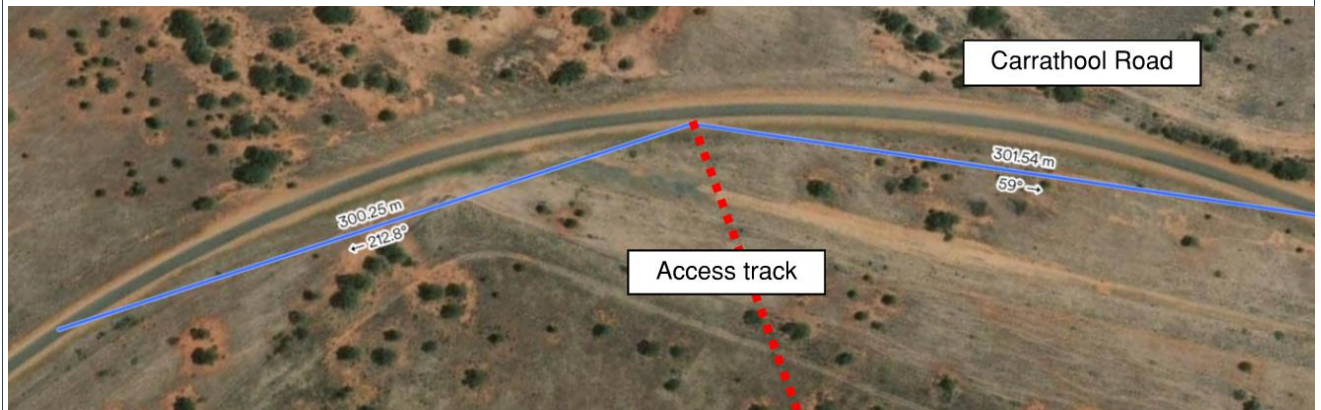
Compliance check: Satisfactory SISD and no adjustments required.



Carrathool Road and access track (2)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Carrathool Road and access track (3)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

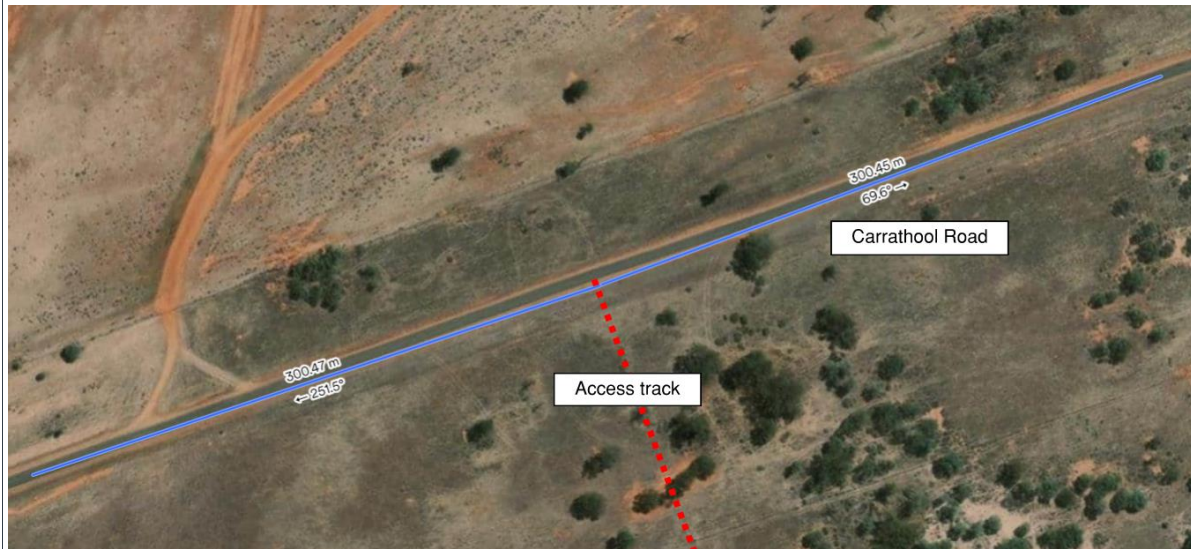
Compliance check: Satisfactory SISD and no adjustments required.



Carrathool Road and access track (4)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

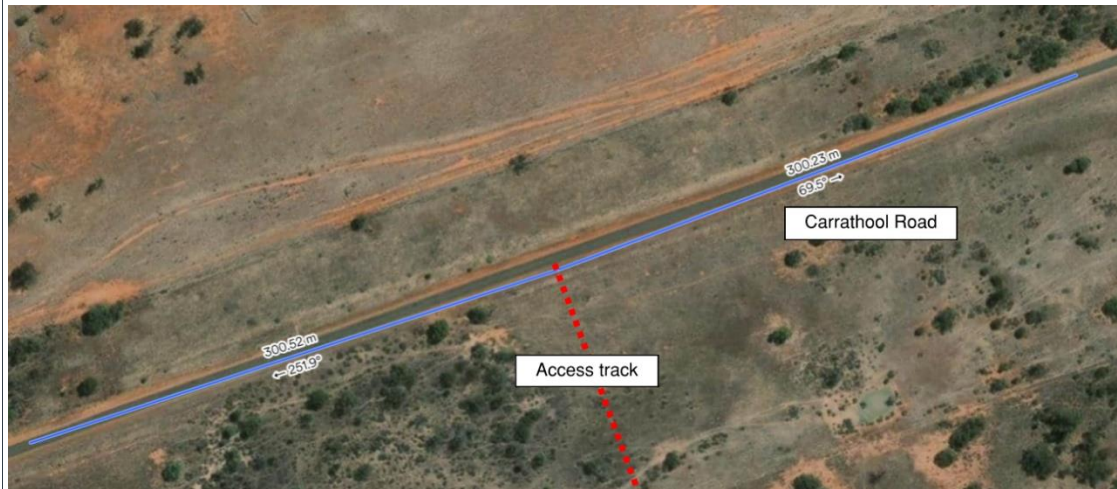
Compliance check: Satisfactory SISD and no adjustments required.



Carrathool Road and access track (5)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Carrathool Road and access track (6)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Carrathool Road and access track (7)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

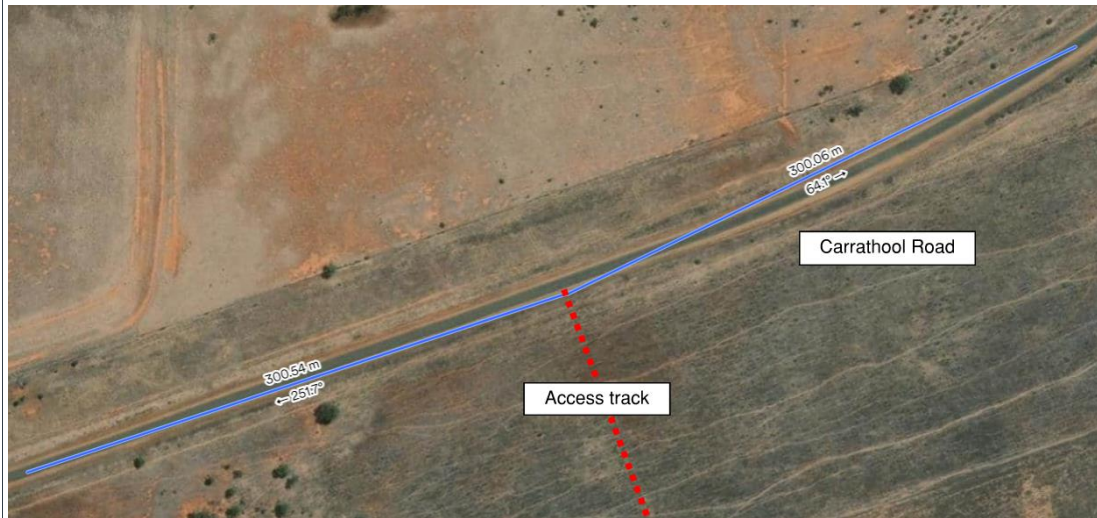
Compliance check: Satisfactory SISD and no adjustments required.



Carrathool Road and access track (8)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Cobb Highway and proposed access track

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Cobb Highway and access track

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

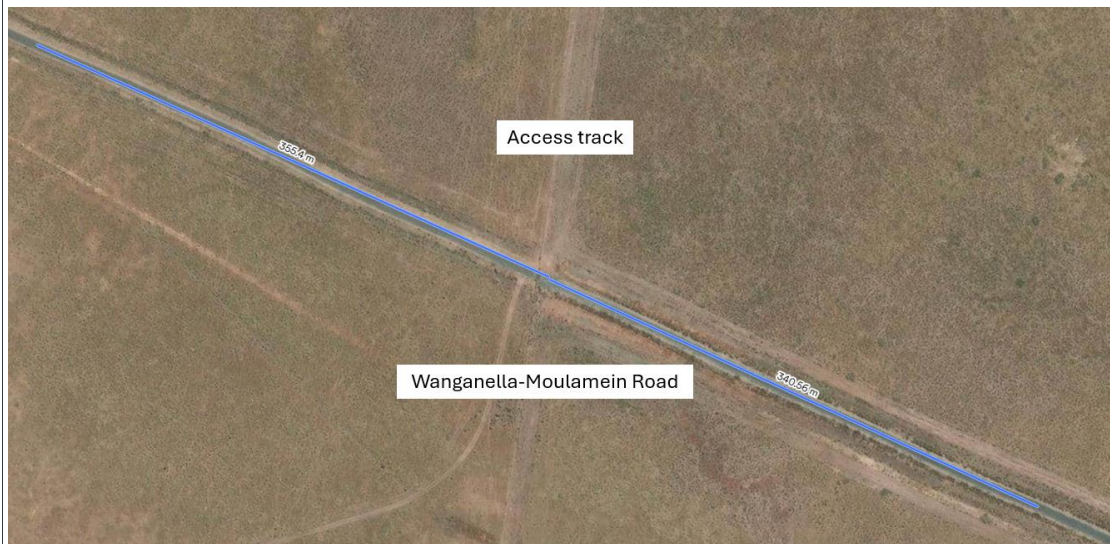
Compliance check: Satisfactory SISD and no adjustments required.



Wanganella-Moulamein Road and access track (1)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Wanganella-Moulamein Road and access track (2)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Wanganella-Moulamein Road and access track (3)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Wangenella-Moulamein Road and access track (4)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Balranald Road and access track (1)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

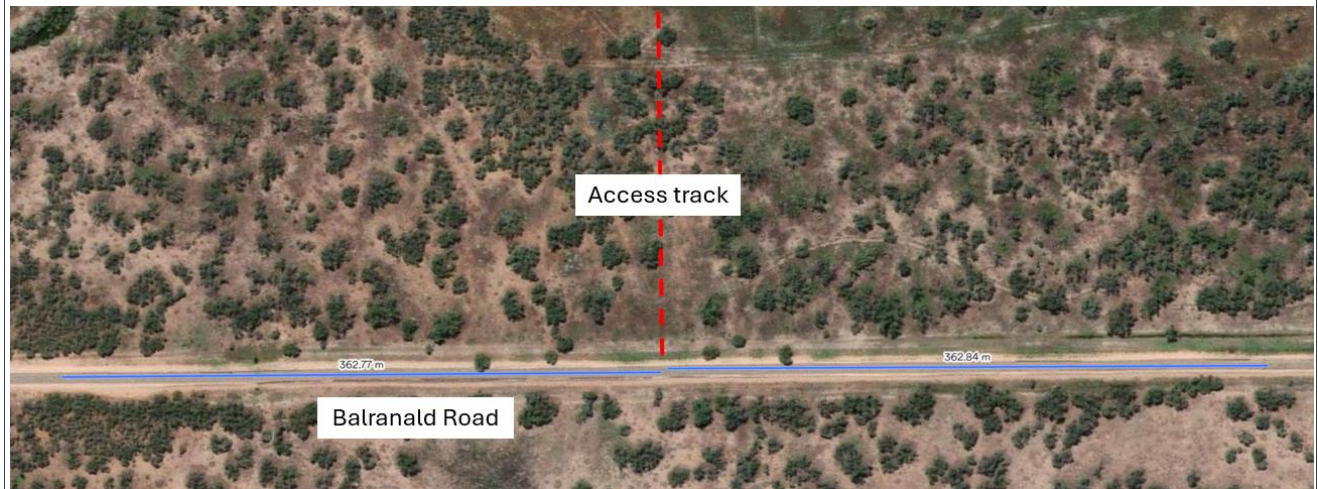
Compliance check: Satisfactory SISD and no adjustments required.



Balranald Road and access track (2)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Pike Pike Lane and access track (1)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Pike Pike Lane and access track (2)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Pike Pike Lane and access track (3)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

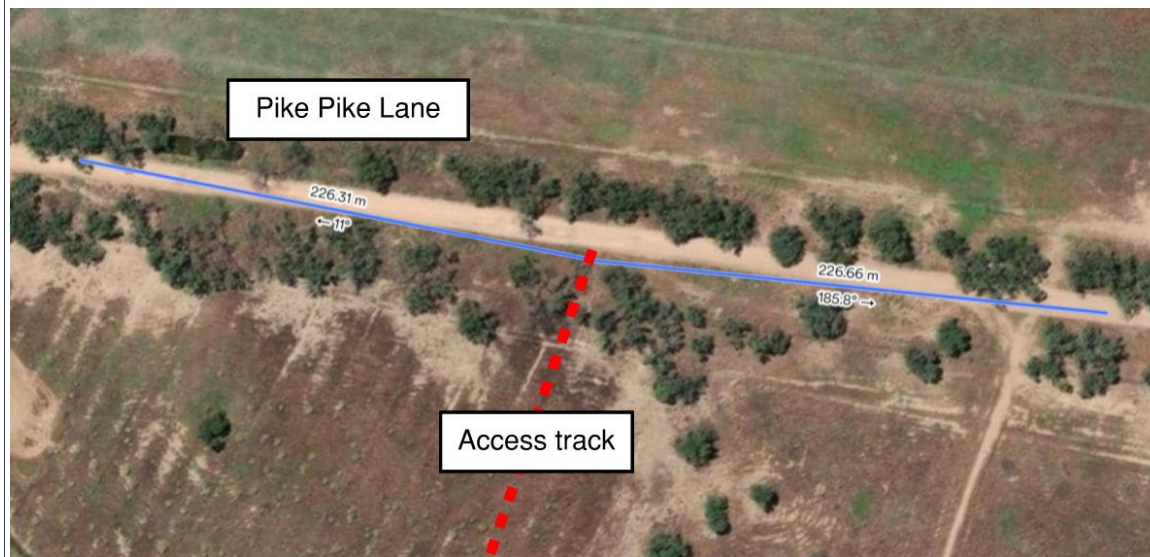
Compliance check: Satisfactory SISD and no adjustments required.



Pike Pike Lane and access track (4)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Pike Pike Lane and access track (5)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

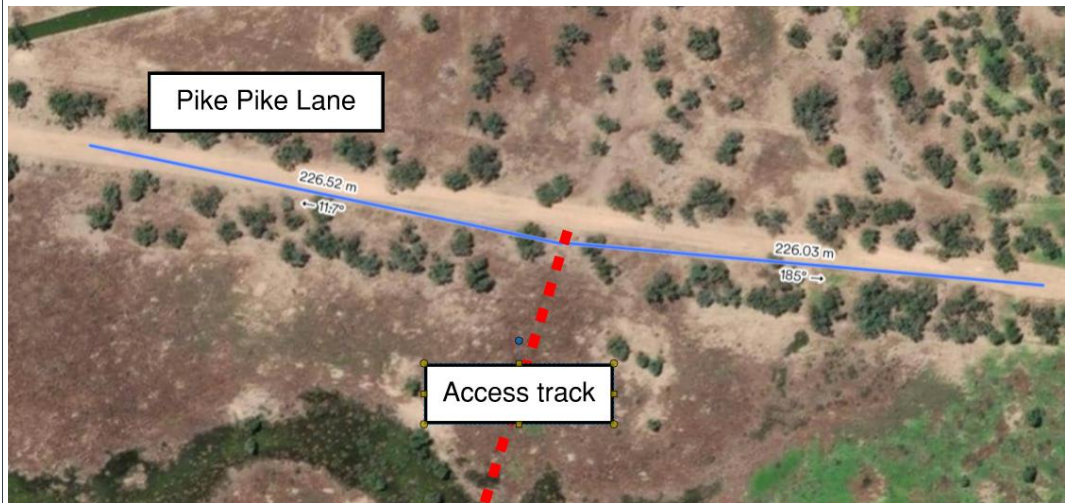
Compliance check: Satisfactory SISD and no adjustments required.



Pike Pike Lane and access track (6)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

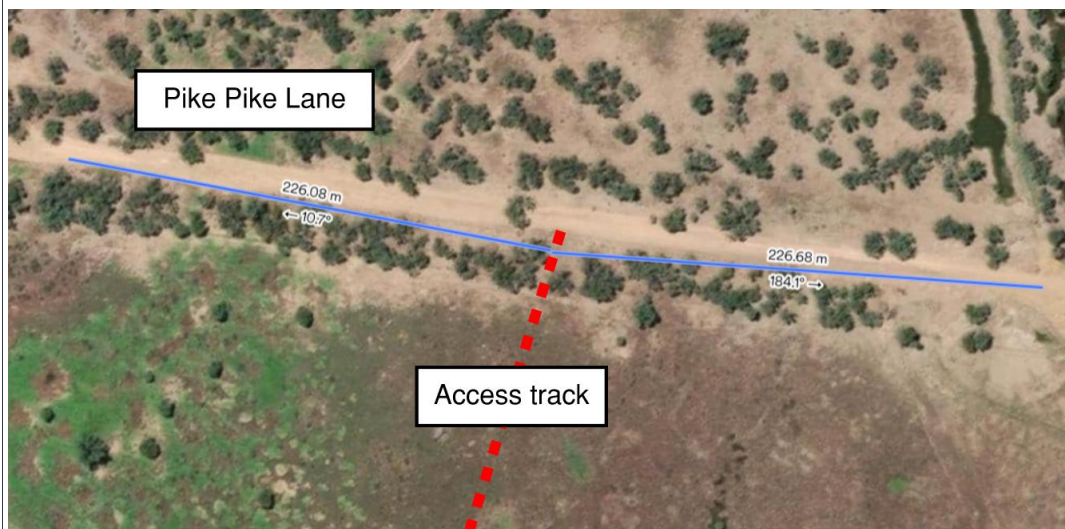
Compliance check: Satisfactory SISD and no adjustments required.



Pike Pike Lane and access track (7)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

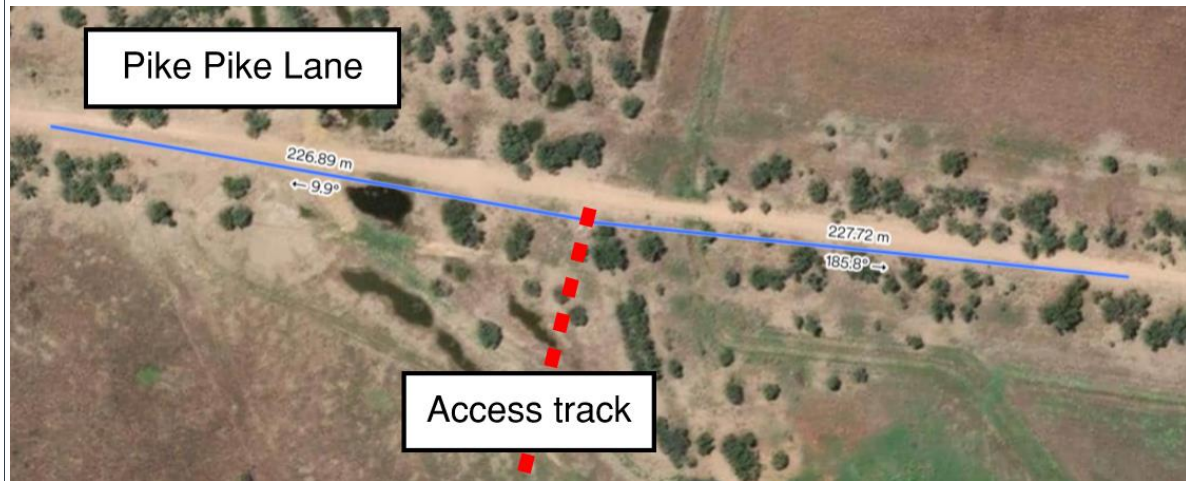
Compliance check: Satisfactory SISD and no adjustments required.



