The Plains Wind Farm

Amended Traffic Impact Assessment

22 July 2025

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Prepared for: ENGIE

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Amber

Executive Summary

Amber Organisation Pty Ltd has been engaged by ENGIE to prepare a Traffic Impact Assessment for The Plains Wind Farm. The project forms part of the broader 'The Plains Renewable Energy Park' which also includes a proposed solar farm ('The Plains Solar Farm') and Battery Energy Storage System which are subject to a separate development application.

In support of the SSD application (SSD- 50629707), an Environmental Impact Statement (EIS) was prepared for the Project. The EIS was publicly exhibited between 8 May 2024 and 4 June 2024 by the NSW Department of Planning, Housing and Infrastructure (DPHI). Following exhibition of the EIS, the Project has been revised in response to the submissions received, further consultation with the local community, agencies and stakeholders, and constructability considerations. This Amended Traffic Impact Assessment has been updated to respond to matters raised in the Request for Information received from DPHI.

The Project will accommodate 171 wind turbines with a maximum installed capacity of 1,230MW. The project also includes construction of ancillary infrastructure including an on-site accommodation compound, crane hardstand areas, turbine laydown areas, concrete batching plants and internal access tracks.

The Project Area is located approximately 15km south of Hay and is situated on both sides of Cobb Highway. The Project Area is located within the Hay Shire Local Government Area with the land and surrounding area being predominantly agricultural land use. Vehicular access is proposed via seven site access points including five along Cobb Highway and two along West Burrabogie Road.

Traffic generated by the Project can be separated into three distinct stages: construction, operation and decommissioning. The peak traffic generating potential for the Project is during construction which generates traffic associated with the workforce accessing the Project Area and the delivery of raw materials and plant. During operation the Project is expected to generate a lower amount of traffic with up to 40 operational staff accessing the site each day. Decommissioning of the Project is anticipated to generate less traffic than during construction, and for a shorter period of time.

The construction period is expected to commence in Q1 of 2027 and take approximately 40 months, with the peak construction period expected to take 2 years. A construction workforce of up to 700 full-time equivalent personnel would be on-site during the peak construction phase, with 350 to be based at an on-site accommodation compound and the remaining 350 workers to be drawn from the surrounding area including Hay, Deniliquin and Griffith.

It is anticipated that during peak construction the Project could generate up to 350 light and 310 heavy vehicles per day. Construction of the wind farm is expected to generate approximately 206 vehicles per hour in the morning and evening peak hours during the peak construction period, which would reduce to 116 vehicles per hour during the average construction periods.

In order to determine the traffic impacts during construction, an assessment of the operation of the Cobb Highway and West Burrabogie Road intersection was carried out. The assessment also included review of the cumulative traffic on the road network generated by other major projects in the surrounding area. Overall, it is concluded that the road network is able to accommodate the traffic generated by the development during the construction period.

The Port of Adelaide has been identified as the preferred port where all oversize/overmass (OSOM) deliveries will originate including the wind turbines and towers. The access routes taken by the OSOM vehicles to deliver these components to the Project Area has been identified within a Route Assessment prepared by Ares which identifies a number of road upgrades required in order to allow

the transport vehicles to successfully access the site. The Route Assessment is provided within Appendix A of this document.

The Port of Geelong has been identified as the preferred port where the remaining plant will be imported and can be transported in B-Doubles or shorter transport configurations. The access route generally utilises roads that are designated for B-Double vehicles as outlined within the National Heavy Vehicle Regulator (NHVR) Restricted Access Vehicle Map. It is noted that West Burrabogie Road is unrated for 26m B-Doubles and requires approval from Hay Shire Council for these vehicles to utilise the road. It is understood that the Applicant has discussed the Project with Hay Shire Council, with no objections received from Council regarding the use of this road.

Amber has undertaken an assessment of the road network and site access locations which identified that the following road upgrades are required in addition to the upgrades identified along the OSOM route:

- Widen West Burrabogie Road between Cobb Highway and Site Access G to a minimum of 7.0m in order to allow two trucks to pass.
- Provide short Channelised Right Turn (CHR(s)) and Basic Left Turn (BAL) turn treatments at the intersection of Cobb Highway and West Burrabogie Road.
- Provide turn treatments at all site access locations along Cobb Highway as follows:
  - Site Access A: Short Auxiliary Left Turn (AUL(s)) and Basic Right Turn (BAR).
  - Site Access B, C and E: BAL and CHR(s)
  - Site Access D: BAL and BAR.

In order to mitigate the impacts of the Project during construction a Traffic Management Plan would be prepared which outlines a range of traffic management measures in order to ensure the construction traffic would have a minimal impact to the capacity and safety of the surrounding road network.

Based on the assessment, it is concluded that the road network is able to accommodate the expected vehicle types and traffic volumes during the construction, operation, and decommissioning phases of the Project subject to the proposed road upgrades. Further, the site access locations have been suitably designed to allow vehicles to safely enter and exit the site.

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1. Introduction

1.1 Background

Amber Organisation Pty Ltd has been engaged by ENGIE to prepare a Traffic Impact Assessment for The Plains Wind Farm.

The Project will accommodate 171 wind turbines with a maximum installed capacity of 1,230MW. The Project also includes construction of ancillary infrastructure including an on-site accommodation compound, crane hardstand areas, turbine laydown areas, concrete batching plants and internal access tracks.

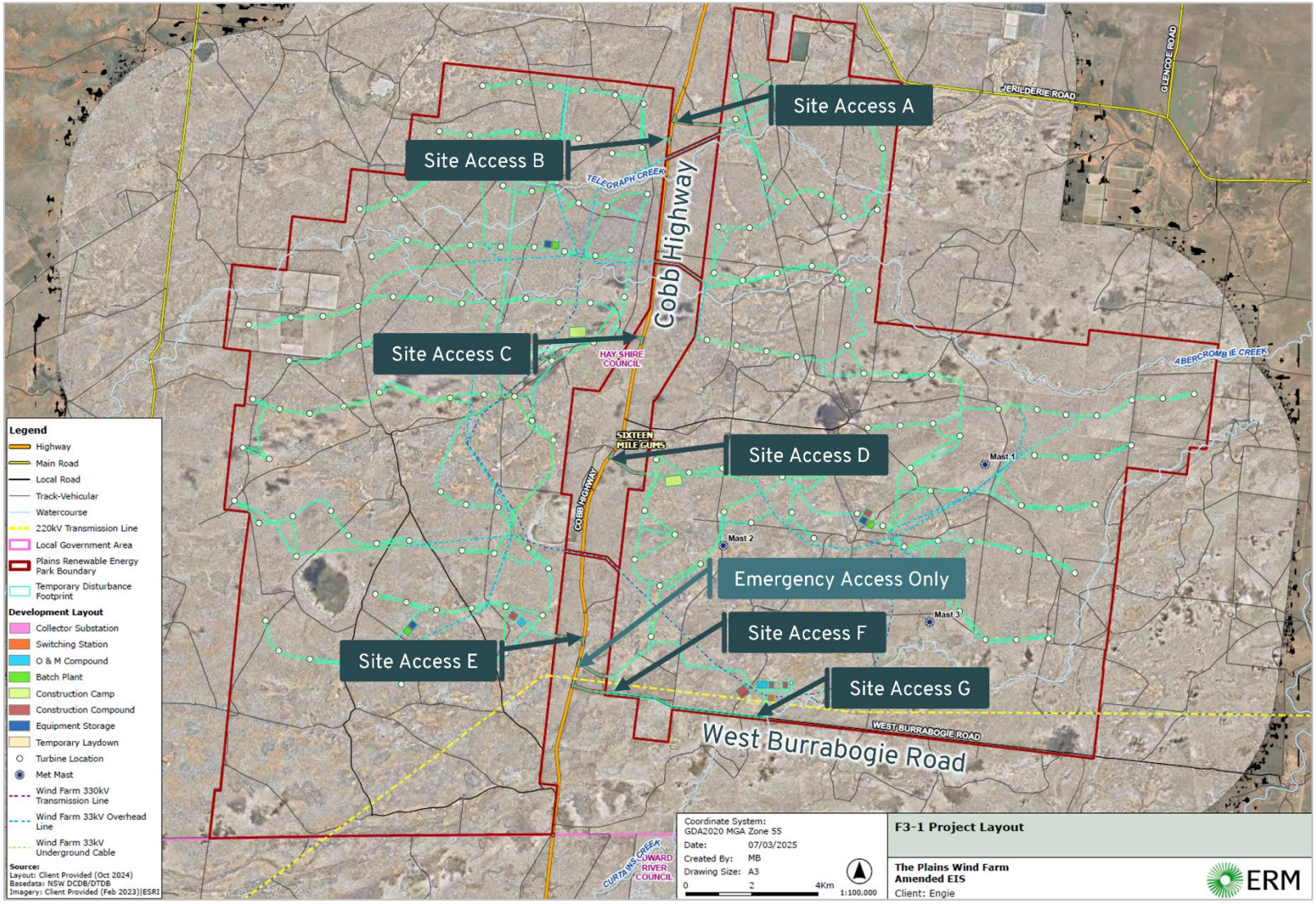
The Project Area is located approximately 15km south of Hay and is split across both sides of Cobb Highway. The Project Area is located within the Hay Shire Local Government Area (LGA) with the land within the Project Area and the surrounding area being predominantly agricultural land use.

Vehicular access is proposed via seven site access points including five along Cobb Highway and two along West Burrabogie Road. The proposed location of the wind turbines and layout of the existing and proposed road network are shown within Figure 1. Site Access G would also provide shared access for the Plains Solar Farm.

The construction period is expected to commence in Q1 of 2027 and take approximately 40 months, with the peak construction period expected to take 2 years. A construction workforce of up to 700 full-time equivalent personnel would be on-site during the peak construction phase, with 350 to be based at an on-site accommodation compound and the remaining 350 workers to be drawn from the surrounding area including Hay, Deniliquin and Griffith.

Plant and equipment associated with the Project (excluding wind turbine components) will be delivered from the Port of Geelong using B-Doubles or shorter transport configurations, while all OSOM vehicles including the transport of wind turbines and towers will be from the Port of Adelaide. Materials and equipment will generally be sourced from within the surrounding area where practicable.

Figure 1: Project Layout



Source: ERM

1.2 Environmental Assessment Requirements

NSW Department of Planning, Housing and Infrastructure issued Secretary's Environmental Assessment Requirements (SEARs) for the Project. The traffic and transport related SEARs are provided within Table 1 along with the relevant response to each matter.

Table 1: SEARs and Relevant Response

SEARs	Response
An assessment of the construction, operational and decommissioning traffic impacts of the development on the local and State road network.	The assessment presented within Section 4 indicates the road network is expected to continue to operate with acceptable conditions during peak construction periods. During operation the Project is expected to generate a lower level of traffic associated with maintenance and operation services. The Project is expected to employ approximately 40 full-time operational staff, which would generate up to 80 vehicles per day. There would also be occasional light commercial vehicles delivering parts to the Project Area as required for maintenance. The additional traffic during the operational phase would be distributed across the seven access locations and can be readily accommodated on the road network given the existing low traffic volumes along Cobb Highway and West Burrabogie Road. Decommissioning of the Project is anticipated to generate less traffic than during construction, and for a shorter period of time. A comprehensive Traffic Management Plan (TMP) would be prepared prior to the decommissioning phase in conjunction with the relevant road authorities to ensure adequate road safety and road network operations are maintained.
Provide details of the peak and average traffic volumes (including light, heavy and over-mass and over-dimensional vehicles / heavy vehicles requiring escort and construction worker transportation) and transport and haulage routes during construction, operation and decommissioning, including traffic associated with sourcing raw materials (water, sand and gravel).	The assessment presented within Section 4 provides details of the expected vehicle types and number of vehicles generated by the project during the peak and average construction periods. It is anticipated that up to 2,502 High Risk OSOM vehicles would access the site during the construction period. The vehicles would be able to be accommodated on the road network subject to the road upgrades identified within the Route Assessment (Appendix A) and the adoption of suitable road management strategies which would be confirmed as part of specific permits that would be applied for prior to construction.

SEARs	Response
An assessment of the potential traffic impacts of the project on road network function including intersection performance, site access arrangements, site access and haulage routes, and road safety, including school bus routes and school zones.	In order to determine the traffic impacts generated during construction, an assessment of the operation of the Cobb Highway and West Burrabogie Road intersection has been carried out and is provided in Section 4.5.1. The assessment found that the intersection would continue to operate with a good level of service. The site access arrangements are assessed within Section 8. It is proposed to provide the required turn treatments at access locations A, B, C, D and E along Cobb Highway in accordance with the Austroads guide. The haulage route for large plant/equipment arriving from the Port of Geelong using B-Doubles or shorter transport configurations is assessed within Section 5. The access route generally utilises roads that are designated for B-Double vehicles as outlined within the NHVR Restricted Access Vehicle Map. A swept path assessment was prepared which demonstrates the vehicles are able to suitably access the site from Cobb Highway and West Burrabogie Road. It is noted that West Burrabogie Road is unrated for 26m B-Doubles and requires approval from Hay Shire Council for these vehicles to utilise the road. It is understood that the Applicant has discussed the Project with Hay Shire Council, with no objections received from Council regarding the use of this road. In order to comply with the relevant guidelines, it is recommended that the road carriageway is widened to a general minimum of 7.0m between Cobb Highway and Site Access G to allow two trucks to pass. The access routes taken by the OSOM vehicles to deliver the wind turbine and tower components to the Project Area have been identified within a Route Assessment prepared by Ares which identifies a number of road upgrades are required in order to allow the transport vehicles to successfully access the site. The Route Assessment is provided within Appendix A of this document and is discussed within Section 6. A review of the existing road safety data and casualty crash history is provided within Section 2.7 which indicates that the road network is operating in a relatively safe manner. A TMP is to be developed prior to construction of the Project which should include the recommendations provided within this document. The adoption of the mitigation measures outlined within the TMP would ensure construction traffic has a minimal impact to the capacity and safety of the surrounding road network. Heavy vehicles should avoid travel during peak school bus times to limit the interaction of larger vehicles and vulnerable road users.
An assessment of the capacity of the existing road network to accommodate the type and volume of traffic generated by the project (including over-mass / over-dimensional traffic haulage routes from port) during construction, operation and decommissioning.	The assessment presented throughout this report indicates that the existing road network is able to accommodate the expected vehicle types and traffic volumes during the construction, operation, and decommissioning phases of the Project subject to the proposed road upgrades. Further, the site access locations have been suitably designed to allow vehicles to safely enter and exit the site.

SEARs	Response
An assessment of the likely transport impacts to the site access and haulage routes, site access point, any rail safety issues, any Crown Land (including existing Travelling Stock Route network) particularly in relation to the capacity and conditions of the roads and use of rail level crossings (and rail safety assessment if required) and impacts to rail underbridges and overbridges.	The haulage route for large plant/equipment arriving from the Port of Geelong using B-Doubles or shorter transport configurations is assessed within Section 5. The access routes taken by the OSOM vehicles to deliver the wind turbine and tower components to the Project Area have been identified within a Route Assessment prepared by Ares which identifies a number of road upgrades are required in order to allow the transport vehicles to successfully access the site. The Route Assessment is provided within Appendix A of this document and is discussed within Section 6. The internal access roads within the Project Area would provide a trafficable width of 6.0m with localised widening on curves which is sufficient to safely allow two trucks to pass. Accordingly, the roads along the access routes are able to accommodate the loads and vehicular traffic which would be generated during construction of the wind farm.
A cumulative impact assessment of traffic from nearby developments.	The assessment presented within Section 4.4 provides a review of the cumulative impacts of the Project along with other major Projects within the surrounding area. The assessment indicates that several projects are expected to generate additional traffic within the towns of Hay and Deniliquin which would be distributed on the surrounding road network and is expected to have a minimal cumulative impact on the operation of the road network. Pottinger Wind Farm and Bullawah Wind Farm were granted access rights in April 2025 for a maximum capacity of 831.2 MW and 262.3 MW, respectively. Construction of these projects is likely to commence much sooner than The Plains Wind Farm, however there is potential for some overlap in construction activities. An assessment of the potential cumulative traffic impacts has been carried out for both projects which conservatively assumes the peak construction periods would overlap with The Plains Wind Farm. The assessment indicates that the road network is able to accommodate the project traffic during the peak construction period, including the cumulative traffic generated by other major projects within the surrounding area. It is recommended that any oversize/overmass vehicle trips are coordinated to reduce the impact to the road network, which can be undertaken as part of the permit application process.
Provide details of measures to mitigate and / or manage potential impacts including a schedule of all required road upgrades (including resulting from over mass / over dimensional traffic haulage routes), road maintenance contributions, and any other traffic control measures, developed in consultation with the relevant road and / or rail authority.	A TMP is to be developed prior to construction of the Project which should include the recommendations provided within this document. The adoption of the mitigation measures outlined within the TMP would ensure construction traffic has a minimal impact to the capacity and safety of the surrounding road network.

1.3 Purpose of Document

This Traffic Impact Assessment has been prepared to assess the construction, operational, and decommissioning traffic impacts, and the access arrangements of the Project. The assessment responds to the SEARs and details how road impacts of the Project traffic, particularly from heavy vehicle use and OSOM vehicles, will be avoided or managed using road-use management strategies.

More specifically, the report addresses the following key matters:

- Details of both light and heavy vehicle traffic volumes and proposed transport routes during construction, operation, and decommissioning;
- An assessment of the potential traffic impacts of the Project on road network function and safety;
- An assessment of the capacity of the existing road network to accommodate the type and volume of traffic generated by the Project, including OSOM vehicles;
- Details of measures to mitigate and/or manage potential impacts, including construction traffic control, road dilapidation surveys and measures to control dust generated by traffic volumes; and
- Details of access roads and how these connect to the existing road network and ongoing operational maintenance.

A detailed Route Assessment for the transportation of the OSOM turbine and tower components from the Port of Adelaide has been provided in Appendix A which has been completed by Ares (Ares Report).

The traffic assessment has been undertaken in accordance with the *RTA Guide to Traffic Generating Developments* and relevant Austroads Guidelines. It has also been undertaken in consultation with Transport for New South Wales and the relevant Councils.

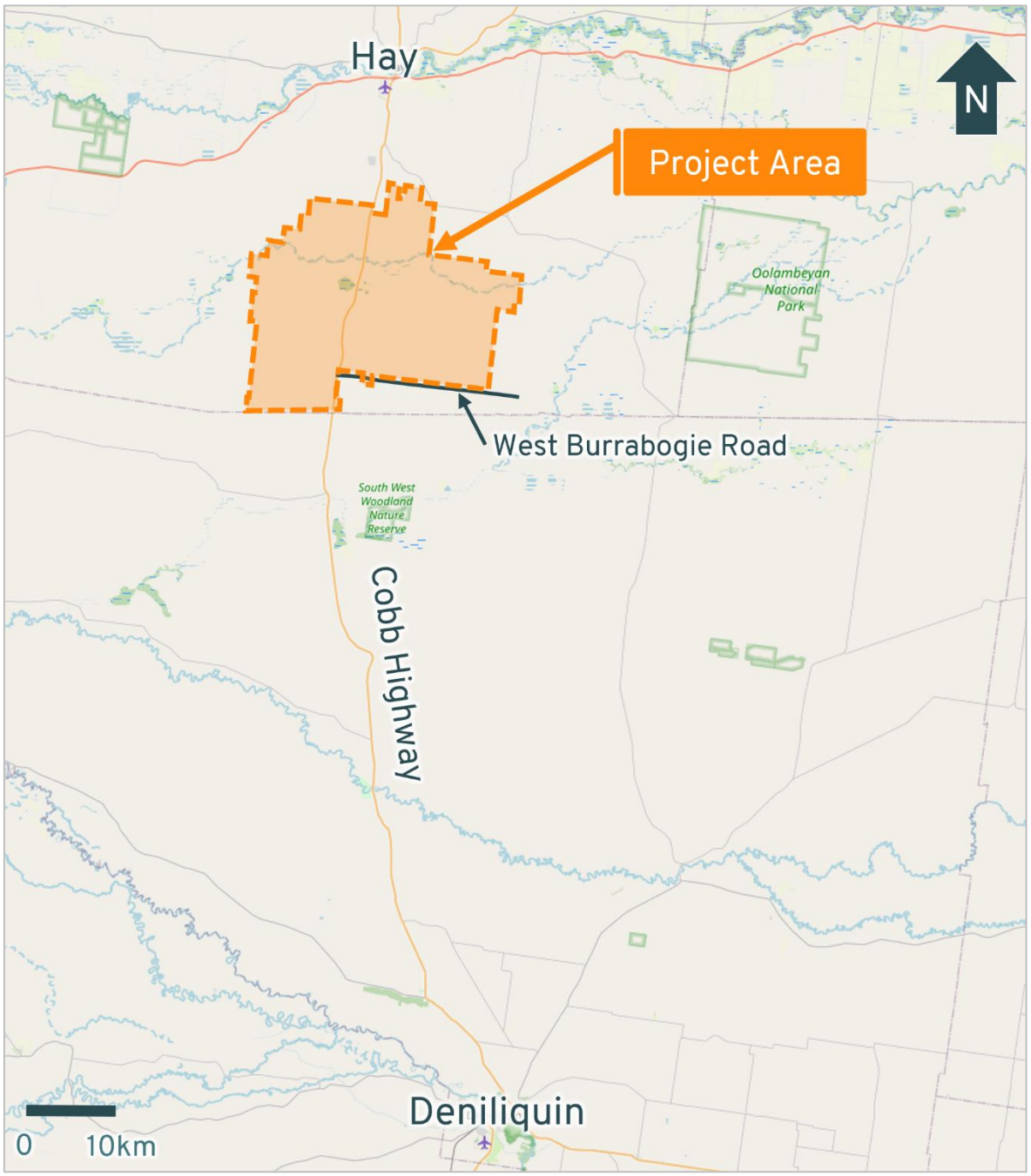
2. Transport Environment

2.1 Site Location

The Project Area is located approximately 15km south of Hay within the South West Renewable Energy Zone (SW REZ) of New South Wales. The Project Area is situated across both sides of Cobb Highway and on the northern side of West Burrabogie Road.

Figure 2 shows the location of the Project Area in relation to the surrounding transport network.

Figure 2: Site Location



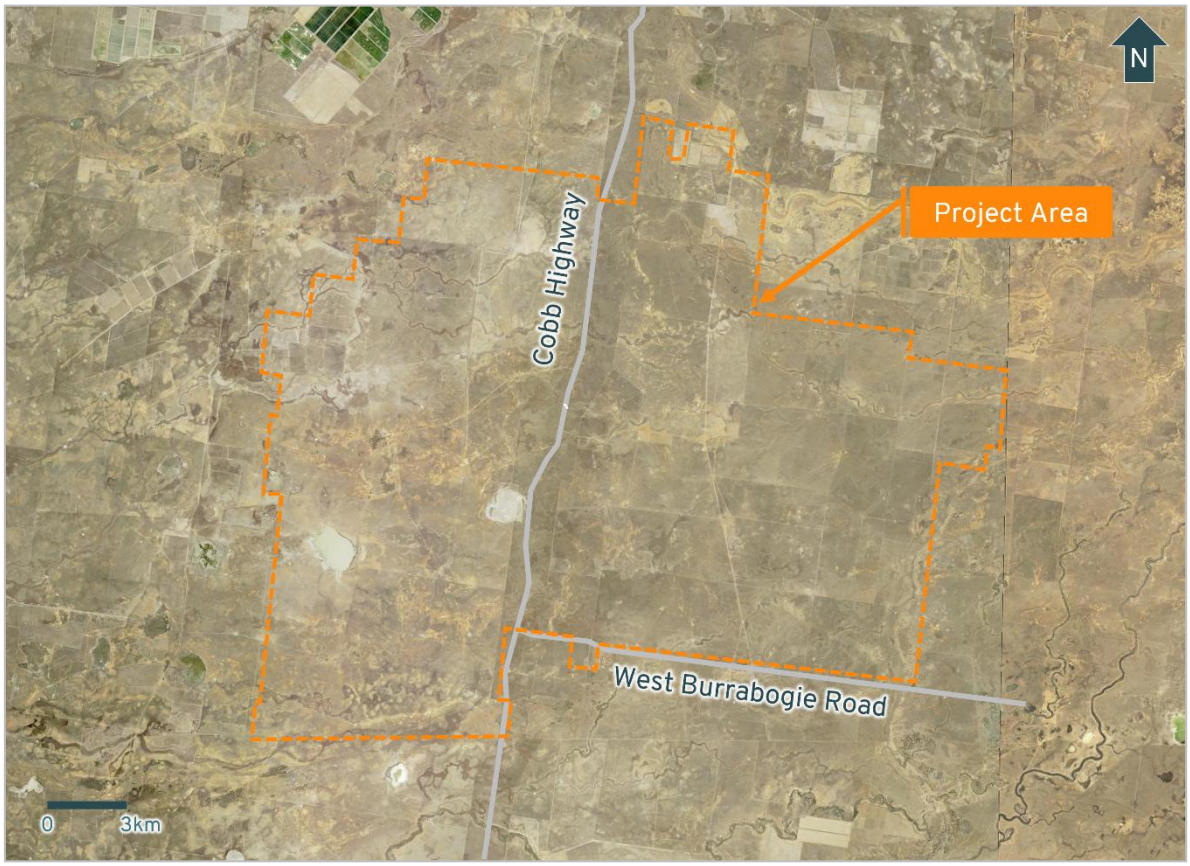
Source: OpenStreetMap

The figure shows the Project Area is connected with the surrounding State Road network through Cobb Highway which provides access to the townships of Hay to the north and Deniliquin to the southeast.

The project area and surrounding land are zoned RU1 - Primary Production and are primarily occupied by agricultural land and saltbush plant communities. The project area is currently used for agricultural purposes and has access to the road network via a network of internal tracks which connect with Cobb Highway and West Burrabogie Road.

Figure 3 provides an aerial photograph of the site and the surrounding area. The figure shows the site and surrounding area is occupied by agricultural land use.

Figure 3: Aerial Photograph of Site and Surrounding Area



Source: SixMaps

2.2 Road Network

Vehicles accessing the Project Area will utilise Cobb Highway and West Burrabogie Road to access the various site entrances. The following provides a description of the state and local road network.

2.2.1 State Road Network

State Roads are the major arterial links throughout NSW and within major urban areas. They are the principal traffic carrying and linking routes for the movement of people and goods within the Sydney, Newcastle, Wollongong and Central Coast urban areas and which connect between these urban centres, the major regional towns, the major regions of the State and the major connections

interstate. Transport for New South Wales (TfNSW) takes responsibility for managing the primary traffic function of State Roads including funding and determining priorities and regulates the activities of third parties on the road and access to adjoining land to promote road safety, traffic efficiency and protect the road asset.

Cobb Highway is a State Road under the care and management of TfNSW. It runs in a general north-south alignment between Barrier Highway in Wilcannia and Warren Street in Echuca. Within the vicinity of the site, it has a carriageway width of approximately 7.0m accommodating one lane of traffic in each direction and narrow sealed shoulders, and has a speed limit of 110 km/h. Photographs of the typical road environment along the road are provided in Photograph 1.

Photograph 1: Cobb Highway

Facing North	Facing South
	

2.2.2 Local Road Network

West Burrabogie Road is a municipal local road that extends east from Cobb Highway to its termination near Nyangay Creek. It has an unsealed carriageway with a typical useable width ranging between 4.0m and 9.0m which operates as a two-way road. The road is subject to the default rural speed limit of 100 km/h. Photographs of the typical road environment along the road are provided in Photograph 2.

Photograph 2: West Burrabogie Road

Facing East	Facing West
	

2.2.3 Key Intersections

The intersection of Cobb Highway and West Burrabogie Road is priority controlled with vehicles exiting West Burrabogie Road required to give way. No turn treatments are currently provided at the intersection.

2.3 Road Upgrades and Events

Hay Shire Council have advised that no road upgrades are currently proposed along West Burrabogie Road.

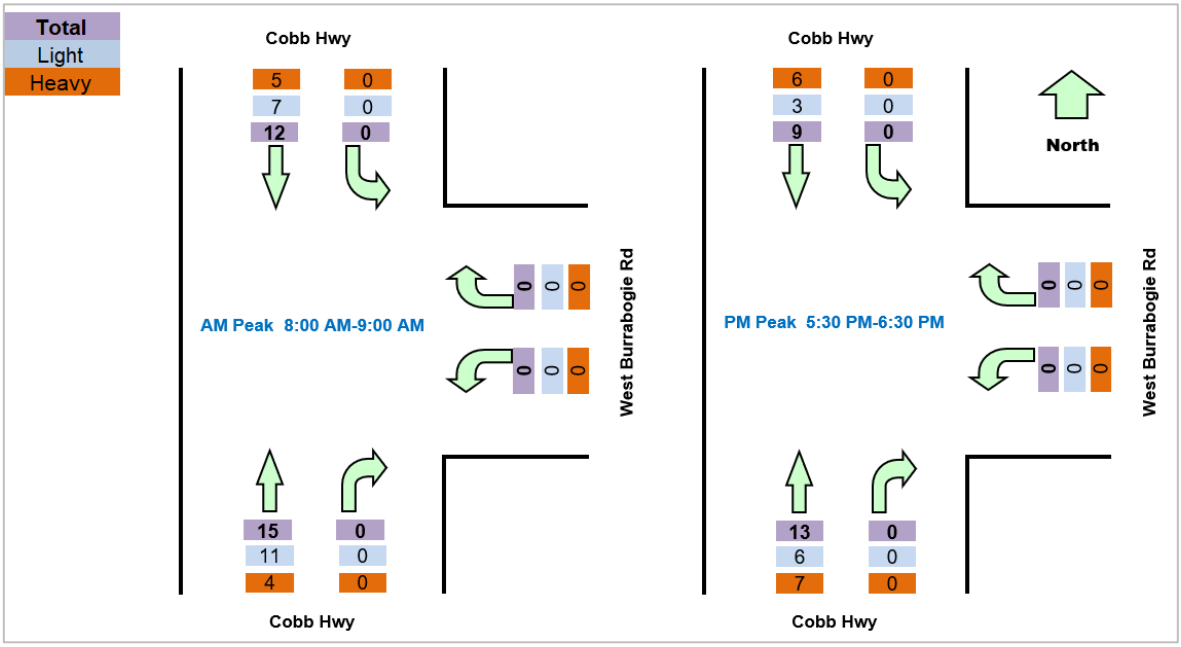
TfNSW has provided initial comments on the Project following their review of the Ares Route Assessment (Appendix A) and noted there are no current or long-term works that are likely to coincide with the Project delivery timeframes.

2.4 Traffic Volumes

2.4.1 Intersection Volumes

Amber commissioned a turning movement count survey at the intersection of Cobb Highway and West Burrabogie Road in order to determine the existing traffic conditions at the intersection. The survey was undertaken on Tuesday 14 November 2023 from 6:00am-9:00am and 4:30pm-6:30pm. A summary of the results is presented below with the full survey data provided within Appendix B.

Figure 4: Turning Movement Count Peak Hour Survey Results – Cobb Highway / West Burrabogie Road



The survey results indicate the intersection currently carries a very low level of traffic in the order of 27 and 22 vehicles in the morning and evening peak hour, respectively. The morning peak hour was recorded from 8:00am to 9:00am and the evening peak hour was recorded from 5:30pm to 6:30pm.

The majority of vehicle movements during the morning and evening peak periods consist of northbound through traffic along Cobb Highway. No vehicles were recorded turning in or out of West Burrabogie Road during the peak periods. Overall, the results indicate both roads accommodate a very low level of traffic and are able to accommodate an increase in traffic.

2.4.2 State and Regional Road Network

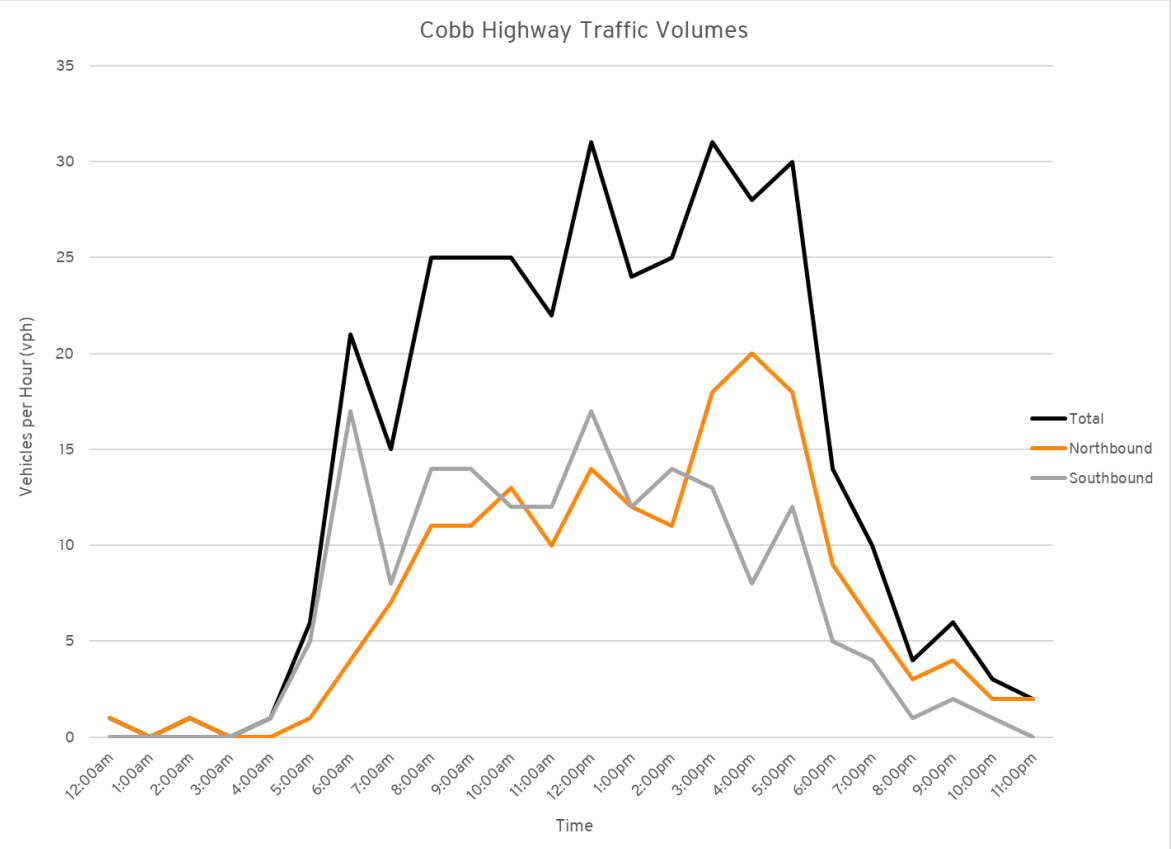
Amber commissioned a tube count on Cobb Highway north of West Burrabogie Road in order to determine the existing road environment. The tube count was undertaken from Monday 13 November to Sunday 19 November 2023. The survey results are provided in Appendix C with a summary presented in Table 2.

Table 2: Cobb Highway Traffic Volumes – North of West Burrabogie Road

	Weekday Traffic (vpd)	Weekday AM Peak - 9:00 (vph)	Weekday PM Peak - 12:00 (vph)	85th Percentile Speed	Heavy Vehicle Percentage
Northbound	199	13	16	108.5 km/h	36%
Southbound	193	17	18	107.5 km/h	
Both Directions	392	30	34	107.5 km/h	

The hourly traffic volumes for Cobb Highway have been separated into northbound and southbound traffic and are shown in Figure 5.

Figure 5: Cobb Highway Weekday Traffic Volume Data



The survey data indicates Cobb Highway currently experiences most traffic between the hours of 6:00am and 6:00pm. The data also indicates the road experiences a relatively even distribution of traffic across the day in both directions. Overall, the survey results indicate Cobb Highway currently accommodates a low level of traffic for its road classification.

2.4.3 Local Road Network

Amber commissioned a tube count on West Burrabogie Road near Cobb Highway in order to determine the existing road environment. The tube count was undertaken from Monday 13 November to Sunday 19 November 2023. The survey results are presented in Appendix D with a summary provided in Table 3.

Table 3: West Burrabogie Road Traffic Volumes

	Weekday Traffic (vpd)	Weekday AM 6:00 (vph)	Weekday PM 17:00 (vph)	85th Percentile Speed	Heavy Vehicle Percentage
Westbound	7	1	1	53.1 km/h	16%
Eastbound	5	2	1	42.4 km/h	
Both Directions	12	3	2	47.8 km/h	

The traffic volume data suggests that West Burrabogie Road currently carries a very low level of traffic, which is not surprising given the limited number of properties it services. Overall, the traffic volumes are well within the operating capacity of the local road network which can accommodate an increase in traffic.

2.5 Public Transport Services

No public transport services are provided within the vicinity of the site.

Dyson Group operate the school bus services in the surrounding area. The company has advised that there are no bus stops within the vicinity of the site including along Jerilderie Road. They noted that the school bus travels along Cobb Highway and passes West Burrabogie Road at the following times:

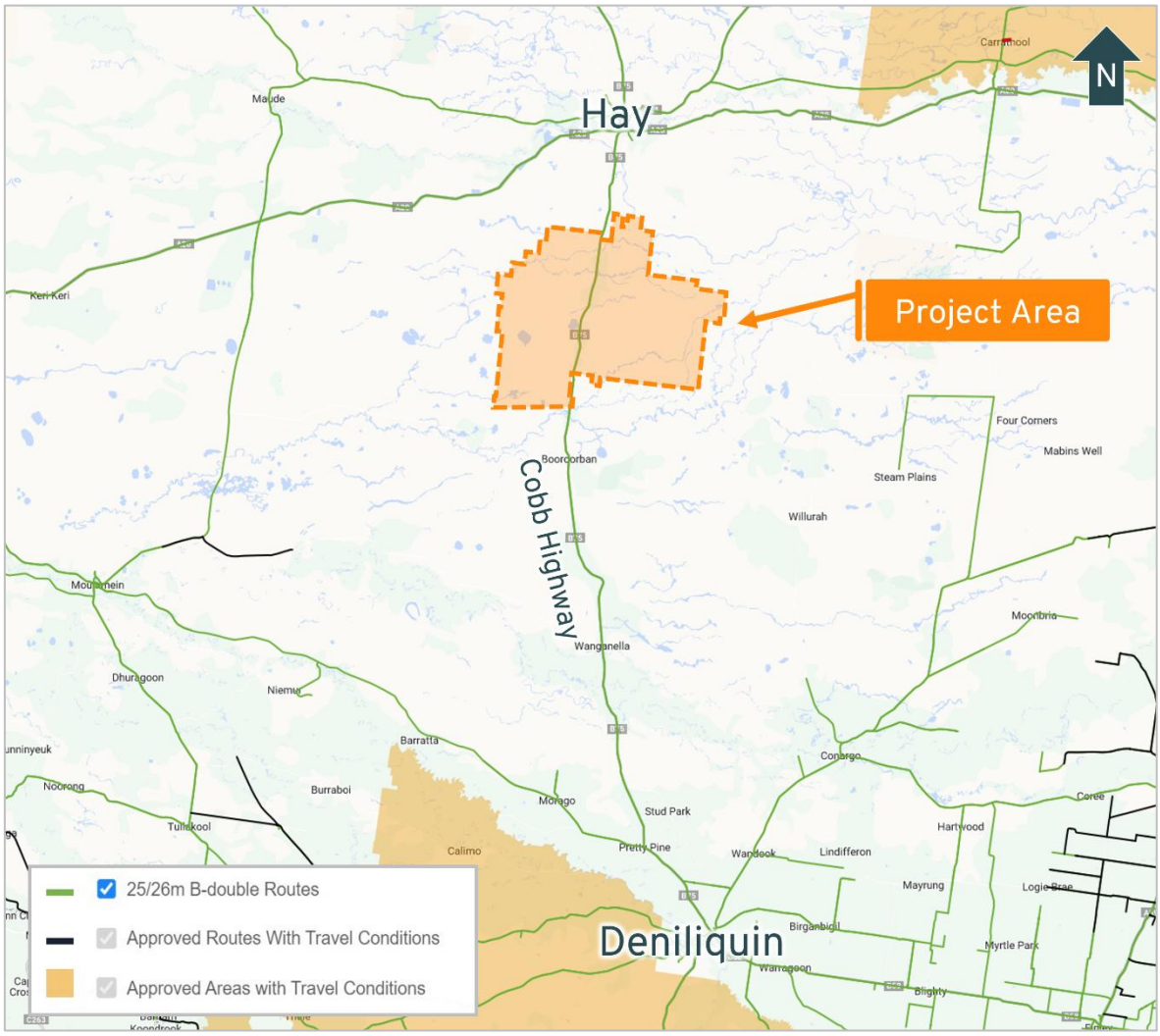
- AM - 7:35am travelling to Booroorban and 8:35am travelling to Hay.
- PM - 3:45pm travelling to Booroorban and 4:20pm travelling to Hay.

2.6 Restricted Vehicle Access

2.6.1 B-Doubles

The National Heavy Vehicle Regulator (NHVR) Restricted Vehicle Access Map for the surrounding area is provided within Figure 6. The green lines on the figure indicate approved B-Double routes while the black lines represent approved routes with travel conditions. The figure shows that Cobb Highway and the surrounding State road network are approved for 26m B-Doubles. Accordingly, the Project Area has access to the B-Double approved road network via Cobb Highway with West Burrabogie Road being unrated.

Figure 6: NHVR Restricted Access Vehicle Map



Source: TfNSW Restricted Vehicle Access Map

2.6.2 Class 1 OSOM Vehicles

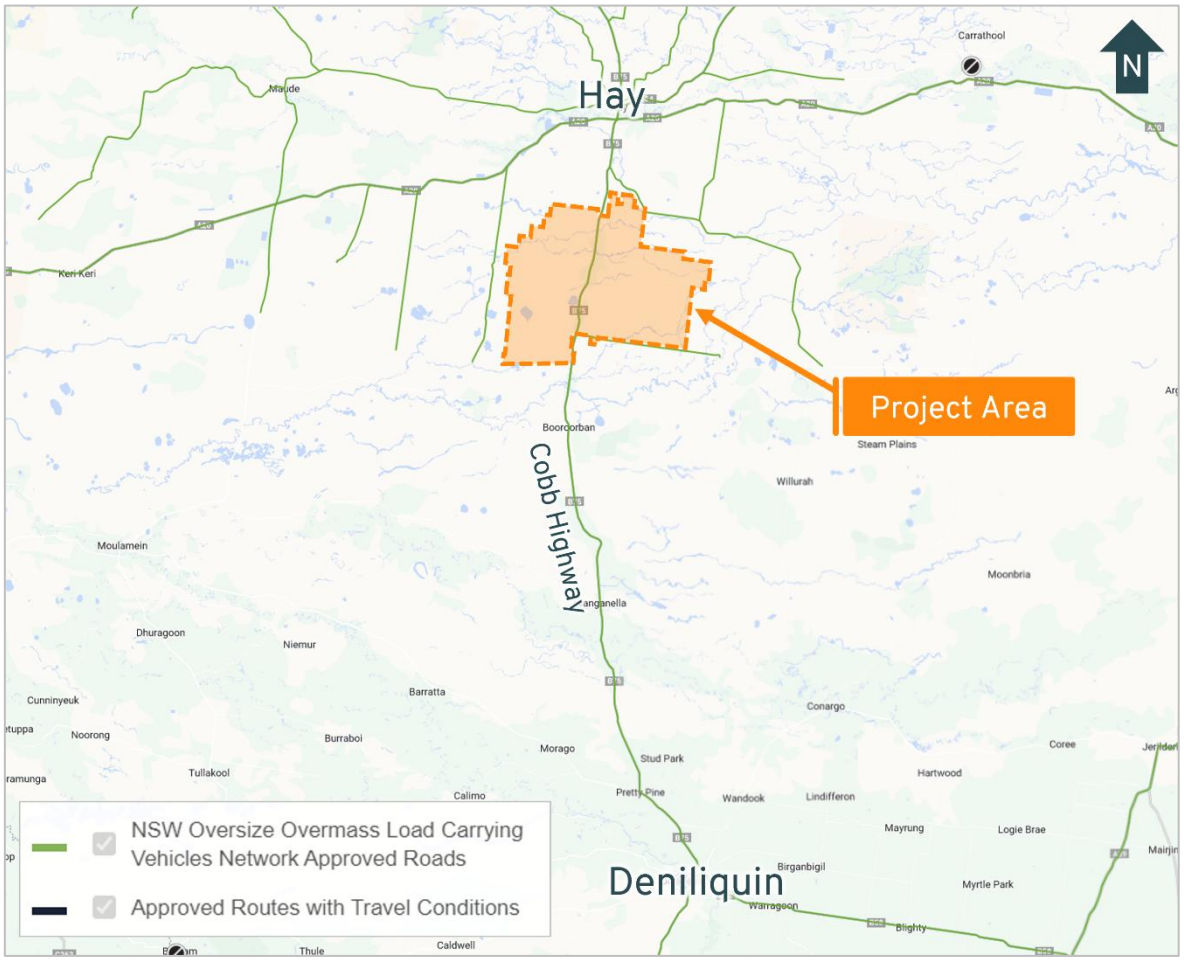
The NHVR OSOM Load Carrying Vehicles Network map for the surrounding area is provided within Figure 7. The map shows approved routes for eligible vehicles operating under the Multi-State Class 1 Load Carrying Vehicles Mass and Mass Exemption Notices. Within New South Wales, a summary of allowances under each exemption notice are as follows:

- Dimension: up to 5.0m wide, 5.0m high, 30.0m long and 7.5m rear overhang on approved (state owned) routes in NSW.
- Mass: up to 115.0 tonnes for rows of 8 tyres low loaders and up to 77.5 tonnes for rows of 4 tyres low loader combinations.

Vehicles operating in the daytime and not exceeding 3.5m wide or 26m long generally do not require a pilot vehicle.

The green lines on Figure 7 indicate approved Class 1 OSOM Vehicle routes. Accordingly, the Project Area has convenient access to the Class 1 OSOM approved road network via Cobb Highway, West Burrabogie Road and the surrounding State Road network.

Figure 7: NHVR Class 1 OSOM Load Carrying Vehicles Network Approved Roads



Source: TfNSW Restricted Vehicle Access Map

2.6.3 Special Purpose Vehicles

Vehicles built for a purpose other than carrying goods such as a mobile crane, a concrete pump or drill rig are defined as Special Purpose Vehicles (SPVs).

The NHVR SPV Network map provides details of the approved roads as well as conditions of access and travel restrictions for eligible SPVs operating under the:

- National Class 1 SPV Notice;
- NSW Class 1 4-Axle & 5-Axle All Terrain Mobile Crane Mass and Dimension Exemption Notice; or
- NSW Class 1 All Terrain Mobile Crane and Dolly Combination Mass and Dimension Exemption Notice.

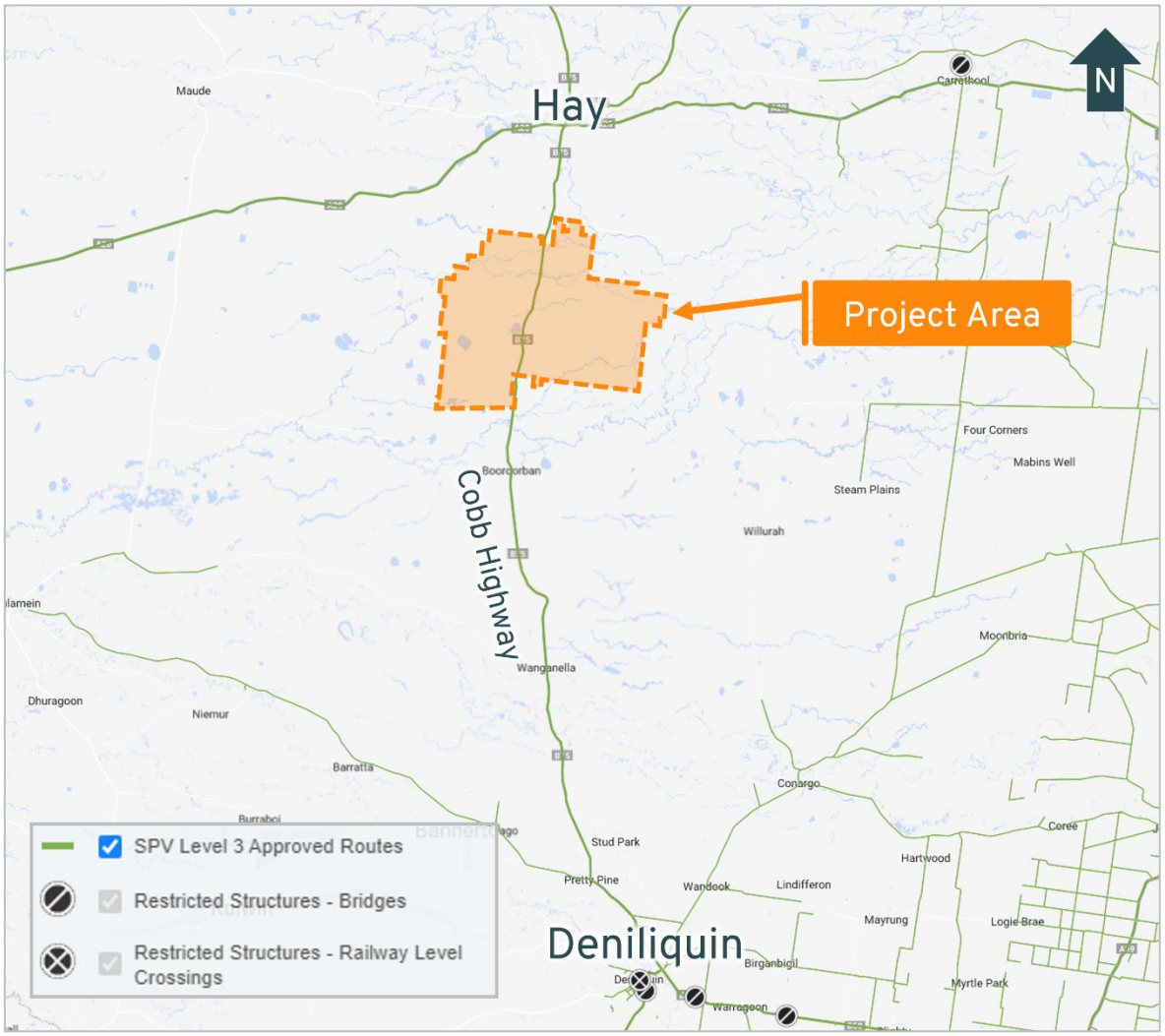
Roads that are not approved on the map require an access permit from NHVR or the relevant road manager. There are six SPV access networks for cranes travelling on approved State Roads in NSW:

- SPV Level 1: Cranes and SPVs up to 40 tonnes that comply with the Bridge Formula.

- SPV Level 2: Crane and dolly combinations up to 70 tonnes that comply with the Bridge Formula.
- SPV Level 3: 3-axle All Terrain Cranes up to 36 tonnes and 4-axle All Terrain Cranes up to 43 tonnes.
- SPV Level 4: 4-axle All Terrain Cranes up to 45.8 tonnes and 5-axle All Terrain Cranes up to 50 tonnes.
- SPV Level 4 / 12t per axle: 4-axle All Terrain Cranes up to 48 tonnes and 5-axle All Terrain Cranes up to 50 tonnes.
- SPV Level 6: 5-axle All Terrain Cranes up to 60 tonnes.

The approved routes for SPV Level 3 vehicles travelling within the surrounding area are identified within Figure 8. The figure shows that Cobb Highway and the surrounding State Road network are approved for SPV Level 3 vehicles with West Burrabogie Road being unrated. It is noted that for SPV vehicles classified a higher level (4 or above), the approved routes to the Project Area are limited due to restricted structures (bridges).

Figure 8: NHVR SPV Level 3 Network Approved Roads



Source: TfNSW Restricted Vehicle Access Map

2.7 Crash History

Amber has conducted a review of the TfNSW Centre for Road Safety Crash and Casualty Statistics database for all injury crashes within the surrounding area of the Project. The crash database provides the location and severity of all injury and fatal crashes for the five-year period from 2019 to 2023. The search area included the following roads:

- Cobb Highway between the townships of Hay and Deniliquin;
- The entire length of West Burrabogie Road; and
- All associated intersections.

The results of the crash search are summarised in Table 4.

Table 4: Crash Summary

Road	Location	Severity	Crash Type	Date and Time	Conditions
Cobb Hwy	1000m North of Hattwell Rd	Moderate Injury	Out of control on road	February 2023 (20:00 - 21:59)	Darkness (Fine)
Sturt Hwy	Intersection with Cobb Hwy	Moderate Injury	Off road to the right on right bend, hitting object	January 2020 (10:00 - 11:59)	Daylight (Raining)
Cobb Hwy	50m South of Warwillah Rd	Moderate Injury	Out of control on road	May 2022 (12:00 - 13:59)	Daylight (Fine)
Cobb Hwy	3750m North of Wandook Rd	Moderate Injury	Off road to the left on right bend	December 2020 (12:00 - 13:59)	Daylight (Fine)
Cobb Hwy	3000m North of Monimail Rd	Moderate Injury	Off road to the left on left bend	March 2022 (16:00 - 17:59)	Daylight (Fine)
Cobb Hwy	10000m West of Deniliquin Tn	Moderate Injury	Rear end (vehicles in same lane)	December 2023 (08:00 - 09:59)	Daylight (Fine)

It is noted that there no injury crashes were recorded at the intersection of Cobb Highway with West Burrabogie Road. Similarly, no crashes were recorded on the local road network.

The crash search indicates that the crashes are widely distributed along Cobb Highway with no 'Black Spots'. Given the large search area, the associated traffic volumes on the roads, the road classifications, and the rural high-speed nature of the roads within the search area, it is concluded that the road network is currently operating in a relatively safe manner.

3. Project Description

3.1 Proposed Works

The Project will involve the construction, operation and decommissioning of a wind farm and associated infrastructure within the Project Area as shown in Figure 1 and generally includes the following.

- **Wind Turbine Generators:**
  - The Project will accommodate up to 171 wind turbines with a maximum installed capacity of 1,230MW (based on 7.2MW turbine generator size currently available).
  - Maximum tip height of 270m and at least 6MW generating capacity.
  - Crane hardstand areas, turbine laydown areas, concrete batching plants, internal access tracks, site entrance points off Cobb Highway and West Burrabogie Road.
- **Ancillary Infrastructure:**
  - Internal project access roads to connect wind turbine generators and ancillary project infrastructure.
  - Collector groups connected with predominately 33kV underground cabling and occasionally overhead lines.
  - Up to 10 Permanent Meteorological Masts.
  - Accommodation compound on-site as well as accommodation housing for workers in Hay.
  - The Plains Wind Farm will share the main substation, switchyard, operations and maintenance building and BESS identified in The Plains Solar Farm.
  - 330kV high-voltage overhead lines connecting collector groups of turbines to the main substations, and a switchyard for connection to Project EnergyConnect (PEC) or the existing 220 kV transmission network.
  - Operations and maintenance building.
  - Main substations, including transformers, voltage controls, storage units and potentially power quality control equipment.
  - Two collector substations, with overhead 330kV lines running back to main substation.
  - Seven access points - five along Cobb Highway and two along West Burrabogie Road.

3.2 Construction Information

The construction period is expected to commence in Q1 of 2027 and take approximately 40 months, with the peak construction period expected to take 2 years. The proposed working hours are as follows:

- Monday to Friday: 7am – 6pm
- Saturday: 8am – 1pm
- No work on Sundays or public holidays.

Any construction outside of these normal working hours would only be undertaken with prior approval from relevant authorities and consultation with impacted road users.

A construction workforce of up to 700 FTE personnel would be on-site during the peak construction phase, with 350 to be based at an on-site accommodation compound and the remaining 350 workers to be drawn from the towns of Hay, Deniliquin and Griffith.

All equipment that can be transported in B-Doubles or shorter transport configurations is expected to be delivered from Port of Geelong, while all OSOM vehicles including the transport of wind turbines and towers will be from the Port of Adelaide. Materials including gravel and reinforcing steel, and equipment such as cranes, excavators, and trench diggers, as well as water required during construction would be sourced from within the surrounding area where practicable. Construction also includes fixed or mobile concrete batching plant(s), and office buildings and substations for the construction and operational phases (e.g. maintenance) of the Project.

4. Traffic Assessment

Traffic generated by the Project can be separated into three distinct stages: construction, operation and decommissioning. The peak traffic generating potential for the wind farm is during construction which generates traffic associated with workers accessing the Project Area and the delivery of raw materials and plant. During operation the Project is expected to generate a lower amount of traffic with up to 40 operational staff accessing the site each day. Decommissioning of the Project is anticipated to generate less traffic than during construction, and for a shorter period of time. The number of OSOM vehicles is also able to be reduced during decommissioning by cutting the larger plant and turbine components into smaller sections prior to transport.

The following provides an assessment of the potential traffic impacts of the Project on the road network function for each of the three stages.

4.1 Definitions

The following terminology is referenced throughout this section and within the remainder of the report.

Table 5: Traffic Assessment Definitions

Terminology	Definition
Volume	The number of vehicles travelling in one direction past a given point in the road. In traffic flow analysis, a volume usually relates to only one direction of flow. For the purposes of this assessment a vehicle would be included when travelling towards the Project Area and again when departing.
Vehicles per Day (vpd)	The volume of traffic occurring within a 24-hour period. For traffic volumes associated with the Project, this value is generally an even number to reflect the arrival and departure of each vehicle.
Vehicles per Hour (vph)	The volume of traffic occurring within a one hour period.
Heavy Vehicle	A vehicle with a Gross Vehicle Mass or Aggregate Trailer Mass of more than 4.5 tonnes as defined in the Heavy Vehicle National Law.

4.2 Traffic Generation

4.2.1 Construction Traffic

4.2.1.1 Regular Construction Traffic (Light and Heavy Vehicles)

Construction traffic generated by the Project on a day-to-day basis can be broadly separated into the following categories as outlined in Table 6.

Table 6: Regular Construction Traffic

Construction Vehicle	Traffic Generation Summary
Light Vehicles	The use of light vehicles will be associated with transporting the workforce to/from the Project. A vehicle occupancy of 2 people per car has been adopted to calculate the light vehicle traffic generation noting that a carpooling program would be implemented for the workforce as outlined within the recommendations for the TMP in Section 9.
Heavy Vehicles	
Rigid Trucks	Rigid Trucks will be used to deliver raw materials and smaller plant and have a typical length between 8m and 13m. These vehicles will also be used for water carting as well as sewage disposal for the accommodation compound.
Truck and Dog	Truck and Dog vehicles consist of a rigid truck towing either a dog trailer or a pig trailer and are not more than 19m in length. A dog trailer is a trailer with axles at either end of the trailer, a pig trailer has the axles centred on the trailer. These vehicles will be utilised to transport the majority of materials to/from the site.
Semitrailers	Semitrailers will be used to transport larger plant and consist of a truck and a single trailer with a total length of 19m.
B-Doubles	B-Doubles will also be used to transport larger plant. B-Doubles consist of a truck with two trailers and have a maximum length of 26m.

The construction traffic volumes for the Project have been provided by the Applicant in Appendix E. It is anticipated that during peak construction the Project would generate up to 350 light vehicles and 310 heavy vehicles per day (two-way totals).

The peak hour for construction traffic will occur at the start and end of the day when workers are transported to/from the Project Area. Most workers will typically arrive on-site between 6:00am and 7:00am and depart between 5:00pm and 7:00pm. Workers generally have staggered finish times which results in the evening peak hour being less pronounced, however for the purposes of this assessment it is conservatively assumed that the evening peak hour volumes are the same as the morning peak and the evening peak hour coincides with the peak hour on the road network (5:30pm to 6:30pm).

Table 7 summarises the forecast traffic volumes expected to be generated during the construction period of the Project.

Table 7: Traffic Generation During Construction Period

Vehicle Type		Average Construction Periods		Peak Construction Period	
		Vehicles per Day (vpd)	Peak Hour Volume (vph)	Vehicles per Day (vpd)	Peak Hour Volume (vph)
Light Vehicles		200	100	350	175
Heavy Vehicles	Rigid Trucks	36	4	76	7
	Truck and Dog	112	11	224	22
	Semitrailers and B-Doubles	8	1	14	1
	Subtotal	*156*	*16*	*314*	*30*
Total		**356**	**116**	**664**	**206**

Overall, the Project is expected to generate approximately 206 vehicles per hour in the morning and evening peak hours during the peak construction period, which would reduce to 116 vehicles per hour during the average construction periods.

4.2.1.2 OSOM vehicles

OSOM vehicles will also be required for the delivery of large plant and equipment as follows:

- OSOM vehicles which exceed the Class 1 mass and/or dimension requirements and are subject to separate permit applications and regulations. This includes vehicles associated with the delivery of the turbine components and substation transformers; and
- Class 1 OSOM vehicles which can operate on the approved network outlined in Section 2.6.2 subject to travel conditions.

Vehicles built for a purpose other than carrying goods such as a mobile crane, a concrete pump or drill rig are defined as SPVs and may also be classified as OSOM vehicles.

OSOM vehicles will contribute the smallest percentage of traffic during the construction period and are subject to separate permit applications and regulations. The movement and impact of these vehicles, and the subsequent road upgrades required, are discussed within Section 6. The following assessment focuses on the impacts of the regular light and heavy vehicles outlined in Section 4.2.1.1 which generate the bulk of the traffic and represent the typical traffic impact of the project on a day-to-day basis.

4.2.1.3 Transmission Lines

The project scope includes construction of overhead electricity transmission lines which would cross above Cobb Highway, as indicated in the site layout plan (Figure 1). The traffic volumes associated with the construction of the transmission lines are included within the overall project traffic volumes outlined in Table 7.

The Applicant has advised that all the clearance heights of all overhead lines crossing over the road will meet minimum statutory requirements for the voltage as a minimum, in accordance with AS7000. Under boring of electrical infrastructure beneath the road surface is not currently proposed.

The final method of construction will be dependent on final design and site constraints. Once final design is completed, a full construction methodology would be supplied for approval which outlines any traffic management impacts including temporary stoppages, closures and delays. The Applicant has advised that intermittent closures of Cobb Highway for works will not exceed ten (10) minute delays, with stoppages occurring outside of peak hours and not exceeding 5 minutes for up to 6 times per day only. These constraints can be achieved through the use of common construction methods including but not limited to hurdles or scaffolding systems. A brief description of each methodology is provided below:

- Hurdles – Hurdles create a physical barrier over an undercrossing to protect and separate any aerial works from the crossing. Hurdles consist of building pole structures either side of the road with a cross beam. These poles can be directly buried or stood on above-ground anchor systems and guyed as required depending on requirements and site constraints. Hurdles can typically be erected within the road shoulder or utilising a single lane closure for each side of the road crossing.

- Scaffolding – Similar to hurdles, scaffolding creates a physical barrier over an undercrossing to protect and separate any aerial works from the crossing. Scaffolding consists of building temporary scaffold structures either side of an undercrossing and bracing/guying as required. Scaffolding can typically be erected within the road shoulder or utilising a single lane closure for each side of the road crossing.

Both construction methodologies will ensure temporary traffic management impacts are minimised along Cobb Highway. Speed restrictions will be in place throughout works and stoppages will be limited to installing draw ropes over the hurdle/scaffolding systems. Once draw ropes are over the hurdle /scaffolding and tensioned/anchored to ground, the remainder of the construction works can be completed under traffic management speed restrictions.

The location of structures supporting the overhead lines will be offset from the road as required by regulations. If the location cannot be offset outside of the road reserve, approval will be sought from TfNSW. Approvals would also be sought for any excavation or fill which may impact the road corridor.

Line designs will be provided for all transmission line sections crossing Cobb Highway, with an example road/rail crossing strategic design plan provided in Appendix F.

Vehicular access for the construction of the transmission line corridor is expected to occur from internally within the site to avoid the creation of any new road/track connections (i.e. access points) along the Cobb Highway. It is noted that the access arrangements would be confirmed during detailed design and if additional access points are required for transmission lines or other infrastructure, strategic designs and swept path analysis would be provided for approval prior to construction.

4.2.1.4 Accommodation Compound

The establishment of the accommodation compound would be undertaken at the commencement of the construction period, after the completion of all relevant road upgrades which are determined necessary to accommodate the Project traffic and would not coincide with the peak construction period.

The traffic impacts associated with the establishment and operation of the accommodation compound are included within the broader project which is assessed below. The Applicant has advised that sewage disposal for the accommodation compound would be undertaken using two rigid trucks which would service the site twice a week at peak capacity, resulting in a total of up to 8 vehicles per week or 4 vehicles per day on servicing days (two-way trip totals). The sewage disposal trips are included within the broader Project traffic volumes outlined in Table 7.

4.2.2 Operational Traffic

During operation the Project is expected to generate a lower level of traffic associated with maintenance and operational services. The Project is expected to employ approximately 40 full-time operational staff, which would generate up to 80 vehicles per day. There would also be occasional light commercial vehicles delivering parts to the Project Area as required for maintenance.

The additional traffic during the operational phase would be distributed across the seven access locations and can be readily accommodated on the road network given the existing low traffic volumes along Cobb Highway and West Burrabogie Road.

4.2.3 Decommissioning Traffic

At the end of the operational life of the Project all above ground infrastructure will be dismantled and removed from the Project Area. Internal roads, if not required for ongoing farming purposes or fire access, would be removed and the Project Area reinstated as close as possible to its original state.

Decommissioning of the Project is anticipated to generate less traffic than during construction, and for a shorter period of time. A comprehensive Traffic Management Plan would be prepared prior to the decommissioning phase in conjunction with the relevant road authorities to ensure adequate road safety and road network operations are maintained.

4.3 Traffic Distribution

Vehicles accessing the Project Area will utilise Cobb Highway and West Burrabogie Road to access the various site entrances. The Applicant has advised that traffic would generally be distributed evenly across the seven access locations during the peak construction period.

A construction workforce of up to 700 FTE personnel would be on-site during the peak construction phase, with 350 to be based at an on-site accommodation compound and the remaining 350 workers to be drawn from the towns of Hay, Deniliquin and Griffith. Materials and smaller plant would also be sourced from these towns as well as the broader surrounding area. Larger plant and equipment would be imported and delivered from the Port of Geelong using B-Doubles or shorter transport configurations, while all OSOM loads would be delivered from the Port of Adelaide and are assessed separately in Section 6.

The vehicle distributions are provided by the Applicant and have been estimated based on the population, proximity to the Project Area, and availability of materials within each town. The following provides a breakdown of the access distribution for each of the vehicle classifications outlined within Table 7.