Pike Pike Lane and access track (8)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Pike Pike Lane and access track (9)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Cunninyeuk Road and access track (1)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Unsatisfactory SISD due to poor sightlines around the bend for both access points



Cunninyeuk Road and access track (2)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Cunninyeuk Road and access track (3)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Cunninyeuk Road and access track (4)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Cunninyeuk Road and access track (5)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

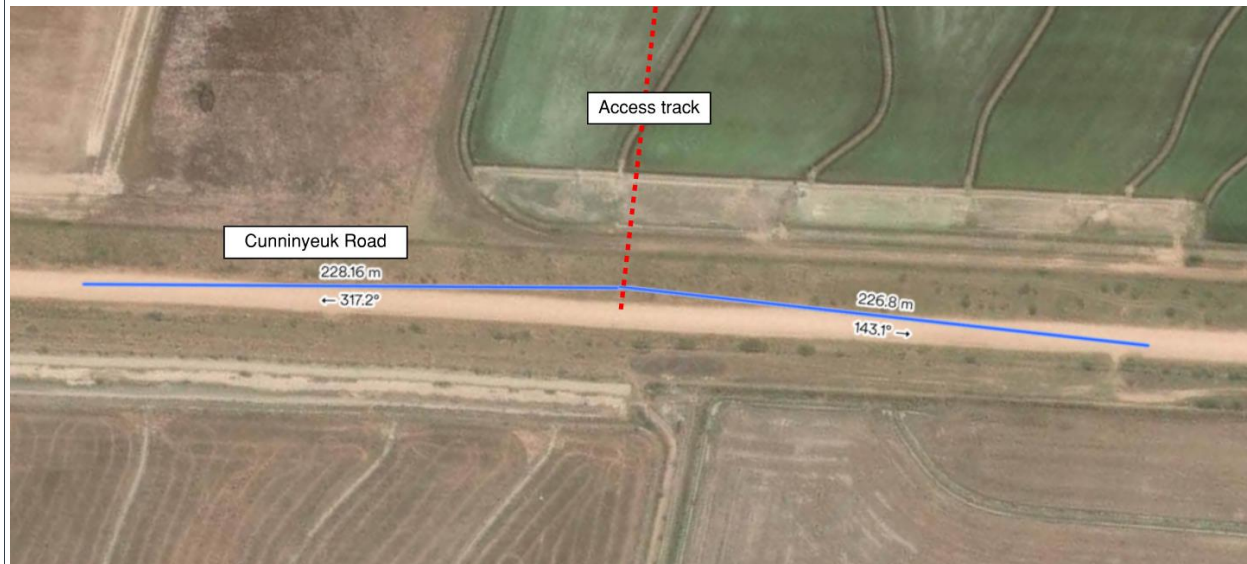
Compliance check: Satisfactory SISD and no adjustments required.



Cunninyeuk Road and access track (6)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

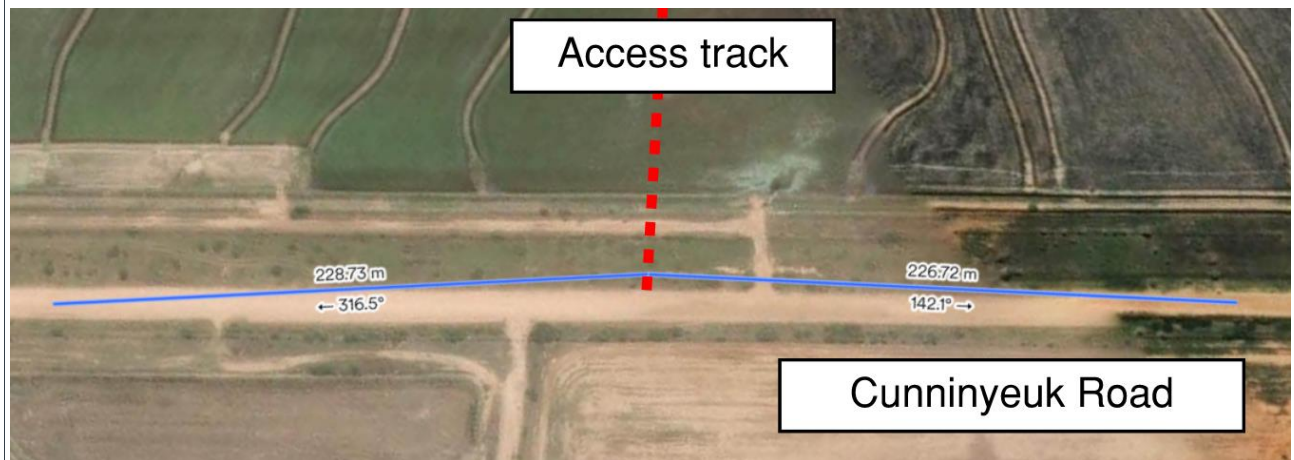
Compliance check: Satisfactory SISD and no adjustments required.



Cunninyeuk Road and access track (7)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

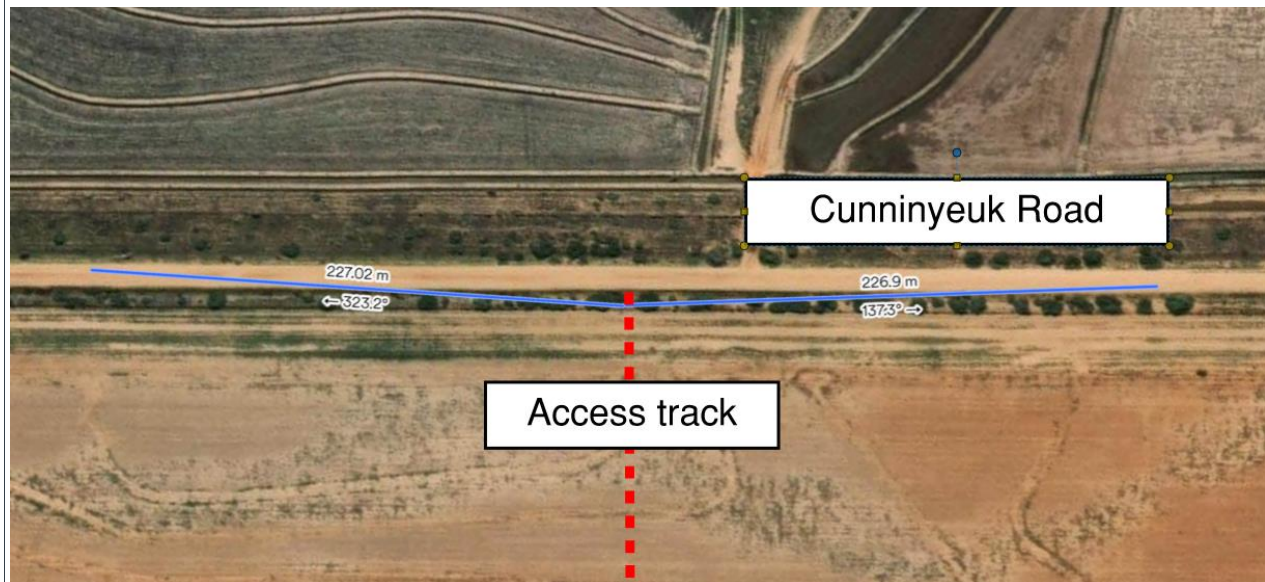
Compliance check: Satisfactory SISD and no adjustments required.



Cunninyeuk Road and access track (8)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

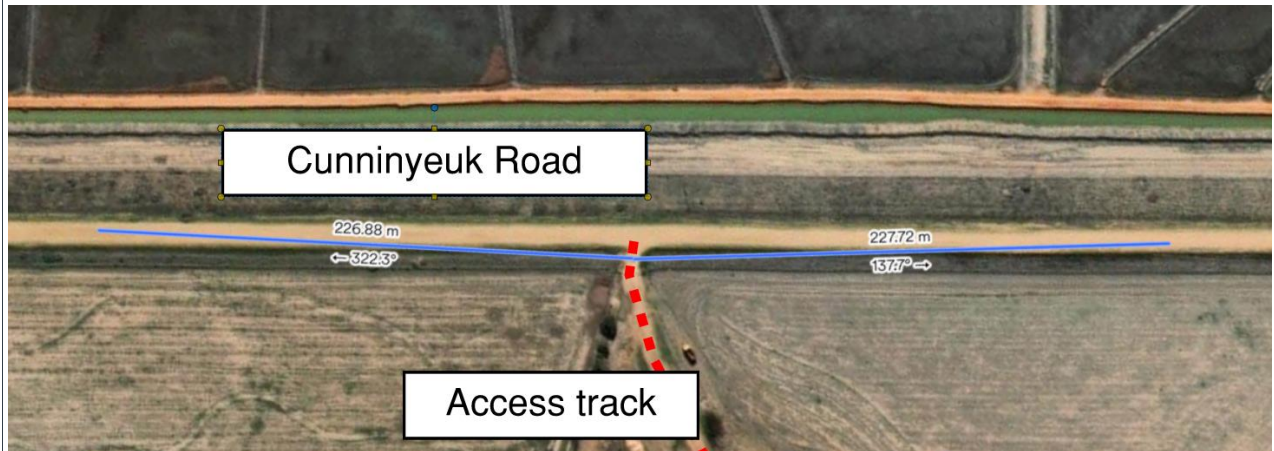
Compliance check: Satisfactory SISD and no adjustments required.



Cunninyeuk Road and access track (9)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

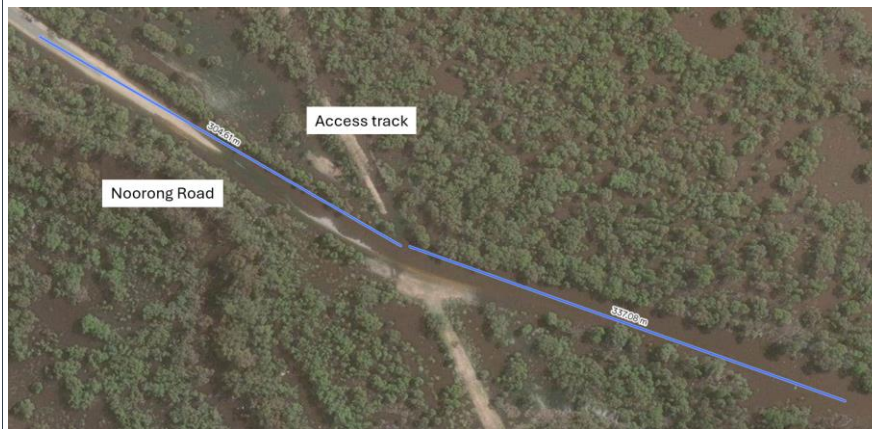
Compliance check: Satisfactory SISD and no adjustments required.



Noorong Road and access track (1)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Noorong Road and access track (2)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

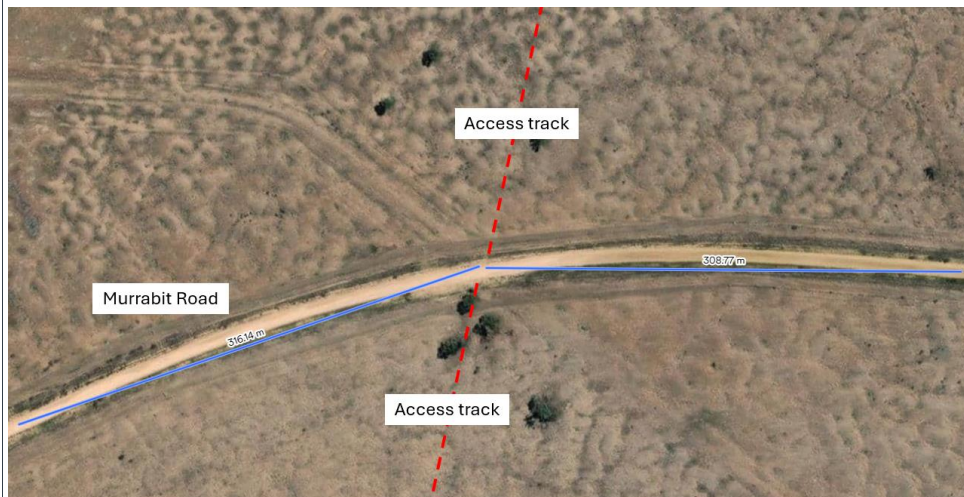
Compliance check: Satisfactory SISD and no adjustments required.



Murrabit Road and access track

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

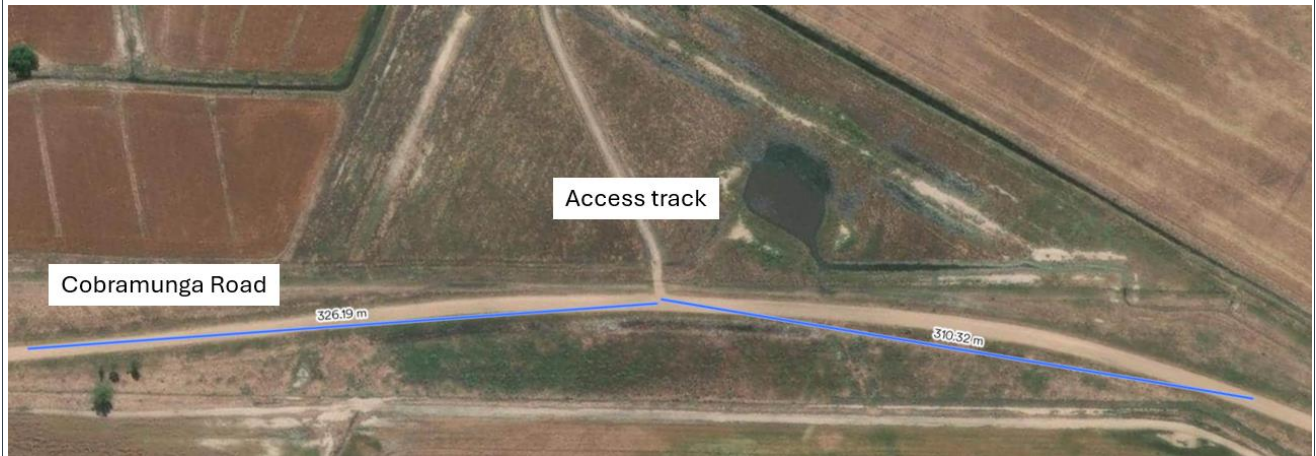
Compliance check: Satisfactory SISD and no adjustments required.



Cobramunga Road and access track (1)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Cobramunga Road and access track (2)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

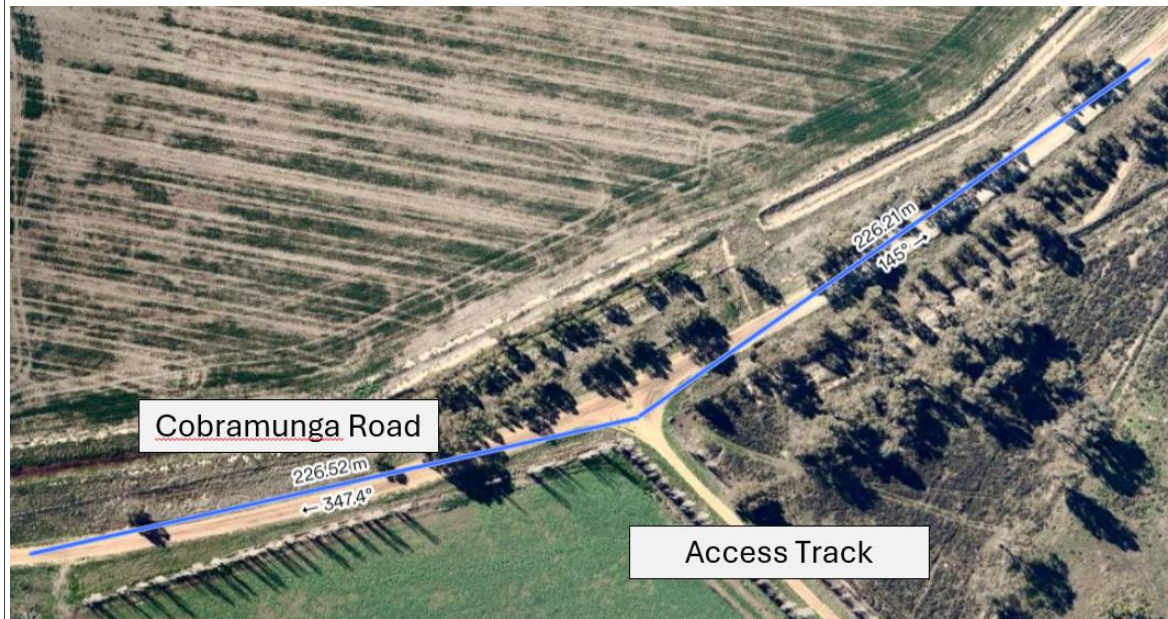
Compliance check: Satisfactory SISD and no adjustments required.



Cobramunga Road and access track (3)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Cobramunga Road and access track (4)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Cobramunga Road and access track (5)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Cobramunga Road and access track (6)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Gregadoo East Road and access track (1)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Unsatisfactory SISD due to foliage blocking sightlines around the bend.

This access track was proposed as part of the HumeLink project and it assumed to have been established to comply with SISD criteria. Any traffic control management measures proposed as part of the HumeLink, project would be implemented for the project as required and in agreement with the relevant roads authority (i.e. Wagga Wagga City Council).



Gregadoo East Road and Angels Lane

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Gregadoo East Road and access track (2)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Unsatisfactory SISD due to the change in the vertical curve around the bend to the east and foliage blocking sightlines to the west.

This access track was proposed as part of the HumeLink project and it assumed to have been established to comply with SISD criteria. Any traffic control management measures proposed as part of the HumeLink, project would be implemented for the project as required and in agreement with the relevant roads authority (i.e. Wagga Wagga City Council).



Gregadoo East Road and access track (3)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Unsatisfactory SISD due to the change in the vertical curve to the east limiting sightlines.

This access track was proposed as part of the HumeLink project and it assumed to have been established to comply with SISD criteria. Any traffic control management measures proposed as part of the HumeLink, project would be implemented for the project as required and in agreement with the relevant roads authority (i.e. Wagga Wagga City Council)



Wood Lane and access track

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Fisher Lane and access track

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Unsatisfactory SISD due to the change in the vertical curve to the east limiting sightlines



Kaylock Road and access track (1)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Kaylock Road and access track (2)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

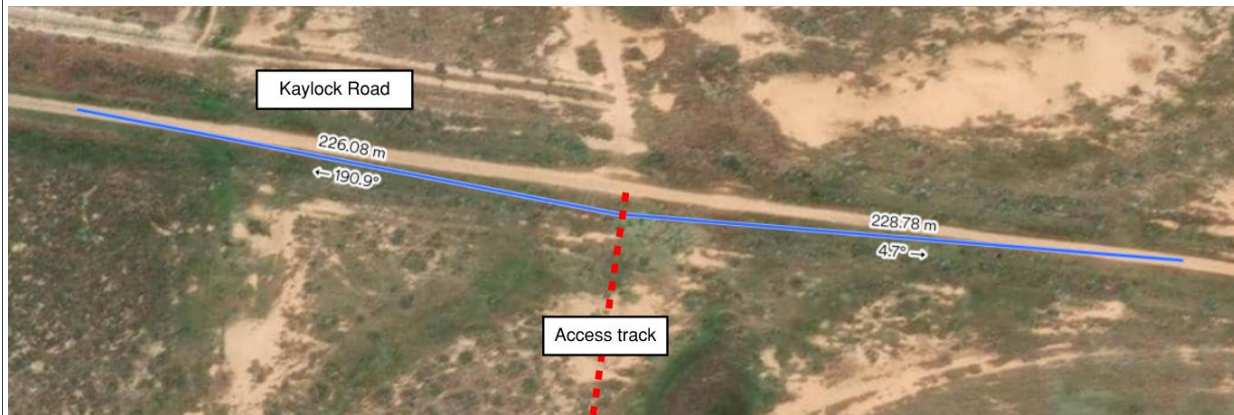
Compliance check: Satisfactory SISD and no adjustments required.



Kaylock Road and access track (3)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Kaylock Road and access track (4)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Kaylock Road and access track (5)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Kaylock Road and access track (6)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Berrambong Railway Road and access track

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Robb Road and access track (east)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Robb Road and access track (west)

Requirement: an SISD of 226 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on an 80 kilometres per hour signposted speed, unsealed road.

Compliance check: Satisfactory SISD and no adjustments required.