Table 8: Traffic Distributions along Cobb Highway

Vehicle Type		Distributions	
Light Vehicles		**North**	**South**
Light Vehicles	Light vehicles would be associated with the workforce that is not accommodated on-site and would travelling to/from the Project Area each working day.	70%	30%
Heavy Vehicles		**North**	**South**
Rigid Trucks	These vehicles would predominantly be water trucks and vehicles transporting materials such as concrete and fencing supplies which would likely be sourced within the surrounding area.	50%	50%
Truck and Dog	These vehicles would transport quarry material from the local area.	70%	30%
Semitrailers / B-Doubles	Plant would be transported from the Port of Geelong to the Project Area via Cobb Highway from the south.	0%	100%

During the morning peak all vehicles will travel towards the site and in the evening peak all vehicles will travel away from the site. Heavy vehicles will be distributed throughout the day and will be split evenly between inbound and outbound traffic.

The resulting peak hour traffic volumes generated by the Project along Cobb Highway and at each of the proposed access locations are outlined in Figure 9 for the morning peak hour and Figure 10 for the evening peak hour.

Figure 9: Project Traffic – AM Peak

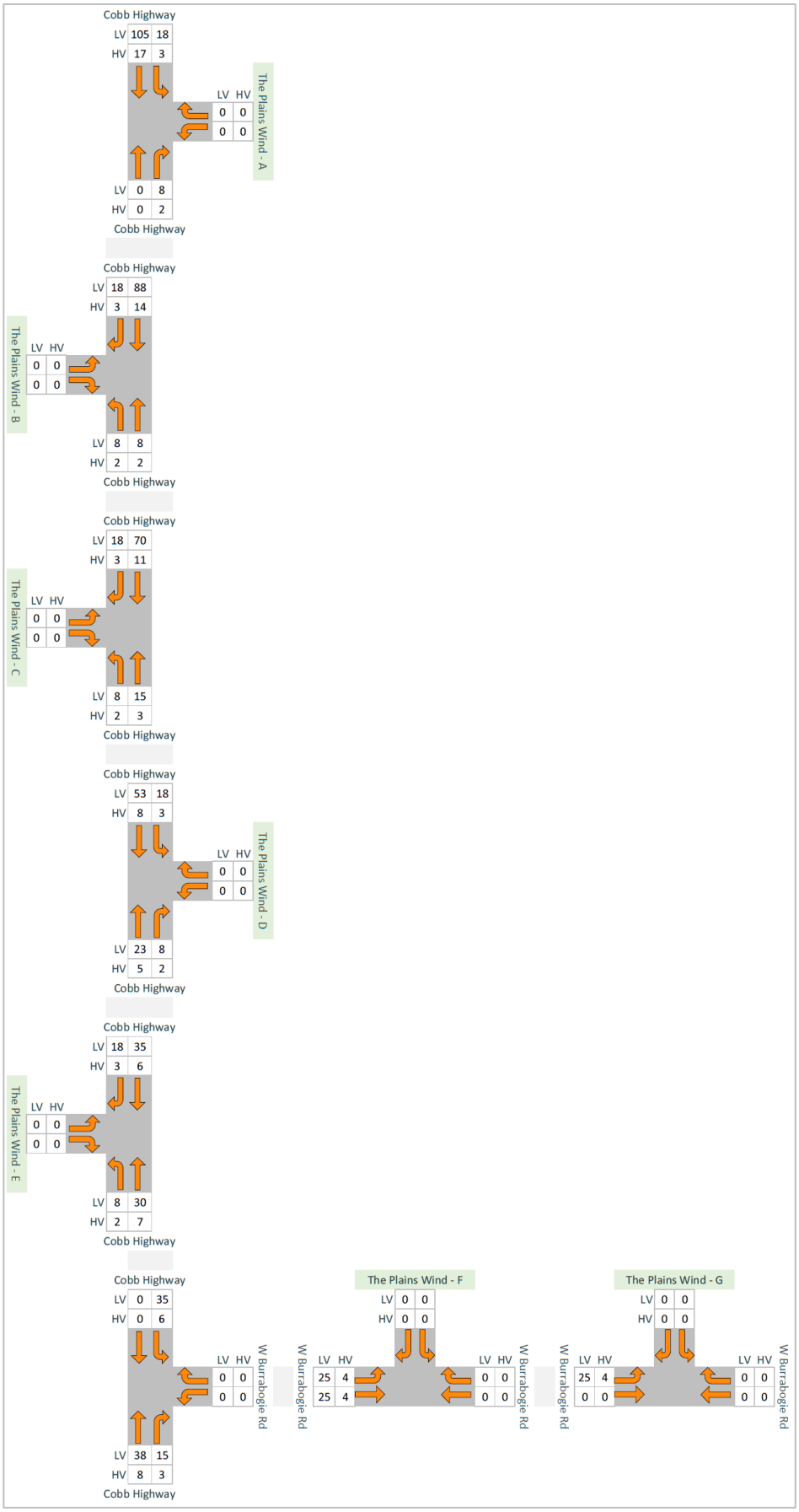
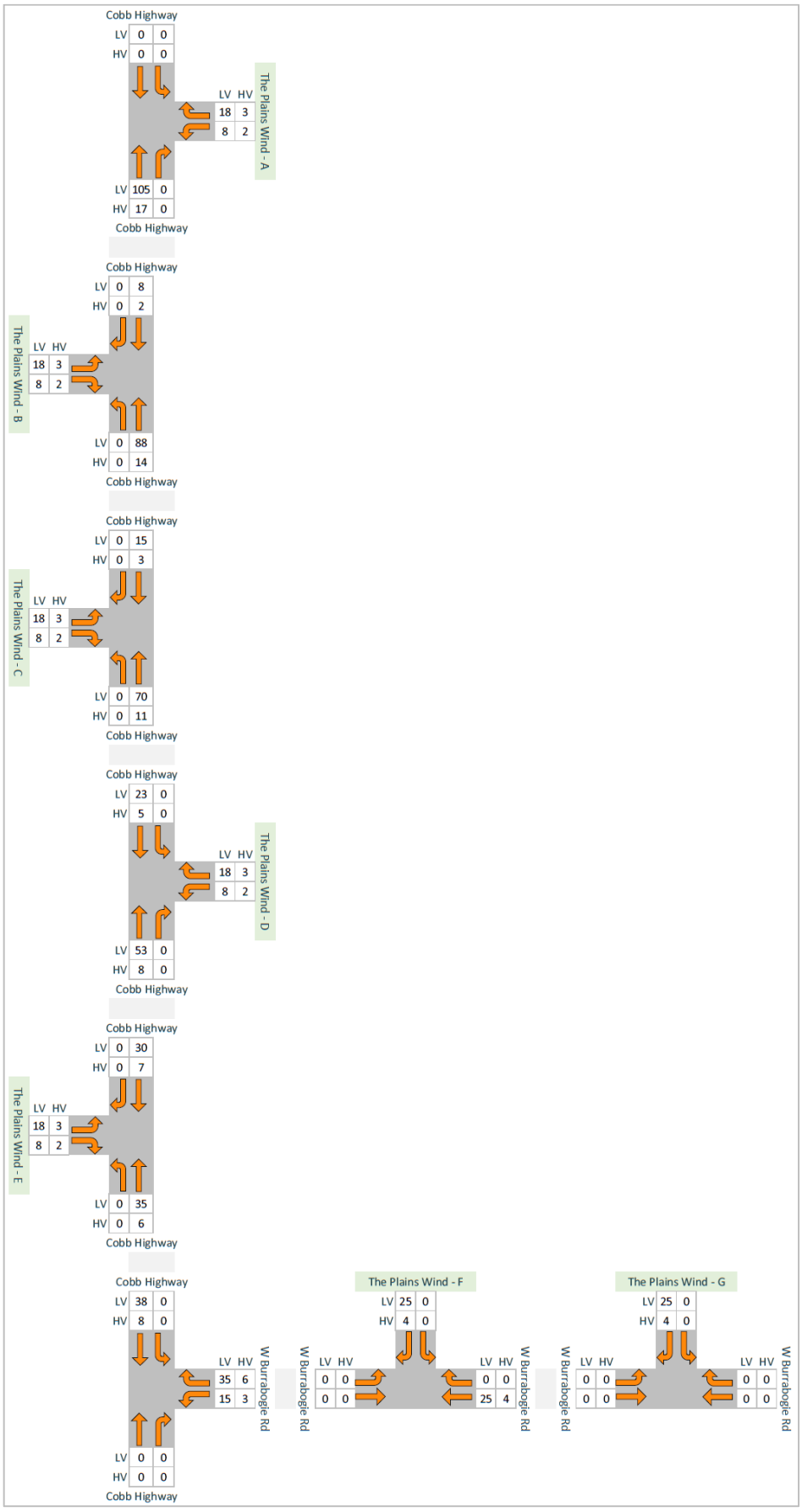


Figure 10: Project Traffic – PM Peak



4.4 Cumulative Traffic Impacts

The primary traffic impact of the wind farm is generated during construction which is anticipated to commence in Q1 of 2027 and take approximately 40 months. An assessment of the cumulative impacts of major projects that are proposed within 100km of the site is provided within Table 9, which provides a description of each project to determine the potential overlap of construction traffic. The projects which are highlighted in the table have the potential to generate additional traffic along Cobb Highway and/or West Burrabogie Road during the construction period.

Table 9: Assessment of Cumulative Impacts of Nearby Developments

Project	Description	Potential Vehicle Conflict
Wind Farm Projects		
Pottinger Wind Farm (Recommendation)	Development of a wind farm with up to 247 wind turbines and associated infrastructure, located east of The Plains Wind Farm.	This project has been granted an access right to the SW REZ. Construction is estimated to commence in 2026 and take approximately 55 months. There is potential for construction of both projects to overlap. The traffic generated from both projects may interact along Cobb Highway and West Burrabogie Road.
Bullawah Wind Farm (More Information Required)	Development of a wind farm with up to 141 wind turbines and associated infrastructure, located approximately 36km southeast of Hay.	This project has been granted an access right to the SW REZ. Construction is estimated to commence in 2025 and take approximately 42 months. There is potential for construction of both projects to overlap. The traffic generated from both projects may interact along Cobb Highway north of Jerilderie Road.
Tchelery Wind Farm (Prepare EIS)	Development of a wind farm with up to 120 wind turbines and associated infrastructure, located approximately 67 km southwest of Hay.	There is potential for construction of both projects to overlap. The traffic generated from both projects may interact within the town of Hay.
Baldon Wind Farm (Assessment)	Development of a wind farm with up to 180 wind turbines and associated infrastructure, located approximately 64 km southwest of Hay.	There is potential for construction of both projects to overlap. The traffic generated from both projects may interact within the town of Hay.
Dinawan Wind Farm (Response to Submissions)	Development of a wind farm with up to 200 wind turbines and associated infrastructure, located in the Riverina region halfway between Coleambally and Jerilderie.	This project has been granted an access right to the SW REZ. There is potential for construction of both projects to overlap. The traffic generated from both projects may interact within the town of Deniliquin.
Keri Keri Wind Farm (Response to Submissions)	Development of a wind farm with up to 155 wind turbines and associated infrastructure, near Sturt Highway in Keri Keri.	There is potential for construction of both projects to overlap. The traffic generated from both projects may interact within the town of Hay.

Project	Description	Potential Vehicle Conflict
Yanco Delta Wind Farm (Approved)	Development of a wind farm with up to 208 wind turbines, energy storage and associated infrastructure, located approximately 10-40km northwest of Jerilderie.	There is potential for construction of both projects to overlap. The traffic generated from both projects may interact within the town of Deniliquin.
Wilan Wind Farm (Prepare EIS)	Development of a wind farm with up to 138 wind turbines, energy storage and associated infrastructure, located approximately 25 kilometres east of Balranald.	There is potential for construction of both projects to overlap. The traffic generated from both projects may interact within the town of Hay.
Junction Rivers Wind Farm (Response to Submissions)	Development of a wind farm with up to 96 wind turbines, energy storage and associated infrastructure, located at Balranald Road in Kyalite.	There is potential for construction of both projects to overlap. The traffic generated from both projects may interact within the town of Hay.
Solar Farm Projects		
Pottinger Solar Farm (Prepare EIS)	Development of a 300 MW solar farm and associated infrastructure located approximately 33km east of The Plains Solar Farm.	There is potential for construction of both projects to overlap. The traffic generated from both projects may interact along Cobb Highway.
The Plains Solar Farm (Withdrawn)	Development of a 400MW solar farm and associated infrastructure, located in the vicinity of the Project Area.	The projects may utilise shared infrastructure, resources, and transport routes. The traffic generated from both projects may interact along Cobb Highway and West Burrabogie Road. However, the Solar Farm application is currently withdrawn.
Hay Solar Farm (Approved)	Development of a 110 MW solar farm and associated infrastructure at Sidonia Road in Hay.	Construction is anticipated to finish before the proposal's construction begins. Minimal traffic is expected to regularly access the area during the operational phase.
Currawarra Solar Farm (Approved)	Development of a 195 MW solar farm and associated infrastructure located 25km north east of Deniliquin.	There is potential for construction of both projects to overlap. The traffic generated from both projects may interact within the town of Deniliquin.
Tarleigh Park Solar Farm (Approved)	Development of a 90 MW solar farm and associated infrastructure located 23km southeast of Deniliquin.	There is potential for construction of both projects to overlap. The traffic generated from both projects may interact within the town of Deniliquin.
Sunraysia Solar Farm (Operational)	Construction of a 200 MW solar farm and associated infrastructure in Balranald.	The site is currently operational with any traffic included within recent survey data.
Limondale Solar Farm (Operational)	Construction of a 250 MW solar farm and associated infrastructure in Balranald.	The site is currently operational with any traffic included within recent survey data.

Project	Description	Potential Vehicle Conflict
Dinawan Solar Farm (Assessment)	Development of an 800 MW solar farm, associated infrastructure and battery storage, located in the Riverina region, halfway between Coleambally and Jerilderie.	This project has been granted an access right to the SW REZ. There is potential for construction of both projects to overlap. The traffic generated from both projects may interact within the town of Deniliquin.
Other Major Projects		
EnergyConnect (NSW - Eastern Section) (Approved)	Development of a new transmission line connecting Buronga Substation and Wagga Wagga Substation, and construction of the new Dinawan Substation (170km west of Wagga Wagga).	Construction is anticipated to finish before the proposal's construction begins. Minimal traffic is expected to regularly access the area during the operational phase.

The assessment indicates that several projects are expected to generate additional traffic within the towns of Hay and Deniliquin which would be distributed on the surrounding road network and is expected to have a minimal cumulative impact on the operation of the road network.

The following projects which are highlighted in the table have the potential to generate additional traffic along Cobb Highway and/or West Burrabogie Road during the construction period:

- Pottinger Wind Farm (1.30 GW)
- Bullawah Wind Farm (0.80 GW)
- Pottinger Solar Farm (0.30 GW)
- The Plains Solar Farm (0.40 GW)

Cumulative traffic impacts associated with Pottinger Solar Farm are unable to be assessed as the EIS has not yet been lodged for this project. Similarly, the Plains Solar Farm EIS is currently withdrawn, and cumulative traffic impacts are therefore unable to be assessed.

Pottinger Wind Farm and Bullawah Wind Farm were granted access rights in April 2025 for a maximum capacity of 831.2 MW and 262.3 MW, respectively. Construction of these projects is likely to commence much sooner than The Plains Wind Farm, however there is potential for some overlap in construction activities.

An assessment of the potential cumulative traffic impacts has been carried out for both projects which conservatively assumes the peak construction periods would overlap with The Plains Wind Farm. Peak hour vehicle volumes have been estimated based on the information available within the respective Traffic Impact Assessments for each project. The resulting cumulative traffic on the road network during the respective AM and PM peak hours is outlined in Figure 11 and Figure 12 for Pottinger Wind Farm, and Figure 13 and Figure 14 for Bullawah Wind Farm.

Figure 11: Additional Cumulative Traffic – Pottinger Wind Farm - AM Peak

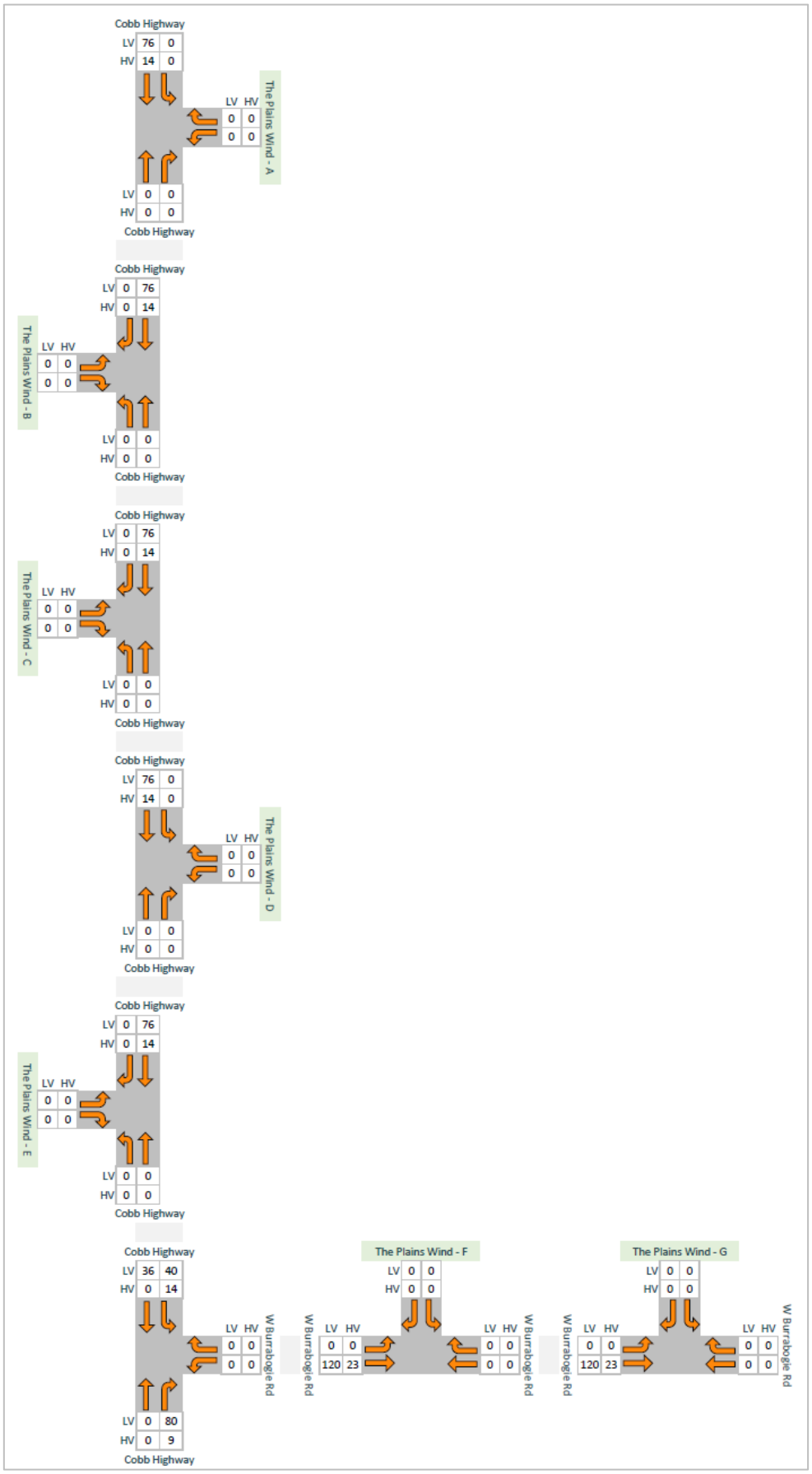


Figure 12: Additional Cumulative Traffic – Pottinger Wind Farm - PM Peak

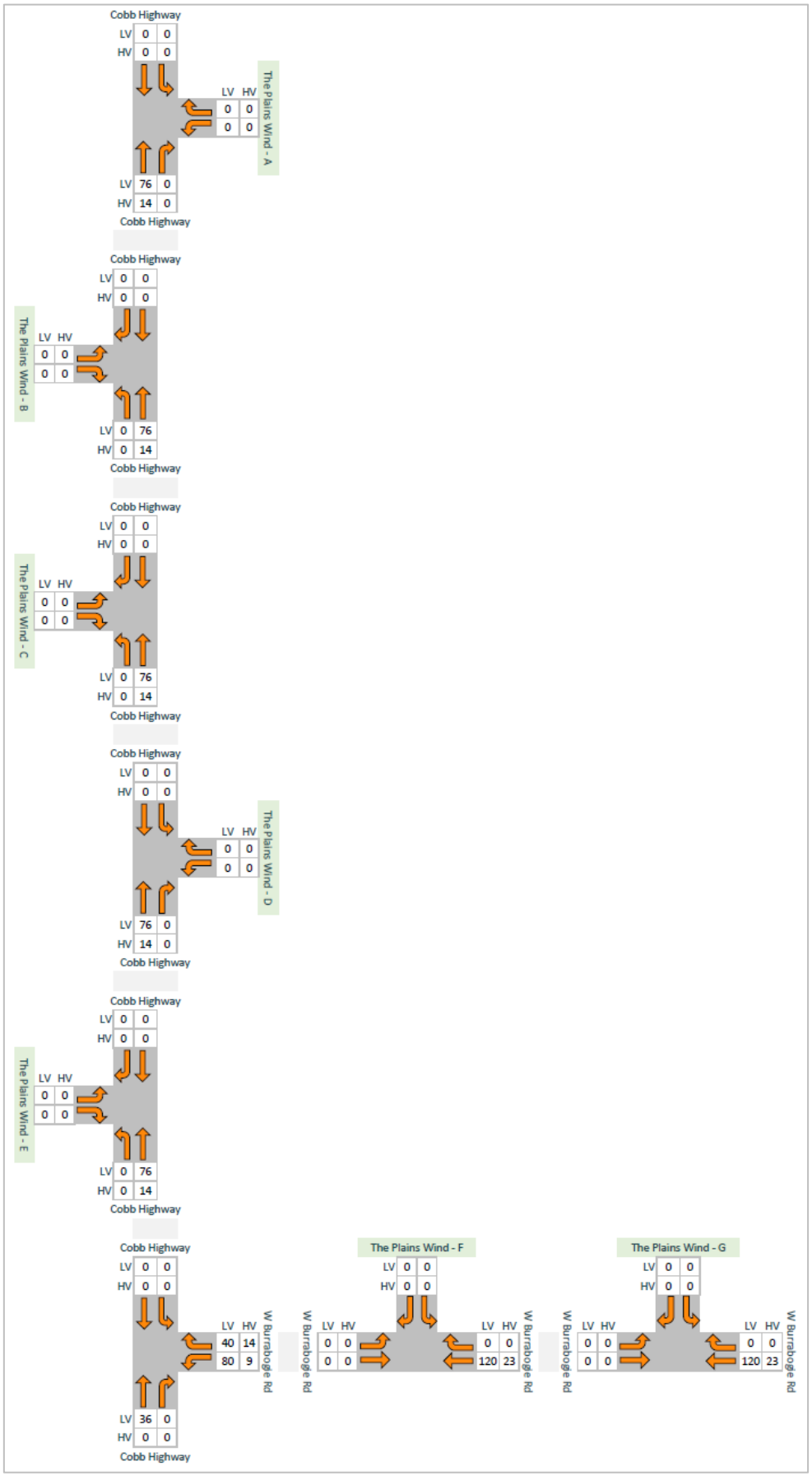


Figure 13: Additional Cumulative Traffic – Bullawah Wind Farm - AM Peak

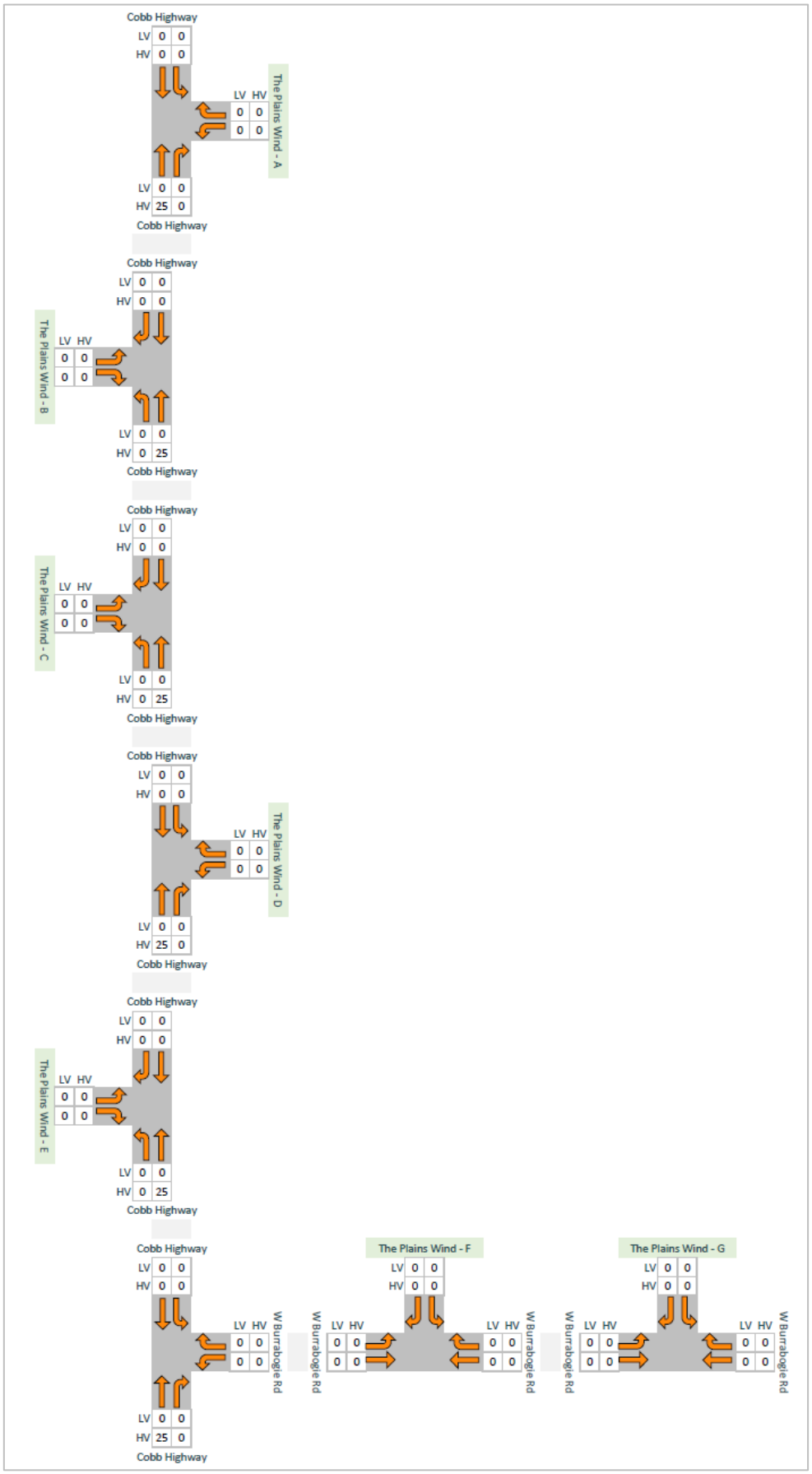
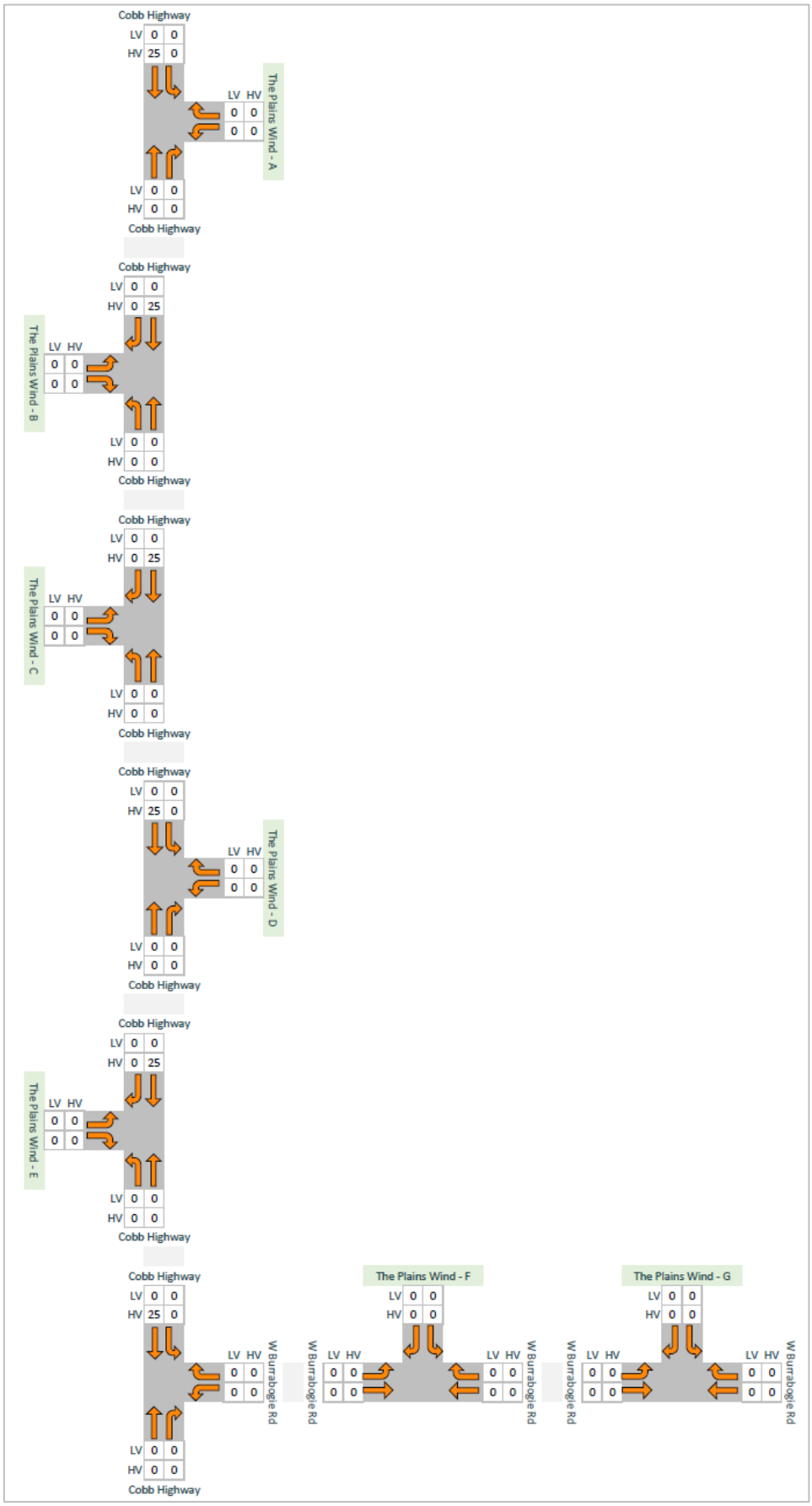


Figure 14: Additional Cumulative Traffic – Bullawah Wind Farm - PM Peak



4.5 Traffic Assessment

4.5.1 Intersection Performance

In order to determine the ability of the road network to accommodate the traffic expected to be generated during the peak construction period, a traffic modelling exercise has been undertaken for the intersection of Cobb Highway and West Burrabogie Road using the SIDRA intersection modelling software. The assessment has been undertaken in accordance with the TfNSW Traffic Modelling Guidelines.

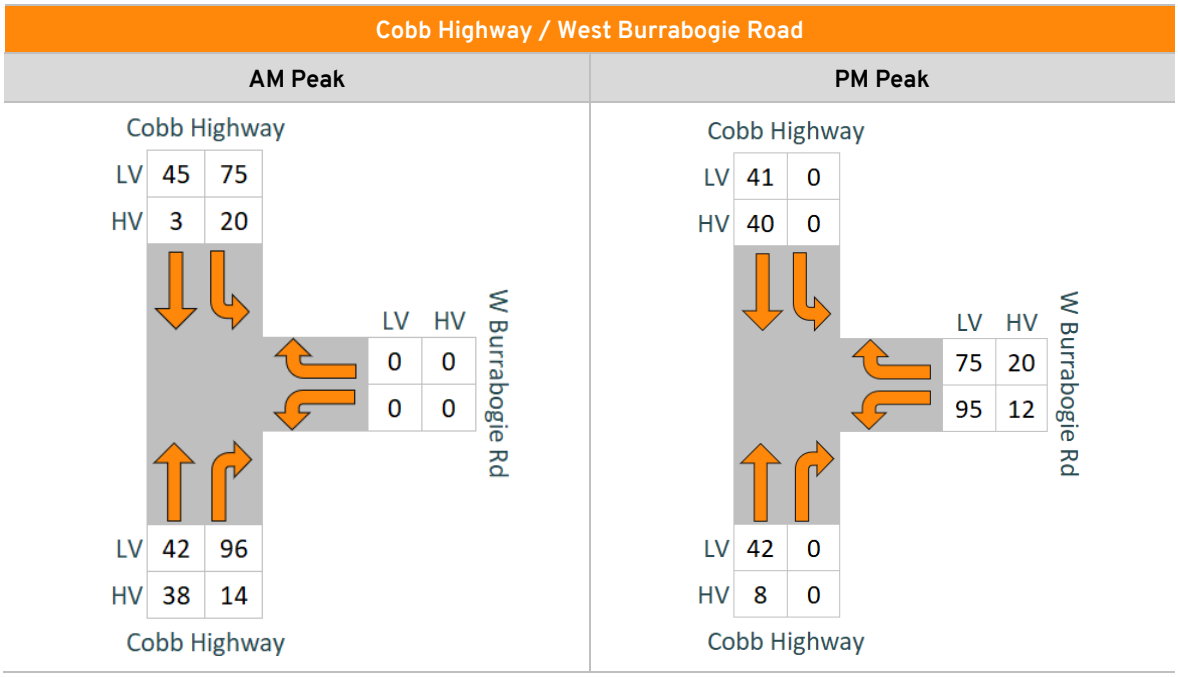
Level of Service (LOS) is a qualitative measure used to describe the operating conditions of a section of road or an intersection. Levels of Service are designated from A to F from best (free flow conditions) to worst (forced flow with stop start operation, long queues and delays) and represent the perception of the road conditions by motorists including speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience, and safety. The assessment of the level of service for sign-controlled intersections is based on the average delay (seconds/vehicle) of the critical movement.