Willurah Road and access track (north)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Willurah Road and access track (south)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

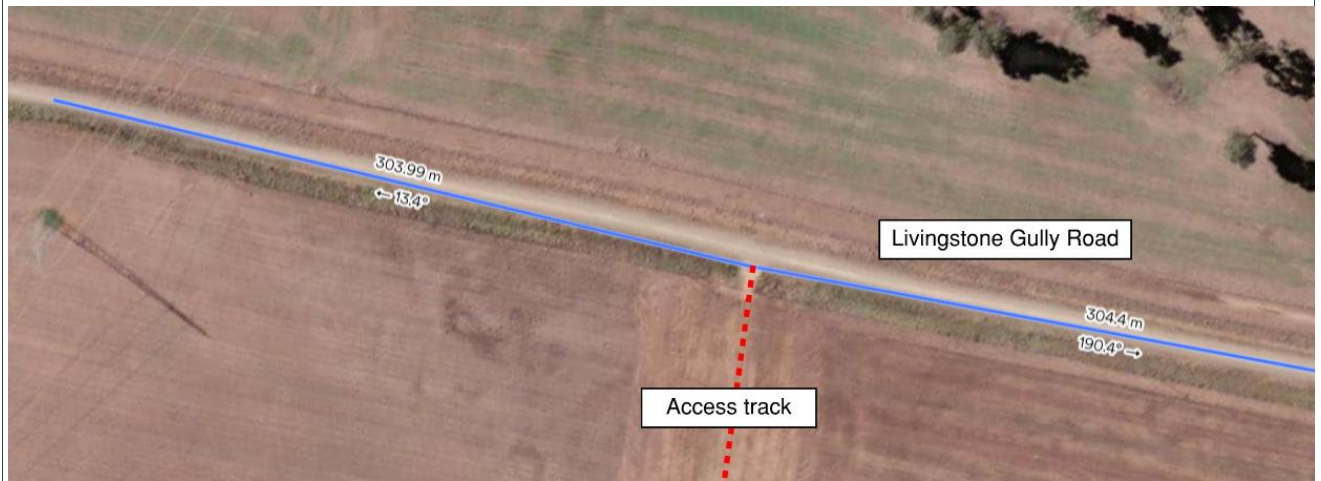
Compliance check: Satisfactory SISD and no adjustments required.



Livingstone Gully Road and access track

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Big Springs Road and access track (north)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Big Springs Road and access track (south)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Angels Lane and access track (north)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Angels Lane and access track (south)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Ivydale Road and access track (north)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



Ivydale Road and access track (south)

Requirement: an SISD of 300 metres is required assuming 3.0 seconds of observation time and 2.5 seconds reaction on a 100 kilometres per hour signposted speed.

Compliance check: Satisfactory SISD and no adjustments required.



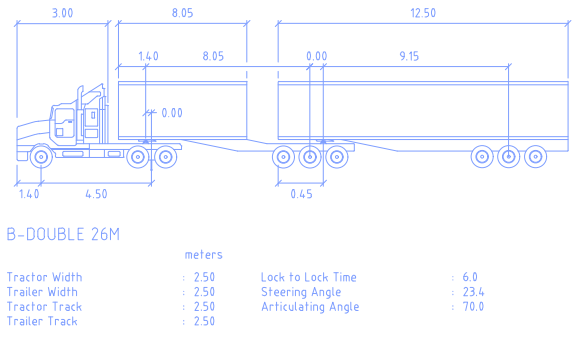
Appendix C

Swept path analyses at State Road access intersections and strategic designs

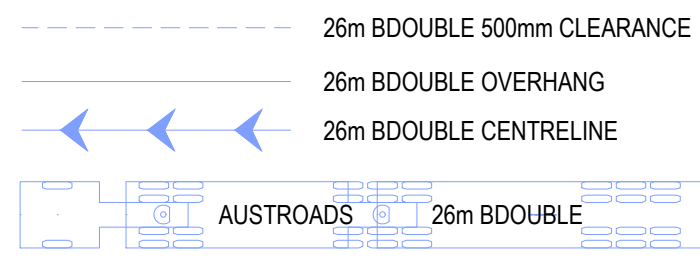


APPENDIX C-1

Swept path analyses



VEHICLE LEGEND

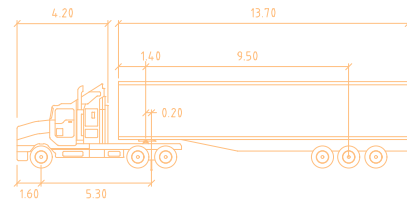
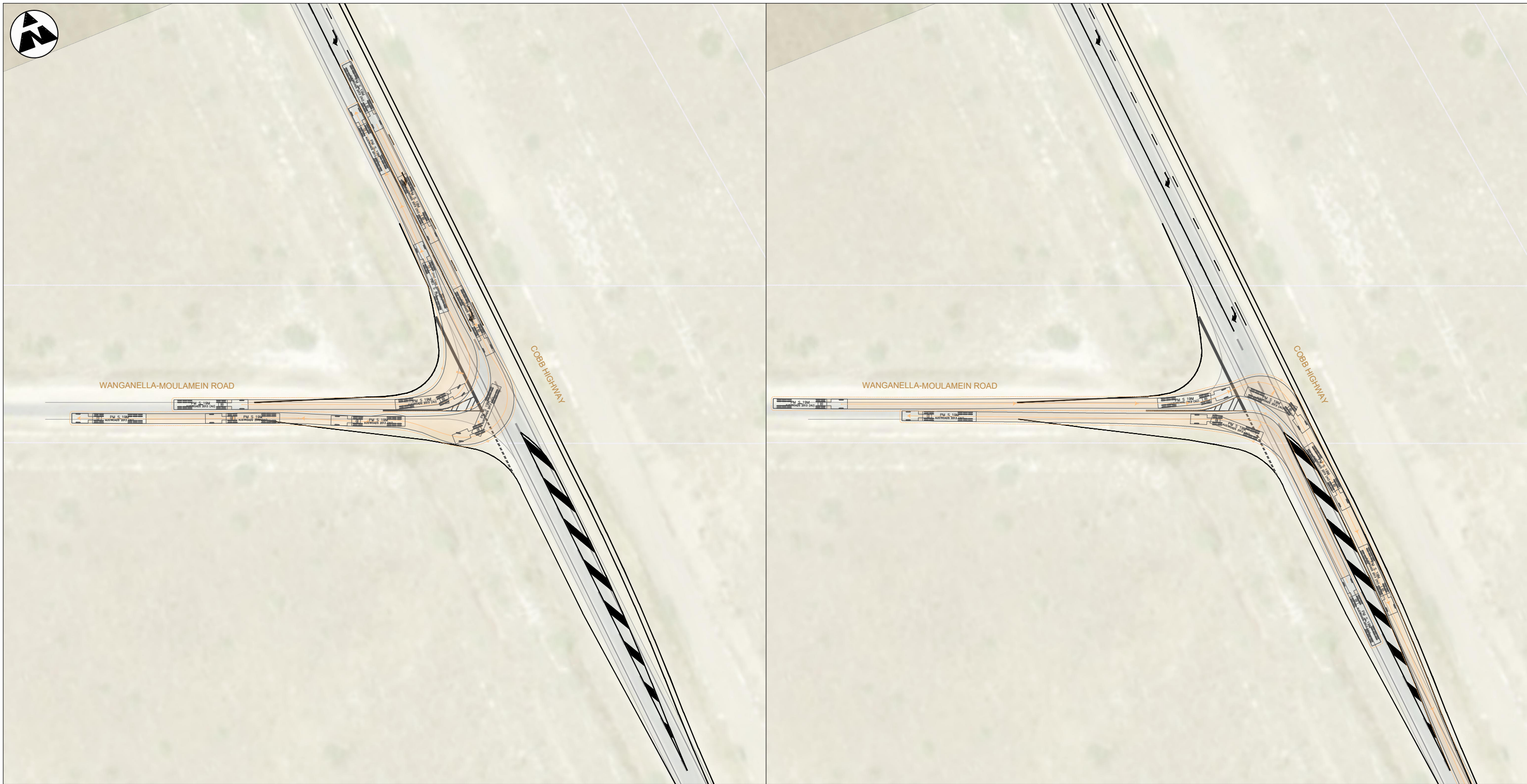


PLAN
SCALE 1:1000

NOTE

- TURNING PATH CHECKS HAS BEEN PREPARED ON AN AERIAL OBTAINED FROM SDT EXPLORER.
- THE DESIGN TURNING SPEED USED ARE SET AT 15 KM/H.

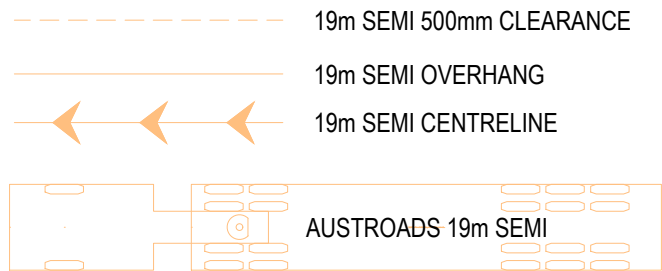
H	D C B A	13.06.2025	F.B.	DESIGN UPDATE	F.B.	R.M.	REFERENCE COORDINATION DRAWINGS				SCALES		A3 ORIGINAL			Level 27, 680 George Street, Sydney GPO Box 5394, NSW 2001, Australia Tel: +61 2 9272 5100 Fax: +61 2 9272 5101 wsp.com		180 Thomas Street HAYMARKET NSW 2000 (02) 9284 3000 www.transgrid.com.au	PROJECT: TRANSGRID VNI WEST EIS (NSW)	COBB HIGHWAY AND WANGANELLA-MOULAMEIN ROAD WANGANELLA 26M B-DOUBLE TURNING PATH ASSESSMENT SHEET 01A	DRAWING STATUS: DRAFT							
		06.06.2025	F.B.	CLIENT COMMENTS ADDRESS	F.B.	R.M.	DESCRIPTION	DRAWING NO.	REV	CHK	0 10 20 30		DO NOT SCALE THIS DRAWING								DESIGNED: FIONA BANH		CHECKED: RYAN MILLER		APPROVED: RYAN MILLER			
		07.05.2025	F.B.	INCORPORATED COMMENTS	F.B.	R.M.	SURVEY DATUM				Full Size 1:1000 A3 SCALE (m)		APPROVED								PROJECT No: PS138962		DRAWN: FIONA BANH		DATE: 07.05.2025			
		16.04.2025	F.B.	DRAFT	F.B.	R.M.																						
		REV	DATE	BY	DESCRIPTION	CHK	APPD	HORIZONTAL DATUM:		VERTICAL DATUM:		DATE:		REQ:							© WSP Australia Pty Ltd.		DRAWING No: PS138962-TP-DR-001A				REV: D	



PM S 19M

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.8
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

VEHICLE LEGEND



PLAN
SCALE 1:1000

NOTE

- TURNING PATH CHECKS HAS BEEN PREPARED ON AN AERIAL OBTAINED FROM SDT EXPLORER.
- THE DESIGN TURNING SPEED USED ARE SET AT 15 KM/H.

C B A	13.06.2025	F.B.	DESIGN UPDATE	F.B.	R.M.
	06.06.2025	F.B.	INCORPORATED COMMENTS		
	07.05.2025	F.B.	INCORPORATED COMMENTS		
REV	DATE	BY	DESCRIPTION	CHK	APPO

REFERENCE COORDINATION DRAWINGS			
DESCRIPTION	DRAWING NO.	REV	CHK
SURVEY DATUM			
HORIZONTAL DATUM:		VERTICAL DATUM:	

0102030

Full Size 1:1000 A3
SCALE (m)

A3 ORIGINAL
DO NOT SCALE THIS DRAWING

SIGNED:APPROVED

DATE:RREQ:

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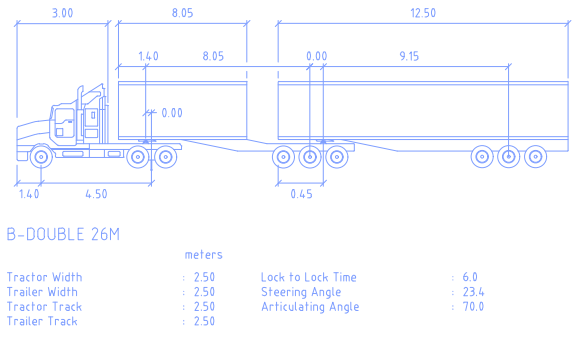
Level 27, 680 George Street, Sydney
GPO Box 5394, NSW 2001, Australia
Tel: +61 2 9272 5100 Fax: +61 2 9272 5101
wsp.com

CLIENT: Transgrid

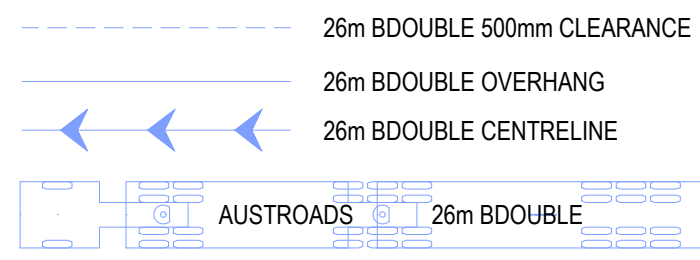
180 Thomas Street
HAYMARKET NSW 2000
(02) 9284 3000
www.transgrid.com.au

PROJECT: TRANSGRID VNI WEST EIS (NSW)		
TITLE: COBB HIGHWAY AND WANGANELLA-MOULAMEIN ROAD WANGANELLA 19M SEMI TRAILER TURNING PATH ASSESSMENT SHEET 01B		

DRAWING STATUS: DRAFT		
DESIGNED: FIONA BANH	CHECKED: RYAN MILLER	APPROVED: RYAN MILLER
PROJECT No: PS138962	DRAWN: FIONA BANH	DATE: 07.05.2025
DRAWING No: PS138962-TP-DR-001B		REV: C



VEHICLE LEGEND

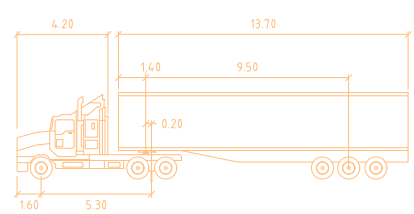
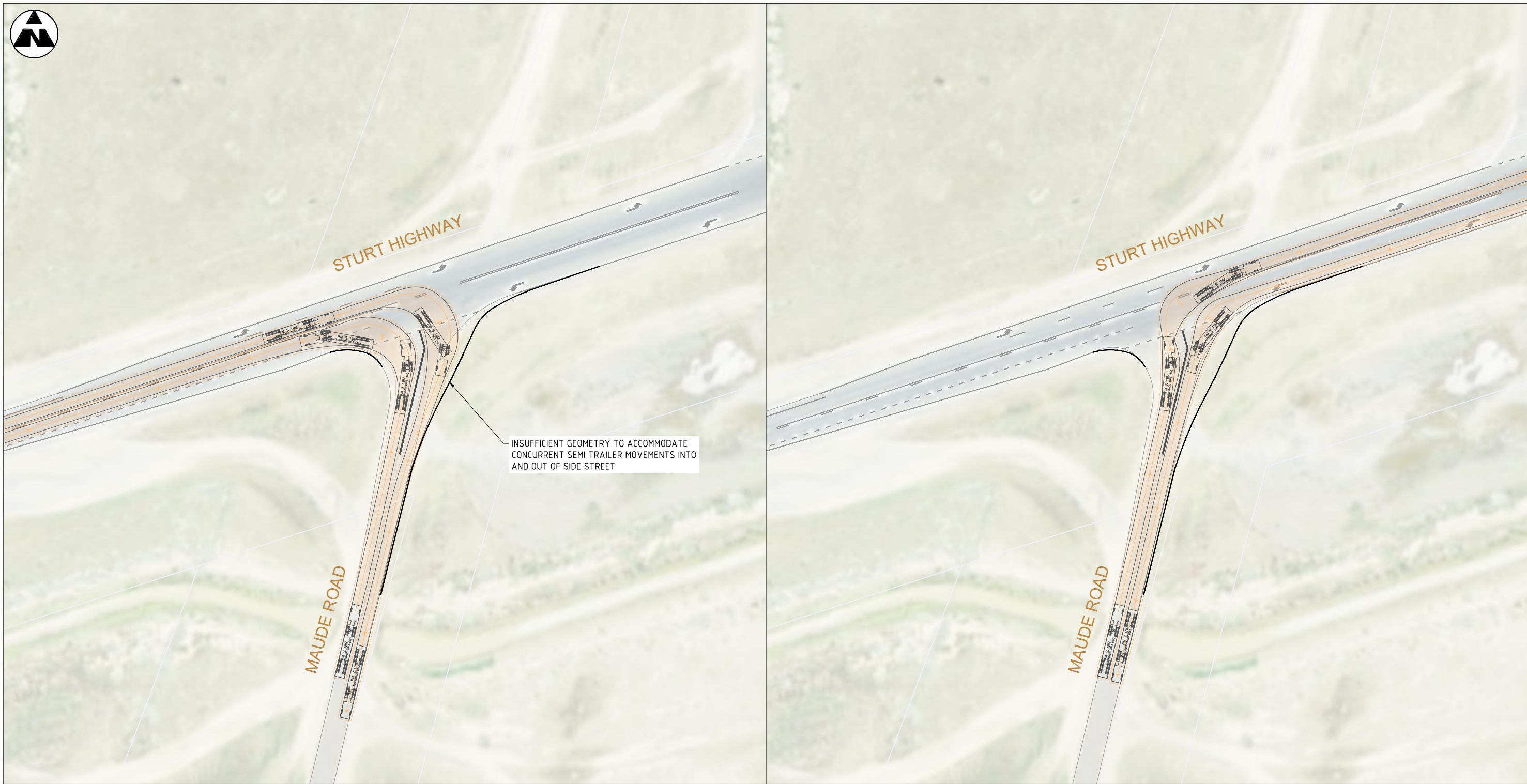


PLAN
SCALE 1:500

NOTE

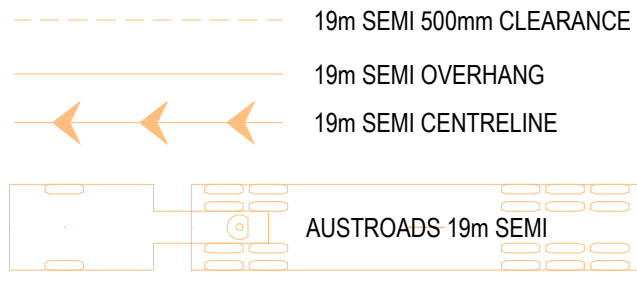
- TURNING PATH CHECKS HAS BEEN PREPARED ON AN AERIAL OBTAINED FROM SDT EXPLORER.
- THE DESIGN TURNING SPEED USED ARE SET AT 5-10 KM/H.

H											REFERENCE COORDINATION DRAWINGS		SCALES		A3 ORIGINAL DO NOT SCALE THIS DRAWING		 Level 27, 680 George Street, Sydney GPO Box 5394, NSW 2001, Australia Tel: +61 2 9272 5100 Fax: +61 2 9272 5101 wsp.com		 180 Thomas Street HAYMARKET NSW 2000 (02) 9284 3000 www.transgrid.com.au		CLIENT:		PROJECT: TRANSGRID VNI WEST EIS (NSW)		DRAWING STATUS: DRAFT					



PM S 19M			
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.8
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

VEHICLE LEGEND

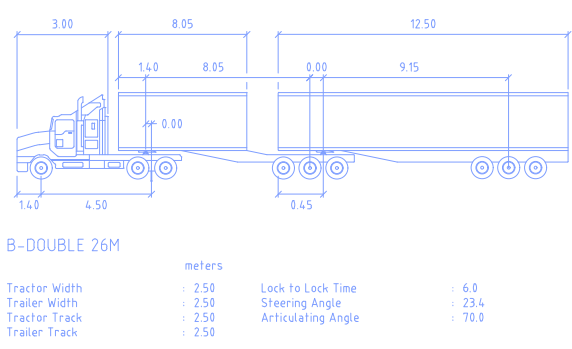
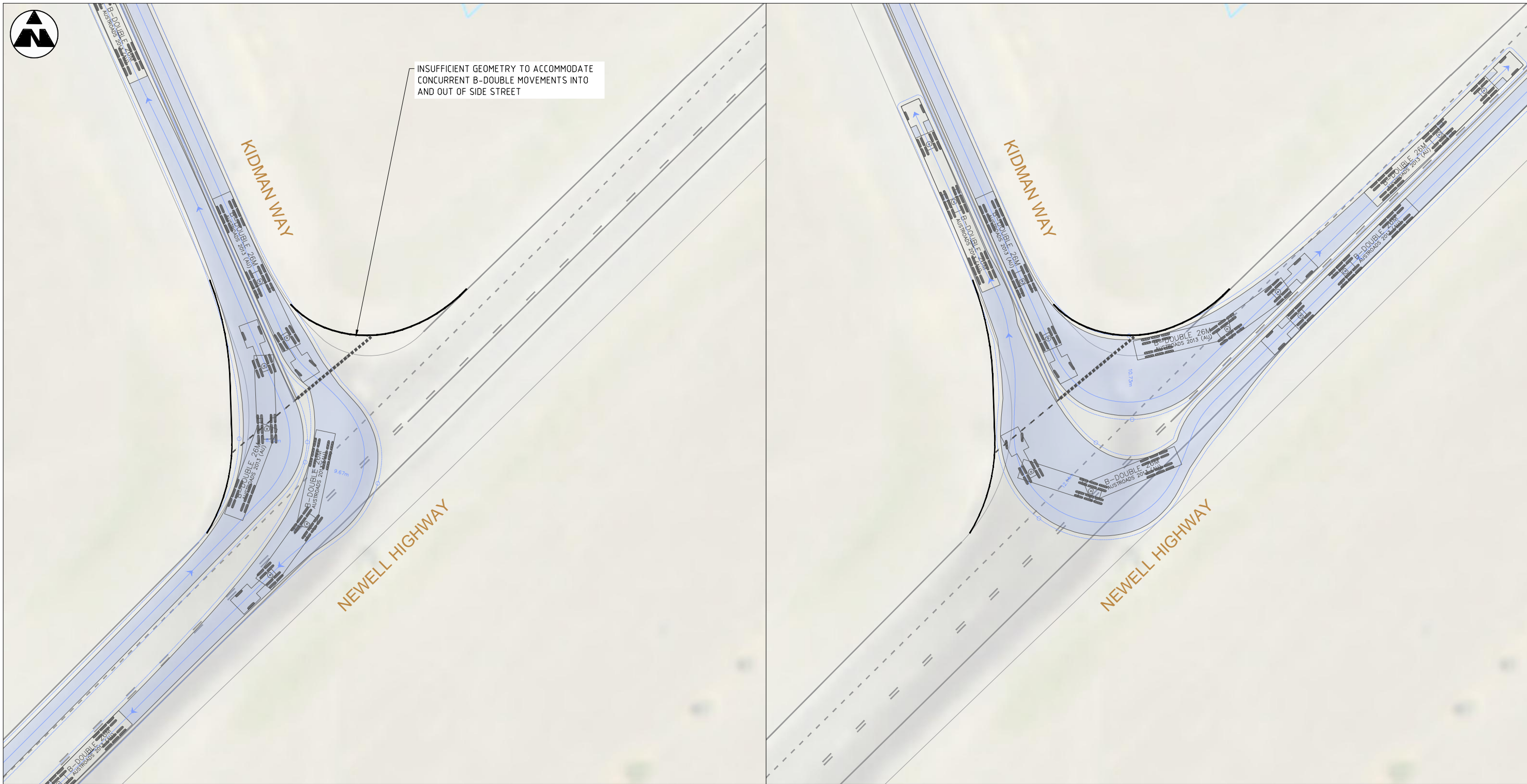


PLAN
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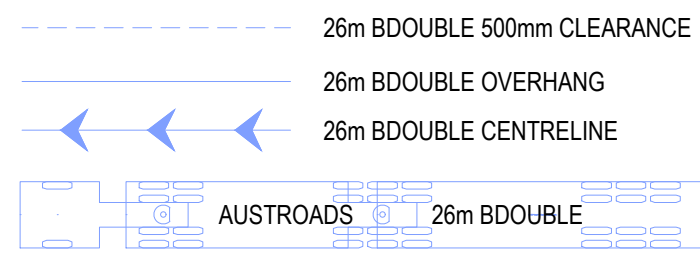
NOTE

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H	A		07.05.2025		F.B.		INCORPORATED COMMENTS		F.B.		R.M.	
	REV		DATE		BY		DESCRIPTION		CHK		APPD	
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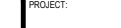
VEHICLE LEGEND

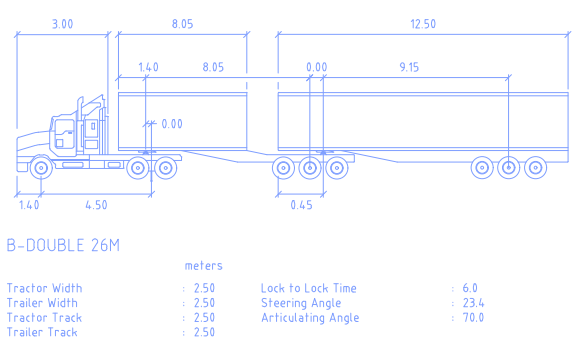
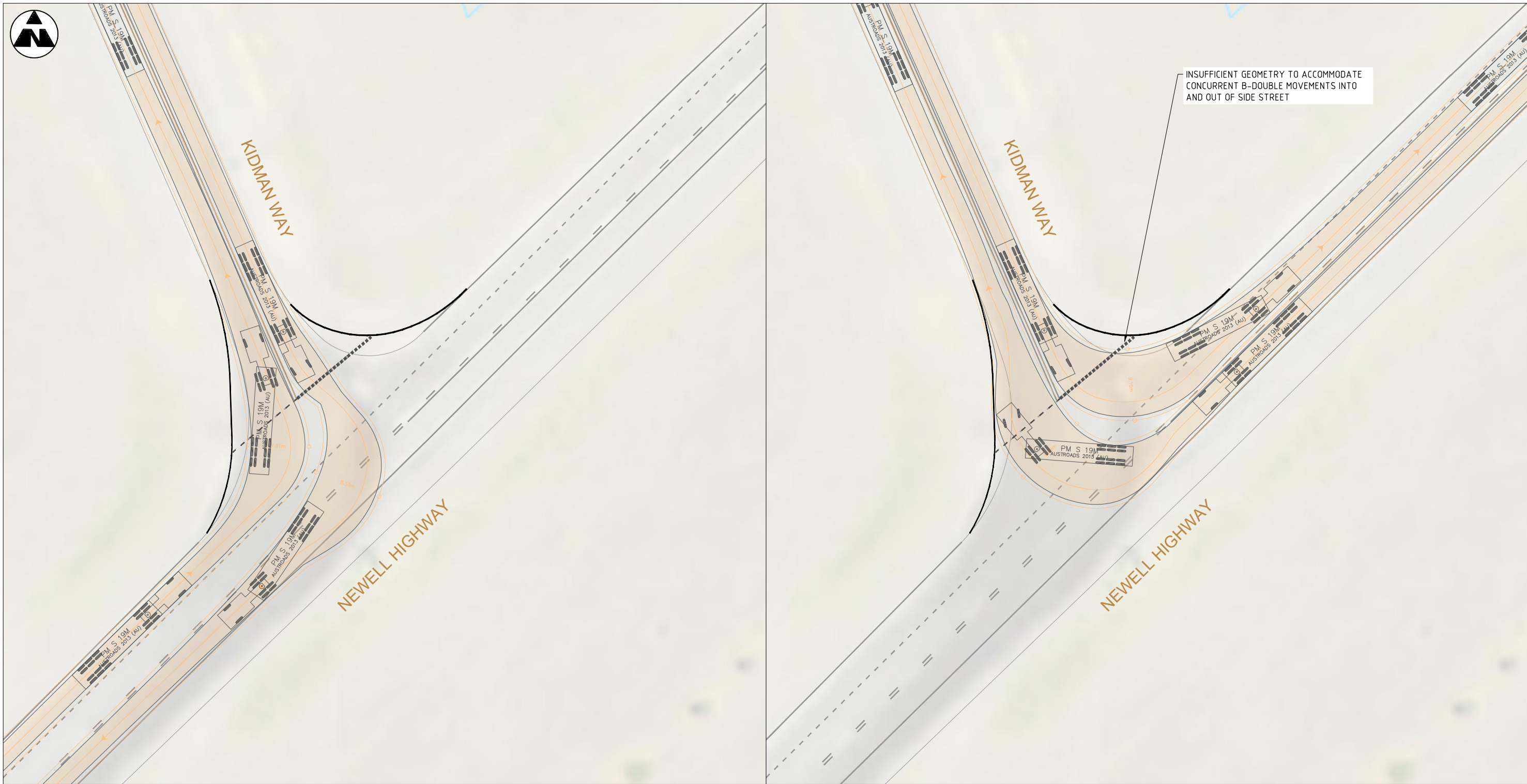


PLAN
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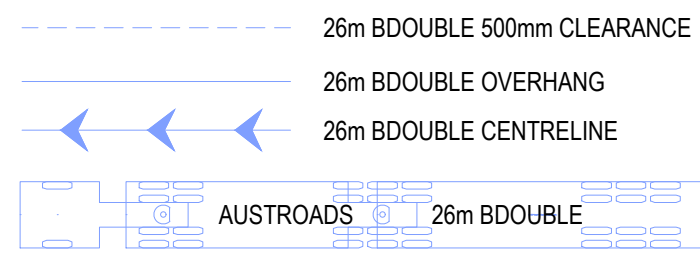
NOTE

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H									REFERENCE COORDINATION DRAWINGS		SCALES		A3 ORIGINAL DO NOT SCALE THIS DRAWING		 Level 27, 680 George Street, Sydney GPO Box 5394, NSW 2001, Australia Tel: +61 2 9272 5100 Fax: +61 2 9272 5101 wsp.com		 180 Thomas Street HAYMARKET NSW 2000 (02) 9284 3000 www.transgrid.com.au		CLIENT:		PROJECT: TRANSGRID VNI WEST EIS (NSW)		DRAWING STATUS: DRAFT	
	DESCRIPTION		DRAWING NO.		REV	CHK	APPROVED																	
							SIGNED:																	
							DATE:		REQ:															
							© WSP Australia Pty Ltd.																	
B	07.05.2025	F.B.	INCORPORATED COMMENTS	F.B.	R.M.	SURVEY DATUM		Full Size 1:500 A3; SCALE (m)																
A	16.04.2025	F.B.	DRAFT			HORIZONTAL DATUM:		VERTICAL DATUM:																
REV	DATE	BY	DESCRIPTION	CHK	APPD																			



VEHICLE LEGEND



PLAN
SCALE 1:500

NOTE

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- THE DESIGN TURNING SPEED USED ARE SET AT 5-10 KM/H.

A		F.B.		INCORPORATED COMMENTS		F.B.		R.M.	
REV		DATE		BY		DESCRIPTION		CHK	
1									
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REFERENCE COORDINATION DRAWINGS			
DESCRIPTION	DRAWING NO.	REV	CHK
SURVEY DATUM			
HORIZONTAL DATUM		VERTICAL DATUM	

SCALES	
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Full Size 1:500 A3; SCALE (m)	

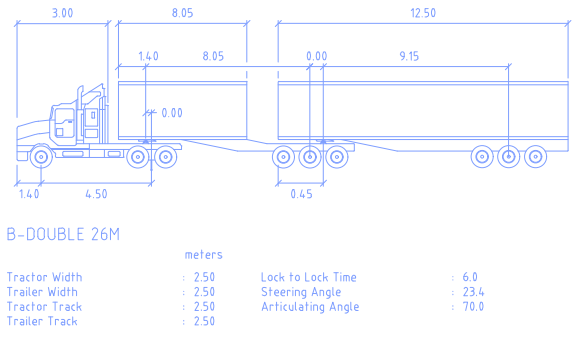
A3 ORIGINAL	
DO NOT SCALE THIS DRAWING	
APPROVED	
SIGNED:	
DATE:	RREQ:
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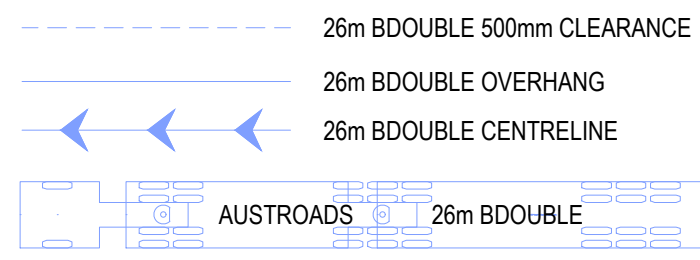
CLIENT:	
180 Thomas Street HAYMARKET NSW 2000 (02) 9284 3000 www.transgrid.com.au	

PROJECT:	
TRANSGRID	
VNI WEST EIS (NSW)	
TITLE:	
NEWELL HIGHWAY AND KIDMAN WAY	
BUNDURE	
19M SEMI TRAILER TURNING PATH ASSESSMENT	
SHEET 05B	

DRAWING STATUS:	
DRAFT	
DESIGNED:	CHECKED:
FIONA BANH	RYAN MILLER
PROJECT No:	DRAWN:
PS138962	FIONA BANH
DRAWING No:	DATE:
PS138962-TP-DR-005B	07.05.2025
REV:	
A	



VEHICLE LEGEND



PLAN
SCALE 1:1000

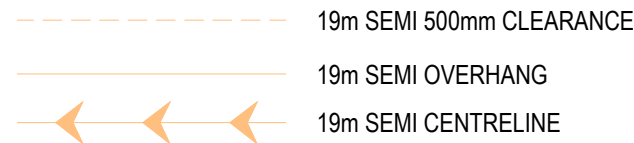
NOTE

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- THE DESIGN TURNING SPEED USED ARE SET AT 5-10 KM/H.

REFERENCE COORDINATION DRAWINGS				SCALES		A3 ORIGINAL		DO NOT SCALE THIS DRAWING		CLIENT:		PROJECT:		DRAWING STATUS:	
DESCRIPTION				DRAWING NO.		REV		CHK		SIGNED:		TITILE:		DESIGNED:	
SURVEY DATUM				HORIZONTAL DATUM:		VERTICAL DATUM:		DATE:		RREQ:		KIDMAN WAY AND CADELL ROAD		CHECKED:	
REV				DATE		BY		DESCRIPTION		CHK		BUNDURE		DRAWN:	
13.06.2025				07.05.2025		F.B.		DESIGN UPDATE		R.M.		26M B-DOUBLE TURNING PATH ASSESSMENT		FIONA BANH	
07.05.2025				16.04.2025		F.B.		INCORPORATED COMMENTS		R.M.		SHEET 06A		RYAN MILLER	
16.04.2025								DRAFT						DATE:	
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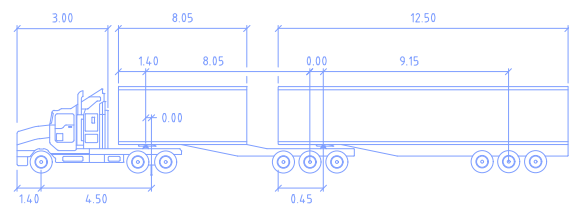
VEHICLE LEGEND



PLAN
SCALE 1:500

1. TURNING PATH CHECKS HAS BEEN PREPARED ON AN AERIAL OBTAINED FROM SDT EXPLORER.
2. THE DESIGN TURNING SPEED USED ARE SET AT 5-10 KM/H.

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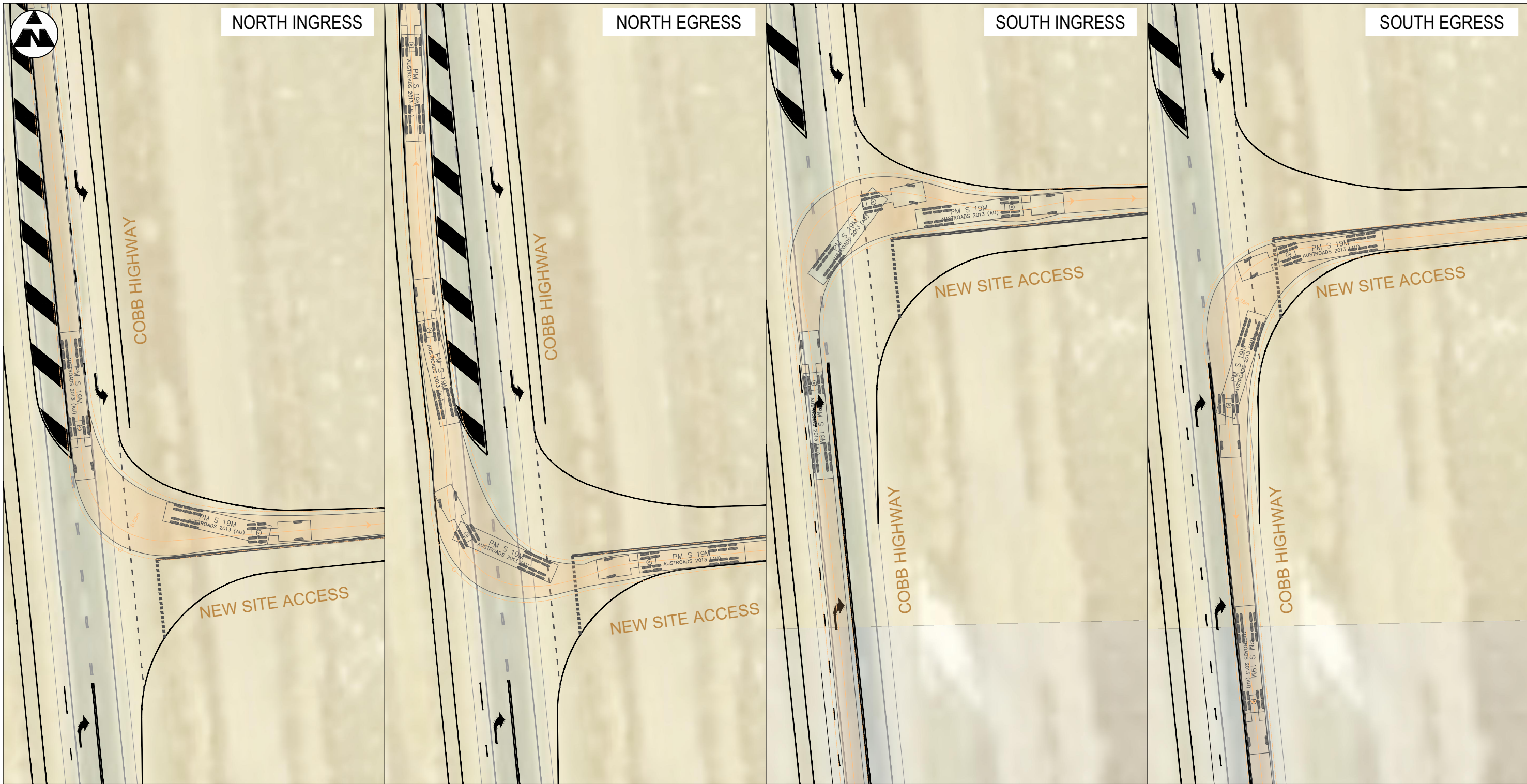


	meters	
Tractor Width	: 2.50	Lock to Lock Time
Trailer Width	: 2.50	Steering Angle
Tractor Track	: 2.50	Articulating Angle
Trailer Track	: 2.50	

AUSTROADS 26m BDOUBLE

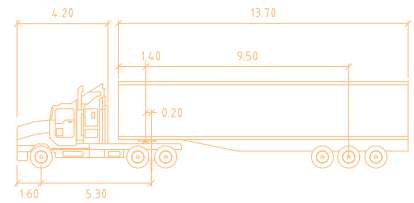
1. TURNING PATH CHECKS HAS BEEN PREPARED ON AN AERIAL OBTAINED FROM SDT EXPLORER.
2. THE DESIGN TURNING SPEED USED ARE SET AT 15 KM/H.

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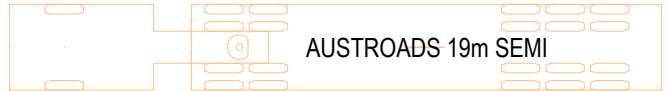
VEHICLE LEGEND

PLAN
SCALE 1:500



PM S 19M			
Tractor Width	2.50	Lock to Lock Time	6.0
Trailer Width	2.50	Steering Angle	27.8
Tractor Track	2.50	Articulating Angle	70.0
Trailer Track	2.50		

- 19m SEMI 500mm CLEARANCE
- 19m SEMI OVERHANG
- 19m SEMI CENTRELINE

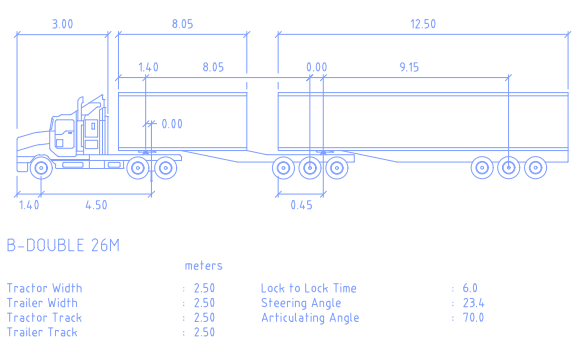


AUSTROADS 19m SEMI

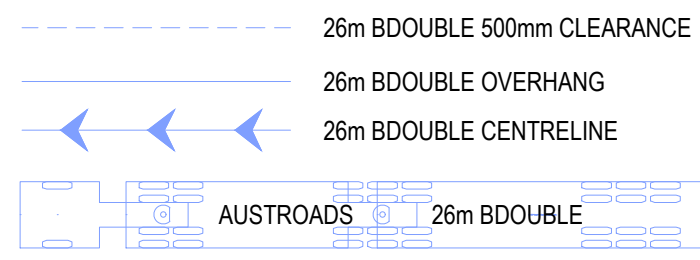
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- THE DESIGN TURNING SPEED USED ARE SET AT 15 KM/H.