The modelled traffic volumes at the intersection have been based on the morning peak hour of construction (6:00am to 7:00am) and evening peak hour of construction (5:30pm to 6:30pm) which would become the overall peak hours on the surrounding road network. The traffic volumes consist of the sum of the following:

- Existing surveyed traffic volumes adjusted by an estimated 1.5% compounded annual growth rate over 7 years to reflect the end of the construction period in 2030.
- Construction traffic volumes outlined within Figure 9 and Figure 10.
- Cumulative traffic volumes for Pottinger and Bullawah Wind Farms as outlined within Section 4.4.

The resulting total traffic volumes used for the assessment are provided in Figure 15.

Figure 15: Peak Hour Volumes During Peak Construction – Cobb Highway / West Burrabogie Road



The results of the SIDRA analysis for the morning and evening peak hour are provided within Appendix G and summarised in Table 10.

Table 10: SIDRA Analysis Results Summary

Approach / Movement		Morning Peak Hour			Evening Peak Hour		
		Average Delay (sec)	95% Queue (m)	Level of Service	Average Delay (sec)	95% Queue (m)	Level of Service
Cobb Highway (South)	Through	0.5	5.2	A	0.0	0.1	A
	Right	8.7	5.2	A	7.7	0.1	A
West Burrabogie Road	Left	8.0	0.0	A	8.5	5.8	A
	Right	8.6	0.0	A	8.8	5.8	A
Cobb Highway (North)	Left	8.8	0.0	A	8.2	0.0	A
	Through	0.0	0.0	A	0.0	0.0	A

The SIDRA analysis indicates the following:

- The intersection is expected to operate with minimal queue lengths on all legs.
- The overall average delay at the intersection is 5.5 and 5.3 seconds in the morning and evening peak hour respectively which predominantly reflects vehicles slowing to manoeuvre at the intersection.
- The intersection is expected to continue to operate with good level of service (LOS A).

Accordingly, the intersection is expected to continue to operate with a good level of service with minimal queuing and delays expected during the peak construction period. It is noted that the assessment assumes an even distribution of Project traffic across the seven site access locations, however the analysis demonstrates that there is ample capacity at the intersection to accommodate a substantial increase in traffic volumes in the event that additional traffic utilises West Burrabogie Road.

During operation, the increase in traffic of up to 80 vehicles per day would result in a negligible change to the traffic environment.

Accordingly, the road network is able to readily accommodate the traffic generated by the development during the construction and operational periods.

4.5.2 Mid-block Assessment

Table 4.5 of the RTA Guide sets out two-way hourly road capacities for two-lane roads for different levels of service and based on different terrain types. The maximum volume to achieve LOS A for a level terrain rural road with approximately 15% heavy vehicle traffic is 530 vehicles per hour.

An assessment has been carried out on the mid-block road sections for the morning and evening peak hours of construction traffic as outlined in Table 11. Existing traffic volumes have been determined from the average weekday volumes provided in the tube count data in Appendix C and Appendix D.

Table 11: Mid-block Traffic Assessment

Road	Class	AM Peak Hour – 6:00am			PM Peak Hour – 5:30pm		
Hourly Traffic		Existing (2023)	Proposed (2030)	Expected LOS	Existing (2023)	Proposed (2030)	Expected LOS
Cobb Highway	State Road	23	283	A	30	280	A
West Burrabogie Road	Local Road	2	202	A	2	202	A

Accordingly, it is expected that Cobb Highway and West Burrabogie Road will continue to operate with a good level of service based on the RTA Guide. It is noted that the proposed traffic volumes represent the highest volumes which would only occur on the section of Cobb Highway to the north of the Project Area, with hourly volumes expected to be lower along the remainder of the road.

4.6 Summary

The Project is expected to generate the highest level of traffic during the peak construction period. An assessment was carried out for intersection performance at the Cobb Highway and West Burrabogie Road intersection, as well as a mid-block level of service assessment for each road. The assessment presented above indicates that the road network is able to accommodate the project traffic during the peak construction period, including the cumulative traffic generated by other major projects within the surrounding area.

During construction the traffic generated through the middle of the day is expected to be predominantly associated with heavy vehicles with approximately 30 vehicles per hour. This increase in traffic can be readily accommodated on the road network given the existing low traffic volumes and since the road network would operate with less vehicles than during the peak hour.

It is anticipated that up to 2,502 High Risk OSOM vehicles would access the site during the construction period. The vehicles would be able to be accommodated on the road network subject to the road upgrades identified within the route assessment (Appendix A) and the adoption of suitable road management strategies which would be confirmed as part of specific permits that would be applied for prior to construction.

Vehicles may be required to move around the Project Area on a daily basis which may include entering and exiting the road network through the various site access locations. The results of the assessment indicate there is ample capacity to accommodate vehicles moving around the Project Area for construction activities.

During operation the periodic increase in traffic of up to 80 vehicles per day can be accommodated on the road network given the existing low traffic volumes along Cobb Highway and West Burrabogie Road.

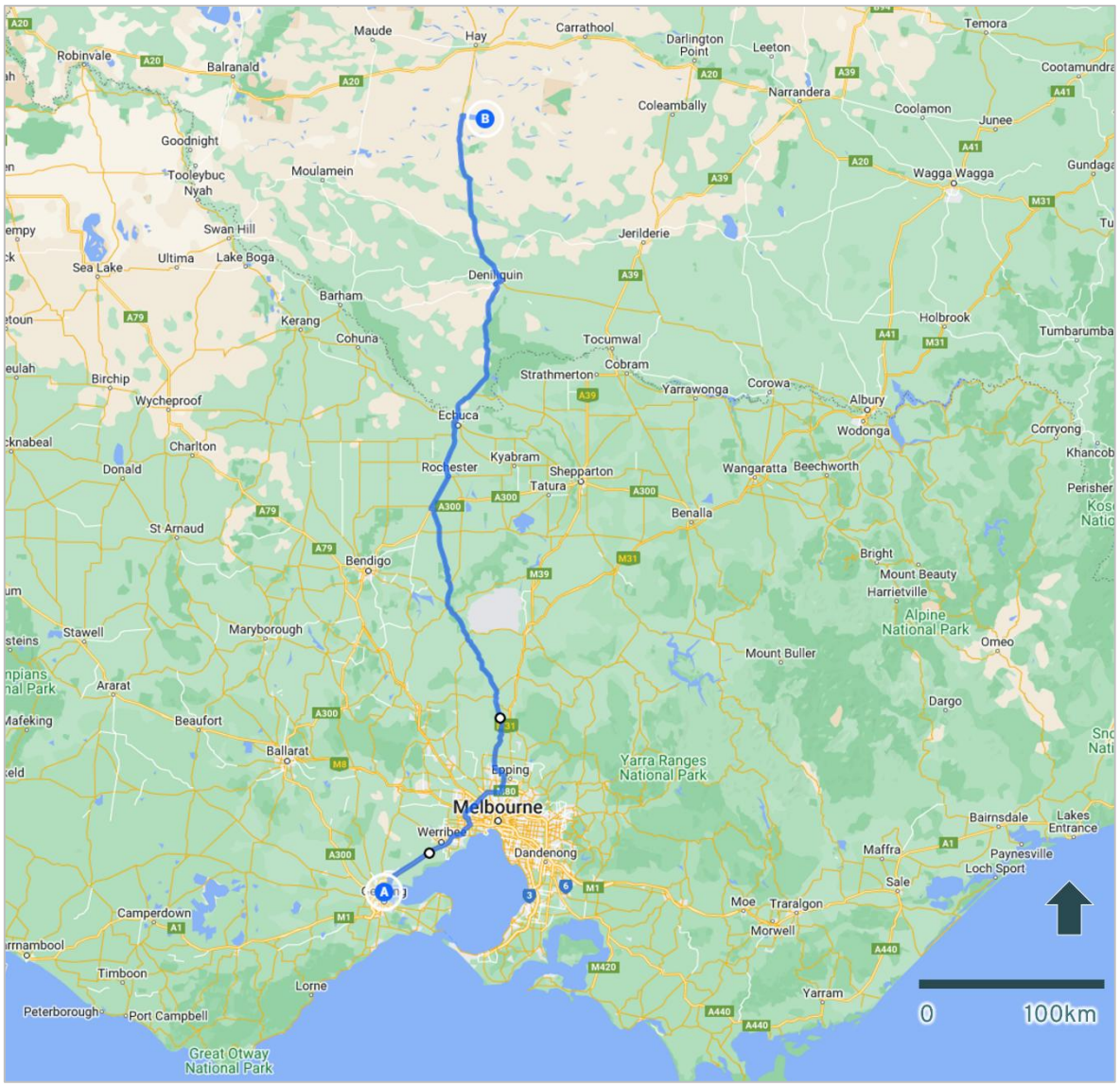
Accordingly, the road network is able to readily accommodate the traffic generated by the development during the construction and operational periods.

5. Heavy Vehicle Route Assessment

5.1 Access Route

All equipment that can be transported in B-Doubles or shorter transport configurations is expected to be delivered from Port of Geelong. Figure 16 shows the proposed access route to be undertaken for all vehicles travelling from the port with a summary of the relevant roads provided in Table 12.

Figure 16: Access Route from the Port of Geelong to Site



Source: Google Maps - Link

Table 12: Heavy Vehicle Route – Roads Summary

Road Name	State	Jurisdiction	B-Double Approved
Corio Quay Road	Victoria	DTP	Approved
Station Street			
Princes Freeway			
Western Ring Road			
Hume Freeway			
Northern Highway			
Cobb Highway (Site Access Locations A, B, C, D, E)	Victoria New South Wales	DTP (VIC) TfNSW (NSW)	
West Burrabogie Road (Site Access Locations F, G)	Victoria	Hay Shire Council	Unrated

The access route generally utilises roads that are approved for 25/26m B-Doubles within the NHVR Restricted Access Vehicle Map.

It is noted that some vehicles may access the site via West Burrabogie Road which is unrated for 26m B-Doubles and requires approval from Hay Shire Council for these vehicles to utilise the road. It is understood that the Applicant has discussed the Project with Hay Shire Council, with no objections received from Council regarding the use of this road. Discussion on the suitability of the unrated section of the proposed route is provided below.

5.2 Unsealed Road Network

The *Australian Road Research Board Best Practice Guide for Unsealed Roads 2* (ARRB Guide), dated October 2020, provides a breakdown of the unsealed road classifications based on a functional classification system which is reflective of the approach taken within the Austroads Guidelines. It is noted that the traffic volumes refer to Average Daily Traffic (two-way). A summary of the classifications outlined within Table 3.9 of the ARRB Guide is provided below.

Table 13: Unsealed Roads Classification System (ARRB Guide)

Road Class	Class Type	Service Function Description	Road Type Description
4A	Main Road > 150 vpd	This type of road is used for major movements between population centres and connection to adjacent areas. High traffic volumes occur, and the road can carry large vehicles.	• All weather road, predominantly two-lane and unsealed. Can be sealed if economically justified. • Operating speed standard of 50–80 km/h according to terrain. • Minimum carriageway width is 7m.
4B	Minor Road 50-150 vpd	This type of road is used for connection between local centres of population and links to the primary network.	• All-weather two-lane road formed and gravelled or single-lane sealed road with gravel shoulders. • Operating speed standard of 30–70 km/h according to terrain. • Minimum carriageway width is 5.5m.

Road Class	Class Type	Service Function Description	Road Type Description
4C	Access Road 10-50 vpd	Provides access to low use areas or individual rural property sites and forest areas. Caters for low travel speed and a range of vehicles and may be seasonally closed.	• Substantially a single lane two-way, generally dry weather, formed road. • Operating speeds standard of < 20–40 km/h according to terrain. • Minimum carriageway width is 4m.
4D	Tracks < 10 vpd	Mainly used for fire protection purposes, management access and limited recreational activities.	• Predominantly a single-lane two-way earth track (unformed) at or near the natural surface level. • Predominantly not conforming to any geometric design standards. • Minimum cleared width is 3m.

West Burrabogie Road is expected to accommodate up to 409 vehicles per day during peak construction periods, and 218 vehicles per day during the average construction period. It is noted that the maximum volumes would only occur for a short section of the road between Cobb Highway and Site Access F, with lower volumes expected along the remainder of the road.

Unsealed roads would typically be considered for sealing when they accommodate between 200 and 500 vehicles per day. The ARRB Guide notes that roads may warrant paving when maintenance costs increase to unacceptable levels, in wet climates, or when economic or social benefits are evident. Given the expected traffic volumes on West Burrabogie Road are below 500 vehicles per day and the increase in traffic is only temporary, it is considered acceptable for the road to remain unsealed.

West Burrabogie Road has an unsealed carriageway with a typical useable width ranging between 4.0m and 9.0m and has a generally straight alignment with several gentle curves. The road is subject to the default rural speed limit of 100 km/h.

In order to comply with the ARRB Guide it is recommended that the carriageway is widened to a minimum of 7.0m which would allow two trucks to pass and reflect the higher operating speed standard of the road.

5.3 Mitigation Measures

A Traffic Management Plan (TMP) is to be developed which is recommended to include the following measures to minimise the impact of construction traffic:

- Prior to construction, a pre-condition survey of the relevant section of West Burrabogie Road should be undertaken in consultation with Council. During construction the sections of the road network utilised by the proposal are to be monitored and maintained to ensure continued safe use by all road users, and any faults attributed to construction of the Project would be rectified. At the end of construction, a post-condition survey would be undertaken to ensure the road network is left in a condition equivalent to that at the start of construction.
- Neighbours of the wind farm are to be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.
- Heavy vehicles should avoid travel during peak school bus times to limit the interaction of larger vehicles and vulnerable road users.

Therefore, it is concluded that the road network is suitable to accommodate the future light and heavy vehicle traffic volumes generated by the Project.

6. OSOM Vehicle Route Assessment

The Port of Adelaide has been identified as the preferred port where all deliveries will originate including the wind turbines and towers. The following provides an assessment of the proposed route by vehicles transporting the OSOM loads and the impact of the relevant transport vehicles.

6.1 Load Details

Dimensions and loads for the major components to be transported from the Port of Adelaide to the Project Area are detailed in Table 14. These loads are expected to be classified as High Risk OSOM vehicles due to their size and/or weight.

Table 14: Major Components - Load Dimensions and Weights

Component	Length (m)	Width (m)	Height (m)	Weight (t)
Nacelle	9.9	5.0	4.2	41.6
Drivetrain	8.2	4.1	4.2	106.0
Hub	5.1	4.5	4.2	52.0
Blades	86.0	4.8	3.7	32.0
Tower Base*	10.0	6.3	6.3	110.0
Tower Top*	36.0	4.3	4.3	80.0
Transformer	8.3	4.2	4.7	187.0

***** *Mid tower sections will typically fall between the weights and dimensions of the base and top sections.*

There may also be a small number of deliveries associated with the following components which are expected to be able to operate on the approved Class 1 OSOM network:

- Substation, switching station, warehouse and office buildings.
- Water tanks.

In addition, several cranes will be required to erect the wind turbines and would generally be classified as SPVs.

6.2 Typical Delivery Vehicles

OSOM vehicles will be used to deliver the wind turbine components and large plant to the Project Area. Whilst these vehicles will contribute the smallest percentage of traffic to the Project Area during the construction period, they present challenges due to their size from a vehicle access perspective and would require some road and intersection upgrades to the existing network.

The largest components to be transported to the site are the wind turbine blades and tower sections. The blades would be transported in one piece and form the longest component, while the towers are comprised of several sections which can be assembled on-site however, each section forms a wide cylindrical load shape. The heaviest components are expected to be the transformers.

The typical vehicles which would be used to transport these components are outlined below:

- **Wind Turbine Blades** would be transported on extendable trailers, jinker trailers or fixed length blade trailers with removable extension beams. The use of extendable trailers or jinker trailers would significantly reduce the vehicle turning envelopes on the return journey to the port.
- **Wind Turbine Tower Sections** would be transported on bookend trailers, low loaders or platform trailers.
- **Transformers** would be transported on a large multi-axle modular platform trailer.

These vehicles are detailed within the Route Assessment prepared by Ares which is provided in Appendix A.

The final selection of transport vehicles to be used across the route would be considered in consultation with authorities as part of the development of the Traffic Management Plan and route approvals. This assessment has been undertaken based on the vehicles provided within the Ares Report which are understood to represent the worst-case scenario.

6.3 OSOM Traffic Volumes

A breakdown of the OSOM traffic volumes and vehicle configurations associated with the wind turbine components and large plant is provided in Table 15.

Table 15: OSOM Traffic Volumes and Vehicle Configurations

Component	Vehicle Configuration	One-Way OSOM Vehicles	Approx. Duration	Average Frequency
High-Risk OSOM				
Nacelle	Prime mover with 2x8 dolly and 4x8 low loader	171	100 weeks	2 per week
Drivetrain	Prime mover with 10x8 platform trailer	171	100 weeks	2 per week
Hub	Prime mover with 2x8 dolly and 4x8 low loader	171	100 weeks	2 per week
Blades	Prime mover with 6x8 trailer	513	100 weeks	6 per week
Tower Base	Prime mover with 5x8 bookend trailers	171	100 weeks	2 per week
Tower Top	Prime mover with 8x8 extendable trailer	171	100 weeks	2 per week
Tower Mid Sections	Prime mover with low loader or platform trailer	940-1,128	100 weeks	10 per week
Substation Transformers	Prime mover with 20x8 platform trailer	6	50 weeks	Varies
Class 1 OSOM (including SPVs)				
Substation Transportable Buildings	Prime mover with platform trailer	8	50 weeks	Varies
WTG Erection Cranes	Varies	25	50 weeks	Varies
On-site Buildings	Varies	470	20 weeks	Varies

Component	Vehicle Configuration	One-Way OSOM Vehicles	Approx. Duration	Average Frequency
Machinery and Civil Equipment	Varies	100	100 weeks	Varies

Each complete turbine consists of 12-13 major components. Turbine deliveries are expected to occur over a period of approximately 2 years, with an average of approximately 26 components delivered each week over six days from Monday to Saturday (4-5 deliveries per day). An indicative schedule for the OSOM transport is provided within the Route Assessment prepared by Ares.

Based on a total of 171 turbines proposed to be constructed for the project, it is anticipated that up to 2,502 high-risk OSOM vehicles would be required to access the site for the delivery of the turbine components and transformers. An additional 603 vehicles will be required which are expected to be able to operate on the Class 1 or SPV approved networks. All OSOM vehicles would be unloaded and kept to their smallest practicable dimensions when departing the site.

Where required, pilot vehicle(s) will guide the OSOM vehicles and manage traffic under the direction of police where required. Police vehicles will provide traffic management at 'pinch points' as identified in the Route Assessment. The OSOM vehicles will leave at specific intervals and regroup at specific pinch points to allow police to implement the required traffic management, such as road closures. This will be detailed in a Traffic Management Plan to be prepared prior to the commencement of construction in consultation with TfNSW, Councils and Rail Authorities.

6.4 OSOM Vehicle Access Route (Port of Adelaide)

The following provides an assessment of the preferred access route from the Port of Adelaide to the Project Area. The preferred access route has been identified within the Ares Report and is provided within Appendix A. Ares is a transportation company that has experience working on similar wind farm projects throughout NSW.

6.4.1 Preferred Access Route

The proposed OSOM vehicle access routes from the Port of Adelaide to the Project Area have been separated into two routes:

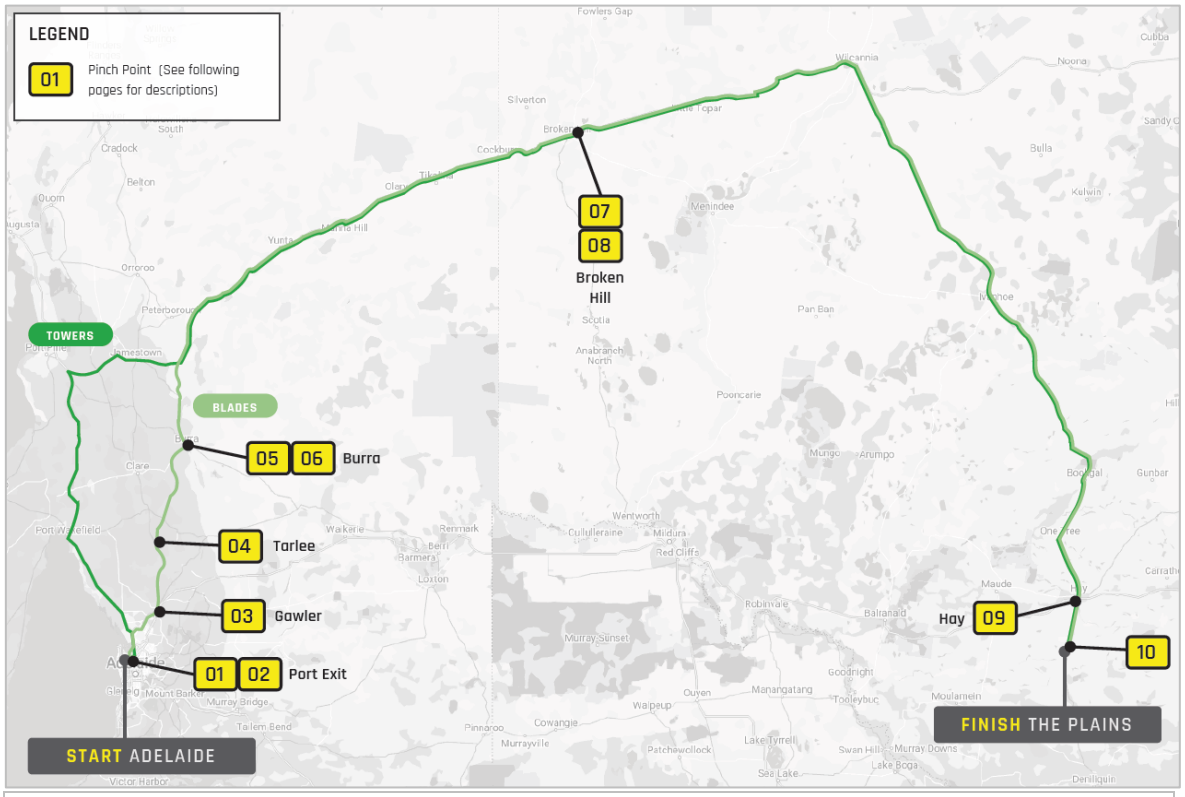
- **Wind Turbine Blade Route** – This route is proposed to be utilised by vehicles transporting the blades which are transported in one piece and form the longest component.
- **Wind Turbine Tower Route** (including all other turbine components) – A second route is proposed for all other components of the wind turbines including the tower sections.

A map showing the proposed access routes is provided in Figure 17 and has been sourced from the Ares Report. The access routes will utilise the local road network from the Port of Adelaide to access the State Road network. The routes will be entirely on asphalt roads and will predominantly utilise State Highways which are generally designed to a high specification to handle heavier loads and higher traffic volumes.

Once the OSOM vehicles reach Cobb Highway they will access the Project Area via each of the 4 proposed site access locations shown in Figure 1.

It is noted that the return journey to the Port of Adelaide is proposed to utilise a shorter route via Mildura, subject to permits and approvals.

Figure 17: OSOM Wind Turbine Blade and Tower Routes



BLADE ROUTE

	START - Port Adelaide
0.0 KM	Ocean Steamers Rd
0.1 KM	Eastern Pde
1.0 KM	Port River Expy
4.4 KM	North-South Mwy
42.7 KM	Sturt Hwy
44.4 KM	Horrocks Hwy
84.4 KM	Barrier Hwy
150.7 KM	(Burra bypass)
154.7 KM	Barrier Hwy
503.7 KM	(Broken Hill bypass)
509.5 KM	Barrier Hwy
723.5 KM	Cobb Hwy
1,129.0 KM	**FINISH - The Plains REP**

TOWER ROUTE

	START - Port Adelaide
0.0 KM	Ocean Steamers Rd
0.1 KM	Eastern Pde
1.0 KM	Port River Expy
9.4 KM	Port Wakefield/Augusta Hwy
201.7 KM	Wilkins Hwy
249.0 KM	(Jamestown Bypass)
254.0 KM	Wilkins Hwy
254.8 KM	Jamestown-Yarcowie/Whyte Rd
279.8 KM	Barrier Hwy
576.8 KM	(Broken Hill bypass)
582.6 KM	Barrier Hwy
796.6 KM	Cobb Hwy
1,201.3 KM	**FINISH - The Plains REP**

Source: Ares Report

6.4.2 Road Upgrades and Traffic Management Measures

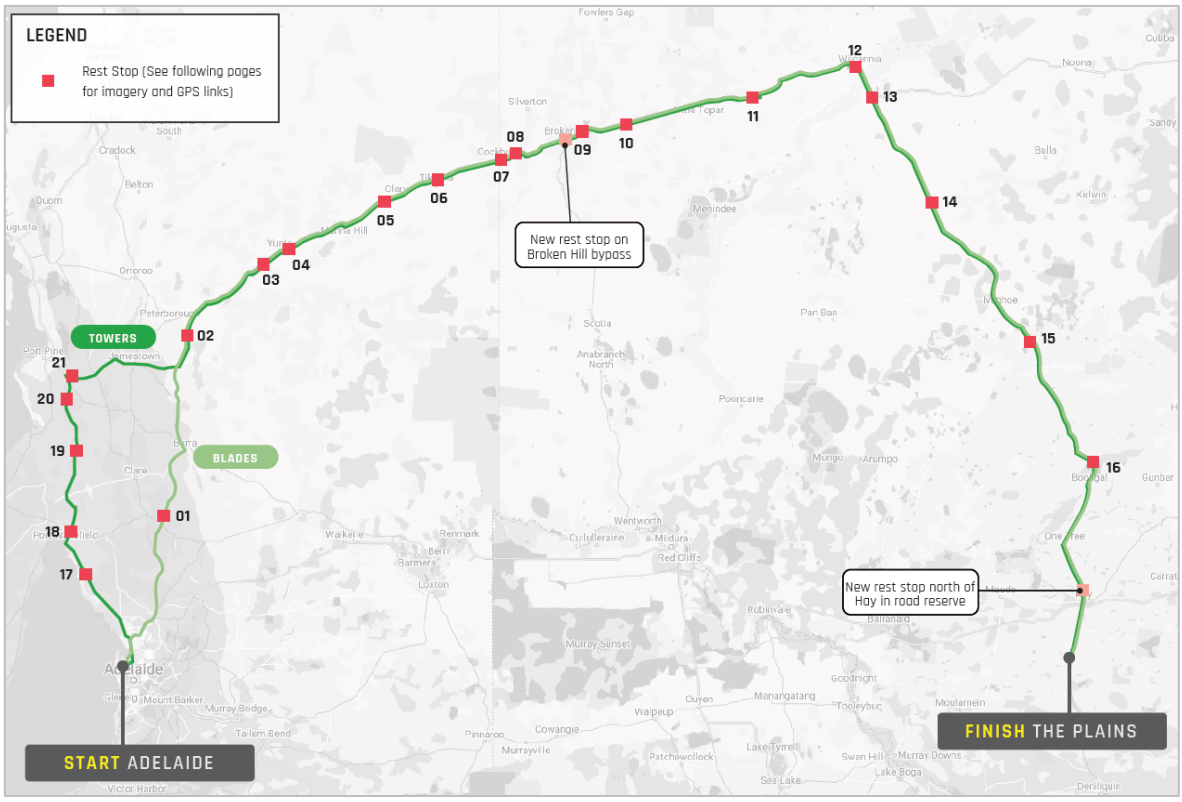
The Ares Report includes a swept path analysis for the transportation of the wind turbine blades at key locations along the access route in order to identify 'pinch points' where vehicle manoeuvrability will be challenging and road upgrades may be required. The 'pinch points' are marked along the access routes shown in Figure 17 and details of the required road upgrades are provided within the Ares Report.

Amber has reviewed the routes identified by Ares to confirm the suitability of the proposed routes and the required road upgrades. The assessment identified no further upgrades to the road network to that identified in the Ares Report.

The access routes predominantly travel along State Highways which provide regular truck parking areas and services for rest breaks. Regular passing opportunities are provided along the route to allow general traffic to pass OSOM vehicles given there are a number of sections which would require the OSOM vehicle to utilise the full width of the road. A total of 18 rest areas have been identified along the blade route and 22 along the tower route, noting several rest areas are proposed as 'backup' locations which would only be utilised if the primary locations are unsuitable for any unforeseen reason. It is noted that one new rest area is proposed to be constructed along Cob Highway north of Hay, and vehicles may also stop along the new private road bypass through Broken Hill.

Aerial imagery is provided within the Ares Report which demonstrates that the rest areas can be suitably accessed by the OSOM vehicles. Use of the rest stops will be included as part of the future Traffic Management Plan for OSOM vehicle access that is to be prepared by the appointed contractor prior to construction. An overview of the proposed rest stop locations is provided in Figure 18 and Table 16.

Figure 18: Rest Stop Locations



Source: Ares Report

Table 16: Rest Stop Details

Ref	Distance from Port (km)	Rest Stop Name	Proposed Use
Blades			
01	102	Parking Bay north of Saddleworth	*Backup*
Tower Route (SA)			
17	76	Parking Area south of Inkerman	*Backup*
18	93	Parking Area north of Port Wakefield	*Backup*
19	151	Truck Parking Area in Hope Gap	*Backup*
20	183	Truck Parking Area in Merriton	*Backup*
21	201	Wilkins Highway Parking Area	Towers
Combined Blade/Tower Route (SA and NSW)			
02	218	Woodcutters Road Parking Area	*Backup*
03	253	Barrier Highway Parking Area in Nackara	Blades
04	307	Yunta Rest Area	Towers
05	367	Truck Parking Area in Outalpa	Blades
06	414	Barrier Highway Parking Area in Tikalina	*Backup*
07	456	Cockburn Rest Stop	Blades & Towers
08	469	Thackaringa Hills Rest Stop	*Backup*
OP1	Overnight parking area proposed along the Broken Hill Bypass		Blades & Towers
09	510	Round Hills Rest Stop	*Backup*
10	538	Mount Gipps Rest Stop	*Backup*
11	640	Dolo Hills Rest Stop	*Backup*
12	700	Wilcannia Township	Blades & Towers
13	720	Cobb Highway Parking Area	*Backup*
14	792	Half Way Tree	*Backup*
15	891	Cobb Highway Parking Area in Abbotsford Bore	Blades & Towers
16	1002	Bairds Truck Stop (not to be used for blades)	*Backup*
OP2	Overnight parking area proposed alongside Cobb Highway, north of Hay		Blades & Towers

Source: Ares Report

It is noted that the section between Broken Hill and Hay is approximately 600km and provides limited amenities and mobile phone coverage. A service vehicle would accompany the OSOM vehicles throughout this section of the route to ensure any unforeseen breakdowns or mechanical issues can be addressed in a timely manner and with minimal impacts.

Further assessment is provided below for the railway crossings along the route as well as impacts to vulnerable road users, school bus services and emergency vehicles. Recommendations are also provided for inclusion within the Traffic Management Plan.

6.4.3 Railway Level Crossings

The Ares Report identifies 9 railway level crossings along each route (towers and blades) which are managed by rail authorities ARTC, Aurizon and UGL Regional Linx. Written approval will be sought from the relevant rail authorities for all level crossings as part of the TMP. A copy of the relevant advice obtained from the rail authorities is included within the Ares Report (Appendix A).

6.4.4 Bridges and Culverts

Bridge assessments have been undertaken by TfNSW for all bridges and structures along the NSW State Road network. A copy of the assessment finding is included within the Ares Report (Appendix A) which indicates that the vehicles are able to access the site subject to several conditions.

6.4.5 Height Clearances

The Ares Report identifies a number of relevant overhead structures along the OSOM route for the towers which are outlined below:

- Hanson Road overpass of Port River Expressway (6.0m height clearance)
  - Able to be bypassed via off-ramps and on-ramps.
- North-South Motorway overpass of Port River Expressway (7.2m height clearance)
  - Available height clearance exceeds the maximum height of the load using bookend trailers which can be hydraulically lowered.
- Gantries for highway VMS signboards at various locations in Adelaide metro area
  - All gantries are able to be bypassed.
- Copper Coast Highway overpass of Augusta Hwy at Port Wakefield (7.6m clearance)
  - Available height clearance exceeds the maximum height of the load using bookend trailers which can be hydraulically lowered.

The Ares Report also identifies that any power lines which may impact height clearances along the route would be permanently lifted. The relevant power lines would be identified through detailed surveys from the power authorities.

High load escorts would also likely be required to accompany the OSOM loads.

6.4.6 Vulnerable Road Users

A review of the OSOM access routes has been undertaken to identify locations where vulnerable road users may be present on the road network. The assessment focuses on facilities such as schools and hospitals that are attended by vulnerable road users including children or people with disabilities. Table 17 identifies locations where these facilities are provided and the probability of vulnerable road users being present on or adjacent to the access route. Locations identified where there is the possibility for OSOM vehicles to interact with vulnerable road users are highlighted within the table.

Table 17: Assessment of Vulnerable Road Users Along the Access Route

Site	Location	Road Environment and Pedestrian Access Arrangements	Likelihood of Vehicle / Pedestrian Conflict
Adelaide Metro Area			
Settlers Farm Campus R-6 and Kindergarten	Approximately 300m east of Princes Highway in Paralowie.	No pedestrian footpaths are provided on Princes Highway and all pedestrian access is from the local road network. Access via Barassi Street and Du Villars Street.	Unlikely
Trinity Collage - Roseworthy	Approximately 250m west of Horrocks Highway on the north side of The Boulevard.	No pedestrian footpaths or crossings are provided on Horrocks Highway near the site. Pedestrian access is via The Boulevard.	Unlikely
Roseworthy Primary School	Approximately 300m west of Horrocks Highway on the south side of Elizabeth Street.	No pedestrian footpaths or crossings are provided on Horrocks Highway near the site. Pedestrian access is via Elizabeth Street.	Unlikely
Tarlee (Regional SA)			
Tarlee Primary School	Approximately 450m northeast of Horrocks Highway on the east side of Craig Street.	No pedestrian footpaths or crossings are provided on Horrocks Highway near the site. Pedestrian access is via Craig Street.	Unlikely
Riverton (Regional SA)			
Riverton Primary School	Approximately 250m west of Barrier Highway on the west side of Swinden Street.	No pedestrian crossings are provided on Barrier Highway near the site. Pedestrian footpaths are provided on both sides of the road. Pedestrian access is via Swinden Street.	Possible
Gilbert Valley Senior Citizen's Home	Approximately 300m west of Barrier Highway on the north side of Masters Street.	No pedestrian crossings are provided on Barrier Highway near the site. Pedestrian footpaths are provided on both sides of the road. Pedestrian access is via Masters Street.	Possible
Saddleworth (Regional SA)			
Saddleworth Primary School	Approximately 300m east of Barrier Highway on the north side of Saddle Road.	No pedestrian crossings are provided on Barrier Highway near the site. A pedestrian footpath is provided on the east side of the road. Pedestrian access is via Saddle Road.	Possible
Maroona (Regional SA)			
Manoora Primary School	On the west side of Barrier Highway near old Manoora Road.	No pedestrian footpaths or crossings are provided on Barrier Highway near the site. Pedestrian access is via Barrier Highway.	Possible

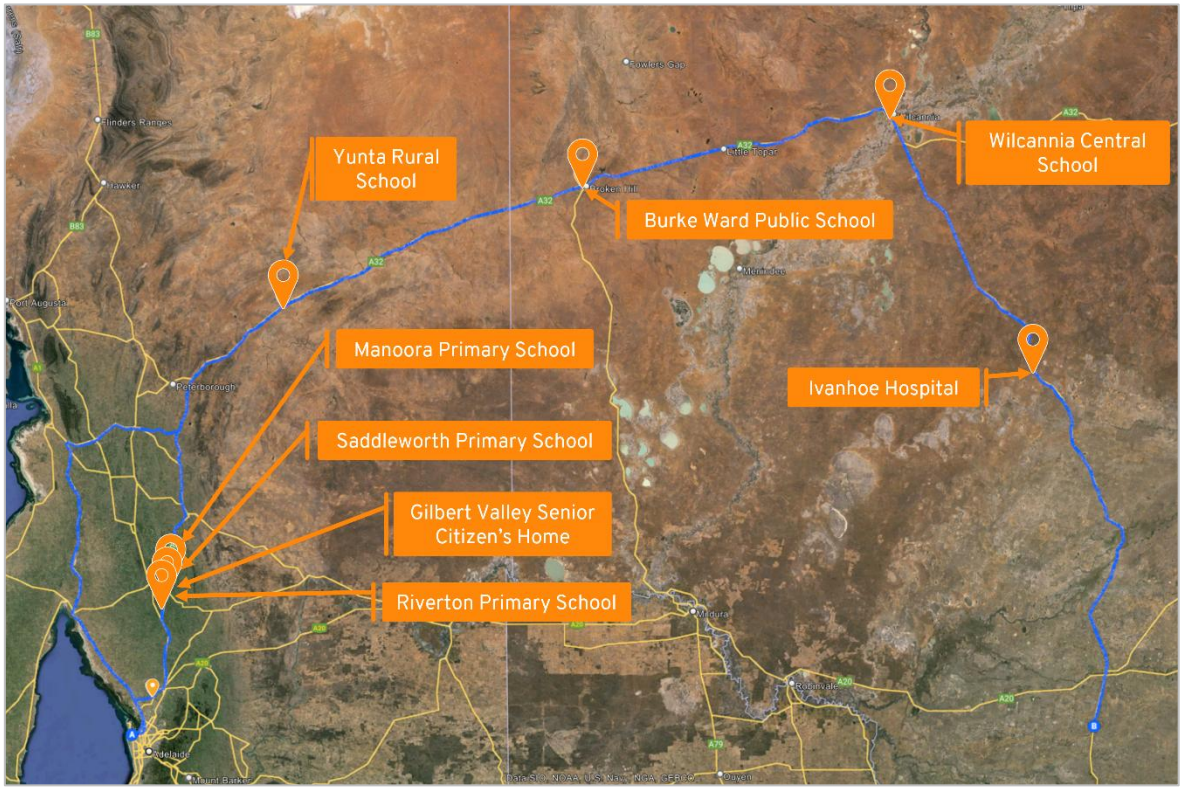
Site	Location	Road Environment and Pedestrian Access Arrangements	Likelihood of Vehicle / Pedestrian Conflict
Port Wakefield (Regional SA)			
Port Wakefield Primary School	Approximately 450m southwest of Port Wakefield Highway on the west side of Copper Street.	No pedestrian crossings are provided on Port Wakefield Highway near the site. Pedestrian footpaths are provided on both sides of the road. Pedestrian access is via Copper Street and Mine Street.	Unlikely
Gladstone (Regional SA)			
Gladstone Primary School and Kindergarten	Approximately 450m south of Wilkins Highway on the south side of North Terrace.	No pedestrian footpaths or crossings are provided on Wilkins Highway near the site. Pedestrian access is via West Terrace.	Unlikely
St Joseph's Parish School	Approximately 450m south of Wilkins Highway on the south side of North Terrace.	No pedestrian footpaths or crossings are provided on Wilkins Highway near the site. Pedestrian access is via North Terrace.	Unlikely
Jamestown (Regional SA)			
Jamestown Community School and Children's Centre	On the north side of Wilkins Highway near Humphris Terrace.	Footpaths are provided on both sides of the road and a signalised pedestrian crossing is provided. Pedestrian access is via Humphris Terrace.	Unlikely
St James School	On the south side of Wilkins Highway near Humphris Terrace.	Footpaths are provided on both sides of the road and a signalised pedestrian crossing is provided. Pedestrian access is via Humphris Terrace.	Unlikely
Yunta (Regional SA)			
Yunta Rural School	On the north side of Barrier Highway in Yunta	No pedestrian footpaths or crossings are provided on Barrier Highway near the site. Pedestrian access is via Barrier Highway.	Possible
Broken Hill (Regional NSW)			
Burke Ward Public School	On the south side of Barrier Highway in Broken Hill	Footpaths are provided on both sides of Barrier Highway and a signalised pedestrian crossing is provided. Pedestrian access is via Barrier Highway.	Possible
Broken Hill High School	Approximately 400m southeast of Crystal Street on the southwest side of Kaolin Street	Footpaths are provided on both sides of the Crystal Street and no crossings are provided. Pedestrian access is via Kaolin Street.	Unlikely

Site	Location	Road Environment and Pedestrian Access Arrangements	Likelihood of Vehicle / Pedestrian Conflict
Broken Hill Community Health Centre Drive-through Clinic	Approximately 200m northwest of Barrier Highway on the south side of Beryl Street and approximately 80m northwest of Silver City Highway on the west side of Sulphide Street	Footpaths are provided on both sides of the Barrier Highway and Silver City Highway and no crossings are provided. Pedestrian access is via Beryl Street and Sulphide Street.	Unlikely
Wilcannia (Regional NSW)			
Wilcannia Central School	Approximately 150m southwest of Barrier Highway in Wilcannia	Footpaths are provided on both sides of Barrier Highway and no crossings are provided. Pedestrian access is via Hood Street and Cleaton Street.	Possible
Ivanhoe (Regional NSW)			
Ivanhoe Hospital	On the southwest side of Cobb Highway in Ivanhoe	No pedestrian crossings are provided on Cobb Highway near the site. A pedestrian footpath is provided on the southwest side of the road. Pedestrian access is via Cobb Highway.	Possible
Ivanhoe Central School	On the northeast side of Cobb Highway in Ivanhoe	Footpaths are provided on both sides of Cobb Highway and a zebra crossing is provided near the school. Pedestrian access is via Cobb Highway.	Unlikely
Ivanhoe PRE School	On the southwest side of Cobb Highway in Ivanhoe	Footpaths are provided on both sides of Cobb Highway and a zebra crossing is provided near the school. Pedestrian access is via Cobb Highway.	Unlikely
Booligal (Regional NSW)			
Booligal Public School	Approximately 150m west of Cobb Highway on the north side of Harvey Street	No pedestrian footpaths or crossings are provided on Cobb Highway near the site. Pedestrian access is via Harvey Street.	Unlikely
Hay (Regional NSW)			
Hay Hospital	Approximately 500m east of Cobb Highway on the north side of Murray Street	Footpaths are provided on both sides of Cobb Highway and no crossings are provided. Pedestrian access is via Murray Street.	Unlikely
Hay Public School	On the east side of Cobb Highway in Hay	Footpaths are provided on both sides of Cobb Highway and a zebra crossing is provided near the school. Pedestrian access is via Cobb Highway.	Unlikely
Hay War Memorial High School	Approximately 250m west of Cobb Highway on the north side of Morgan Street	Footpaths are provided on both sides of Cobb Highway and a zebra crossing is provided near the school. Pedestrian access is via Morgan Street, Pine Street and Cadell Street.	Unlikely

Site	Location	Road Environment and Pedestrian Access Arrangements	Likelihood of Vehicle / Pedestrian Conflict
Haydays Retirement Hostel	Approximately 500m east of Cobb Highway on the south side of Murray Street	Footpaths are provided on both sides of Cobb Highway and no crossings are provided. Pedestrian access is via Murray Street and Coke Street.	Unlikely

Locations identified where there is the possibility for OSOM vehicles to interact with vulnerable road users are highlighted within Table 17 and mapped in Figure 19. The peak operating times at these locations should be identified and, where possible, OSOM transport avoided near these facilities during these peak times which would be included as part of the TMP.

Figure 19: Vulnerable Road Users – Locations of Potential Conflict



Source: Google Earth

6.4.7 Public Transport and School Bus Routes

No public transport services are provided within the vicinity of the Project Area. However, a number of school bus routes are provided along Cobb Highway which have been outlined within Section 2.5. It is noted that the proposed OSOM travel routes from the Port of Adelaide are in the order of 1,200km and there may be additional school bus services operating along various sections of the routes.

As OSOM vehicles will avoid travel through major towns during peak times, it is not anticipated that these vehicles will cause any notable impacts to school bus services. Nonetheless, during the OSOM deliveries, the following mitigation measures will be incorporated in the TMP for the Project:

- Drivers must reduce their speed and or stop in accordance with the law when passing a school bus which is slowing down, stopped, or accelerating in relation to picking up or setting down children;
- Drivers must reduce their speed in accordance with the law when:
  - Passing children walking, cycling or waiting on the side of the road;
  - Passing an oncoming school bus.
- Truck drivers travelling on school bus routes at the same time as an oncoming school bus to use their CB radio to identify the location of the bus and pull over in a safe location before the school bus reaches and passes them.

Adoption of the above measures will ensure safety is maintained to vulnerable road users alighting the school buses during delivery of larger plant.

6.5 Broken Hill

The Ares Report assessed three potential route options for the transport of the turbine blades through Broken Hill. Two route options through the town were found to be unfeasible due to the road environment and constraints at existing intersections.

The proposed route makes use of a new 3.7km bypass track connecting from Barrier Highway to Gaffney Street through undeveloped land to the west of the town. It is understood that consultation has been carried out between the Applicant and Broken Hill City Council regarding the route options and requirements for OSOM vehicle access. The Ares Report reflects the preferred route and feedback received from Council. An overview of the consultation is provided in Section 10.

6.6 Summary

The Route Assessment prepared by Ares for the OSOM wind turbine transport vehicles identifies a number of road upgrades required in order to allow the vehicles to successfully access the site from the Port of Adelaide, with a summary provided in Table 18.

Table 18: Road Upgrade Schedule - OSOM Route

Pinch Point	Location	Required Road Upgrades
01	Ocean Steamers Road / Eastern Parade (Port Adelaide, SA)	Gate to be widened at storage area exit.
02	Eastern Parade / Port River Expressway (Port Adelaide, SA)	1 light pole and possibly 1 traffic light to be relocated (subject to blade tip positioning).
03	Sturt Highway / Horrocks Highway (Gawler, SA)	2 signs to be made removeable and 1 light pole to be relocated. Approx. 420sqm total hardstand required.
04	Horrocks Highway (Tarlee, SA)	Minor tree trimming south of Tarlee.

Pinch Point	Location	Required Road Upgrades
05	Barrier Highway / Copperhouse Road (Burra, SA)	2 signs to be made removeable, approx. 550sqm total hardstand required.
06	Copperhouse Street / West Street (Burra, SA)	Tree trimming and/or removal, approx. 150sqm total hardstand required.
07A	Broken Hill, NSW	Construction of new temporary gravel bypass track to Gaffney St (approx. 3.7km). Track to be wind farm specification, i.e. min 5.5m width, suitable for axle loads. New intersection off Barrier Hwy required. 1 sign to be relocated. *Strategic Design provided in Appendix H.*
08A	Crystal Street / Sturt Street (Broken Hill, NSW)	Gravel track to be built through private land. Track to be wind farm specification, i.e. min 5.5m width, suitable for axle loads. 1 sign to be relocated. *Strategic Design provided in Appendix H.*
08B	Barrier Highway / Chettle Street (Broken Hill, NSW)	Gravel track to be built through private land with sealed section adjacent to Barrier Highway. Track to be wind farm specification, i.e. min 5.5m width, suitable for axle loads. Egress gate to be installed on Barrier Hwy. *Strategic Design provided in Appendix H.*
09	Cobb Highway / Sturt Highway (Hay, NSW)	3 light poles to be relocated, and 3 signs to be made removeable. Total 300sqm of sealed hardstand required. *Strategic Design provided in Appendix H.*
10	Cobb Highway / West Burrabogie Road (Booroorban, NSW)	Approx. 550sqm total hardstand required.
S01-S07	Cobb Highway	Hardstand required at each site access location to accommodate OSOM vehicles.

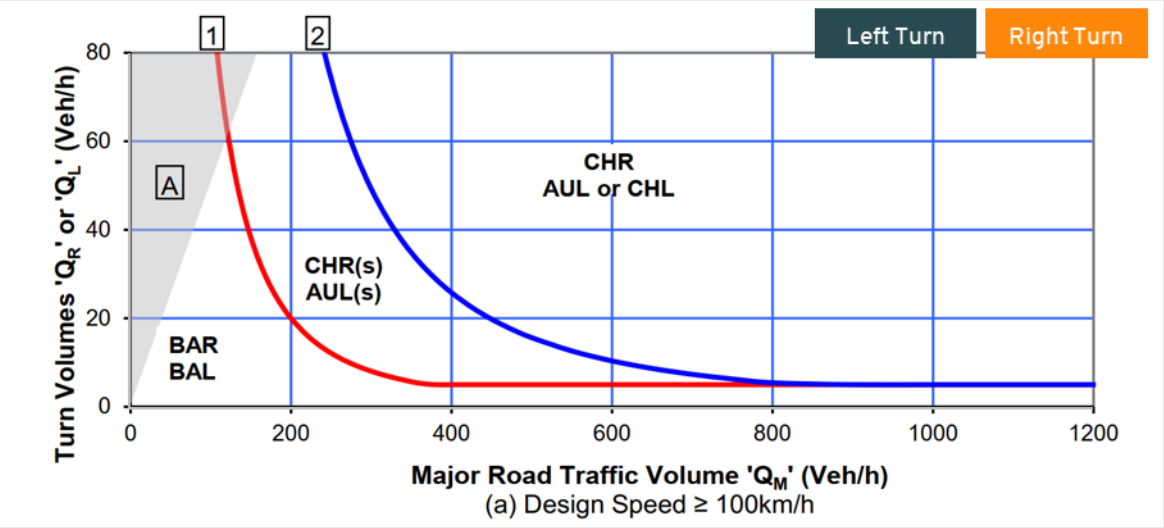
Recommended driver protocols for delivery of larger plant and equipment are outlined within Section 9.7. Based on the assessment, it is concluded that the OSOM vehicles are able to suitably access the Project Area subject to the proposed road upgrades and traffic management measures.

7. Intersection Assessment

7.1 Turn Treatments

Austroads Guide to Traffic Management Part 6: Intersections, Interchanges, and Crossings specifies the turning treatments required at intersections. Figure 3.25 of the guide specifies the required turn treatments on the major road at unsignalised intersections and is provided below in Figure 20 for a design speed of 100 km/h or higher.

Figure 20: Figure 3.25 of Austroads Guide to Traffic Management Part 6



The requirement to provide turn facilities at the intersection of Cobb Highway and West Burrabogie Road is primarily generated during the morning peak hour when staff access the site which occurs from 6:00am to 7:00am. Table 19 identifies the required turning treatments based on the expected traffic volumes at the intersection from Figure 15.

Table 19: Turning Volumes – Cobb Highway / West Burrabogie Road

Turning Treatment	Traffic Volume (vph)		Proposed Treatment
	Turn Volume	Major Road	
Right Turn	111	222	Exceeds graph axis - CHR(s) proposed
Left Turn	94	48	Exceeds graph axis - BAL proposed

It is proposed to provide CHR(s) and BAL treatments with the layout provided in Appendix I.

In order to confirm the intersection can accommodate B-Double vehicles a swept path assessment has been provided within Appendix I using the Autodesk Vehicle Tracking software. The assessment demonstrates that the vehicle is able to suitably turn to/from Cobb Highway with the inclusion of the proposed road upgrades. Accordingly, it is concluded that the intersection has been suitably designed and is able to accommodate the vehicles expected to access the site.

7.2 Sight Distance Assessment

Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections specifies the Safe Intersection Sight Distance (SISD) as the minimum sight distance which should be provided along the major road at any intersection. Table 3.1 of the guide specifies the SISD required for various design speeds. Given Cobb Highway has a speed limit of 110 km/h, a design speed of 120 km/h has been adopted which requires an SISD of 341m based on a reaction time of 2.5 seconds.

The available sight distance at the intersection exceeds the requirements of the Austroads Guide given the relatively flat and straight alignment of the road network as illustrated within Figure 21. Accordingly, vehicles are expected to be able to safely enter and exit the State Road network.

Figure 21: Sight Distance Assessment - Cobb Highway and West Burrabogie Road

Cobb Highway / West Burrabogie Road	
Facing north	**Facing south**
	
Available SISD: 341m+	*Available SISD: 341m+*

8. Site Access Assessment

8.1 Turn Treatments

An assessment of the required turn treatments at each of the access locations is provided below. It is noted that the application of the Austroads turn treatment requirements is typically reserved for State and Regional roads and has therefore been assessed for Site Access A, B, C, D and E which are directly along Cobb Highway.

8.1.1 Site Access A, B, C, D and E

The traffic volumes used for the assessment are provided in Figure 22.

Figure 22: Traffic Volumes - Site Access Locations along Cobb Highway

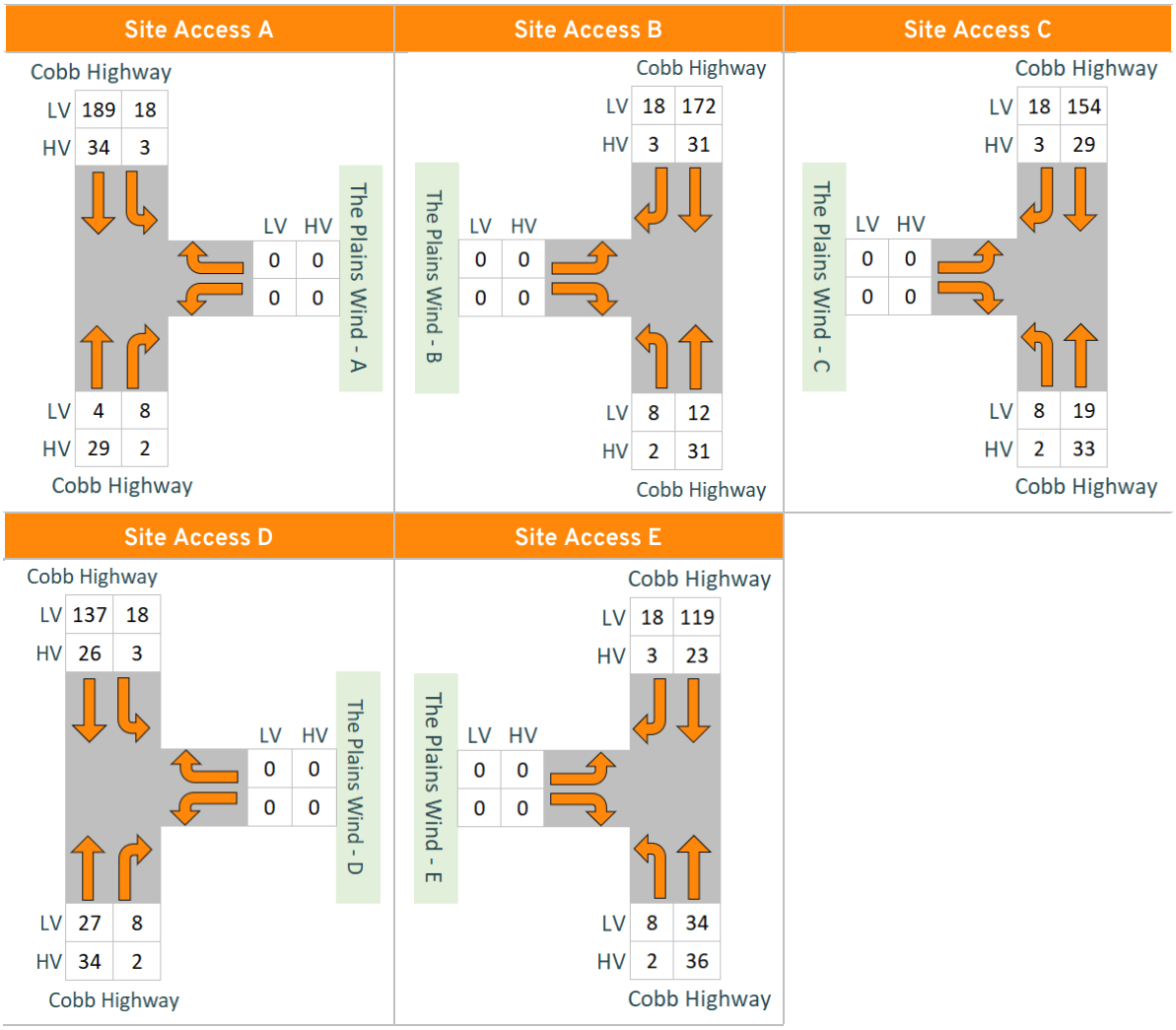
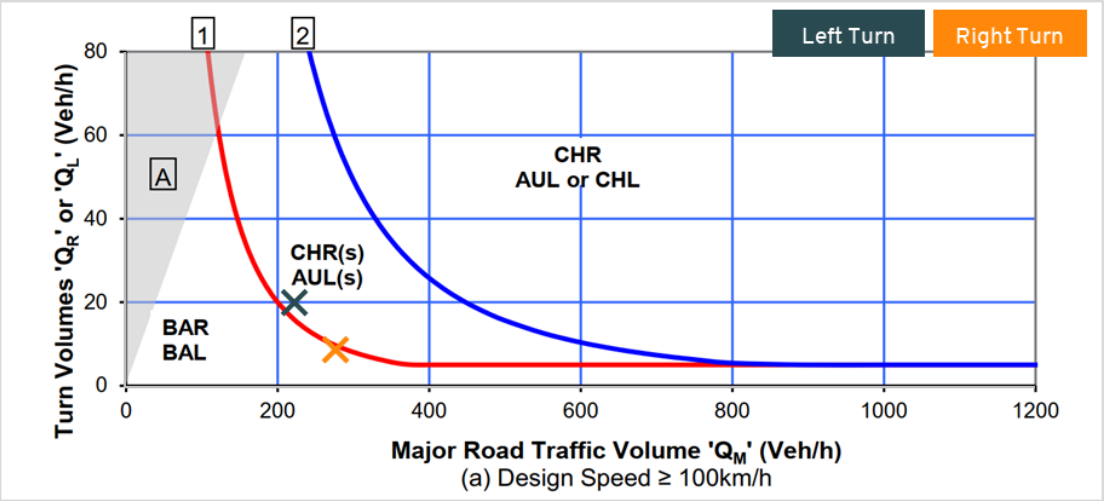


Table 20 identifies the required turning treatments based on the expected traffic volumes at the intersection which have been plotted on Figure 23.

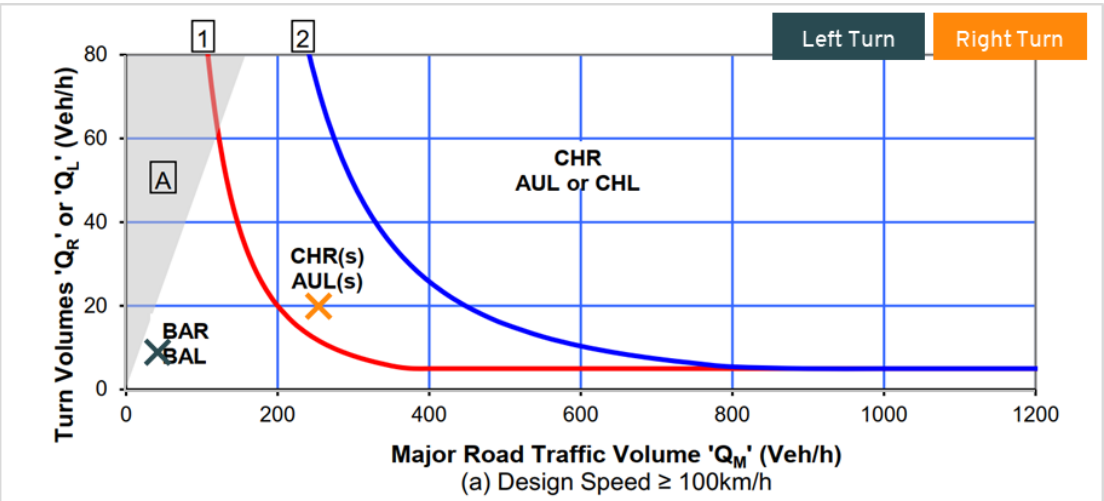
Table 20: Turning Volumes for Turn Treatment Calculations – Site Access Locations along Cobb Highway

Site Access	Turn Treatment	Traffic Volume (vph)		Requirement
		Turn Volume	Major Road	
Site Access A	Right Turn	9	277	BAR
	Left Turn	20	223	AUL(s)
Site Access B	Right Turn	20	255	CHR(s)
	Left Turn	9	43	BAL
Site Access C	Right Turn	20	244	CHR(s)
	Left Turn	9	52	BAL
Site Access D	Right Turn	9	244	BAR
	Left Turn	20	162	BAL
Site Access E	Right Turn	20	222	CHR(s)
	Left Turn	9	70	BAL

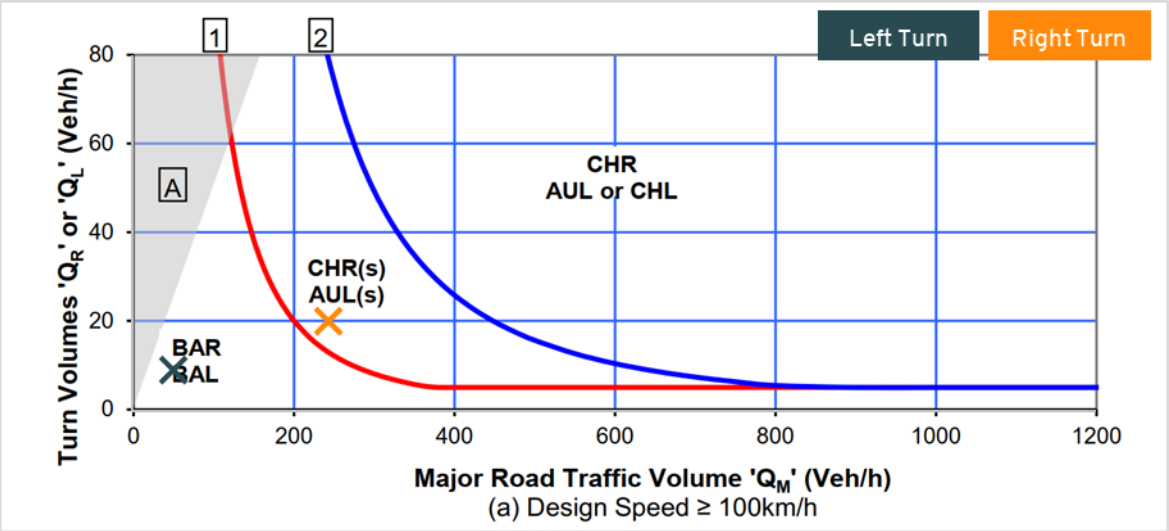
Figure 23: Figure 3.25 of Austroads Guide to Traffic Management Part 6



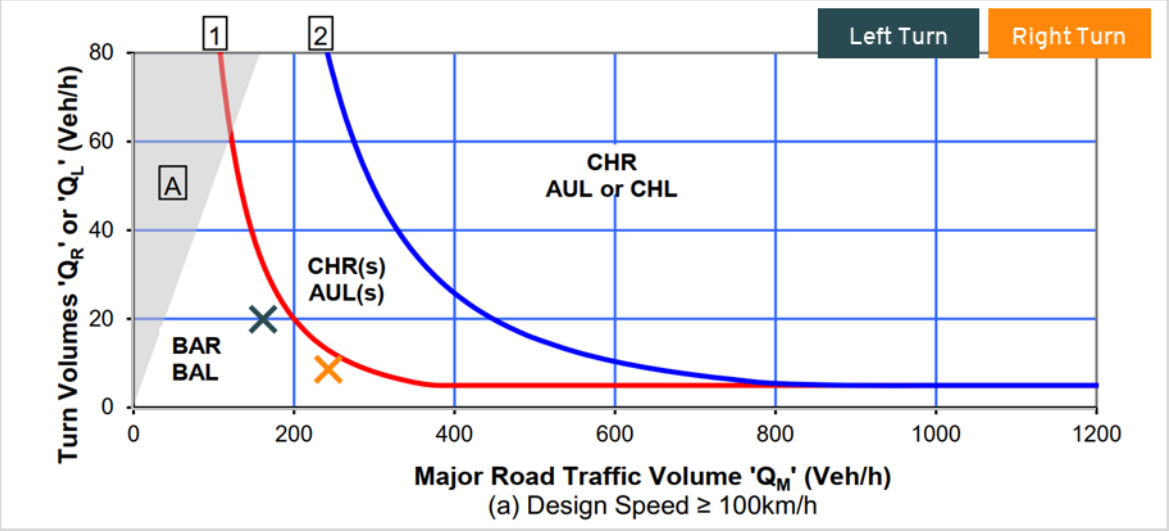
Site Access A



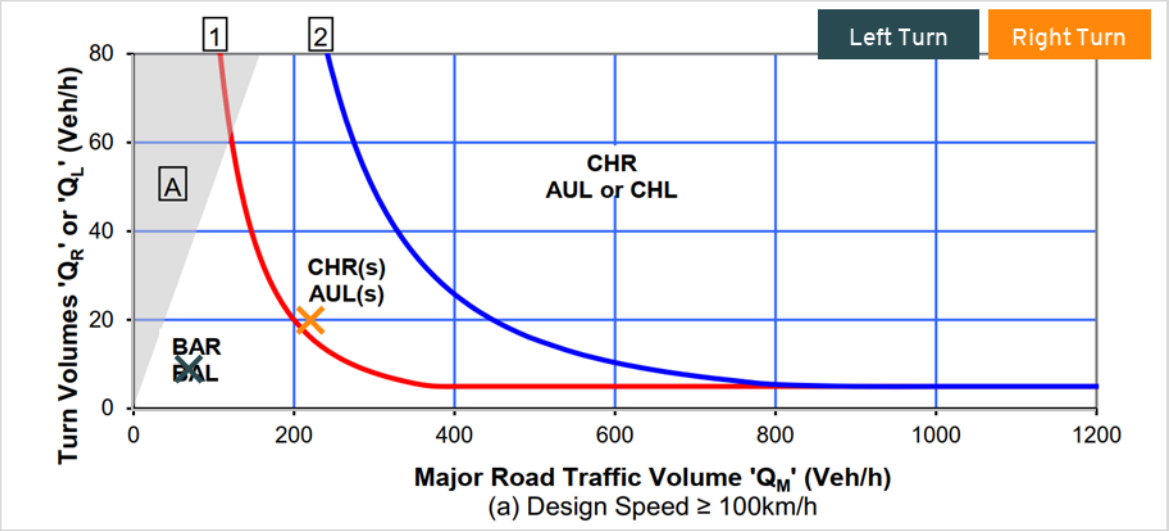
Site Access B



Site Access C



Site Access D



Site Access E

Therefore, the required turn treatments at the site access locations are outlined as follows:

- Site Access A: AUL(s) and BAR
- Site Access B, C and E: BAL and CHR(s)
- Site Access D: BAL and BAR.