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VEHICLE LEGEND

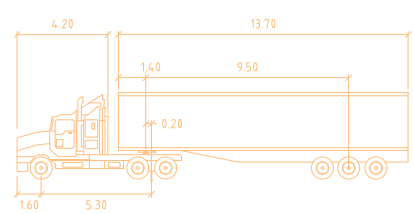
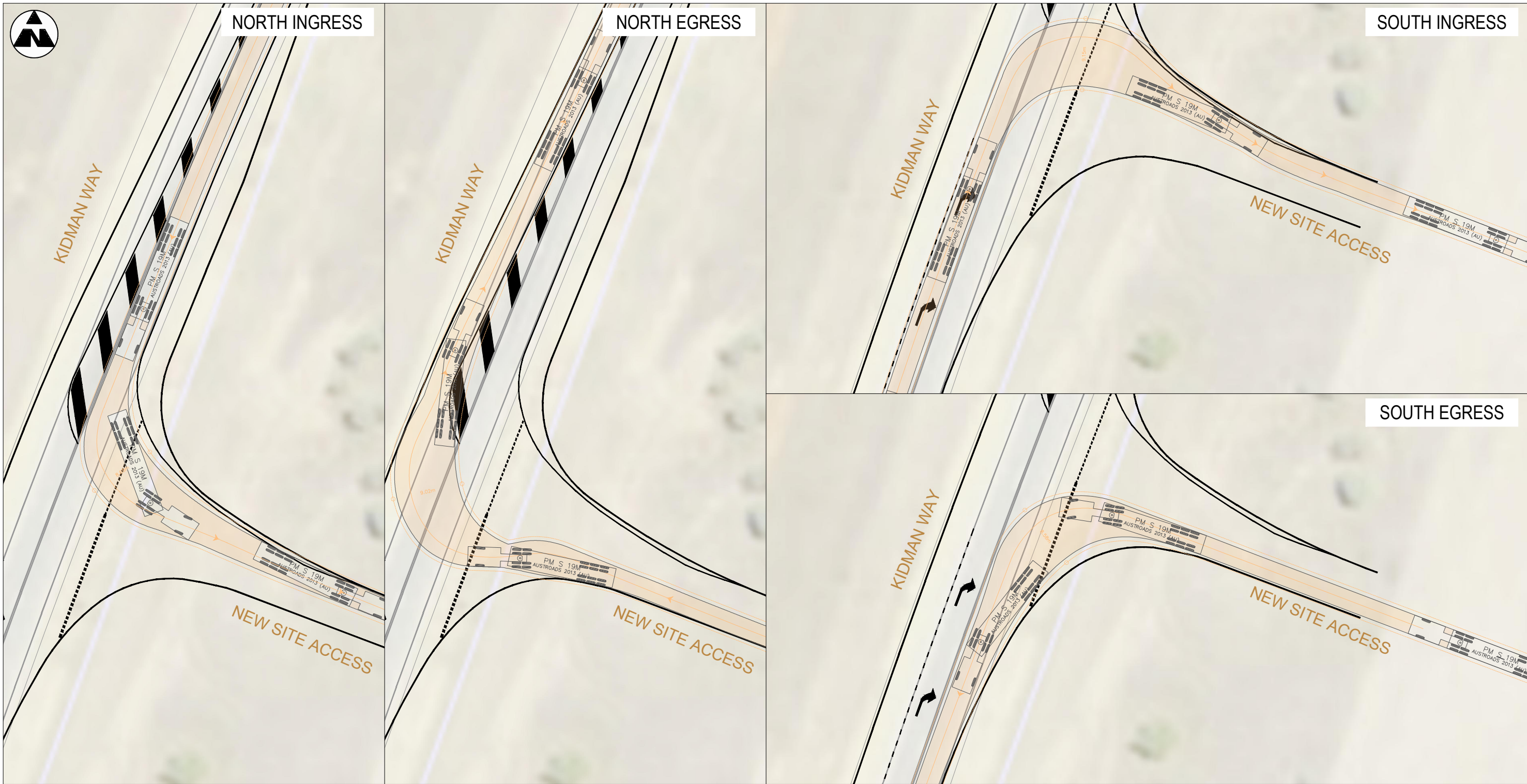


PLAN
SCALE 1:500

NOTE

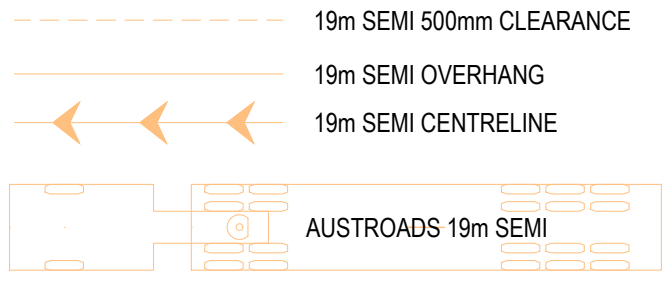
- TURNING PATH CHECKS HAS BEEN PREPARED ON AN AERIAL OBTAINED FROM SDT EXPLORER.
- THE DESIGN TURNING SPEED USED ARE SET AT 5-10 KM/H.

H							REFERENCE COORDINATION DRAWINGS		SCALES		A3 ORIGINAL DO NOT SCALE THIS DRAWING		 Level 27, 680 George Street, Sydney GPO Box 5394, NSW 2001, Australia Tel: +61 2 9272 5100 Fax: +61 2 9272 5101 wsp.com	CLIENT:  180 Thomas Street HAYMARKET NSW 2000 (02) 9284 3000 www.transgrid.com.au	PROJECT: TRANSGRID VNI WEST EIS (NSW)		DRAWING STATUS: DRAFT	
	DESCRIPTION		DRAWING NO.		REV	CHK	APPROVED				DESIGNED: FIONA BANH	CHECKED: RYAN MILLER			APPROVED: RYAN MILLER			
	SURVEY DATUM		HORIZONTAL DATUM:		VERTICAL DATUM:		Full Size 1:500 A3; SCALE (m)		DATE:		RREQ:	PROJECT No: PS138962			DRAWN: FIONA BANH	DATE: 20.05.2025		
	SURVEY DATUM		HORIZONTAL DATUM:		VERTICAL DATUM:		Full Size 1:500 A3; SCALE (m)		DATE:		RREQ:	DRAWING No: PS138962-TP-DR-010A			REV: B			
B	A	13.06.2025 20.05.2025	F.B.	DESIGN UPDATE DRAFT	F.B.	R.M.			0 5 10 15									
REV	DATE	BY		DESCRIPTION	CHK	APPD					© WSP Australia Pty Ltd.							



PM S 19M			
Tractor Width	2.50	Lock to Lock Time	6.0
Trailer Width	2.50	Steering Angle	27.8
Tractor Track	2.50	Articulating Angle	70.0
Trailer Track	2.50		

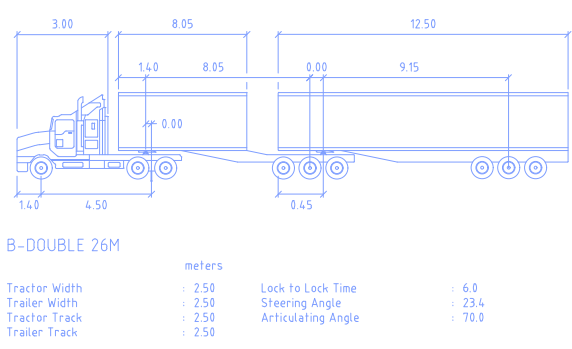
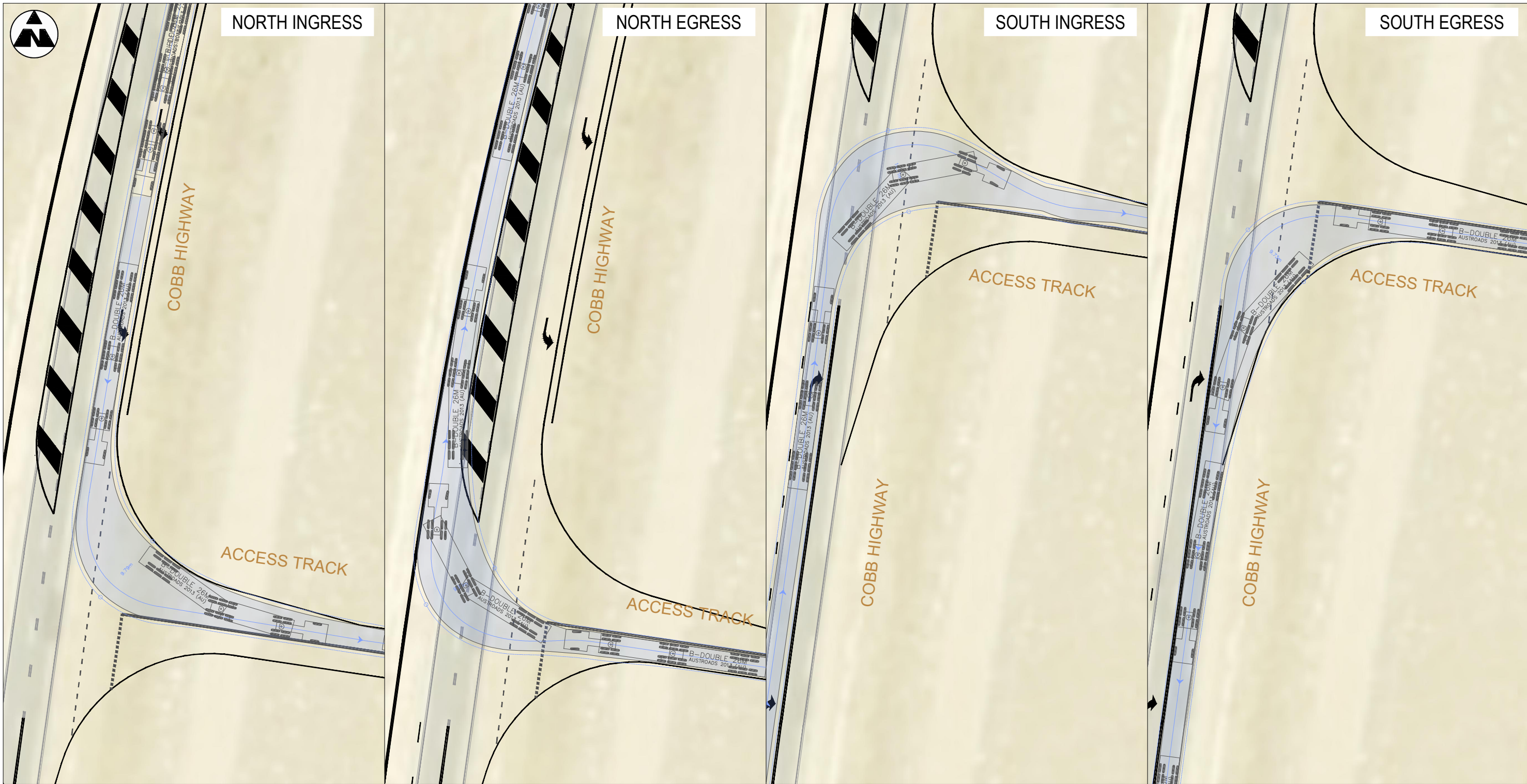
VEHICLE LEGEND



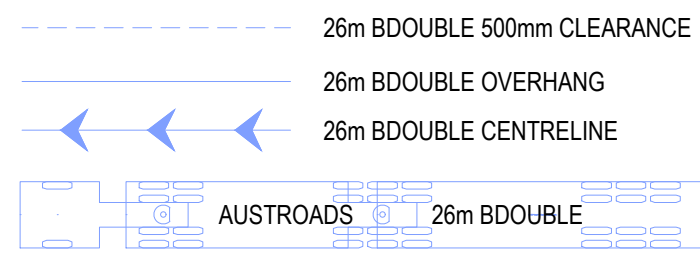
PLAN
SCALE 1:500

- NOTE
- TURNING PATH CHECKS HAS BEEN PREPARED ON AN AERIAL OBTAINED FROM SDT EXPLORER.
 - THE DESIGN TURNING SPEED USED ARE SET AT 5-10 KM/H.

H											REFERENCE COORDINATION DRAWINGS		SCALES		A3 ORIGINAL DO NOT SCALE THIS DRAWING		 Level 27, 680 George Street, Sydney GPO Box 5394, NSW 2001, Australia Tel: +61 2 9272 5100 Fax: +61 2 9272 5101 wsp.com		 180 Thomas Street HAYMARKET NSW 2000 (02) 9284 3000 www.transgrid.com.au		CLIENT: 	
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VEHICLE LEGEND

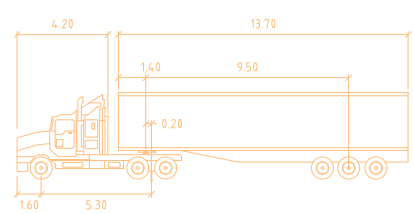
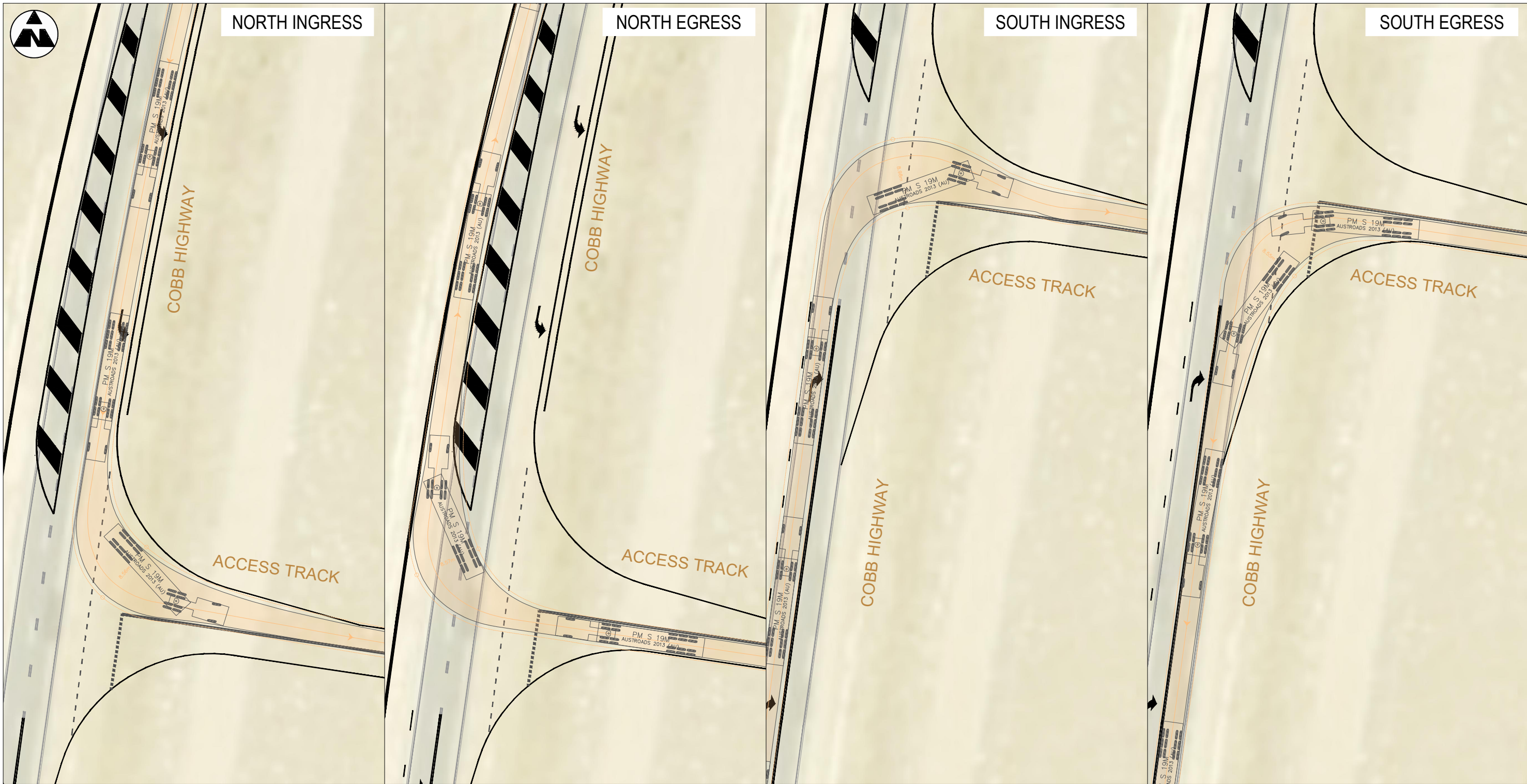


PLAN
SCALE 1:500

NOTE

- TURNING PATH CHECKS HAS BEEN PREPARED ON AN AERIAL OBTAINED FROM SDT EXPLORER.
- THE DESIGN TURNING SPEED USED ARE SET AT 15 KM/H.

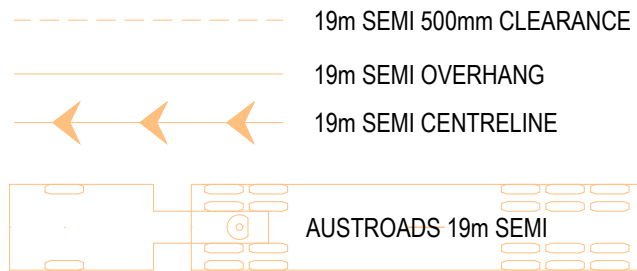
H											REFERENCE COORDINATION DRAWINGS		SCALES		A3 ORIGINAL DO NOT SCALE THIS DRAWING		 Level 27, 680 George Street, Sydney GPO Box 5394, NSW 2001, Australia Tel: +61 2 9272 5100 Fax: +61 2 9272 5101 wsp.com  180 Thomas Street HAYMARKET NSW 2000 (02) 9284 3000 www.transgrid.com.au		CLIENT:		PROJECT: TRANSGRID VNI WEST EIS (NSW)		DRAWING STATUS: DRAFT	
											DESIGNED: FIONA BANH		CHECKED: RYAN MILLER		APPROVED: RYAN MILLER									
											PROJECT No: PS138962		DRAWN: FIONA BANH		DATE: 20.05.2025									
											DRAWING No: PS138962-TP-DR-011A		REV: B											



PM S 19M

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.8
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

VEHICLE LEGEND

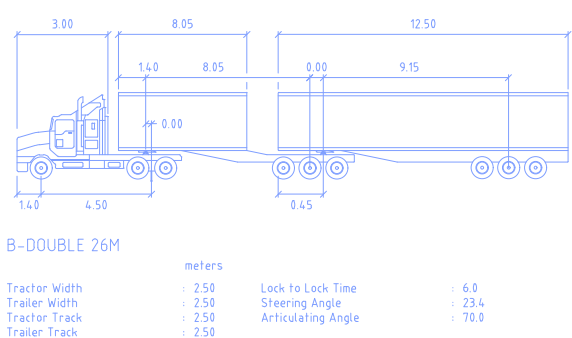


PLAN
SCALE 1:500

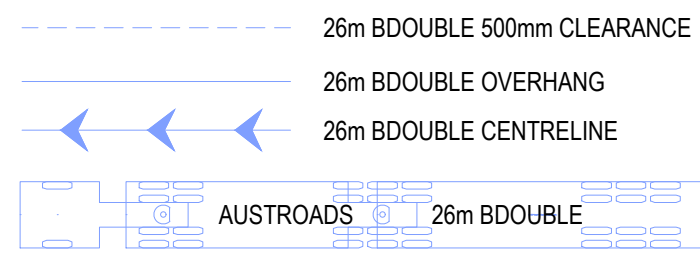
NOTE

- TURNING PATH CHECKS HAS BEEN PREPARED ON AN AERIAL OBTAINED FROM SDT EXPLORER.
- THE DESIGN TURNING SPEED USED ARE SET AT 15 KM/H.

REFERENCE COORDINATION DRAWINGS				SCALES		A3 ORIGINAL		CLIENT		PROJECT		DRAWING STATUS:	
DESCRIPTION	DRAWING NO.	REV	CHK	DO NOT SCALE THIS DRAWING		SIGNED:	APPROVED	180 Thomas Street HAYMARKET NSW 2000 Tel: +61 2 9272 5100 Fax: +61 2 9272 5101 wsp.com		TRANSGRID VNI WEST EIS (NSW)		DESIGNED: FIONA BANH PROJECT No: PS138962	
SURVEY DATUM				Full Size 1:500 A3; SCALE (m)		DATE:	RREQ:	190 Thomas Street HAYMARKET NSW 2000 (02) 9284 3000 www.transgrid.com.au		COBB HIGHWAY AND PROPOSED ACCESS TRACK WANGANELLA 19M SEMI TRAILER TURNING PATH ASSESSMENT SHEET 11B		CHECKED: RYAN MILLER DRAWN: FIONA BANH DATE: 20.05.2025	
REV	DATE	BY	DESCRIPTION	CHK	APPD	© WSP Australia Pty Ltd.						DRAWING No: PS138962-TP-DR-011B	
B	13.06.2025	F.B.	DESIGN UPDATE	F.B.	R.M.							DRAFT	
A	20.05.2025	F.B.	DRAFT	F.B.	R.M.							APPROVED: RYAN MILLER	
												REV: 20.05.2025	
												B	



VEHICLE LEGEND

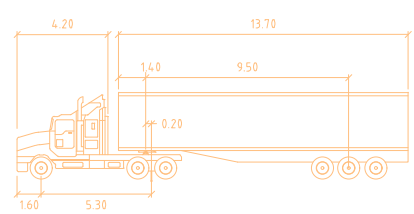


PLAN
SCALE 1:1000

NOTE

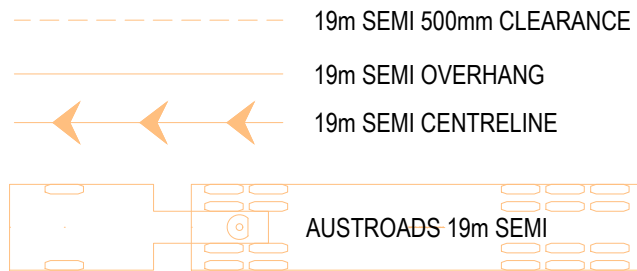
- TURNING PATH CHECKS HAS BEEN PREPARED ON AN AERIAL OBTAINED FROM SDT EXPLORER.
- THE DESIGN TURNING SPEED USED ARE SET AT 15 KM/H.