Accordingly, it is proposed to provide all site access locations with the required turn treatments with the proposed layout for each access provided in Appendix J. In order to confirm each site access can accommodate B-Double vehicles a swept path assessment has been provided using the Autodesk Vehicle Tracking software. The assessment demonstrates that the vehicle is able to suitably turn to/from Cobb Highway at each location with the inclusion of the proposed road upgrades. Accordingly, it is concluded that each site access along Cobb Highway has been suitably designed and is able to accommodate the vehicles expected to access the site.

8.1.2 Site Access F and G

West Burrabogie Road is a local road which provides access for a small number of properties and does not cater for general through traffic. The proposed layout for Site Access F and G on West Burrabogie Road is provided in Appendix K which includes a swept path assessment using the Autodesk Vehicle Tracking software. The assessment demonstrates that each site access has been suitably designed to accommodate simultaneous turning manoeuvres.

8.2 Sight Distance Assessment

An assessment of the Safe Intersection Sight Distance has been carried out at each of the site access locations to ensure vehicles are able to safely enter the State Road network. The required SISD at each location is outlined below based on a reaction time of 2.5 seconds:

- Site Access A, B, C, D, E and the dedicated Emergency Access along Cobb Highway: 341m for a 120 km/h design speed.
- Site Access F and G along West Burrabogie Road: 300m for a 110 km/h design speed.

The available sight distance at each site access exceeds the requirements of the Austroads Guide given the relatively flat and straight alignment of the road network with vegetation generally limited to low-level ground cover. The sight distance for each access location is depicted within Figure 24.

Accordingly, vehicles are expected to be able to safely enter the road network from all proposed site access locations.

Figure 24: Sight Distance Assessment – Site Access Locations

Site Access A – Cobb Highway	
Facing north	**Facing south**
	
Available SISD: 341m+	*Available SISD: 341m+*
Site Access B – Cobb Highway	
Facing north	**Facing south**
	
Available SISD: 341m+	*Available SISD: 341m+*
Site Access C – Cobb Highway	
Facing north	**Facing south**
	
Available SISD: 341m+	*Available SISD: 341m+*

Site Access D – Cobb Highway	
Facing north	**Facing south**
	
Available SISD: 341m+	*Available SISD: 341m+*

Site Access E – Cobb Highway	
Facing north	**Facing south**
	
Available SISD: 341m+	*Available SISD: 341m+*

Emergency Access – Cobb Highway	
Facing north	**Facing south**
	
Available SISD: 341m+	*Available SISD: 341m+*

Site Access F – West Burrabogie Road	
Facing east	**Facing west**
	
Available SISD: 300m+	*Available SISD: 300m+*

Site Access G – West Burrabogie Road	
Facing east	**Facing west**
	
Available SISD: 300m+	*Available SISD: 300m+*

9. Traffic Management Plan

It is recommended that a TMP be prepared prior to commencement of construction of the development. The TMP should be prepared and implemented in accordance with Australian Standard 1742.3 and the Work Health and Safety Regulation 2017. The TMP would provide additional information regarding the traffic volumes and distribution of construction vehicles that is not available at this time including:

- Road transport volumes, distribution and vehicle types broken down into:
    - Hours and days of construction.
    - Schedule for phasing/staging of the project.
- The origin, destination and routes for:
    - Employee and contractor light traffic.
    - Heavy vehicle traffic.
    - OSOM traffic.
- A map of the primary haulage routes highlighting critical locations.
- An induction process for vehicle operators and regular toolbox meetings.
- A complaint resolution and disciplinary procedure.
- Local climatic conditions that may impact road safety of employees throughout all project phases (e.g. fog, wet and significant dry, dusty weather).

The following provides recommended measures that should be adopted within the TMP to minimise the impact of construction traffic along the road network.

9.1 Information and Communication

The implementation of a community information and awareness program would assist in managing the traffic impacts. Prior to construction commencing and during the construction period, a program of consultation shall be initiated to ensure local residents are aware of construction traffic accessing the project. This program may include elements of the following as appropriate to the phase of works:

- Press releases in local newspapers;
- Specific emails, newsletters and individual letter drops to neighbouring residents along the access route to the project;
- Provision of a website providing details of the status of works and contact details for complaints or enquiries;
- Provide key contact personnel and contact details, including out of hours contact information to residents, schools, public activities and business operating alongside the local route; and
- Neighbours of the wind farm will be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.

9.2 Signage

If deemed necessary, specific warning signs advising of the changed traffic operations and presence of heavy vehicles are to be appropriately located on approaches to and from the transport routes on Council roads. These should warn existing road users of changed traffic conditions. The use of day warning notices where signs are activated on a specific day to warn local road users of construction activities may also be applied.

9.3 Management of Vehicular Access

Management of vehicular access to and from the site is essential to maintain the safety of the general public as well as the labour force. The following code is to be implemented as a measure to maintain safety within the site:

- Utilisation of only the designated transport routes.
- Construction vehicles are to abide by finalised schedules as agreed by the relevant authorities.
- All vehicles associated with the Project construction, operation and/or decommissioning will enter and exit the Project Area via the designated site access locations as shown in Figure 1.

9.4 Emergency Access

All seven primary site access locations would also facilitate access for emergency vehicles. Each access has been designed for B-Doubles which are larger than any emergency service vehicle which would access the site and can therefore accommodate the relevant vehicles.

An additional dedicated emergency access location is proposed on the eastern side of Cobb Highway near West Burrabogie Road, as shown in Figure 1. A strategic concept design and swept paths are included in Appendix I which demonstrate the emergency access has been suitably designed to accommodate a Heavy Rigid Truck (12.5m) representing a specialist fire truck. Sufficient storage is provided at the throat of the access to allow for the emergency vehicle to store within the access and not within the through lane or shoulder.

Emergency service vehicles would access the site during emergency situations such as bushfire or flooding, and emergency procedures will be outlined in the Project's specific emergency management plan. During an emergency, the access locations may be utilised by light vehicles associated with the Project workforce, landowners and emergency response vehicles.

9.5 Carpooling Program

The Applicant has advised that a carpooling program would be implemented to support sharing of vehicles for the workforce travelling to/from the site. The program would consider:

- Incentives or benefits to encourage the use of carpooling.
- A roster system to rotate the carpooling drivers.
- Regular toolbox meeting sessions identifying method of travel to work and facilitating cooperation between workers.
- Identifying the drop off/pick up locations for participating vehicles.

- Allocating a team member to be responsible for enforcement and management of the carpooling program.
- Camera surveillance of the site access locations to monitor vehicle occupancy rates.
- Identifying mechanisms to be put in place if an average light vehicle occupancy of 2 people per vehicle is not achieved across the workforce.

9.6 On-Site Mitigation Measures

On-site mitigation measures targeted at safety and reducing the impact of on-site transport would include:

- On-site speed restrictions;
- Appropriate dust suppression measures;
- Maintenance program for on-site access tracks to ensure safe access;
- Loading and unloading is proposed to occur within the work area. No street or roads would be used for material storage at any time;
- Sufficient car parking is to be provided on-site to ensure vehicles do not park on the surrounding road network;
- All car parking and loading areas to be designed in accordance with the relevant Australian Standard (2890 series) and Council requirements.

9.7 Driver Protocols

Management of vehicular access to and from the site is essential in order to maintain the safety of the general public as well as the workforce. A Driver Code of Conduct is to be implemented as a measure to maintain safety within and around the site:

- All vehicles would enter and exit the site in a forward direction;
- Heavy vehicles should avoid travel during peak school bus times to limit the interaction of larger vehicles and vulnerable road users;
- Safety initiatives for impacts to residential areas and/or school bus zones;
- Utilisation of only the designated transport routes;
- Construction vehicles are to abide by finalised schedules as agreed by the relevant authorities; and
- All permits for working within the road reserve must be received from the relevant authority prior to works commencing.

The above recommendations would ensure the construction traffic would have a minimal impact to the capacity and safety of the surrounding road network. The TMP would be prepared in conjunction with consultation with Transport for NSW and the relevant Councils.

9.8 OSOM Vehicle Operating Protocols

Management of vehicular access to and from the Project is essential in order to maintain the safety of the general public as well as the labour force. Driver protocols for delivery of larger plant and equipment shall include the following:

- The arrangements for the delivery of OSOM loads and turbine components to the Project should avoid peak periods of traffic on the network as far as practicable and minimise disruption and disturbance to residents;
- OSOM load permits for turbine components shall be appended to the TMP;
- Pilots shall be in radio contact with other trucks to ensure passing occurs at safe and convenient locations;
- In the event of a breakdown, accident or road failure, the transporter crew shall do the following:
    - Park the pilot vehicles in locations where they maximise safety, considering overhanging components, and blind bends on approaches;
    - Contact emergency services (including Police) as is appropriate in the case of an accident;
    - Contact the project manager;
    - Contact the Council or other road controlling authority as may be appropriate in the case of the incident;
    - Contact the site manager to advise all other project traffic, and local traffic via CB radio as appropriate in the case of the incident; and
    - Follow all instructions from Police and the road controlling authority.
- In the case of an accident, the vehicles involved should not be moved until instructed by Police;
- Utilisation of only the designated transport routes; and
- Construction vehicle movements are to abide by finalised schedules as agreed by the relevant authorities.

10. Road Authority Consultation

The traffic assessment has been undertaken in consultation with TfNSW, Hay Shire Council, Edward River Council and Broken Hill Council. A summary is provided within the following table.

Table 21: Road Authority Consultation

Road Authority	Correspondence

TfNSW	Council officers met with TfNSW on 6 February 2024 to discuss the route assessment prepared by Ares for the wind turbine components travelling from the Port of Adelaide.
	TfNSW provided general advice as outlined below:
	• Route appears logical and should be support in-principle subject to detailed review.
	• Ares to update Route Assessment to include:
	  ○ GPS details of route
	  ○ Pull-over locations and rest areas
	  ○ Hardstands to be same material as adjoining road surface
	• Issue updated route assessment including OSOM vehicle data and GPS details to TfNSW for review.
	• Engage with Broken Hill Council regarding long-term legacy benefits of road upgrade/construction for bypass route. Arrange meeting with Council and TfNSW.

Hay Shire Council	It is understood that the Applicant has discussed the Project with Hay Shire Council, who had no objections regarding the proposed use of West Burrabogie Road.
Edward River Council	Council officers met with Edward River Council on 14 February 2024 to discuss the project. It was noted that the construction traffic is not proposed to utilise any local roads under the jurisdiction of Edward River Council.
Broken Hill Council	6 June 2023 – Email from the Applicant introducing the project and offering to have a call to discuss the proposed transport route assessment through Broken Hill. 19 June 2023 – Microsoft Teams meeting with Director of Planning and Infrastructure to discuss transport options for Oversize and Over mass components for the wind farm. Feedback on a preferred route was noted and updates to the OSOM route were made in response. 25 August 2023 – Email from the Applicant offering a meeting and summarising the ecology and biodiversity surveys that took place in and around the Broken Hill area. 23 February 2024 – Email from the Applicant requesting consent letter is signed from Broken Hill City Council for use of land that the council manages.

Appendix L provides a response to the traffic related matters within Agency Advice received from TfNSW and Edward River Council.

11. Mitigation Measure Summary

The assessment has identified a number of traffic management measures that are to be implemented during construction and recommended to be included in the TMP. The key measures are summarised below:

- Prior to construction, a pre-condition survey of the relevant section of West Burrabogie Road should be undertaken in consultation with Council. During construction the section of the road utilised by the Project is to be monitored and maintained to ensure continued safe use by all road users, and any faults attributed to construction of the wind farm would be rectified. At the end of construction, a post-condition survey would be undertaken to ensure the road network is left in a condition equivalent to that at the start of construction.
- Neighbours of the wind farm are to be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.
- It is recommended that the movement of OSOM vehicles is timed to not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application.
- Heavy vehicles should avoid peak school bus times to limit the interaction of larger vehicles and vulnerable road users.

11.1 Schedule of Road Upgrades

In addition to the above traffic management measures, it is proposed to provide road upgrades as part of the Project which are to be constructed prior to construction commencing. A schedule of the road upgrades proposed to accommodate general construction traffic is provided below:

- It is proposed to widen West Burrabogie Road between Cobb Highway and Site Access G to a minimum of 7.0m in order to allow two trucks to pass.
- It is proposed to provide CHR(s) and BAL turn treatments at the intersection of Cobb Highway and West Burrabogie Road as shown in Appendix I.
- It is proposed to provide turn treatments at all site access locations along Cobb Highway as follows and as shown in Appendix J:
    - Site Access A: AUL(s) and BAR
    - Site Access B, C and E: BAL and CHR(s)
    - Site Access D: BAL and BAR.

The surface and carriageway of the roads, with the inclusion of the proposed upgrades, are suitable to accommodate the future traffic volumes.

The Route Assessment prepared by Ares for the OSOM wind turbine transport vehicles also identifies a number of road upgrades required in order to allow the vehicles to successfully access the site from the Port of Adelaide, with a summary provided in Section 6.6.

12. Road Safety

Based on the above assessment it is concluded that the traffic generated by the construction, operation and decommissioning of the Project can be accommodated on the road network in a safe manner. A summary of the key safety matters is provided below:

- 9 railway level crossings are located along each OSOM access route which can be crossed in a safe manner.
- The access route for OSOM vehicles is proposed to avoid areas during peak times where vulnerable road users are present.
- Peak school bus times are proposed to be avoided where possible by OSOM and heavy vehicles to limit the impact to vulnerable road users.
- The road network will continue to operate with a good level of service.
- Suitable sight distance is provided at all intersections and access locations in accordance with the Austroads guide.
- A TMP will be prepared by the appointed contractor with the following key safety initiatives to be adopted:
  - Driver Code of Conduct.
  - OSOM vehicle operating protocols.
  - Key information relating to road safety to be provided to all staff.
  - Consultation with neighbours and local authorities regarding delivery of OSOM plant.
  - Regular dilapidation reports to be provided to ensure the road network is kept in a safe condition.
  - Suitable signage provided to advise road users.
- The surrounding road network currently operates in a relatively safe manner given the road classifications and lack of discernible crash trends. Accordingly, Project traffic is anticipated to be able to be accommodated in a safe manner subject to the adoption of the above measures.

Accordingly, the proposed operation of the Project and the management of development traffic is concluded to be in line with TfNSW Future Transport 2056 and the Towards Zero vision.

13. Conclusion

Amber Organisation has assessed the traffic impacts of the proposed 'The Plains Wind Farm' for ENGIE. This Amended Traffic Impact Assessment has been updated to respond to matters raised in the Request for Information received from DPHI.

The Project would accommodate 171 wind turbines with a maximum installed capacity of 1,230MW. The Project Area is located approximately 15km south of Hay and is situated on both sides of Cobb Highway. Vehicular access is proposed via seven site access points including five along Cobb Highway and two along West Burrabogie Road.

The construction period is expected to commence in Q1 of 2027 and take approximately 40 months, with the peak construction period expected to take 2 years. A construction workforce of up to 700 full-time equivalent personnel would be on-site during the peak construction phase, with 350 to be based at an on-site accommodation compound and the remaining 350 workers to be drawn from the surrounding area including Hay, Deniliquin and Griffith.

Large plant associated with the Project (excluding wind turbine components) will be delivered from the Port of Geelong using B-Doubles or shorter transport configurations, while all OSOM vehicles including the transport of wind turbines and towers will be from the Port of Adelaide. Materials and equipment will generally be sourced from within the surrounding area where practicable.

The above assessment determined the following:

- The site is expected to generate up to 664 vehicles per day during the peak construction period, including 314 heavy vehicles.
- The road network is able to accommodate the traffic generated by the development during the construction, operation and decommissioning stages based on the SIDRA analysis undertaken for the intersection of Cobb Highway and West Burrabogie Road.
- The proposed construction traffic access route from Port of Geelong to the site is generally designated for B-Double vehicles and as such, the access route is able to accommodate the loads and types of vehicle traffic to be generated during construction of the wind farm. It is noted that some vehicles may access the site via West Burrabogie Road which is unrated for 26m B-Doubles and requires approval from Hay Shire Council for these vehicles to utilise the road. It is understood that the Applicant has discussed the Project with Hay Shire Council, with no objections received from Council regarding the use of this road.
- West Burrabogie Road is proposed to be widened to a minimum width of 7.0m between Cobb Highway and Site Access G to allow two trucks to pass.
- OSOM vehicles would be required to deliver larger plant and equipment to the site including the wind turbine blades and towers. The vehicles are subject to specific road permits that would be applied for by the contractor. The access routes taken by the OSOM vehicles to deliver these components to the Project Area have been identified within a Route Assessment prepared by Ares which identifies a number of road upgrades are required in order to allow the transport vehicles to successfully access the site.
- The intersection of Cobb Highway and West Burrabogie Road is proposed to be upgraded with CHR(s) and BAL turn treatments, and is provided with adequate sight distance to allow vehicles to safely enter Cobb Highway.

- It is proposed to provide the required turn treatments at Site Access A, B, C, D and E along Cobb Highway. The site access locations are designed to accommodate two-way vehicle movement for B-Double vehicles and provided with adequate sight distance to allow vehicles to safely enter the road network.
- In order to mitigate the impacts of the development during construction a TMP would be prepared which should include the recommendations provided within this document.

Accordingly, based on the assessment above, it is concluded that the proposed access arrangements for the wind farm are suitable to accommodate the expected construction vehicle types and traffic volumes during the construction, operation, and decommissioning phases of the Project.

Appendix A

OSOM Route Assessment

www.aresgroup.com.au

www.aresgroup.com.au

The Plains R.E.P.

OSOM Route Study

Date:	December 2024
Client:	Aref Taleb
	Engie Aust & NZ
Type:	Physical Survey
Rev:	8

Silverton WF

Silverton WF is located 600 klms from the Port of Entry and had several challenges, including gradients in excess of 25 degrees.

The Plains R.E.P.

Route Study

“

The Plains Renewable Energy Park is a newly proposed large-scale development that aims to harness wind and solar energy to provide cheap, reliable and clean electricity for homes and businesses in NSW. The renewable energy park will include the construction of an integrated wind and solar farm and will operate alongside agricultural activities.

— engie.com.au/home/assets/wind/the-plains

Table of Contents

Introduction

The Plains Renewable Energy Park (REP) is a proposed renewable energy development located in the south western part of New South Wales. The Wind Farm will have a maximum installed capacity of up to 1.5GW as well as up to 400MWac of solar and up to 4hr at 400MW of battery storage.

The proposed project is located roughly 10km south of Hay, in the NSW South-West Renewable Energy Zone (REZ) which lies alongside the future Project EnergyConnect (Robertstown-to-Wagga Wagga) 330kV transmission line.

Following the Desktop Survey, Ares have been tasked to undertake physical Route Surveys from the chosen port of Adelaide to site. The purpose of the study is to determine the pinch points along the route, perform swept path analysis and give best estimates of modifications and works required to enable cargo to be brought to site.

The study is designed for those involved in the project that have a limited knowledge of transportation, including a comprehensive outline of the routes and actions required to achieve delivery.

01

Overview

Biala WF

Two prime movers transporting a Base Tower Section for the Biala Wind Farm.

Project Overview

The Plains Renewable Energy Park is a proposed renewable energy development located in the south western region of New South Wales. The Project will consist of up to 1.5GW of wind turbines in the South West Renewable Energy Zone.

Scope of Survey

The Plains REP is located in the western Riverina region of New South Wales, approximately 10 kilometres south of the town of Hay.

Following the initial Desktop Survey, the preferred port of import was identified as the **Port of Adelaide**. ARES was commissioned to physically drive the routes to identify, check and measure any pinch points en route, including any new issues or route options that were not apparent in the desktop analysis.

The physical route survey for Adelaide was conducted between April 18-21, 2023. The entire blade route was driven and examined except for the section of Cobb Hwy between Mossgiel and Booligal, which was closed by TfNSW due to recent flooding and associated repair works. (This is noted in the report.) The tower route was then driven from Adelaide to Whyte Yarcowie, whereupon it joins up with the blade route.

Following the physical examination of the routes, ARES performed swept path analyses of the critical pinch points along the routes using a combination of drone imagery shot during the survey and aerial imagery from Nearmap. The aim of the swept paths is to highlight the extent of any modifications required at each pinch point as well as any encroachment into private land by either the equipment or the cargo (e.g. blade tip).

ARES also performed swept path analysis of a number of proposed site entrances as part of our scope of works.

Ports of Import

The Port of Adelaide has seen several large wind farm projects pass through it in recent years, including Port Augusta and Silverton, and is currently being used for the Goyder project. It has a proven capability to handle large break bulk vessels such as those used for wind projects.

Storage is available in various areas around the port, as depicted on the right. Blades will need to be stored at Berths 18/20 due to their length. The storage areas are fenced and security is provided by the port.

One of the biggest advantages of Adelaide Port is its connections to the road network. Port River Expressway is only a kilometre away, with links to the North-South Motorway (able to take most oversize loads north out of Adelaide Metro) and Port Wakefield Rd (designated overheight route). The routes out are relatively clear of obstructions and cater well for truck traffic.

The only downside to the use of Adelaide for wind farm cargo is that the region north of Adelaide has a number of proposed wind projects likely to also utilise Adelaide as their port of import - e.g. Goyder North, Carmody's Hill, Twin Creek, Palmer. Depending on the timing of The Plains REP, the port may become congested when playing host to more than a single wind farm at a time.

Above: Storage areas at Adelaide Port (in red). **Below:** Components stored at Adelaide Port by ARES for the Silverton WF project.

Transport Methodology

The Plains will feature next generation wind turbines with some of the largest blades and tower sections in the market.

Transport Envelope

The cargo dimensions assumed for this project are listed on the opposing page. These represent the Goldwind GWH175 8MW wind turbine platform with its 86m blade, along with the anticipated diameter (6.31m) of a steel tower for this larger machine. By comparison, the current generation of wind turbines has blades at around 80m long and towers at around 6m in diameter.

A key assumption here is that the blade will have its tip support frame positioned at 50m from the blade root, based on the information provided by the client and OEM. This will result in quite a large rear overhang of 36m. Should this tip frame position change, the swept paths of the blades will need to be re-assessed.

Tower sizes and dimensions are usually not finalised until a much later stage of the project. We have provided estimates for the largest base tower section as well as the longest top tower section that can be reasonably expected for a wind turbine of this size. The mid tower section dimensions will fall somewhere in between these extremes.

Besides the wind turbine components, there will be a few other oversize overmass deliveries to the wind farm, particularly the main transformers for the substations. These tend to be overmass loads ranging from 150 to 300 ton depending on size. We have assumed a unit of 187 tons in weight for the purposes of bridge assessments.

Equipment

The change in cargo size is relatively small compared with current wind turbines and hence equipment required to transport them should be readily available.

Blades can be transported on extendable trailers which are currently being used, although if the tip frame spacing changes to something larger than about 55m then these trailers would need to be modified.

Other options for blade transport include a jinker style trailer or a fixed length blade trailer with removeable extension beams, both of which are in relatively common use for overlength applications. A blade lifter/ manipulator trailer has not been considered in this report as the approval pathway to use such a trailer on the road is unknown and considered too risky.

The base towers at a diameter of up to 6.31m will pose issues especially with respect to height. These will have to be transported on either "bookend" style trailers or low platform trailers to keep overall height as low as possible - this will minimize the amount of power lines which will need to be lifted.

The top tower sections are expected to be very similar to those currently in the market and should pose no issues for transport.

The transformer will be transported on a large multi-axle modular platform trailer.

Cargo Dimensions

Component	Qty	Length (m)	Width (m)	Height (m)	Weight (t)
Nacelle	171	9.9	5.0	4.2	41.6
Drivetrain	171	8.2	4.1	4.2	106.0
Hub	171	5.1	4.5	4.2	52.0
Blade	513	86.0	4.8	3.7	32.0
Tower Base	171	10.0	6.3	6.3	110.0
Tower Top	171	36.0	4.3	4.3	80.0
Transformer	6	8.3	4.2	4.7	187.0

Note: mid tower sections will typically fall in between the weights and dimensions of the base and top sections. There will likely be 5-6 of these mid sections per turbine, or an additional 940-1,128 OSOM deliveries for the project.

Overall Dimensions

Component	Equipment	O/A Length (m)	O/A Width (m)	O/A Height (m)	O/A Weight (t)
Nacelle	PM 2R8 4R8	25.9	5.0	4.9	84.0
Drivetrain	PM 10R8	31.3	4.3	5.0	168.0
Hub	PM 2R8 4R8	25.9	4.5	4.9	94.0
Blade	PM 6R8	97.4	4.8	4.9	86.0
Tower Base	PM 5R8-5R8 (Bookends)	39.1	6.3	6.7	192.0
Tower Top	PM 8R8 EXT	45.3	4.3	5.3	143.0
Transformer	PM 20R8 PM	66.0	4.3	5.8	329.0

Note: mid tower sections will be transported on either low loaders or platform trailers.

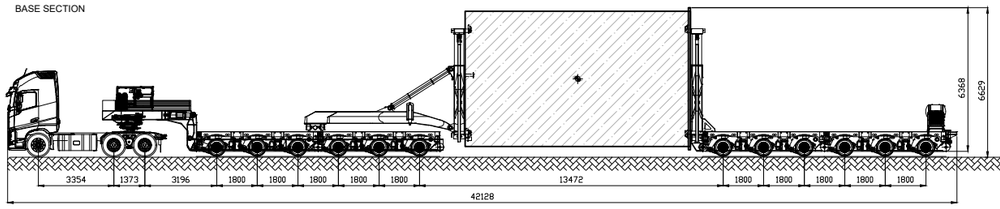
The equipment schematic on the next page shows how these components will be delivered for the project.

Axle Loads

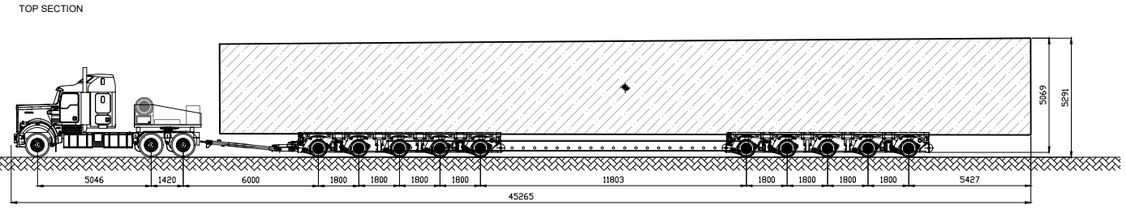
Axle loads will be up to 15 tons per row at 4.3m width. Axle spacings are shown in the equipment schematic overleaf.

Equipment Schematic

BASE SECTION

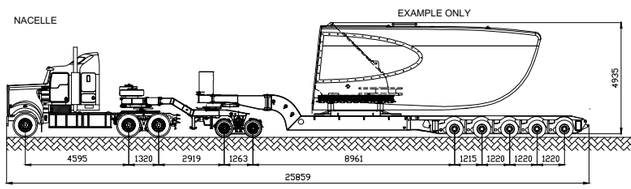


TOP SECTION



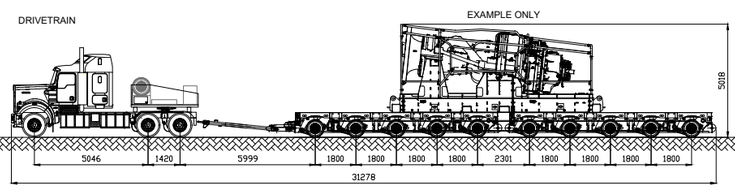
NACELLE

EXAMPLE ONLY



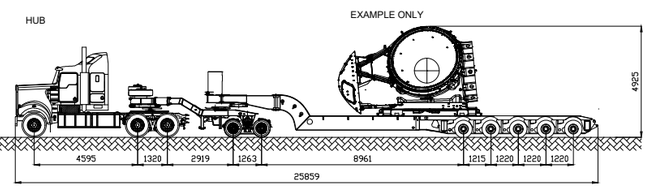
DRIVETRAIN

EXAMPLE ONLY

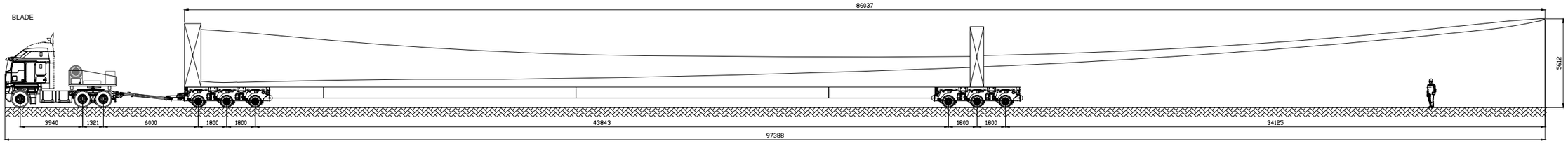


HUB

EXAMPLE ONLY

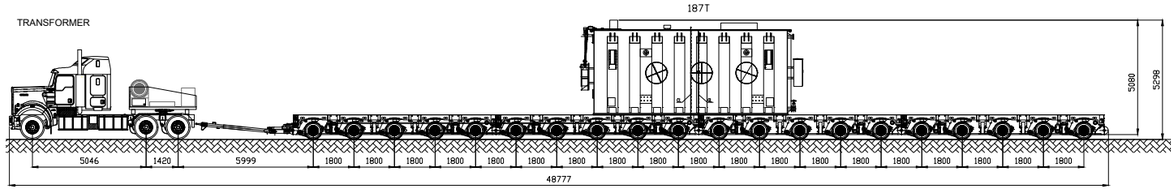


BLADE

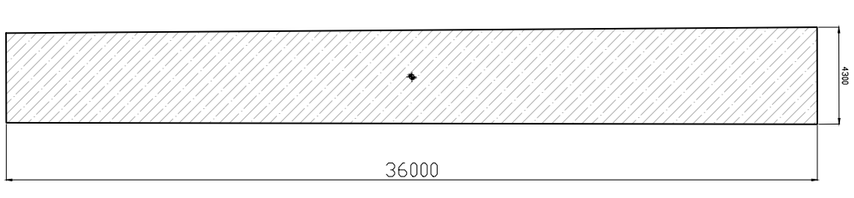


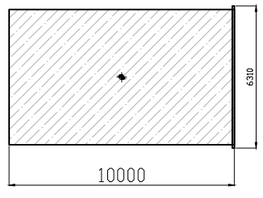
Note: Goldwind documentation notes blade tip droops by 739mm so transport height will be 4,873mm.

TRANSFORMER



Tower Specifications





REV	DATE	DESCRIPTION	DRN	CHK	APP	REFERENCE DRAWINGS

DRAWING NOTES:

ALL DIMENSIONS ARE IN mm UNLESS NOTED OTHERWISE (UNO) ALL WEIGHTS ARE IN t (METRIC TONNES) UNO ALL DETAILS ARE PROVISIONAL AND SUBJECT TO CONFIRMATION LASHINGS CALCULATIONS AS PER RESTRAINT GUIDELINES

TECHNICAL NOTES:

WEIGHT, DIMENSIONS AND COG POSITION TO BE CONFIRMED BY CLIENT STRUCTURAL INTEGRITY TO BE CHECKED BY CLIENT OPERATIONAL DIAGRAMS AND MANUAL MUST BE OBSERVED HYDRAULIC STABILITY REFERS TO STATIC LOAD ONLY STABILITY PROVISIONAL UNTIL COG CONFIRMED

ARES PROJECT SERVICES PTY LTD - ABN: 45 643 587 115

DRAWN BY:	
DRAWN DATE:	
CHECKED BY:	

CUSTOMER:	Engie	SIZE:	
PROJECT:	The Plains R.E.P.	SCALE	NTS
DRAWING TITLE:	Equipment Schematic	SHEET NO:	
DRAWING NAME:	ENGIE_THEPLAINS_R1.DWG	REV	

Project Timing

The Plains REP is scheduled to commence construction in 2025, with wind turbine component deliveries commencing around **Q4 2027**. Please note, these dates are subject to change and should be treated as indicative at this stage.

The proposed construction run rate is 2 complete turbines per week. We anticipate total duration of OSOM transport to be approximately **2 years**.

With 12-13 major OSOM components per turbine, this would mean a total of up to **26 oversized deliveries per week** or **4-5 deliveries per day** to site, spread over six days (Mon-Sat).

The proposed weekly delivery schedule is shown in the table below (subject to change due to resourcing, operational and permit requirements).

Component	Mon	Tue	Wed	Thu	Fri	Sat
Nacelle	●			●		
Drivetrain		●			●	
Hub			●			●
Blades	●	●	●	●	●	●
Tower Section 1	●			●		
Tower Section 2	●			●		
Tower Section 3		●			●	
Tower Section 4		●			●	
Tower Section 5		●			●	
Tower Section 6			●			●
Tower Section 7			●			●

Daily Schedule

A sample journey is provided below to illustrate how a component would be transported to site.

Day 1

START: PORT ADELAIDE

04.00hrs	Depart Port Adelaide
05.00hrs	Gawler
06.30hrs	Burra
07.30hrs	Terowie
09.00hrs	Yunta (rest break)
11.30hrs	NSW Border
12.30hrs	Layover Broken Hill

FINISH: BROKEN HILL

Total Distance:	520 km
Work Time:	8.5 hrs

Day 2

START: BROKEN HILL

05.00hrs	Depart Broken Hill
06.00hrs	Clear Broken Hill
08.30hrs	Wilcannia (rest break)
11.30hrs	Ivanhoe
13.30hrs	Booligal
14.30hrs	Layover Hay

FINISH: HAY

Total Distance:	590 km
Work Time:	9.5 hrs

Day 3

START: HAY

05.30hrs	Depart Hay
06.00hrs	Clear Hay
07.00hrs	Arrive Site Entrance
11.00hrs	Component offloaded
11.30hrs	Return Journey commences

FINISH: THE PLAINS REP

Total Distance:	25 km
Work Time:	6+ hrs

NOTES:

- Departure times subject to transport authority and Police approval.
- Return journey via Mildura (subject to permits and approvals)
- Times are indicative only and will change depending on traffic conditions and operational considerations.

Route Overview

ARES' Desktop Survey assessed routes from a number of different Ports of Import, as depicted in the below Routes Overview. One route was selected for a physical survey and detailed assessment - Adelaide.

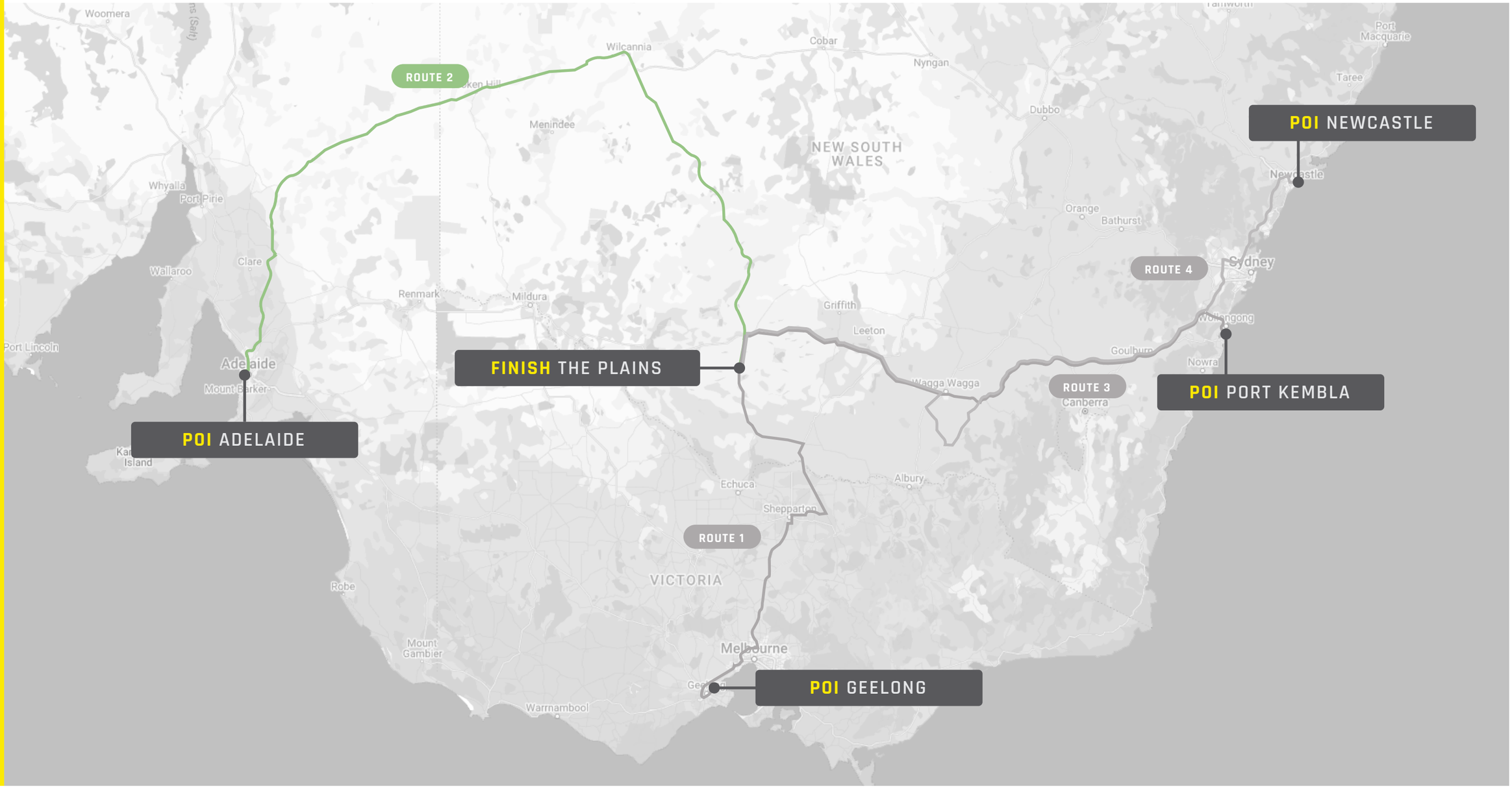
The results of the assessments for the selected route is presented in more detail in the following section.

ROUTE 1 **Geelong to The Plains -** Distance: 560km - not assessed further

ROUTE 2 **Adelaide to The Plains -** Distance: 1,130km

ROUTE 3 **Port Kembla to The Plains** - Distance: 715km - not assessed further

ROUTE 4 **Newcastle to The Plains** - Distance: 1,024km - not assessed further



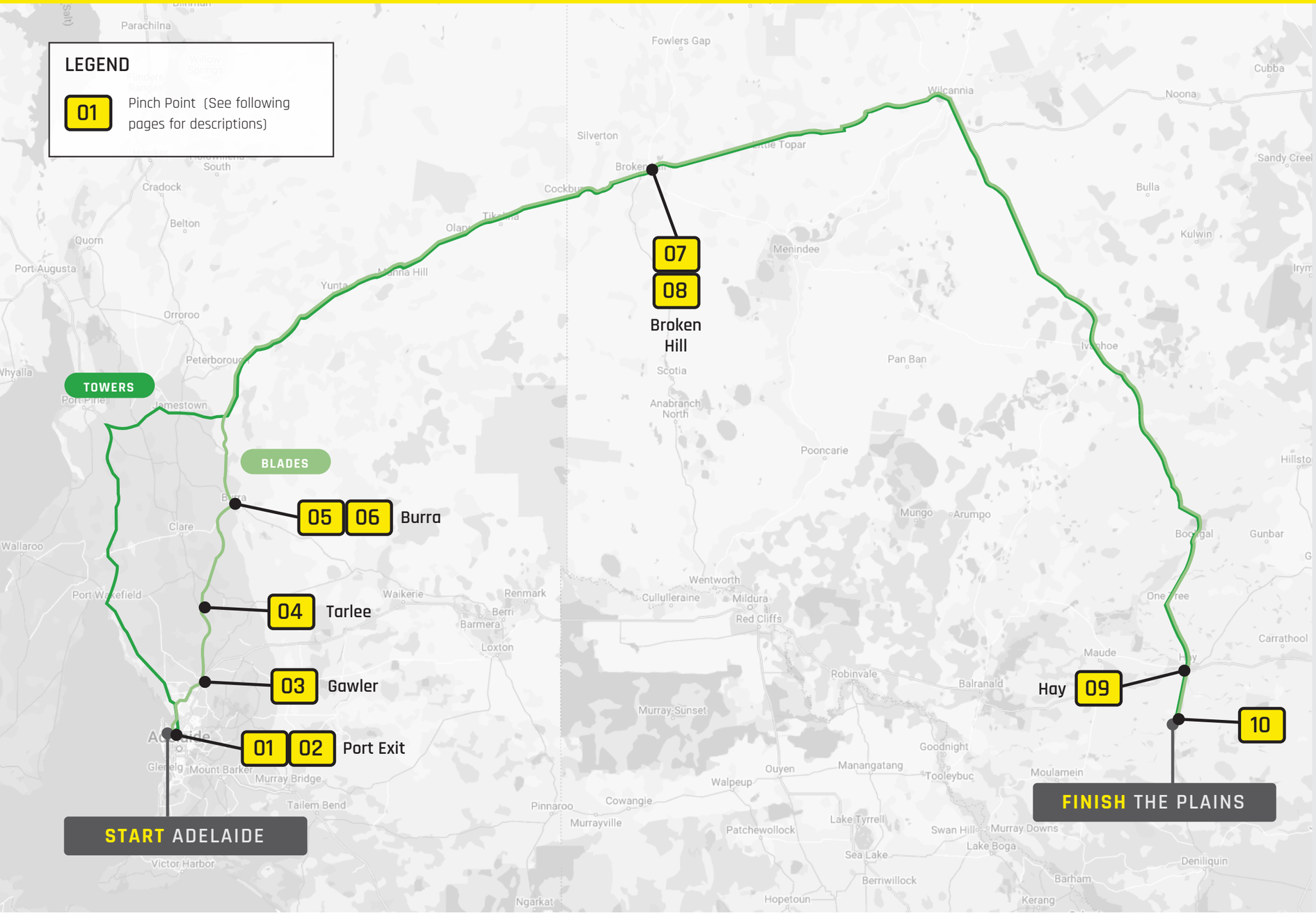
02

Adelaide to The Plains REP

Murra Warra WF

A blade trailer loaded with a 70m Senvion blade skilfully negotiates the township of Nhill for the Murra Warra Stage 1 Wind Farm.

Adelaide to The Plains - Overview



BLADE ROUTE

	START - Port Adelaide
0.0 KM	Ocean Steamers Rd
0.1 KM	Eastern Pde
1.0 KM	Port River Expy
4.4 KM	North-South Mwy
42.7 KM	Sturt Hwy
44.4 KM	Horrocks Hwy
84.4 KM	Barrier Hwy
150.7 KM	(Burra bypass)
154.7 KM	Barrier Hwy
503.7 KM	(Broken Hill bypass)
509.5 KM	Barrier Hwy
723.5 KM	Cobb Hwy
1,129.0 KM	**FINISH - The Plains REP**

TOWER ROUTE

	START - Port Adelaide
0.0 KM	Ocean Steamers Rd
0.1 KM	Eastern Pde
1.0 KM	Port River Expy
9.4 KM	Port Wakefield/Augusta Hwy
201.7 KM	Wilkins Hwy
249.0 KM	(Jamestown Bypass)
254.0 KM	Wilkins Hwy
254.8 KM	Jamestown-Yarcowie/Whyte Rd
279.8 KM	Barrier Hwy
576.8 KM	(Broken Hill bypass)
582.6 KM	Barrier Hwy
796.6 KM	Cobb Hwy
1,201.3 KM	**FINISH - The Plains REP**

Adelaide to The Plains REP

General Route Notes

Road Quality

Almost the entire transport route will be along state highways, which are generally designed to a higher specification and able to handle heavier and higher volumes of traffic.

The routes will be entirely on asphalt. There are sections of the Cobb Hwy between Wilcannia and Ivanhoe which are currently being upgraded from gravel to asphalt - this is scheduled to be complete in 2023-24 and well ahead of any deliveries for The Plains.

Width-wise there is only one area of note which will require extra vigilance - sections of the Cobb Hwy either side of Ivanhoe are quite narrow with negligible shoulders. With loads at up to 6.3m wide, oncoming traffic will have to pull off the road surface completely to let loads past. If there have been recent rains, the ground may be soft and cars may become bogged.

Rest Stops

Being on main highways, there are ample truck parking areas and service areas for rest breaks along the routes (refer to following page). However, it is worth noting that the section between Broken Hill and Hay is quite remote with limited amenities and mobile phone coverage. We recommend that a service vehicle with spare parts, tyres etc. accompanies the larger loads to ensure any breakdowns can be addressed in a timely manner.

Overhead Structures

There are only a few overhead structures of note along the overheight route for towers:

- Hanson Rd overpass of Port River Expy (6.0m clearance, bypass via off- and on-ramps
- N-S Motorway overpass of Port River Expy (7.2m clearance - no issues)
- Gantries for highway VMS signboards at various locations in Adelaide metro (bypassable)
- Copper Coast Hwy overpass of Augusta Hwy at Port Wakefield (7.6m clearance - no issues)

For the blades, which are expected to be around 4.9m loaded height, there are two bridges on the North-South Motorway which are at around 5.3m height. These will not be an issue.

Overhead Power Lines

In general, a travel height below around 5.5m is not an issue with respect to power lines. For this project, most towers will be travelling at more than 6m so there will likely need to be quite a few lines requiring permanent lifting, subject to detailed surveys from the power authorities (SA Power Networks, Endeavour Energy, Essential Energy). High load escorts will also likely be required to accompany these loads.

Bridges and Culverts

Axle loads will be typically limited to around 15 tons per axle. This should be well within design specifications for bridges, culverts and other structures on major state roads and highways. There are small sections of the route which deviate off state roads, such as the Burra and Jamestown bypasses. These will need liaison with the local council to ascertain any load limits on structures that are crossed.

Bridge assessments are under way with TfNSW SPU.

Above: Typical construction of Cobb Hwy with minimal shoulder.

Rail Crossings

There are numerous rail crossings along the route which are detailed on pages 30-34. These will need written approval from the rail authority or asset owner before they can be crossed. Current rail authority advice from ARTC, Aurizon and UGL Regional Linx on crossing and track supervision requirements has been attached as Appendices to this report.

Approvals

Works on major arterial highways in South Australia require engineering design by an engineering consultant (from a pre-approved list) and final sign off by Department of Infrastructure and Transport (DIT).

Modifications to NSW State Roads will require a Works Authorisation Deed (WAD) signed between the project developer and Transport for NSW (TfNSW). Designs will need to be done by a pre-approved engineering consultant and signed off by TfNSW prior to construction.

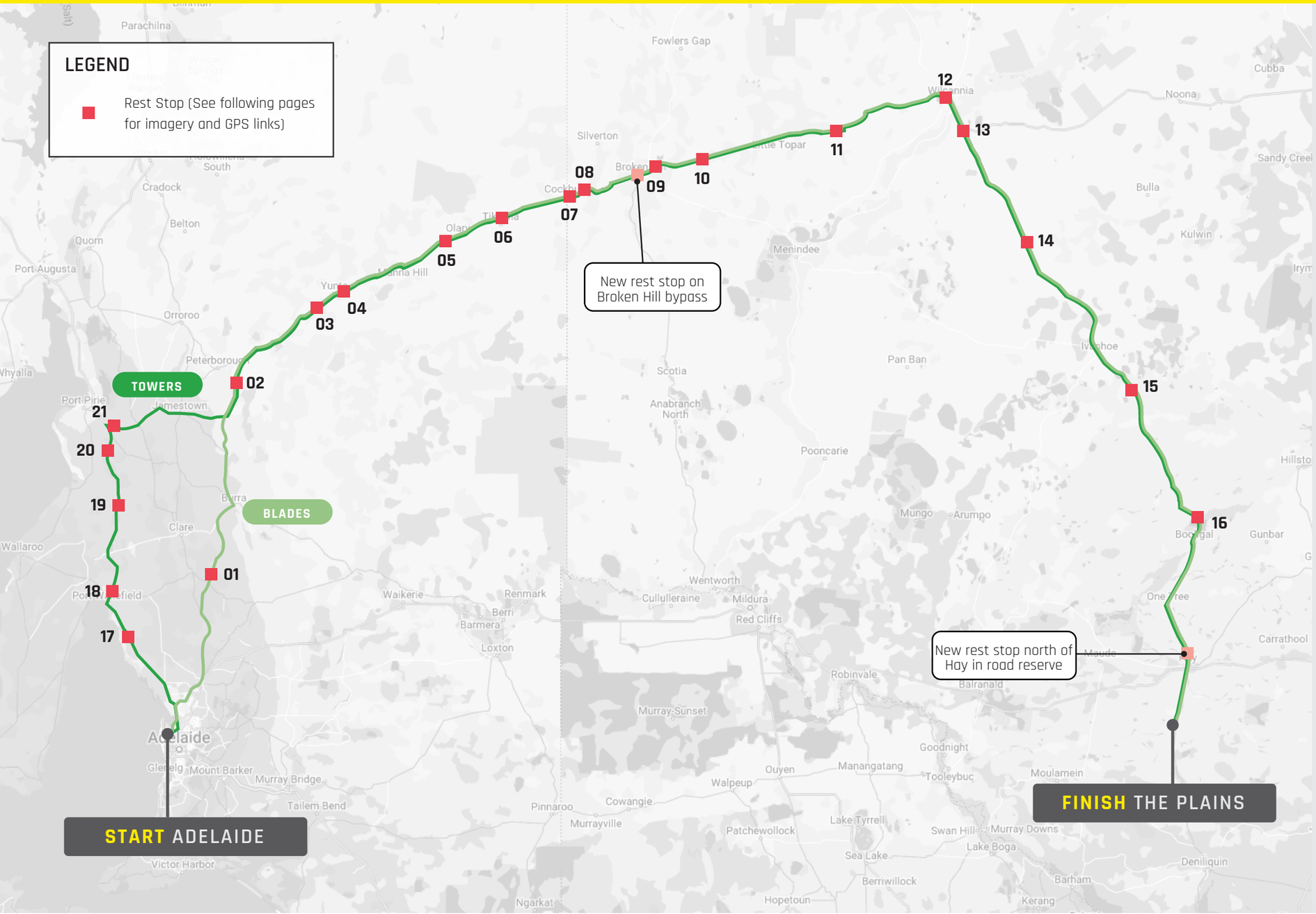
Above:

Hanson Rd overpass of Port River Expressway - 6.0m clearance.

Below:

Penfield Rd overpass (Hamel Bridge) on North-South Motorway - 5.3m clearance.

Adelaide to The Plains - Rest Stops



BLADE ROUTE

No.	KP	Rest Stop Name	Used By
01	102	Parking Bay north of Saddleworth	Backup
02	218	Woodcutters Rd Parking Area	Blades
03	253	Barrier Hwy Parking, Nackara	Backup
04	307	Yunta Rest Area	Towers
05	367	Truck Parking, Outalpa	Blades
06	414	Barrier Hwy Parking, Tikalina	Backup
07	456	Cockburn Rest Stop	Blades/Towers
08	469	Thackaringa Hills Rest Stop	Backup
09	510	Round Hills Rest Stop	Backup
10	538	Mount Gipps Rest Stop	Backup
11	640	Dolo Hills Rest Stop	Backup
12	700	Wilcannia	Blades/Towers
13	720	Cobb Hwy Parking	Backup
14	792	Half Way Tree	Backup
15	891	Cobb Hwy, Abbotsford Bore	Blades/Towers
16	1002	Bairds Truck Stop	Backup

TOWER ROUTE

No.	KP	Rest Stop Name	Used By
17	76	Parking Area south of Inkerman	Backup
18	93	Parking Area north of Port Wakefield	Backup
19	151	Truck Parking, Hope Gap	Backup
20	183	Truck Parking, Merriton	Backup
21	201	Wilkins Hwy Parking	Towers

01 Saddleworth

GPS: https://maps.app.goo.gl/amy98A8UPwXED7zz5

02 Woodcutters Rd

GPS: https://maps.app.goo.gl/wm1Go6BDxUvZnZfA9

03 Nackara

GPS: https://maps.app.goo.gl/tkR9CTZBoQZWbqgS8

04 Yunta

GPS: https://maps.app.goo.gl/TuKPbNirz11m6h8v9

05 Outalpa

GPS: https://maps.app.goo.gl/dQsSTBXeoML7JGwb7

06 Tikalina

GPS: https://maps.app.goo.gl/6yz8FFHtiShVZojC8

07 Cockburn

GPS: https://maps.app.goo.gl/kbJVbTTMhCQLbqLR7

08 Thackaringa Hills

GPS: https://maps.app.goo.gl/j7wMpqWmQYbZN4ut8

09 Round Hills

GPS: https://maps.app.goo.gl/UUc9gzBhCnwQvJ5d6

10 Mount Gipps

GPS: https://maps.app.goo.gl/SjzMWq4X4fZRhwCj8

11 Dolo Hills

GPS: https://maps.app.goo.gl/s5Bz4N76STjryYcw5

12 Wilcannia

GPS: https://maps.app.goo.gl/HjkZLhfhdvLpmHQ58

13 Cobb Hwy

GPS: https://maps.app.goo.gl/Z18L6vR3fdNxDaDh8

14 Half Way Tree

GPS: https://maps.app.goo.gl/ZRTPS3SjxQt2KuzM6

15 Abbotsford Bore

GPS: https://maps.app.goo.gl/NXP9SSX4AbBDc1fp7

16 Bairds Truck Stop

GPS: https://maps.app.goo.gl/uE7sevbhp7MnAchw8

17 Inkerman

GPS: https://maps.app.goo.gl/5xmUhQURrNNnFimX8

18 Port Wakefield

GPS: https://maps.app.goo.gl/GknuwyBgU4NG7p688

19 Hope Gap

GPS: https://maps.app.goo.gl/YPe27My9iBPJxzLR7

20 Merriton

GPS: https://maps.app.goo.gl/yd6VKAG9r35uDa5j6

21 Wilkins Hwy

GPS: https://maps.app.goo.gl/MUvhodZ9fxWHH9nV7

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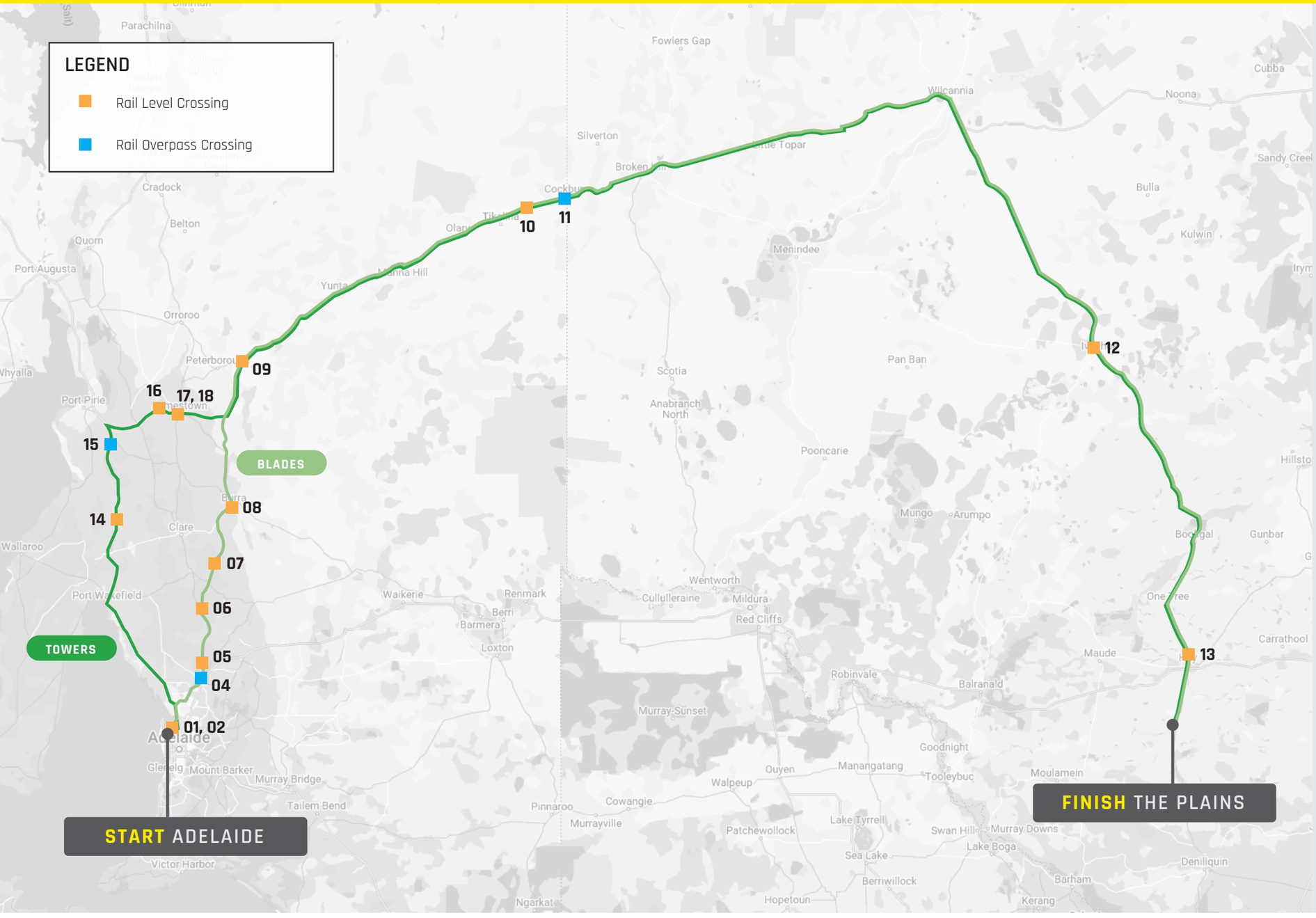
Adelaide to The Plains - Rail Crossings



BLADE ROUTE

No.	KP	Rail Crossing Name
01	0.1	Eastern Pde, Port Adelaide (1)
02	0.2	Eastern Pde, Port Adelaide (2)
03	-	(no longer used)
04	43	Northern Expy, Gawler
05	52	Horrocks Hwy, Roseworthy
06	80	Horrocks Hwy, Tarlee
07	114	Barrier Hwy, Manoora
08	153	Copperhouse Rd, Burra
09	242	Barrier Hwy, Ucolta
10	425	Barrier Hwy, Mingary
11	459	Cockburn Overpass
12	890	Cobb Hwy, Ivanhoe
13	1097	Lachlan St (Cobb Hwy), Hay

TOWER ROUTE

No.	KP	Rail Crossing
14	140	Augusta Hwy, Snowtown
15	194	Crystal Brook Overpass
16	239	Wilkins Hwy, Caltowie
17	250	Appila Rd, Jamestown
18	253	OD5 Rd, Jamestown

01 Eastern Pde, Port Adelaide (1)
GPS: https://maps.app.goo.gl/NLtkDkxAziDvKZxH9
Type: Level Crossing
Asset Owner: ARTC
Line: Port Flat Track

02 Eastern Pde, Port Adelaide (2)
GPS: https://maps.app.goo.gl/QXV4cxQD7ZDxnNZE9
Type: Level Crossing
Asset Owner: ARTC
LIne: Gillman-Eastern Parade 01

03 (Removed from Scope)
GPS: -
Type: -
Asset Owner: -
LIne: -

04 Northern Expy, Gawler (DISUSED)
GPS: https://maps.app.goo.gl/kHouKukUksSxRjjRA
Type: Overpass
Asset Owner: Aurizon
Line: Gawler-Kapunda

05 Horrocks Hwy, Roseworthy (DISUSED)
GPS: https://maps.app.goo.gl/38LDwxZZiQUSM84F6
Type: Level Crossing
Asset Owner: Aurizon
Line: Gawler-Kapunda

06 Horrocks Hwy, Tarlee (DISUSED)
GPS: https://maps.app.goo.gl/AhQq1kVdXcLsgoY49
Type: Level Crossing
Asset Owner: Aurizon
Line: Hamley Bridge-Burra

07 Barrier Hwy, Manoora (DISUSED)
GPS: https://maps.app.goo.gl/y1WhadV8Q1WWJzxb9
Type: Level Crossing
Asset Owner: Aurizon
Line: Hamley Bridge-Burra

08 Copperhouse Rd, Burra (DISUSED)
GPS: https://maps.app.goo.gl/XhTT9H9PTbSxR2jE8
Type: Level Crossing
Asset Owner: Aurizon
Line: Hamley Bridge-Burra

09 Barrier Hwy, Ucolta
GPS: https://maps.app.goo.gl/dCJrps53zSmsd8DH8
Type: Level Crossing
Asset Owner: ARTC
Line: Crystal Brook-Broken Hill

10 Barrier Hwy, Mingary
GPS: https://maps.app.goo.gl/SxHYc2JEMAgrH7WA8
Type: Level Crossing
Asset Owner: ARTC
Line: Crystal Brook-Broken Hill

11 Cockburn Overpass
GPS: https://maps.app.goo.gl/Hn9NDQ9SJh1bxSDe9
Type: Overpass
Asset Owner: ARTC
Line: Crystal Brook-Broken Hill

12 Cobb Hwy, Ivanhoe
GPS: https://maps.app.goo.gl/rTktcuGQ8A6di5m36
Type: Level Crossing
Asset Owner: ARTC
Line: Orange-Broken Hill

13 Lachlan St (Cobb Hwy), Hay (DISUSED)
GPS: https://maps.app.goo.gl/qN6JE2cAPJipz25D8
Type: Level Crossing
Asset Owner: UGL Regional Link
Line: Willbriggie-Hay

14 Augusta Hwy, Snowtown
GPS: https://maps.app.goo.gl/noTPs5VuHYZQUUJJ9
Type: Level Crossing
Asset Owner: Aurizon
Line: Snowtown-Bute

15 Crystal Brook Overpass
GPS: https://maps.app.goo.gl/vMxwDcbXS8kwasXo6
Type: Overpass
Asset Owner: ARTC
Line: Crystal Brook-Broken Hill

16 Wilkins Hwy, Caltowie
GPS: https://maps.app.goo.gl/CTW6XcAJ19ZdBc8f7
Type: Level Crossing
Asset Owner: ARTC
Line: Crystal Brook-Broken Hill

17 Appila Rd, Jamestown
GPS: https://maps.app.goo.gl/6eZNpsC3n42zsX5V6
Type: Level Crossing
Asset Owner: ARTC
Line: Crystal Brook-Broken Hill

18 OD5 Rd, Jamestown
GPS: https://maps.app.goo.gl/WCjZUf9xmYH1WP5TA
Type: Level Crossing
Asset Owner: ARTC
Line: Crystal Brook-Broken Hill

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Pinch Point

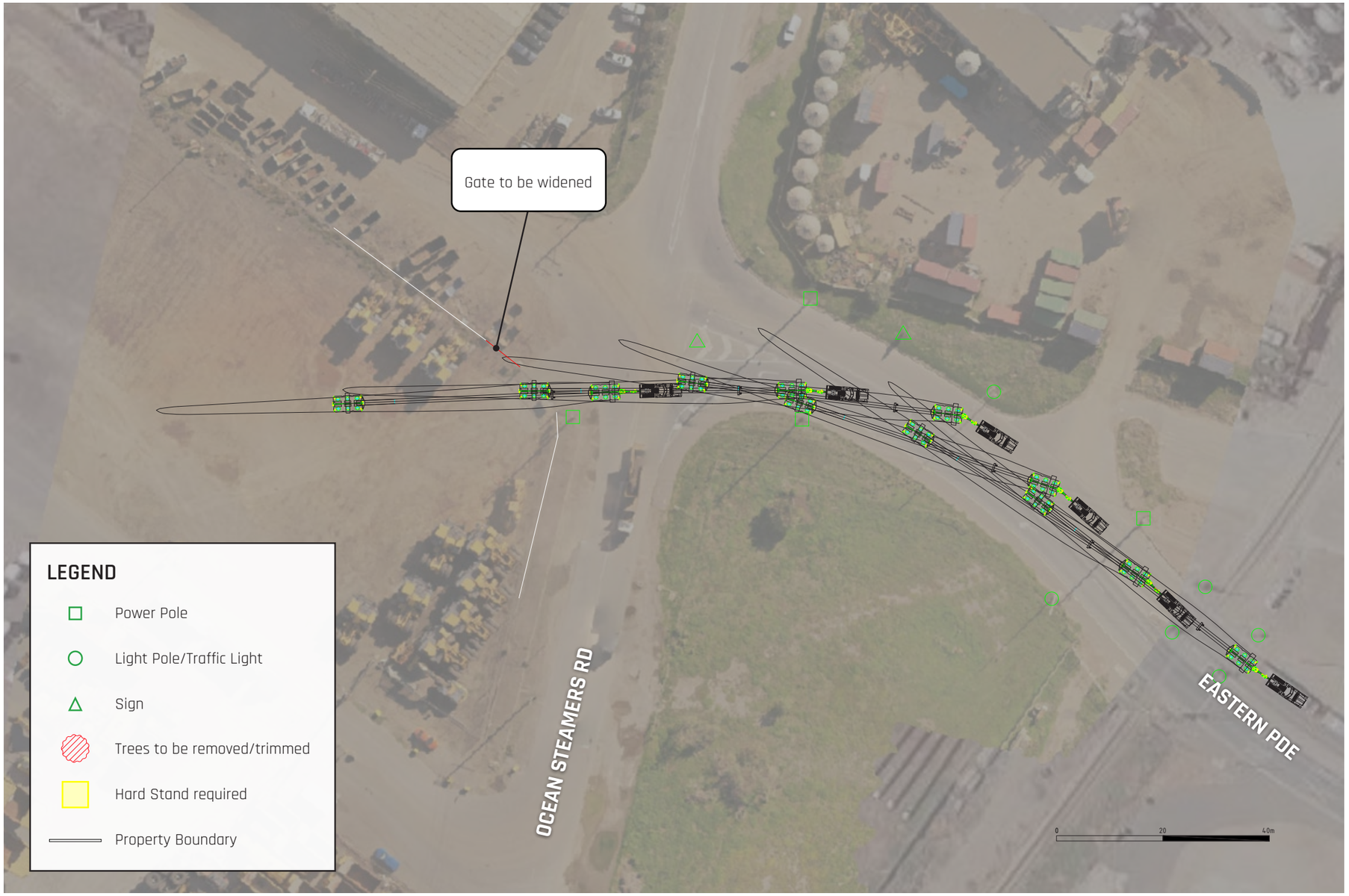
01

RIGHT TURN

Ocean Steamers Rd & Eastern Pde

Blades will have to exit from the existing gate on the north-east side of the Berth 18/20 storage area. This gate will need to be widened or fence made removeable (see red segment on diagram) to accommodate the longer blades. Flinders Port approval will be required for these works. Cargo will have to be stored away from the gate to allow room for blades to manoeuvre.