REFERENCE COORDINATION DRAWINGS				SCALES		A3 ORIGINAL		CLIENT:		PROJECT:		DRAWING STATUS:	
DESCRIPTION				DRAWING NO.		DO NOT SCALE THIS DRAWING		180 Thomas Street		TRANSGRID		DRAFT	
REV				REV		SIGNED:		HAYMARKET NSW 2000		VNI WEST EIS (NSW)		DESIGNED:	
DATE				DATE		DATE:		(02) 9284 3000		COBB HIGHWAY AND ACCESS TRACK LAYOUT 01		CHECKED:	
BY				BY		RREQ:		www.transgrid.com.au		WANGANELLA		DRAWN:	
DESCRIPTION				DESCRIPTION		© WSP Australia Pty Ltd.				26M B-DOUBLE TURNING PATH ASSESSMENT		FIONA BANH	
CHK				CHK						SHEET 12A		RYAN MILLER	
APPD				APPD								DATE:	
												20.05.2025	
												DRAWING No:	
												PS138962-TP-DR-012A	
												C	



PM S 19M			
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.8
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

VEHICLE LEGEND



PLAN
SCALE 1:1000

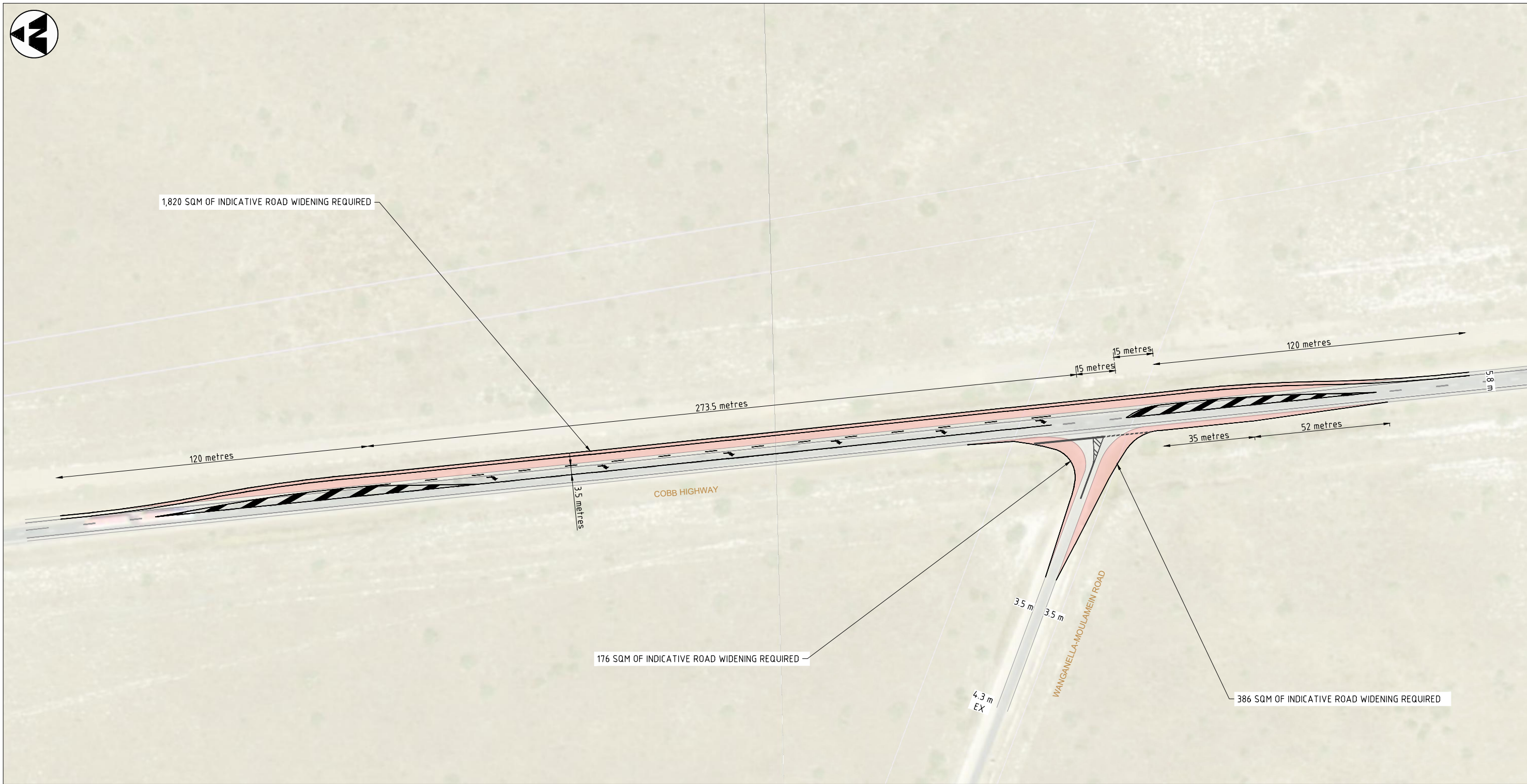
NOTE

- TURNING PATH CHECKS HAS BEEN PREPARED ON AN AERIAL OBTAINED FROM SDT EXPLORER.
- THE DESIGN TURNING SPEED USED ARE SET AT 15 KM/H.

H	C B A		13.06.2025 06.06.2025 20.05.2025	F.B. F.B. F.B.	DESIGN UPDATE INCORPORATED COMMENTS DRAFT	F.B. F.B. F.B.	R.M. R.M. R.M.	REFERENCE COORDINATION DRAWINGS				SCALES		A3 ORIGINAL DO NOT SCALE THIS DRAWING		 Level 27, 680 George Street, Sydney GPO Box 5394, NSW 2001, Australia Tel: +61 2 9272 5100 Fax: +61 2 9272 5101 wsp.com	 180 Thomas Street HAYMARKET NSW 2000 (02) 9284 3000 www.transgrid.com.au	PROJECT: TRANSGRID VNI WEST EIS (NSW)		DRAWING STATUS: DRAFT					
								DESCRIPTION		DRAWING NO.		REV	CHK							-		APPROVED			
	-		-				SURVEY DATUM		Full Size 1:1000 A3 SCALE (m)		0 10 20 30		SIGNED:		APPROVED			DESIGNED: FIONA BANH		CHECKED: RYAN MILLER		APPROVED: RYAN MILLER			
	-		-		-		-		HORIZONTAL DATUM:		VERTICAL DATUM:		DATE:		REQ:			PROJECT No: PS138962		DRAWN: FIONA BANH		DATE: 20.05.2025			
	REV	DATE	BY	DESCRIPTION			CHK	APPD					-		© WSP Australia Pty Ltd.			CLIENT:		TITLE: COBB HIGHWAY AND ACCESS TRACK LAYOUT 01 WANGANELLA 19M SEMI TRAILER TURNING PATH ASSESSMENT SHEET 12B				DRAWING No: PS138962-TP-DR-012B	

APPENDIX C-2

Strategic designs



NOTE

- ### LEGEND

D C B A	13.06.2025	F.B.	DESIGN UPDATE	F.B.	R.M.
	06.06.2025	F.B.	CLIENT COMMENTS ADDRESS	F.B.	R.M.
	07.05.2025	F.B.	INCORPORATED COMMENTS	F.B.	R.M.
	16.04.2025	F.B.	DRAFT	F.B.	R.M.
REV	DATE	BY	DESCRIPTION	CHK	APPO
			HORIZONTAL DATUM:	VERTICAL DATUM:	

REFERENCE COORDINATION DRAWINGS			
DESCRIPTION	DRAWING NO.	REV	CHK
SURVEY DATUM			

	
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A3 ORIGINAL DO NOT SCALE THIS DRAWING	
APPROVED	
SIGNED:	
DATE:	RPEQ:
© WSP Australia Pty Ltd.	



Level 27, 680 George Street, Sydney
 GPO Box 5394, NSW 2001, Australia
 Tel: +61 2 9272 5100 Fax: +61 2 9272 5101
 wsp.com

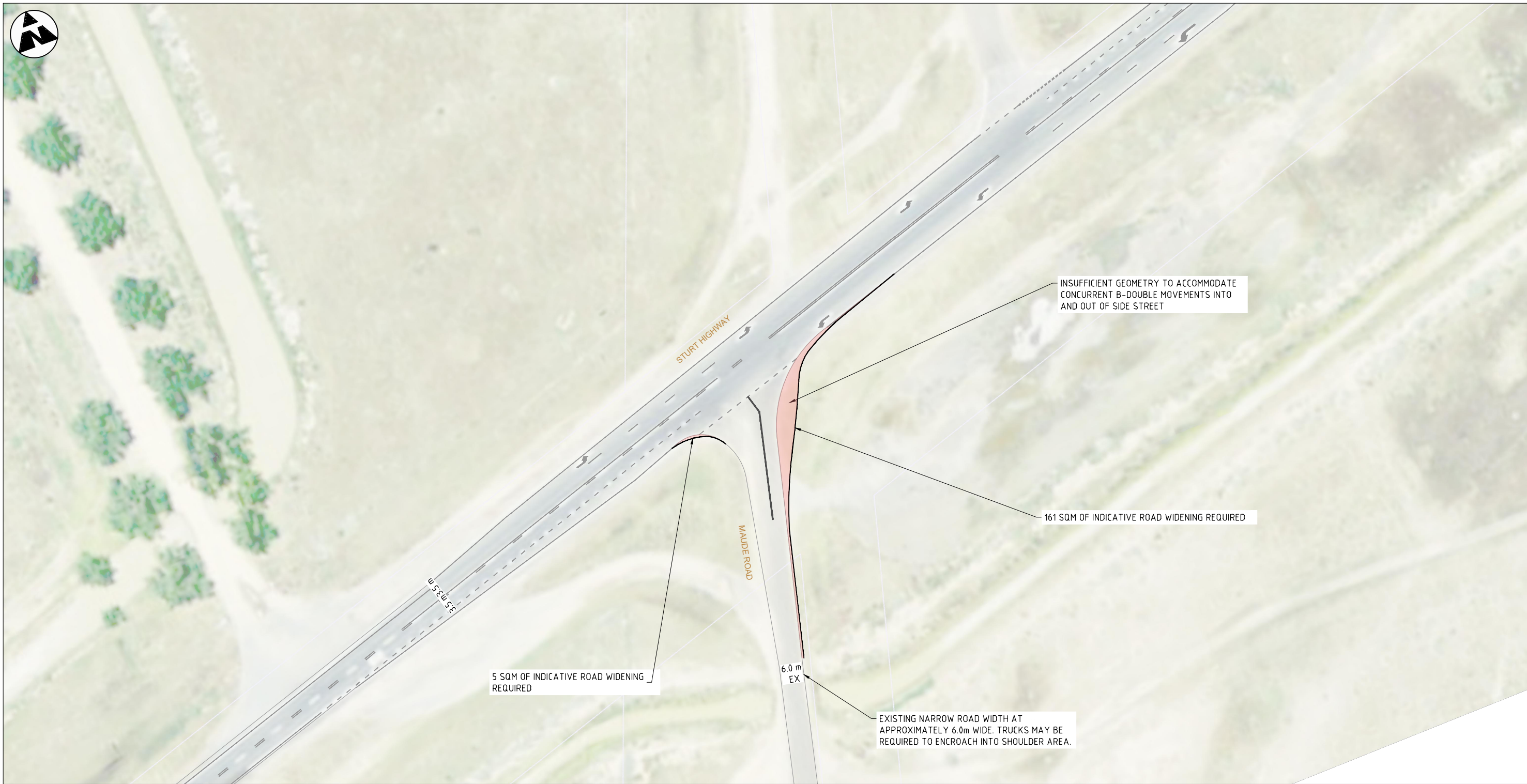
CLIENT:



180 Thomas Street
 HAYMARKET NSW 2000
 (02) 9284 3000
 www.transgrid.com.au

PROJECT: TRANSGRID VNI WEST EIS (NSW)		
TITLE: COBB HIGHWAY AND WANGANELLA-MOULAMEIN ROAD	WANGANELLA	
STRATEGIC DESIGN PLAN SHEET 01		

DRAWING STATUS: DRAFT		
DESIGNED: FIONA BANH	CHECKED: RYAN MILLER	APPROVED: RYAN MILLER
PROJECT No: PS138962	DRAWN: FIONA BANH	DATE: 07.05.2025
DRAWING No: PS138962-SD-DR-001		REV: D



PLAN
SCALE 1:500

NOTE

1. VEHICLE MOVEMENTS HAS BEEN DESIGNED WITH LOCALISED WIDENING TO ALLOW SUFFICIENT SPACE FOR DESIGN VEHICLES TO UNDERTAKE NON-CONFLICTING CONCURRENT INBOUND AND OUTBOUND MOVEMENTS.
2. THIS SKETCH HAS BEEN PREPARED ON AN AERIAL OBTAINED FROM SDT EXPLORER WITH LIMITED ACCURACY.
3. LOCATION OF PROPERTY BOUNDARIES HAVE BEEN OBTAINED FROM NSW GOVERNMENT'S SPATIAL COLLABORATION PORTAL WEBSITE.
4. THIS STRATEGIC DESIGN HAVE BEEN PREPARED TO SUPPORT DISCUSSIONS WITH RELEVANT STAKEHOLDERS, PRELIMINARY INVESTIGATIONS AND REPORTING.

LEGEND

— EXISTING FEATURES
— PROPOSED FEATURES

[illegible]



35 SQM OF INDICATIVE ROAD
WIDENING REQUIRED

40 SQM OF INDICATIVE ROAD WIDENING REQUIRED —

KIDMAN WAY

NEWELL HIGHWAY

PLAN
SCALE 1:500

1. VEHICLE MOVEMENTS HAS BEEN DESIGNED WITH LOCALISED WIDENING TO ALLOW SUFFICIENT SPACE FOR DESIGN VEHICLES TO UNDERTAKE NON-CONFLICTING CONCURRENT INBOUND AND OUTBOUND MOVEMENTS.
2. THIS SKETCH HAS BEEN PREPARED ON AN AERIAL OBTAINED FROM SDT EXPLORER WITH LIMITED ACCURACY.
3. LOCATION OF PROPERTY BOUNDARIES HAVE BEEN OBTAINED FROM NSW GOVERNMENT'S SPATIAL COLLABORATION PORTAL WEBSITE.
4. THIS STRATEGIC DESIGN HAVE BEEN PREPARED TO SUPPORT DISCUSSIONS WITH RELEVANT STAKEHOLDERS, PRELIMINARY INVESTIGATIONS AND REPORTING.

— EXISTING FEATURES
— PROPOSED FEATURES

[illegible]



ADJOINS SHEET SD-DR-010

1,111 SQM OF INDICATIVE ROAD WIDENING REQUIRED

69 SQM OF INDICATIVE ROAD WIDENING REQUIRED

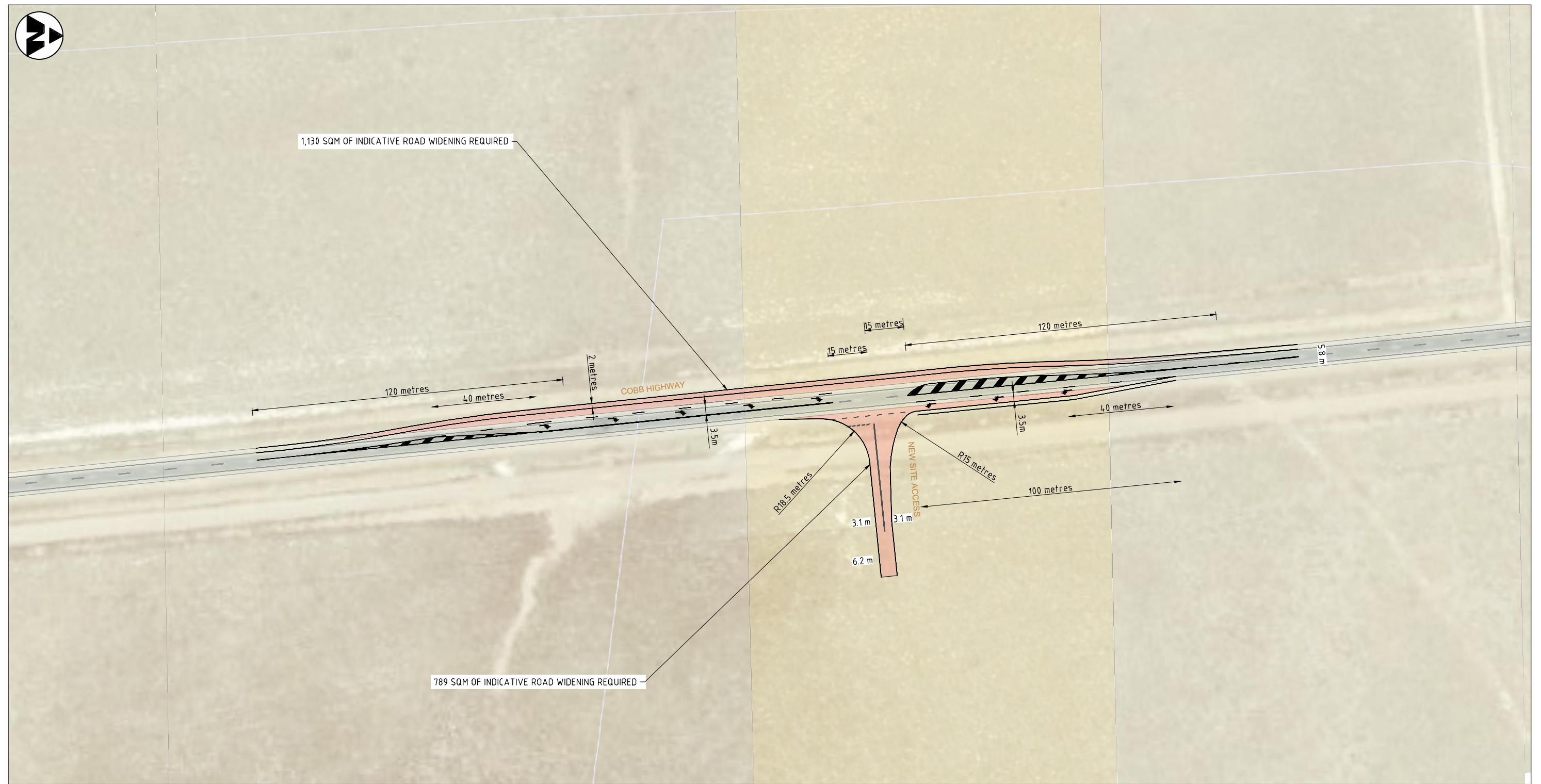
194 SQM OF INDICATIVE ROAD WIDENING REQUIRED

PLAN
SCALE 1:1000

1. MEASUREMENTS FOR TURN TREATMENTS ARE INDICATIVE WITH EXACT WARRANTS AND DETAILS SUBJECT TO FURTHER DETAILED ASSESSMENT AT FUTURE STAGES.
2. THIS SKETCH HAS BEEN PREPARED ON AN AERIAL OBTAINED FROM SDT EXPLORER WITH LIMITED ACCURACY.
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4. THIS STRATEGIC DESIGN HAVE BEEN PREPARED TO SUPPORT DISCUSSIONS WITH RELEVANT STAKEHOLDERS, PRELIMINARY INVESTIGATIONS AND REPORTING.

— EXISTING FEATURES
— PROPOSED FEATURES

C B A	13.06.2025	O.M. F.B.	DESIGN UPDATE	O.M. F.B.	R.M. F.B.	REFERENCE COORDINATION DRAWINGS				SCALES 0 10 20 30 Full Size 1/1000 A3 SCALE (m)	A3 ORIGINAL DO NOT SCALE THIS DRAWING APPROVED SIGNED: DATE:REQ: © WSP Australia Pty Ltd.	wsp Level 27, 660 George Street, Sydney GPO Box 5394, NSW 2001, Australia Tel: +61 2 9272 5100 Fax: +61 2 9272 5101 wsp.com	CLIENT: Transgrid 180 Thomas Street HAYMARKET NSW 2000 (02) 9284 3000 www.transgrid.com.au	PROJECT: TRANSGRID VNI WEST EIS (NSW)	DRAWING STATUS: DRAFT			
	07.05.2025	F.B.	INCORPORATED COMMENTS			DESCRIPTION	DRAWING NO.	REV	CHK						DESIGNED: FIONA BANH	CHECKED: RYAN MILLER	APPROVED: RYAN MILLER	
	16.04.2025	F.B.	DRAFT			SURVEY DATUM			PROJECT No: PS138962						DRAWN: FIONA BANH	DATE: 07.05.2025		
REV	DATE	BY	DESCRIPTION	CHK	APPD	HORIZONTAL DATUM		VERTICAL DATUM		TITLE: KIDMAN WAY AND CADELL ROAD BUNDURE STRATEGIC DESIGN PLAN SHEET 06				DRAWING No: PS138962-SD-DR-006		REV: C		

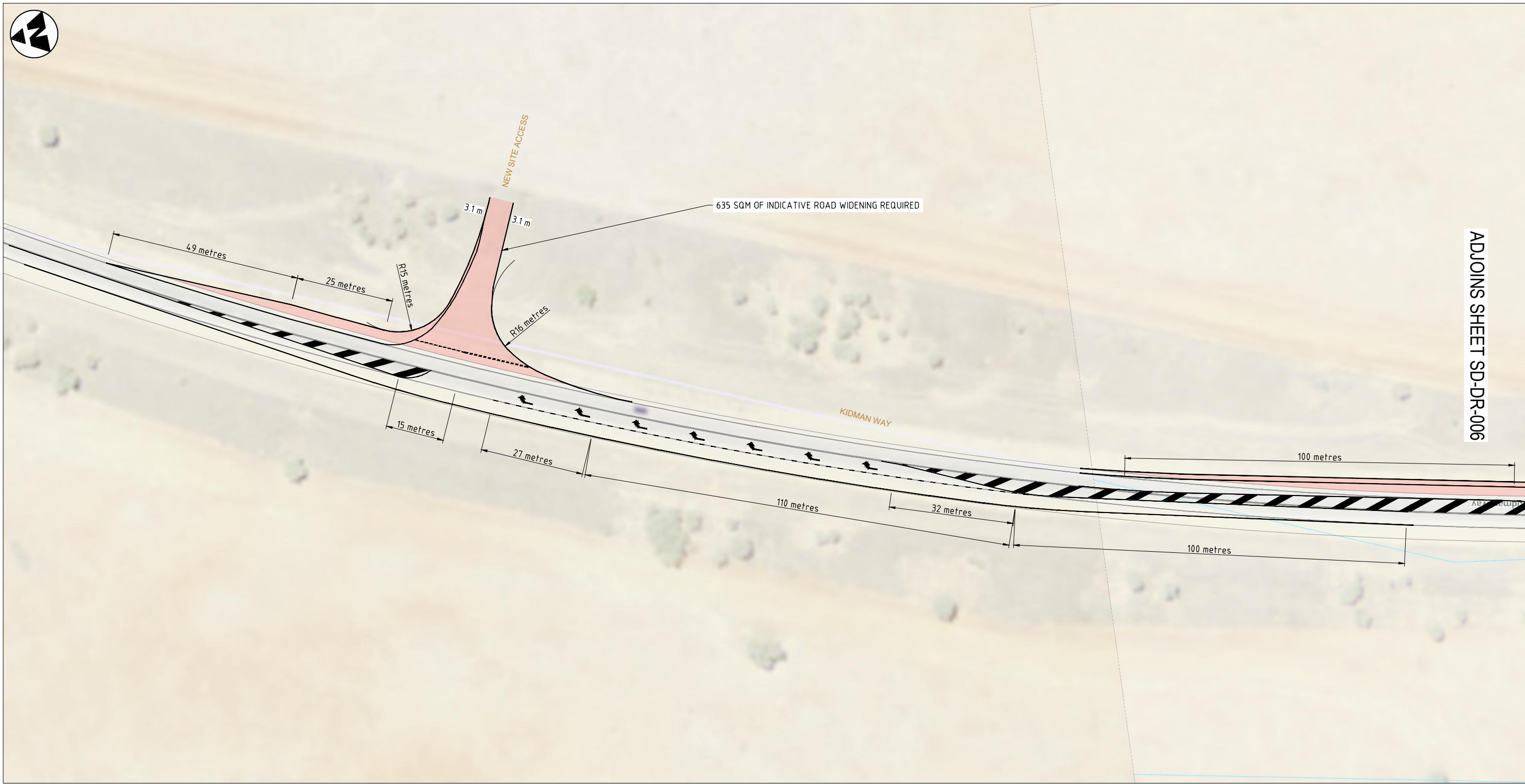


PLAN
SCALE 1:1500

1. MEASUREMENTS FOR TURN TREATMENTS ARE INDICATIVE WITH EXACT WARRANTS AND DETAILS SUBJECT TO FURTHER DETAILED ASSESSMENT AT FUTURE STAGES.
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_____ EXISTING FEATURES
 _____ PROPOSED FEATURES

B	13.06.2025 20.05.2025	F.B.	DESIGN UPDATE DRAFT	F.B.	R.M.	REFERENCE COORDINATION DRAWINGS				SCALES 0153045 Full Size 1:1500 A3; SCALE (m)	A3 ORIGINAL DO NOT SCALE THIS DRAWING SIGNED: _____ DATE: _____ RREQ: _____ © WSP Australia Pty Ltd.	wsp Level 27, 680 George Street, Sydney GPO Box 5394, NSW 2001, Australia Tel: +61 2 9272 5100 Fax: +61 2 9272 5101 wsp.com	CLIENT: Transgrid 180 Thomas Street HAYMARKET NSW 2000 (02) 9284 3000 www.transgrid.com.au	PROJECT: TRANSGRID VNI WEST EIS (NSW) TITLE: COBB HWY NEW SITE ACCESS & TEMPORARY FACILITY WANGANELLA STRATEGIC DESIGN PLAN SHEET 09	DRAWING STATUS: DRAFT DESIGNED: FIONA BANH PROJECT No: PS138962 CHECKED: RYAN MILLER DRAWN: FIONA BANH APPROVED: RYAN MILLER DATE: 20.05.2025 DRAWING No: PS138962-SD-DR-009 REV: B			
						DESCRIPTION	DRAWING NO.	REV	CHK						DESIGNED: FIONA BANH	CHECKED: RYAN MILLER	APPROVED: RYAN MILLER	
						SURVEY DATUM									TITLE: COBB HWY NEW SITE ACCESS & TEMPORARY FACILITY WANGANELLA STRATEGIC DESIGN PLAN SHEET 09			
REV	DATE	BY	DESCRIPTION	CHK	APPD	HORIZONTAL DATUM		VERTICAL DATUM		© WSP Australia Pty Ltd.		DRAWING No: PS138962-SD-DR-009		REV: B				



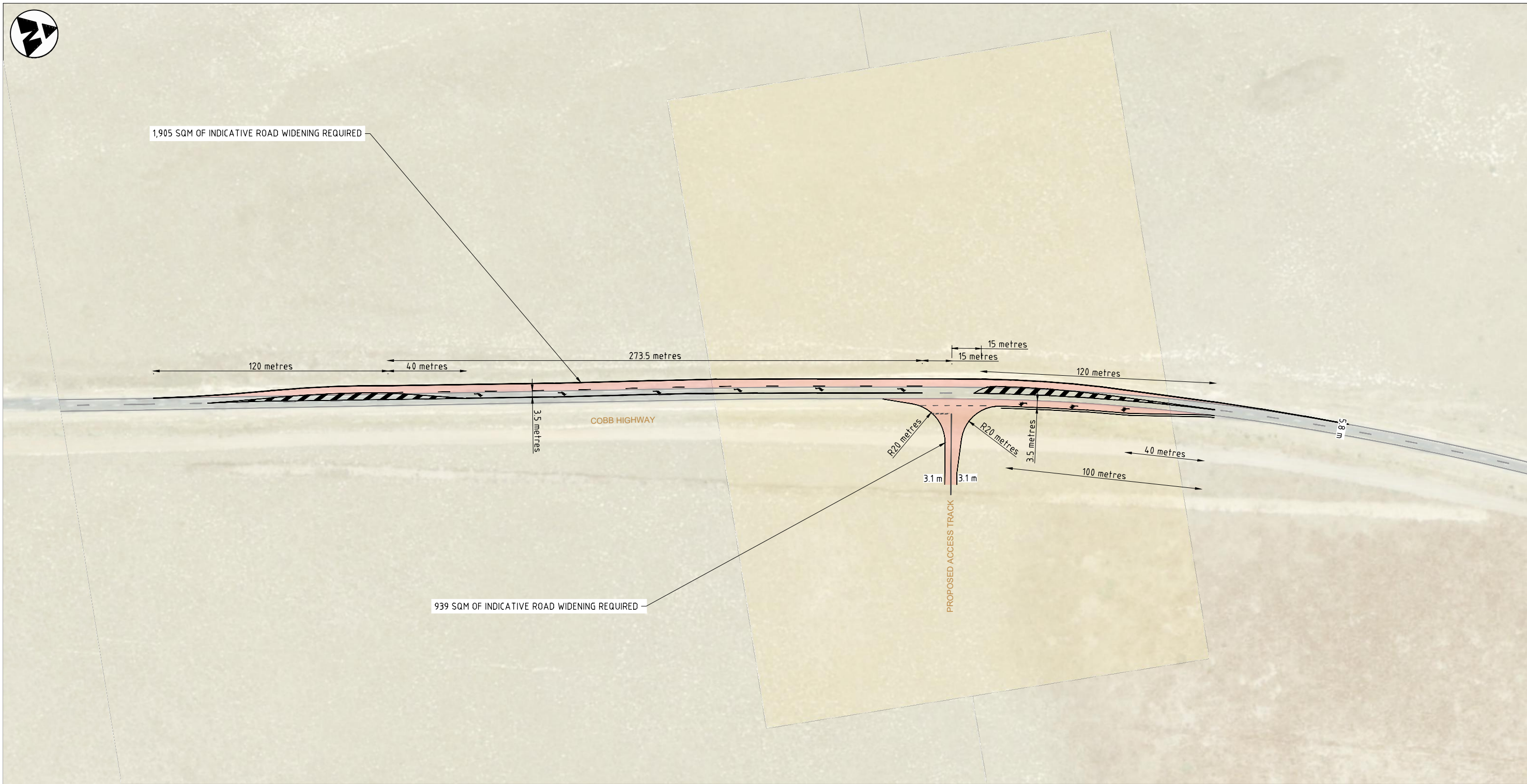
ADJOINS SHEET SD-DR-006

PLAN
SCALE 1:1000

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PLAN
SCALE 1:2000

- NOTE**
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- LEGEND**
- EXISTING FEATURES
 - PROPOSED FEATURES

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								DESCRIPTION		DRAWING NO.		REV		CHK		0 20 40 60 Full Size 1:2000 A3; SCALE (m)		SIGNED:		APPROVED		DESIGNED: FIONA BANH		CHECKED: RYAN MILLER		APPROVED: RYAN MILLER	
																		DATE:		RREQ:		PROJECT No: PS138962		DRAWN: FIONA BANH		DATE: 20.05.2025	
								SURVEY DATUM														DRAWING No: PS138962-SD-DR-011				REV: B	
								HORIZONTAL DATUM:		VERTICAL DATUM:								© WSP Australia Pty Ltd.									
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REV		DATE		BY		DESCRIPTION		CHK		APPD																	



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— PROPOSED FEATURES

[illegible]

Appendix D

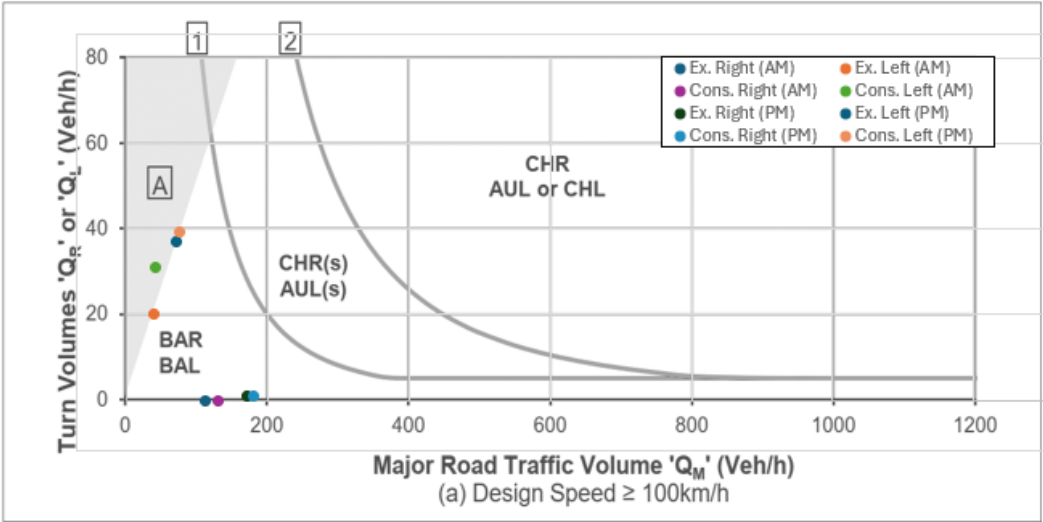
Intersection turn warrant assessments



D1 Pre-construction intersection turn warrant assessments

ID	Intersection	Control	Turn warrant assessment	Impact
I-01	Sturt Highway and Maude Road	Give Way		Currently BAR and AUL are provided and is compliant to current demand requirements of BAR/BAL. During construction, the requirement for BAR/BAL is maintained.

ID	Intersection	Control	Turn warrant assessment	Impact
I-08	Sturt Highway and Tumbarumba Road	Give Way	The graph is a scatter plot with two main curves. The Y-axis is labeled 'Turn Volumes 'Q_R' or 'Q_L' (Veh/h)' and ranges from 0 to 120. The X-axis is labeled 'Major Road Traffic Volume 'Q_M' (Veh/h)' and ranges from 0 to 1200. There are two curves: a solid line labeled 'CHR' and a dashed line labeled 'CHR(s) AUL(s)'. A shaded area in the top left is labeled 'A'. A horizontal line at the bottom is labeled 'BAR BAL'. Data points are plotted for existing (Ex.) and proposed (Cons.) conditions for Right (R) and Left (L) turns in AM and PM. The legend indicates: Ex. Right (AM) (blue dot), Ex. Left (AM) (orange dot), Cons. Right (AM) (purple dot), Cons. Left (AM) (green dot), Ex. Right (PM) (dark blue dot), Ex. Left (PM) (light blue dot), Cons. Right (PM) (cyan dot), Cons. Left (PM) (light orange dot). The graph is labeled (b) 70km/h < Design Speed < 100km/h.	Currently CHR and BAL are provided and is compliant to current demand. During construction, the requirement for CHR/BAL is maintained.

ID	Intersection	Control	Turn warrant assessment	Impact
I-10	Newell Highway and Kidman Way	Give Way		Currently BAR and AUL are provided and is compliant to current demand requirements of BAR/BAL. During construction, the requirement for BAR/BAL is maintained.

D2 Construction intersection turn warrant assessments

ID	Intersection	Control	Turn warrant assessment	Impact
I-08	Sturt Highway and Tumbarumba Road	Give Way		Currently CHR and BAL are provided and is compliant to the current demand. During construction, the requirement for CHR/BAL is maintained.

ID	Intersection	Control	Turn warrant assessment	Impact
I-10	Newell Highway and Kidman Way	Give Way	Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$	Currently BAR and BAL are provided and is compliant to the current demand. During construction, the requirement for BAR/BAL is maintained.
I-21	Cobb Highway and Wanganella-Moulamein Road	Give Way	Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$	Currently BAR and BAL are provided and is compliant to the current demand. During construction, the requirement for BAR/BAL is maintained.

ID	Intersection	Control	Turn warrant assessment	Impact
I-Site-01	New site access at Fisher Lane	Give Way	Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$	Construction demand would only require a BAR/BAL treatment at this new access road.
I-Site-02	New site access at Cunninyeuk Road	Give Way	Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$	Construction demand would only require a BAR/BAL treatment at this new access road.

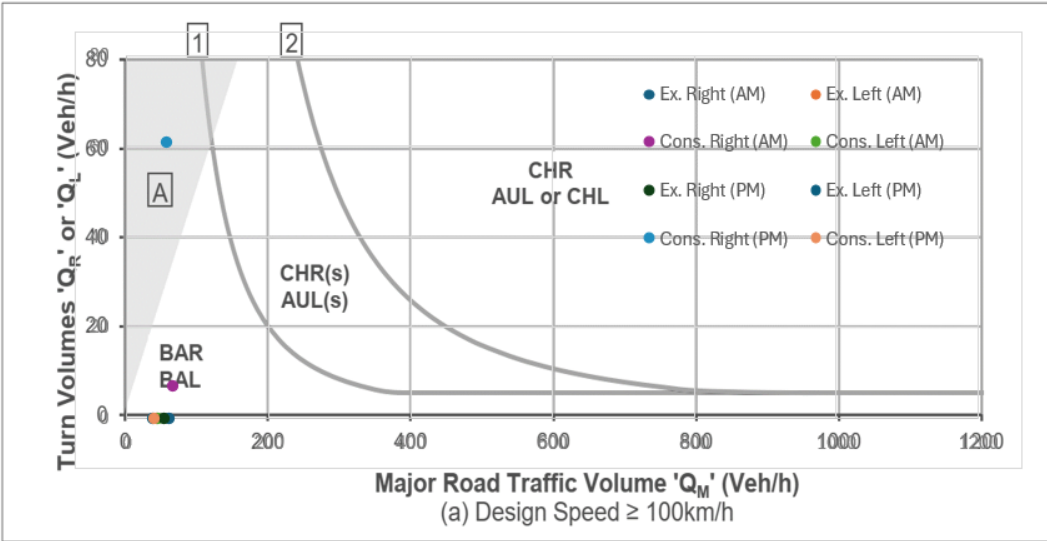
ID	Intersection	Control	Turn warrant assessment	Impact
I-Site-03	New site access at Balranald Road	Give Way		Construction demand would only require a BAR/BAL treatment at this new access road.

ID	Intersection	Control	Turn warrant assessment	Impact
I-Site-04	New site access at Cobb Highway	Give Way	Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed ≥ 100km/h	Construction demand would only require a BAR/BAL treatment at this new access road.

ID	Intersection	Control	Turn warrant assessment	Impact
I-Site-05	New site access at Mabins Well	Give Way	Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$	Construction demand would only require a BAR/BAL treatment at this new access road.

ID	Intersection	Control	Turn warrant assessment	Impact																																				
I-Site-06	New site access at Dinawan Camp	Give Way	The graph displays the following data points (approximate values): <table><tr><th>Period</th><th>Direction</th><th>Major Road Traffic Volume 'Q_M' (Veh/h)</th><th>Turn Volume 'Q_R' or 'Q_L' (Veh/h)</th></tr><tr><td>Existing (AM)</td><td>Right</td><td>~50</td><td>~55</td></tr><tr><td>Existing (AM)</td><td>Left</td><td>~50</td><td>~55</td></tr><tr><td>Existing (PM)</td><td>Right</td><td>~50</td><td>~60</td></tr><tr><td>Existing (PM)</td><td>Left</td><td>~50</td><td>~60</td></tr><tr><td>Construction (AM)</td><td>Right</td><td>~100</td><td>~75</td></tr><tr><td>Construction (AM)</td><td>Left</td><td>~100</td><td>~75</td></tr><tr><td>Construction (PM)</td><td>Right</td><td>~100</td><td>~80</td></tr><tr><td>Construction (PM)</td><td>Left</td><td>~100</td><td>~80</td></tr></table> The graph also shows the following regions and curves: BAR/BAL: A shaded region for low traffic volumes. CHR(s) AUL(s): A curve separating the BAR/BAL region from the CHR AUL or CHL region. CHR AUL or CHL: A region for high traffic volumes. Region A: A shaded region for low traffic volumes. (a) Design Speed $\geq 100\text{km/h}$	Period	Direction	Major Road Traffic Volume 'Q_M' (Veh/h)	Turn Volume 'Q_R' or 'Q_L' (Veh/h)	Existing (AM)	Right	~50	~55	Existing (AM)	Left	~50	~55	Existing (PM)	Right	~50	~60	Existing (PM)	Left	~50	~60	Construction (AM)	Right	~100	~75	Construction (AM)	Left	~100	~75	Construction (PM)	Right	~100	~80	Construction (PM)	Left	~100	~80	Construction demand would only require a BAR/BAL treatment at this new access road.
Period	Direction	Major Road Traffic Volume 'Q_M' (Veh/h)	Turn Volume 'Q_R' or 'Q_L' (Veh/h)																																					
Existing (AM)	Right	~50	~55																																					
Existing (AM)	Left	~50	~55																																					
Existing (PM)	Right	~50	~60																																					
Existing (PM)	Left	~50	~60																																					
Construction (AM)	Right	~100	~75																																					
Construction (AM)	Left	~100	~75																																					
Construction (PM)	Right	~100	~80																																					
Construction (PM)	Left	~100	~80																																					

ID	Intersection	Control	Turn warrant assessment	Impact
I-Site-08-Option 2	New site access at Gregadoo Road	Give Way	Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$	Construction demand would only require a BAR/BAL treatment at this new access road.
I-Site-08-Option 3	New site access at Gregadoo Road	Give Way	Turn Volumes 'Q_R' or 'Q_L' (Veh/h) Major Road Traffic Volume 'Q_M' (Veh/h) (a) Design Speed $\geq 100\text{km/h}$	Construction demand would only require a BAR/BAL treatment at this new access road.

ID	Intersection	Control	Turn warrant assessment	Impact
I-Site-08-Option 4	New site access at Livingstone Gully Road	Give Way		Construction demand would only require a BAR/BAL treatment at this new access road.

Appendix E

Schedule of road improvement works, new or upgraded intersection treatments and management requirements



Table E.1 Schedule of road improvement works and management requirements

Road classification	Road name	Pavement type	Potential cumulative road condition impact	Proposed road improvements / management approach
Murray River LGA				
Regional	Balranald Road	Sealed/ Unsealed	Likely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4). Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10).
Regional	Cedar Avenue	Sealed	Unlikely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).
Regional	Maude Road	Sealed	Unlikely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).
Regional	Moulamein Road	Sealed	Unlikely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).

Road classification	Road name	Pavement type	Potential cumulative road condition impact	Proposed road improvements / management approach
Regional	Swan Hill Road	Sealed	Likely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).
Regional	Tallow Street	Sealed	Likely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).
Local	Berrambong Railway Road	Unsealed	Unlikely	No road improvement works proposed. Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).
Local	Cobramunga Road	Sealed/ Unsealed	Unlikely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4). Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).

Road classification	Road name	Pavement type	Potential cumulative road condition impact	Proposed road improvements / management approach
Local	Cunninyeuk Road	Sealed/ Unsealed	Unlikely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4). Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).
Local	Fisher Lane	Unsealed	Unlikely	No road improvement works proposed. Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).
Local	Kaylock Road	Unsealed	Unlikely	No road improvement works proposed. Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).

Road classification	Road name	Pavement type	Potential cumulative road condition impact	Proposed road improvements / management approach
Local	Murrabit Road	Sealed/ Unsealed	Unlikely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4). Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10).
Local	Nacurrie Road North	Sealed/ Unsealed	Unlikely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4). Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).
Local	Nacurrie Road South	Unsealed	Unlikely	No road improvement works proposed. Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).

Road classification	Road name	Pavement type	Potential cumulative road condition impact	Proposed road improvements / management approach
Local	Noorong Road	Sealed	Unlikely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).
Local	Pike Pike Lane	Unsealed	Unlikely	No road improvement works proposed. Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).
Local	Robb Road	Unsealed	Unlikely	No road improvement works proposed. Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).
Local	Tchelery Road	Sealed/ Unsealed	Unlikely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4). Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10).

Road classification	Road name	Pavement type	Potential cumulative road condition impact	Proposed road improvements / management approach
Local	Wood Lane	Unsealed	Unlikely	No road improvement works proposed. Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).
Edward River LGA				
State	Riverina Highway	Sealed	N/A	No road improvement works proposed.
State	Cobb Highway	Sealed	N/A	No road improvement works proposed.
Regional	Barham Road	Sealed	Unlikely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).
Regional	Conargo Road	Sealed	Likely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).
Regional	Maude Road	Sealed	Unlikely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).

Road classification	Road name	Pavement type	Potential cumulative road condition impact	Proposed road improvements / management approach
Regional	Wanderer Street	Sealed	Likely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).
Local	Carrathool Road	Sealed/ Unsealed	Likely	Identified for improvement work in consultation with Edward River Council. Scope subject to further investigation. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4). Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10).
Local	Mabins Well Road	Sealed/ Unsealed	Likely	Identified for improvement work in consultation with Edward River Council. Scope subject to further investigation. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4). Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10).
Local	Moonbria Road	Unsealed	Likely	Identified for improvement work in consultation with Edward River Council. Scope subject to further investigation. Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10).

Road classification	Road name	Pavement type	Potential cumulative road condition impact	Proposed road improvements / management approach
Local	Wanganella-Moulamein Road	Sealed/ Unsealed	Unlikely	Identified for improvement work in consultation with Edward River Council. Scope subject to further investigation. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4). Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).
Local	Willurah Road	Sealed/ Unsealed	Unlikely	Identified for improvement work in consultation with Edward River Council. Scope subject to further investigation. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4). Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).

Road classification	Road name	Pavement type	Potential cumulative road condition impact	Proposed road improvements / management approach
Murrumbidgee LGA				
State	Sturt Highway	Sealed	N/A	No road improvement works proposed.
State	Newell Highway	Sealed	N/A	No road improvement works proposed.
State	Riverina Highway	Sealed	N/A	No road improvement works proposed.
State	Kidman Way	Sealed	N/A	No road improvement works proposed.
Regional	Berrigan Road	Sealed	Likely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).
Regional	Conargo Road	Sealed	Likely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).
Local	Mabins Well Road	Sealed/ Unsealed	Likely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4). Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10).

Road classification	Road name	Pavement type	Potential cumulative road condition impact	Proposed road improvements / management approach
Local	McLennons Bore Road	Unsealed	Likely	No road improvement works proposed. Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).
Local	Moonbria Road	Unsealed	Likely	No road improvement works proposed. Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10).
Local	Showground Road	Sealed	Likely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).
Local	Wilson Road	Sealed/ Unsealed	Likely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4). Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).

Road classification	Road name	Pavement type	Potential cumulative road condition impact	Proposed road improvements / management approach
Local	Cadell Road	Sealed	Likely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).
Wagga Wagga LGA				
State	Sturt Highway	Sealed	Likely	No road improvement works proposed.
Regional	Kyeamba Street	Sealed	Likely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).
Regional	Tumbarumba Road	Sealed	Likely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).
Local	Angels Lane	Unsealed	Likely	No road improvement works proposed. Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).

Road classification	Road name	Pavement type	Potential cumulative road condition impact	Proposed road improvements / management approach
Local	Big Springs Road	Sealed	Likely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).
Local	Gregadoo East Road	Sealed	Likely	No road improvement works proposed. Prior to construction, road condition assessments will be carried out for all sealed sections of the road to be used during construction. Damage caused by the project will be rectified or compensated for, during or after construction in consultation with the relevant roads authority (refer to mitigation measure TT4).
Local	Ivydale Road	Unsealed	Likely	No road improvement works proposed. Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10). Prior to construction, existing road structures will be assessed to determine their suitability. Where structures are deemed unsuitable, additional measures will be considered and implemented where practicable and appropriate (refer to mitigation measure TT12).
Local	Livingstone Gully Road	Unsealed	Likely	No road improvement works proposed. Prior to construction, an inspection and maintenance schedule for all unsealed sections of the road to be used during construction will be developed and implemented in consultation with the relevant roads authority (refer to mitigation measure TT10).
Hay Shire LGA				
State	Sturt Highway	Sealed	Likely	No road improvement works proposed.

Table E.2 Schedule of new or upgraded intersection treatments and management requirements

Road classification	Intersection	Proposed intersection treatment/management approach
Murray River LGA		
Regional – Regional	Moulamein Road and Barham Road	No intersection treatment proposed.
Regional – Regional	Moulamein Road and Swan Hill Road	No intersection treatment proposed.
Regional – Regional	Cedar Avenue and Moulamein Road	No intersection treatment proposed.
Regional – Local	Swan Hill Road and Cunninyeuk Road	No intersection treatment proposed.
Regional – Local	Balranald Road and Berrambong Railway Road	No intersection treatment proposed.
Regional – Local	Swan Hill Road and Noorong Road	No intersection treatment proposed.
Regional – Local	Swan Hill Road and Pike Pike Lane	No intersection treatment proposed.
Regional – Local	Swan Hill Road and Kaylock Road	No intersection treatment proposed.
Local – Regional	Noorong Road and Moulamein Road	No intersection treatment proposed.
Local – Regional	Tchelery Road and Tallow Street	No intersection treatment proposed.
Local – Local	Cunninyeuk Road and Wood Lane	No intersection treatment proposed.
Local – Local	Murrabit Road and Cobramunga Road (South)	No intersection treatment proposed.
Local – Local	Noorong Road and Murrabit Road	No intersection treatment proposed.
Local – Local	Noorong Road and Nacurrie Road North	No intersection treatment proposed.
Regional Road Access Driveway	New site access Balranald Road temporary worker accommodation facility	Austroads typical driveway design
Regional Road Access Driveway	Balranald Road and access track (1)	Austroads typical driveway design
Regional Road Access Driveway	Balranald Road and access track (2)	Austroads typical driveway design

Road classification	Intersection	Proposed intersection treatment/management approach
Local Road Access Driveway	New site access to Fisher Lane construction compound, via Noorong Road	Austroads typical driveway design
Local Road Access Driveway	New site access to Cunninyeuk Road construction compound	Austroads typical driveway design
Local Road Access Driveway	Fisher Lane and access track (1)	Austroads typical driveway design
Local Road Access Driveway	Pike Pike Lane and access track (1)	Austroads typical driveway design
Local Road Access Driveway	Pike Pike Lane and access track (2)	Austroads typical driveway design
Local Road Access Driveway	Pike Pike Lane and access track (3)	Austroads typical driveway design
Local Road Access Driveway	Pike Pike Lane and access track (4)	Austroads typical driveway design
Local Road Access Driveway	Pike Pike Lane and access track (5)	Austroads typical driveway design
Local Road Access Driveway	Pike Pike Lane and access track (6)	Austroads typical driveway design
Local Road Access Driveway	Pike Pike Lane and access track (7)	Austroads typical driveway design
Local Road Access Driveway	Pike Pike Lane and access track (8)	Austroads typical driveway design
Local Road Access Driveway	Pike Pike Lane and access track (9)	Austroads typical driveway design
Local Road Access Driveway	Cunninyeuk Road and access track (1)	Austroads typical driveway design Mitigation measures to improve sight distance to implemented in consultation with the relevant roads authority (refer to mitigation measure TT8).
Local Road Access Driveway	Cunninyeuk Road and access track (2)	Austroads typical driveway design
Local Road Access Driveway	Cunninyeuk Road and access track (3)	Austroads typical driveway design
Local Road Access Driveway	Cunninyeuk Road and access track (4)	Austroads typical driveway design
Local Road Access Driveway	Cunninyeuk Road and access track (5)	Austroads typical driveway design
Local Road Access Driveway	Cunninyeuk Road and access track (6)	Austroads typical driveway design

Road classification	Intersection	Proposed intersection treatment/management approach
Local Road Access Driveway	Cunninyeuk Road and access track (7)	Austroads typical driveway design
Local Road Access Driveway	Cunninyeuk Road and access track (8)	Austroads typical driveway design
Local Road Access Driveway	Cunninyeuk Road and access track (9)	Austroads typical driveway design
Local Road Access Driveway	Noorong Road and access track (1)	Austroads typical driveway design
Local Road Access Driveway	Noorong Road and access track (2)	Austroads typical driveway design
Local Road Access Driveway	Murrabit Road and access track	Austroads typical driveway design
Local Road Access Driveway	Cobramunga Road and access track (1)	Austroads typical driveway design
Local Road Access Driveway	Cobramunga Road and access track (2)	Austroads typical driveway design
Local Road Access Driveway	Cobramunga Road and access track (3)	Austroads typical driveway design
Local Road Access Driveway	Cobramunga Road and access track (4)	Austroads typical driveway design
Local Road Access Driveway	Cobramunga Road and access track (5)	Austroads typical driveway design
Local Road Access Driveway	Cobramunga Road and access track (6)	Austroads typical driveway design
Local Road Access Driveway	Kaylock Road and access track (1)	Austroads typical driveway design
Local Road Access Driveway	Kaylock Road and access track (2)	Austroads typical driveway design
Local Road Access Driveway	Kaylock Road and access track (3)	Austroads typical driveway design
Local Road Access Driveway	Kaylock Road and access track (4)	Austroads typical driveway design
Local Road Access Driveway	Kaylock Road and access track (5)	Austroads typical driveway design
Local Road Access Driveway	Kaylock Road and access track (6)	Austroads typical driveway design
Local Road Access Driveway	Berrambong Railway Road and access track	Austroads typical driveway design
Local Road Access Driveway	Robb Road and access track (east)	Austroads typical driveway design
Local Road Access Driveway	Robb Road and access track (west)	Austroads typical driveway design

Road classification	Intersection	Proposed intersection treatment/management approach
Local Road Access Driveway	Wood Lane and access track	Austroads typical driveway design
Edward River LGA		
State (Local) - State (Local)	Cobb Highway (Hay Road) and Riverina Highway (Finley Road)	No intersection treatment proposed.
State (Local) - State (Local)	Cobb Highway (Hardinge Street) and Cobb Highway (Charlotte Street)	No intersection treatment proposed.
State (Local) – State (Local)	Cobb Highway (Hardinge Street) and Cobb Highway (Ochertyre Street)	No intersection treatment proposed.
State – Local	Cobb Highway and Wanganella-Moulamein Road	Intersection treatment proposed – refer to Appendix C (Swept path analyses at State road access intersections and strategic designs).
State (Local) - Local	Riverina Highway (Finley Road) and Wanderer Street	No intersection treatment proposed.
Regional – Local	Conargo Road and Carrathool Road	No intersection treatment proposed.
Regional – Local	Maude Road and Boooroban-Tchelery Road	No intersection treatment proposed.
Local – Local	Carrathool Road and Moonbria Road	No intersection treatment proposed.
Local – Local	Carrathool Road and Mabins Well Road	No intersection treatment proposed.
Local – Local	Wilson Road and Mabins Well Road	No intersection treatment proposed.
State Road Access Driveway	New site access Cobb Highway temporary worker accommodation facility	Intersection treatment proposed – refer to Appendix C (Swept path analyses at State road access intersections and strategic designs).
State Road Access Driveway	Cobb Highway and proposed access track	Intersection treatment proposed – refer to Appendix C (Swept path analyses at State road access intersections and strategic designs).
State Road Access Driveway	Cobb Highway and access track	Intersection treatment proposed – refer to Appendix C (Swept path analyses at State road access intersections and strategic designs).

Road classification	Intersection	Proposed intersection treatment/management approach
Regional Road Access Driveway	Maude Road and access track west of Wanganella-Moulamein Road	Austroads typical driveway design
Regional Road Access Driveway	Maude Road and access track near alignment (east)	Austroads typical driveway design
Regional Road Access Driveway	Maude Road and access track near alignment (west)	Austroads typical driveway design
Local Road Access Driveway	New site access Mabins Well Road construction compound	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track west of Wilson Road	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (1)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (2)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (3)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (4)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (5)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (6)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (7)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (8)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (9)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (10)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (11)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (12)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (13)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (14)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (15)	Austroads typical driveway design

Road classification	Intersection	Proposed intersection treatment/management approach
Local Road Access Driveway	Mabins Well Road and access track (16)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (17)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (18)	Austroads typical driveway design
Local Road Access Driveway	Mabins Well Road and access track (19)	Austroads typical driveway design
Local Road Access Driveway	Carrathool Road and access track (1)	Austroads typical driveway design
Local Road Access Driveway	Carrathool Road and access track (2)	Austroads typical driveway design
Local Road Access Driveway	Carrathool Road and access track (3)	Austroads typical driveway design
Local Road Access Driveway	Carrathool Road and access track (4)	Austroads typical driveway design
Local Road Access Driveway	Carrathool Road and access track (5)	Austroads typical driveway design
Local Road Access Driveway	Carrathool Road and access track (6)	Austroads typical driveway design
Local Road Access Driveway	Carrathool Road and access track (7)	Austroads typical driveway design
Local Road Access Driveway	Carrathool Road and access track (8)	Austroads typical driveway design
Local Road Access Driveway	Wanganella-Moulamein Road and access track (1)	Austroads typical driveway design
Local Road Access Driveway	Wanganella-Moulamein Road and access track (2)	Austroads typical driveway design
Local Road Access Driveway	Wanganella-Moulamein Road and access track (3)	Austroads typical driveway design
Local Road Access Driveway	Wanganella-Moulamein Road and access track (4)	Austroads typical driveway design
Local Road Access Driveway	Willurah Road and access track (north)	Austroads typical driveway design
Local Road Access Driveway	Willurah Road and access track (south)	Austroads typical driveway design

Road classification	Intersection	Proposed intersection treatment/management approach
Murrumbidgee LGA		
State – State	Sturt Highway and Kidman Way	No intersection treatment proposed.
State – State	Newell Highway and Kidman Way	Intersection treatment proposed – refer to Appendix C (Swept path analyses at State road access intersections and strategic designs).
State (Local) – State (Local)	Newell Highway (Jerilderie Street) and Newell Highway (Southey Street)	No intersection treatment proposed.
State – Regional	Newell Highway and Berrigan Road	No intersection treatment proposed.
State – Local	Newell Highway and Showground Road	No intersection treatment proposed.
State – Local	Kidman Way and Cadell Road	Intersection treatment proposed – refer to Appendix C (Swept path analyses at State road access intersections and strategic designs).
Regional – State (Local)	Conargo Road and Newell Highway (Jerilderie Street)	No intersection treatment proposed.
Regional – Local	Maude Road and Wanganella-Moulamein Road	No intersection treatment proposed.
Local – Local	Wilson Road and McLennons Bore Road	No intersection treatment proposed.
Local – Local	Wilson Road and Moonbria Road	No intersection treatment proposed.
State Road Access Driveway	New site access Kidman Way temporary worker accommodation facility	Intersection treatment proposed – refer to Appendix C (Swept path analyses at State road access intersections and strategic designs).
Local Road Access Driveway	McLennons Bore Road and access track east of Kulki Lane	Austroads typical driveway design
Local Road Access Driveway	McLennons Bore Road and access track west of Kulki Lane	Austroads typical driveway design
Local Road Access Driveway	McLennons Bore Road and access track near Wilson Road	Austroads typical driveway design
Local Road Access Driveway	Wilson Road and access track	Austroads typical driveway design

Road classification	Intersection	Proposed intersection treatment/management approach
Wagga Wagga LGA		
State – Regional	Sturt Highway and Tumbarumba Road	No intersection treatment proposed.
Regional – Local	Tumbarumba Road and Gregadoo East Road	No intersection treatment proposed.
Local – Local	Gregadoo East Road and Angels Lane	No intersection treatment proposed.
Local Road Access Driveway	Option 2 New site access Gregadoo East Road temporary worker accommodation facility	Austroads typical driveway design Mitigation measures to improve sight distance to implemented in consultation with the relevant roads authority (refer to mitigation measure TT8).
Local Road Access Driveway	Option 3 New site access Gregadoo East Road temporary worker accommodation facility	Austroads typical driveway design
Local Road Access Driveway	Option 4 New site access Livingstone Gully Road temporary worker accommodation facility	Austroads typical driveway design
Local Road Access Driveway	Gregadoo East Road and access track (1)	No intersection treatment proposed. Access track established by HumeLink.
Local Road Access Driveway	Gregadoo East Road and access track (2)	No intersection treatment proposed. Access track established by HumeLink.
Local Road Access Driveway	Gregadoo East Road and access track (3)	No intersection treatment proposed. Access track established by HumeLink.
Local Road Access Driveway	Livingstone Gully Road and access track	Austroads typical driveway design
Local Road Access Driveway	Big Springs Road and access track (north)	Austroads typical driveway design
Local Road Access Driveway	Big Springs Road and access track (south)	Austroads typical driveway design
Local Road Access Driveway	Angels Lane and access track (north)	Austroads typical driveway design
Local Road Access Driveway	Angels Lane and access track (south)	Austroads typical driveway design
Local Road Access Driveway	Ivydale Road and access track (north)	Austroads typical driveway design
Local Road Access Driveway	Ivydale Road and access track (south)	Austroads typical driveway design

Road classification	Intersection	Proposed intersection treatment/management approach
Berrigan Shire LGA		
State (Local) – State (Local)	Riverina Highway (Jerilderie Street) and Riverina Highway (Chanter Street)	No intersection treatment proposed.
State (Local) – State (Local)	Newell Highway (Murray Street) and Riverina Highway (Berrigan Rd)	No intersection treatment proposed.
State (Local) – State (Local)	Newell Highway (Murray Street) and Riverina Highway (Tuppall Street)	No intersection treatment proposed.
Hay Shire LGA		
State – State	Sturt Highway and Cobb Highway	No intersection treatment proposed.
State – Regional	Sturt Highway and Maude Road	Intersection treatment proposed – refer to Appendix C (Swept path analyses at State road access intersections and strategic designs).
Narrandera Shire LGA		
State – State	Sturt Highway and Newell Highway (west)	No intersection treatment proposed.
State – State	Sturt Highway and Newell Highway (east)	No intersection treatment proposed.

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