The turn will need to be made very carefully due to close clearances to traffic furniture on all sides and to be able to straighten up sufficiently for the railway crossing, but no other modifications are required.



DRAWING NOTES:

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DRAWING NAME:	Route Survey	REV

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Pinch Point

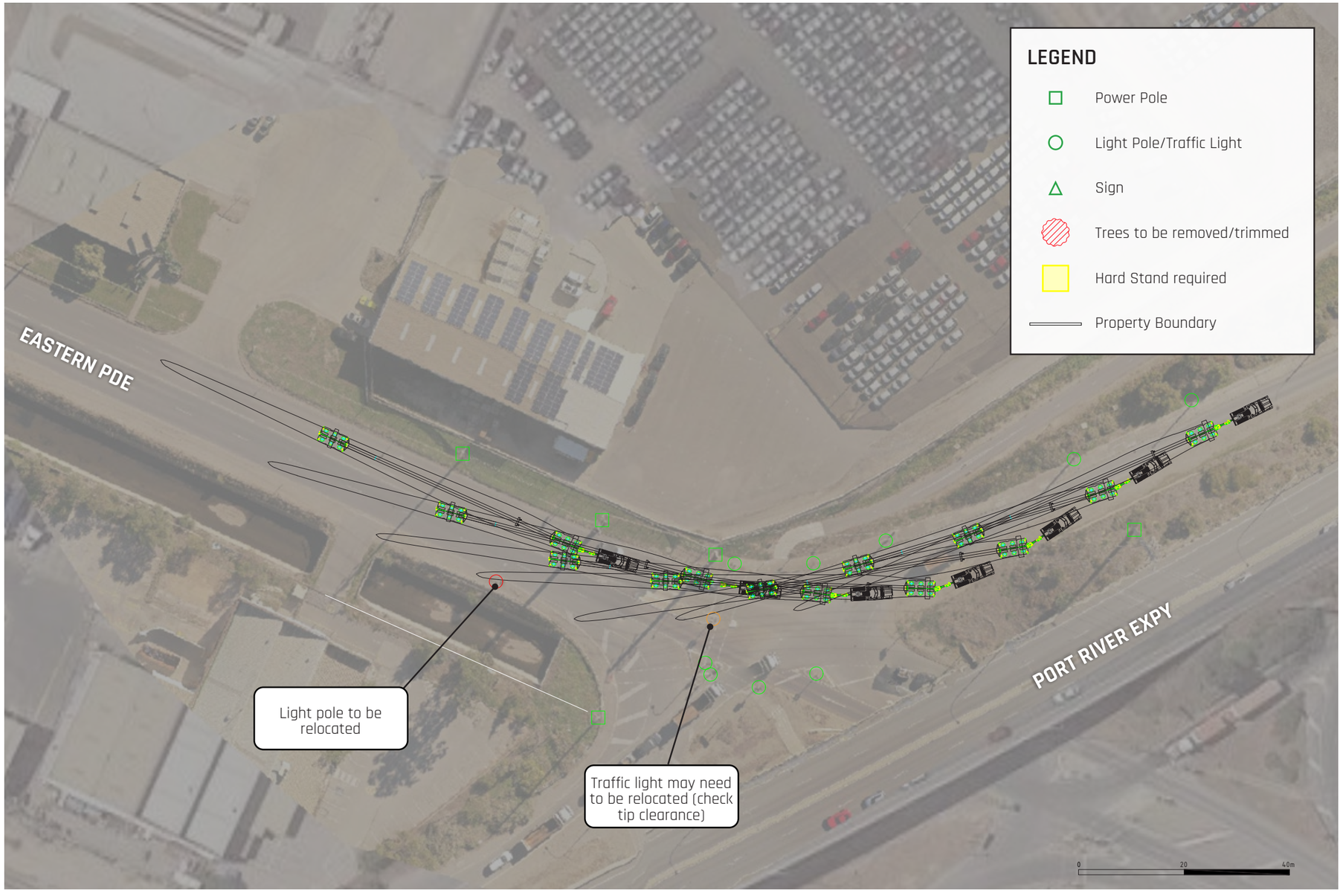
02

LEFT TURN

Eastern Pde & Port River Expy

The turn onto Port River Expressway is very tight with some tall powerlines and poles in the vicinity which are to be avoided. The rear of the blade trailer will run out very wide onto the opposite footpath, requiring the relocation of one light pole as well as the possible relocation of one of the traffic lights in the intersection.

The blade tip can be kept clear of the trees to the south and will not stray into private property.



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Pinch Point

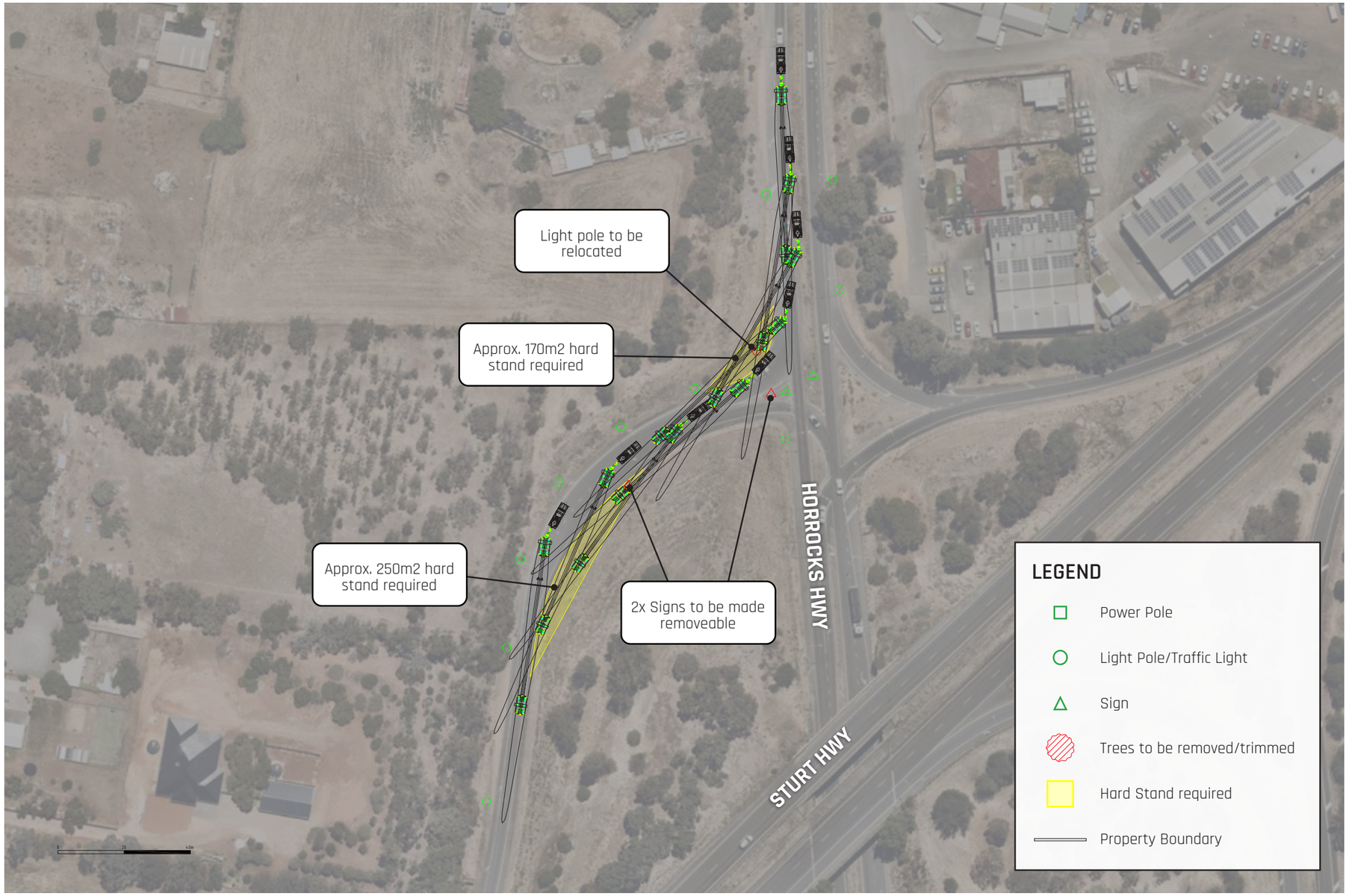
03

LEFT TURN
Sturt Hwy &
Horrocks Hwy

The offramp into this intersection has a moderate downhill gradient with embankments on either side. The blade trailer's rear wheels will have to travel on the eastern embankment, meaning hard stand material will need to be put down with possible earthworks required to level the ground. Further hardstand is required on the inside of the corner merging onto Horrocks Hwy.

Rear tip clearance with the ground will need to be checked during a trial run, if this is an issue the tip frame can be put onto spacers for additional clearance.

One light pole and a few signs will need to be relocated or removed.



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Pinch Point

04

LEFT TURN

Horrocks Hwy,
Tarlee

There is a left hand turn at the town of Tarlee on the Horrocks Hwy to cross a disused railway line. This can be taken by blades conventionally with no issues, however the police escorts will have to hold oncoming traffic whilst the blade completes the turn as the combination will take up both lanes.

Tree trimming is likely required on overhanging branches leading up to this turn (not shown).

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Pinch Point

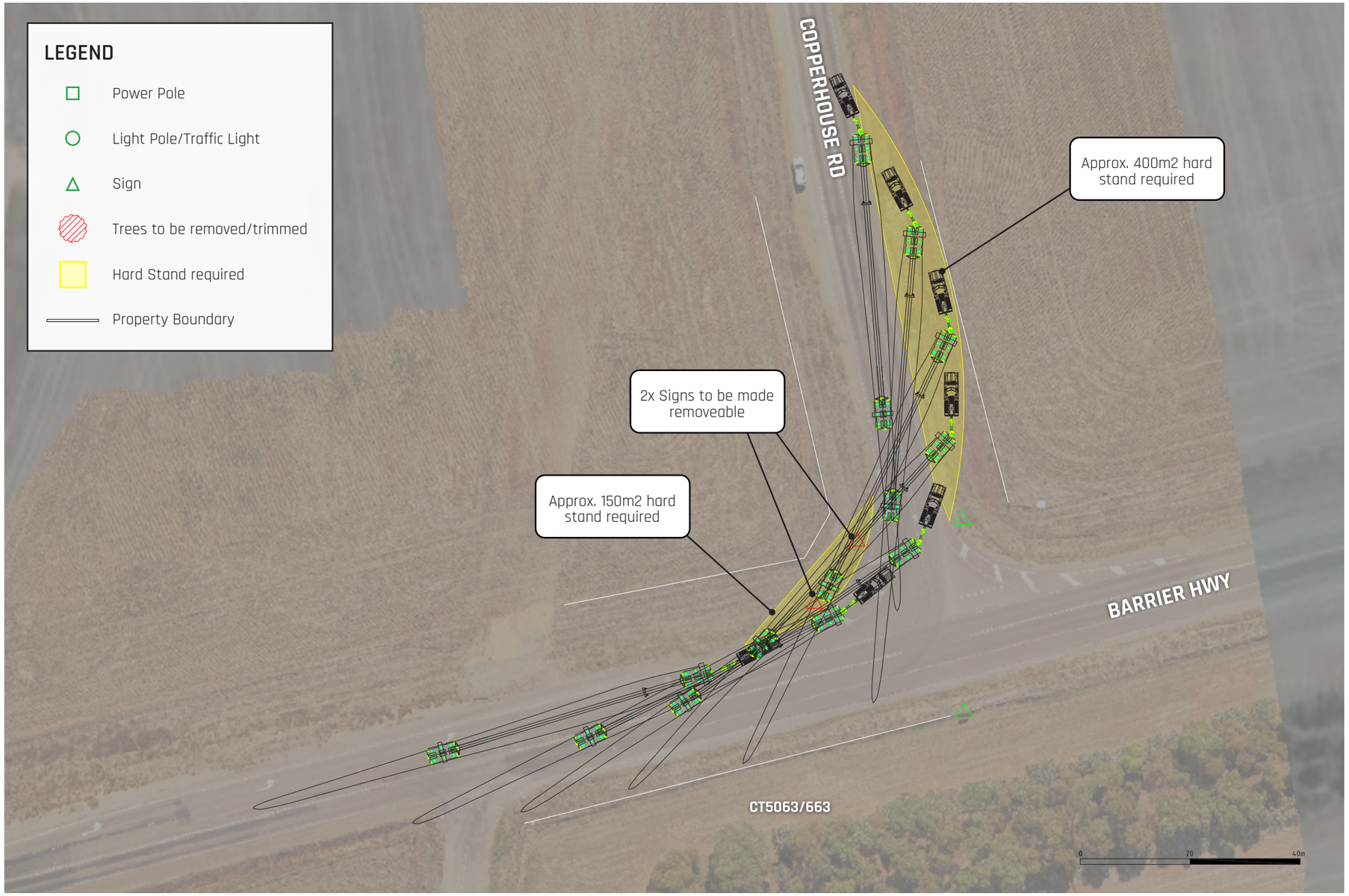
05

LEFT TURN

Barrier Hwy & Copperhouse Rd

The heavy vehicle bypass of Burra town is via Copperhouse Rd. It is primarily designed for B-double traffic and more work will be required to get the blades around.

Loads will have to hug the inside fenceline on turning in, then swing out as wide as possible to the other side of the road. Hard stand material will need to be placed where the wheels run off the existing road surface. Two signs will need to be made removeable.



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Pinch Point

06

LEFT TURN
Copperhouse St
& West St

The left turn at the Bon Accord Hotel on the Burra bypass route will present some problems due to the large rear overhang. Taking this turn conventionally will require tree trimming and/or removal to the south, with the tip swing intruding into private property (CT6105/151).

Some hard stand material is required where the truck and trailer wheels leave the existing road surface. The transport combination may also need permission to travel on private property (Bon Accord Hotel).

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Pinch Point

07

MAJOR TOWN

Route Options through Broken Hill

Getting through the town of Broken Hill is a major challenge for this project. Cargo will arrive from the south-west via the Barrier Hwy and needs to exit via the Silver City and Barrier Hwys to the north-east. ARES assessed three main options to get blades through Broken Hill:

- **New Bypass Option:** Build new track turning off the Barrier Hwy west of Broken Hill which roughly follows existing dirt tracks and links up with Gaffney St
- Two options through the town itself were assessed but found to be non-feasible due to swept path issues.

As going through the town itself is not feasible with the sheer length of the blades, the only realistic option is to build a new bypass track.

Pinch Point

07A

RIGHT TURN

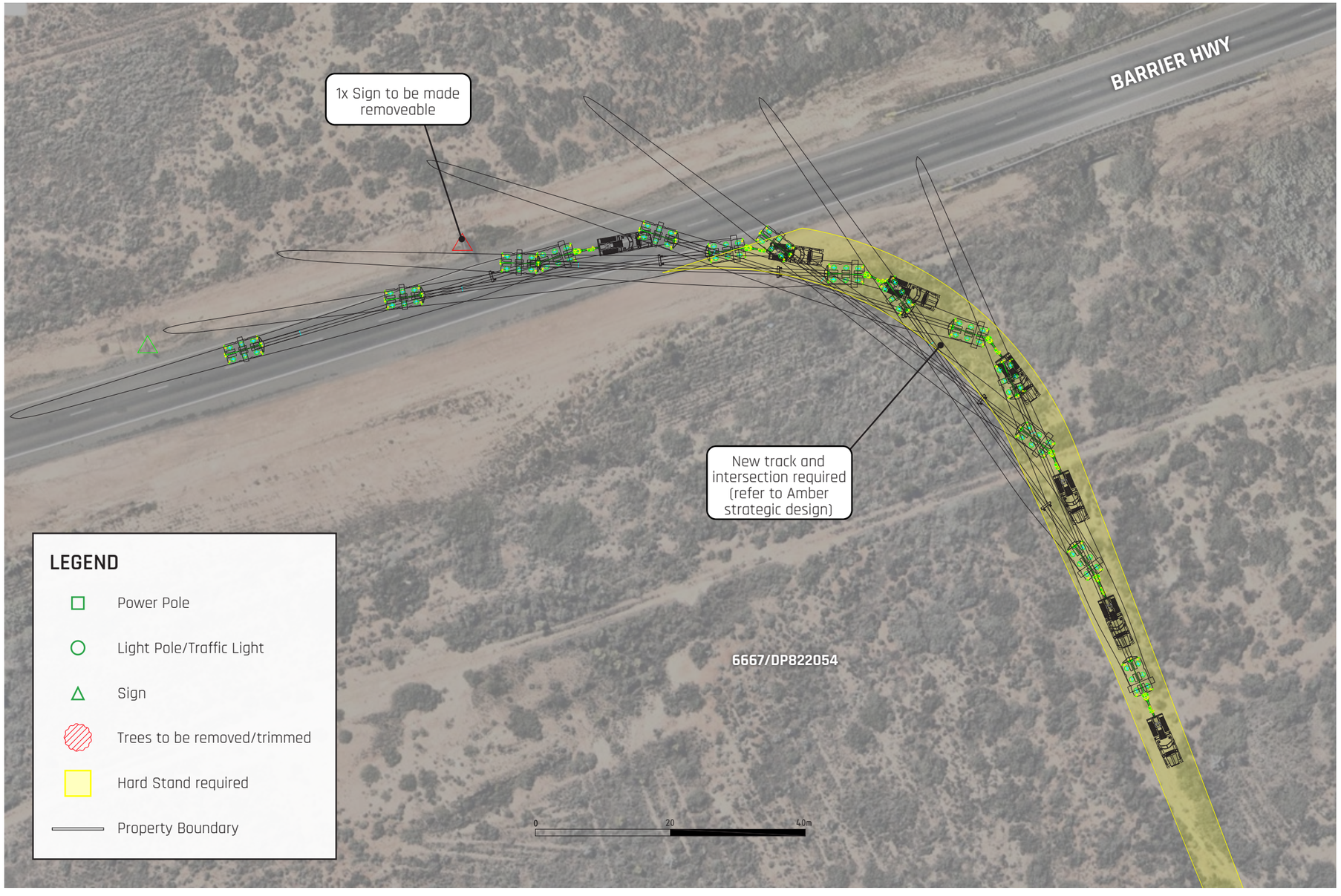
Barrier Hwy approx.
2.4km from Broken Hill

The proposed bypass makes use of existing tracks which come off the Barrier Hwy at around 2.4km west of Broken Hill town. There is no existing intersection and a new one will have to be designed and constructed.

The swept path analysis on the right shows the extent of civil works required for the 86m blade to make this turn. One sign will need to be made removeable.

As the Barrier Hwy is a state-controlled road, the design and construction of this intersection will require a Works Authorisation Deed (WAD) and approvals from Transport for NSW.

Amber Consulting has completed a strategic design for the intersection, please refer to Amber report.



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Pinch Point

08

RIGHT TURN

Silver City Hwy & Barrier Hwy

Regardless of which option is chosen from Pinch Point 07, to get back onto the Barrier Hwy to the north-east will require a new track to be built to Sturt St (Pinch Point **08A**), and then to get back onto the Barrier Hwy (Pinch Point **08B**).

The pinch points are explored in detail in the following pages.

Pinch Point

08A

RIGHT TURN
Crystal St
& Sturt St

The blades will require a temporary track to link the end of Crystal St with Sturt St across Menindee Rd. This will pass through Crown land and will require a moderate amount of civil works to make the surface suitable for a road base.

There is a power pole which can be avoided, and the road sign can be relocated away from the path of the transporter.

Amber has completed a strategic design for the intersection, please refer to Amber report.

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Pinch Point

08B

RIGHT TURN
Chettle St
& Barrier Hwy

A temporary track will need to be built to link the end of Chettle St to the Barrier Hwy/Argent St. This will pass through Crown land near the Perilya Mine, which is non-operational.

The terrain is relatively flat and suitable for a temporary road. There is an existing double gate at the end of Chettle St which may be utilised to access the property. A new gate will have to be put in at the exit point into Barrier Hwy/Argent St.

Amber Consulting has completed a strategic design for the intersection, please refer to Amber report.

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Pinch Point

09

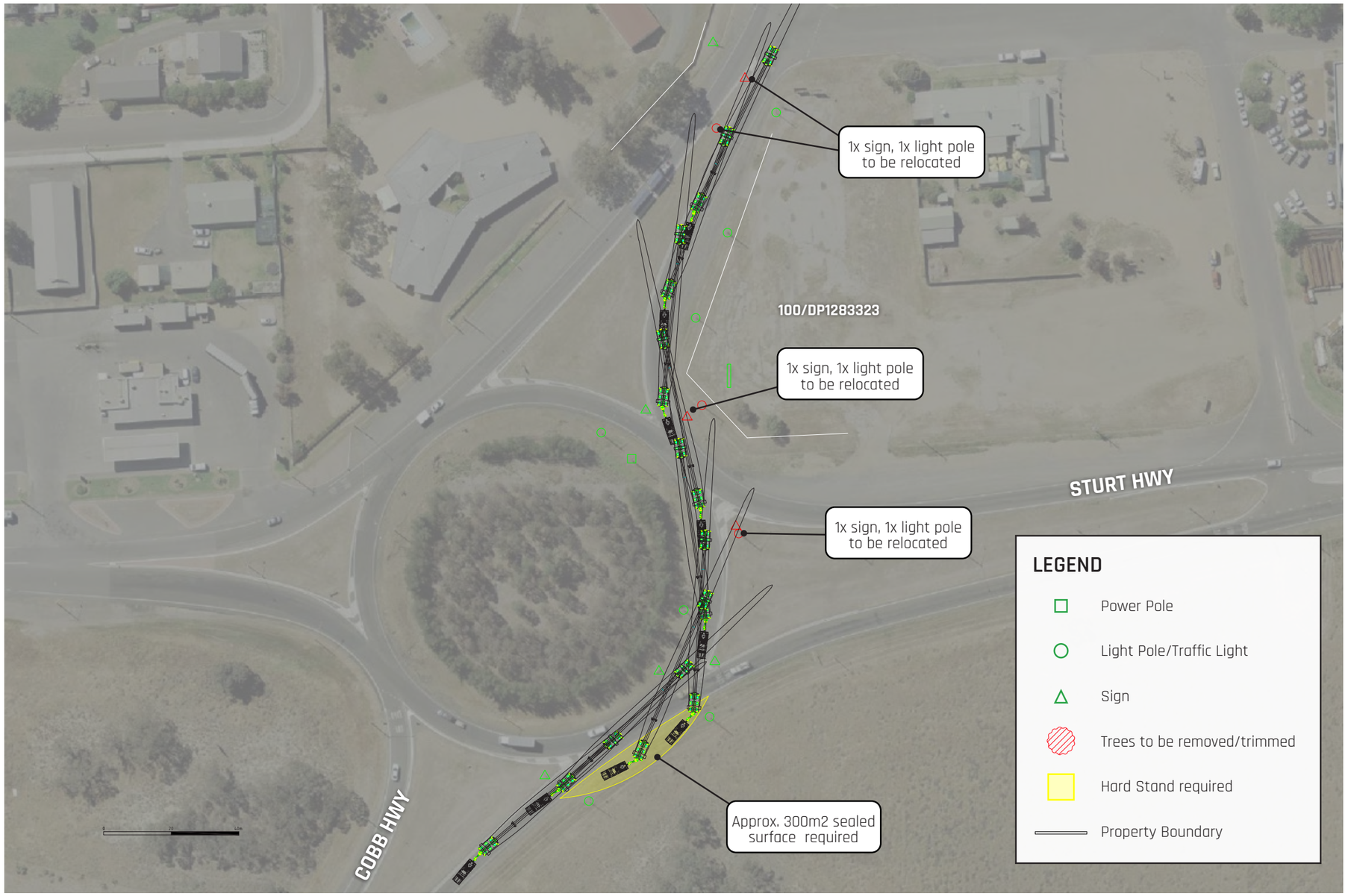
ROUNDABOUT
Cobb Hwy
& Sturt Hwy

The roundabout south of Hay will require a moderate amount of work prior to blade transport. Three light poles will need to be removed or relocated, and a number of signs made removeable.

The blade swing slightly overpasses the private property to the east (Lot 100 of DP1283323) which is a proposed service station currently under development. ARES reviewed the development plans and the blade tip should miss the 12m high signboard indicated on the plans.

There is also an option to take the wrong side of the roundabout, but after assessment this results in a similar amount of modifications but with a contraflow movement, which is not desirable. We recommend using the correct side as shown.

Amber Consulting has completed a strategic design for the intersection, please refer to Amber report.



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Pinch Point

10

LEFT TURN

Cobb Hwy & W Burrabogie Rd

Amber Consulting has completed a strategic design for this intersection which has been overlaid on the swept path analysis.

The turn onto West Burrabogie Rd will require some additional hard stand material to be laid down on the inside of the corner.

As the Cobb Hwy is a state road, WAD requirements will apply to modifications here.

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List of Affected Landowners

The lots which either need to be accessed directly by trucks and trailers, or which are in the blade swept path, are listed below.

As part of our scope of work, we have run title searches on all properties or lots that will be affected by the transport route, as noted in the individual Pinch Points on preceding pages. South Australian Certificates of Title were obtained from the SA Integrated Land Information System (SAILIS). New South Wales Certificates of Title were obtained from the NSW Land Registry Services via Infocert.

Land owners are a mixture of the Crown, corporations and individuals.

All Certificates of Title will be provided separately to this report as an Appendix.

South Australia

Title Reference	Address	Pinch Point	Owner(s)
CT5063/663	19 Springbank Rd, Burra	05	Hichick Breeding Company P/L
CT6105/151	44 Copperhouse St, Burra	06	SA Government (DIT)
CT5419/54	LOT98 West St, Burra	06	Colin Alfred Phillips & Pauline Phillips
CT5695/294	LOT98 Cooper St, Burra	06	Regional Council of Goyder

New South Wales

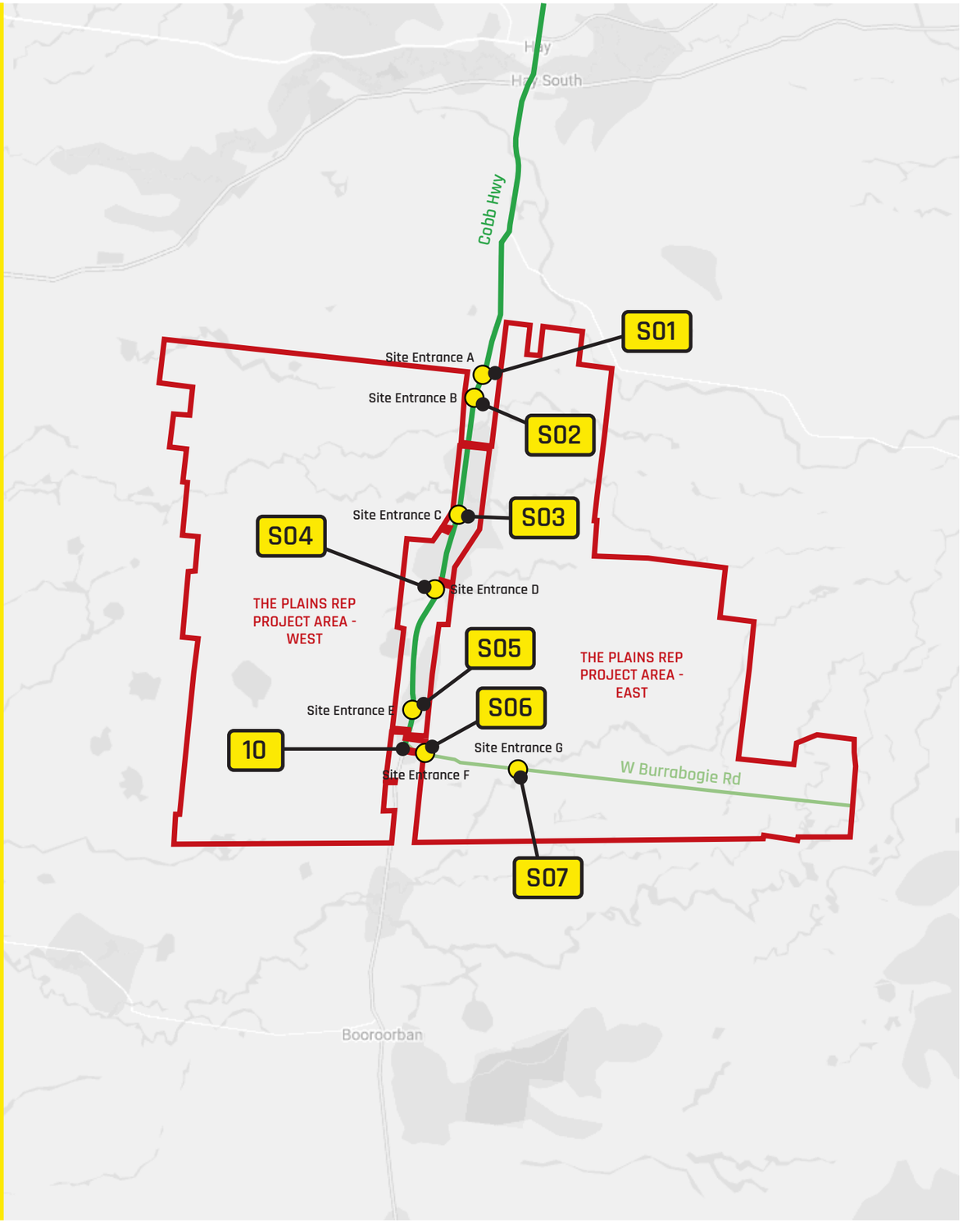
Title Reference	Address	Pinch Point	Owner(s)
6667/DP822054	Pinnacles Rd, Broken Hill	07A	State of NSW
302/DP1242250	Barrier Hwy, Broken Hill	07	Willyama Common Trust
7307/DP1179131	Barrier Hwy, Broken Hill	07	State of NSW
7400/DP1179151	Kanandah Rd, Broken Hill	07	State of NSW
7401/DP1179151	Kanandah Rd, Broken Hill	07	State of NSW
7320/DP1185108	Menindee Rd, Broken Hill	08A	State of NSW
7313/DP1185108	Menindee Rd, Broken Hill	08A/08B	State of NSW
5658/DP757298	Chettle St, Broken Hill	08B	State of NSW
100/DP1283323	397 Moama St, Hay South	09	APC Hay P/L
7304/DP1149704	Cobb Hwy, Booroorban	10	State of NSW

In the course of our searches we also noted a number of lots which seemed to be historical as they laid across existing roads. We have not performed title searches on these but have listed them for completeness below.

Title Reference	Address	Pinch Point
Lots 5653 to 5657, DP757298	Sturt St, Broken Hill	08A/08B

03

Site Entrance Assessments



The Plains Site Entrances

There are seven proposed site entrances to The Plains Renewable Energy Park project area, which spans both east and west sides of Cobb Hwy. They are, from north to south:

- Site Entrance A: Northern entrance to eastern precinct, turning left directly off Cobb Hwy
- Site Entrance B: Northern entrance to western precinct, turning right directly off Cobb Hwy
- Site Entrance C: Eastern entrance to western precinct, turning right directly off Cobb Hwy
- Site Entrance D: Western entrance to eastern precinct, turning left directly off Cobb Hwy
- Site Entrance E: Southern entrance to western precinct, turning right directly off Cobb Hwy
- Site Entrance F: Southern entrance 1 to eastern precinct, turning left off West Burrabogie Rd
- Site Entrance G: Southern entrance 2 to eastern precinct, turning left off West Burrabogie Rd

ARES examined the routes leading into each site entrance as part of the survey.

Above: West Burrabogie Rd, showing current condition of road surface, cattle grid and general site terrain chracteristics.

Pinch Point

S01

LEFT TURN
Cobb Hwy &
Site Entrance A

A new intersection will need to be built at this location turning left off the Cobb Hwy. Amber Consulting has completed a strategic design for this site entrance which has been overlaid on the swept path analysis.

Some additional hard stand will be required on the inside of the corner for OSOM loads such as blades.

As the Cobb Hwy is a state road, WAD requirements will apply to modifications here.

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Pinch Point

S02

RIGHT TURN
Cobb Hwy &
Site Entrance B

A new intersection will need to be built at this location turning right off the Cobb Hwy. Amber Consulting has completed a strategic design for this site entrance which has been overlaid on the swept path analysis.

Some additional hard stand will be required on the inside of the corner for OSOM loads such as blades.

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Pinch Point

S03

RIGHT TURN
Cobb Hwy &
Site Entrance C

A new intersection will need to be built at this location turning right off the Cobb Hwy. Amber Consulting has completed a strategic design for this site entrance which has been overlaid on the swept path analysis.

Some additional hard stand will be required on the inside of the corner for OSOM loads such as blades.

As the Cobb Hwy is a state road, WAD requirements will apply to modifications here.

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Pinch Point

S04

LEFT TURN
Cobb Hwy &
Site Entrance D

A new intersection will need to be built at this location turning left off the Cobb Hwy. Amber Consulting has completed a strategic design for this site entrance which has been overlaid on the swept path analysis.

Some additional hard stand will be required on the inside of the corner for OSOM loads such as blades.

As the Cobb Hwy is a state road, WAD requirements will apply to modifications here.

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Pinch Point

S05

RIGHT TURN

Cobb Hwy &
Site Entrance E

A new intersection will need to be built at this location turning right off the Cobb Hwy. Amber Consulting has completed a strategic design for this site entrance which has been overlaid on the swept path analysis.

Some additional hard stand will be required on the inside of the corner for OSOM loads such as blades.

As the Cobb Hwy is a state road, WAD requirements will apply to modifications here.

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Pinch Point

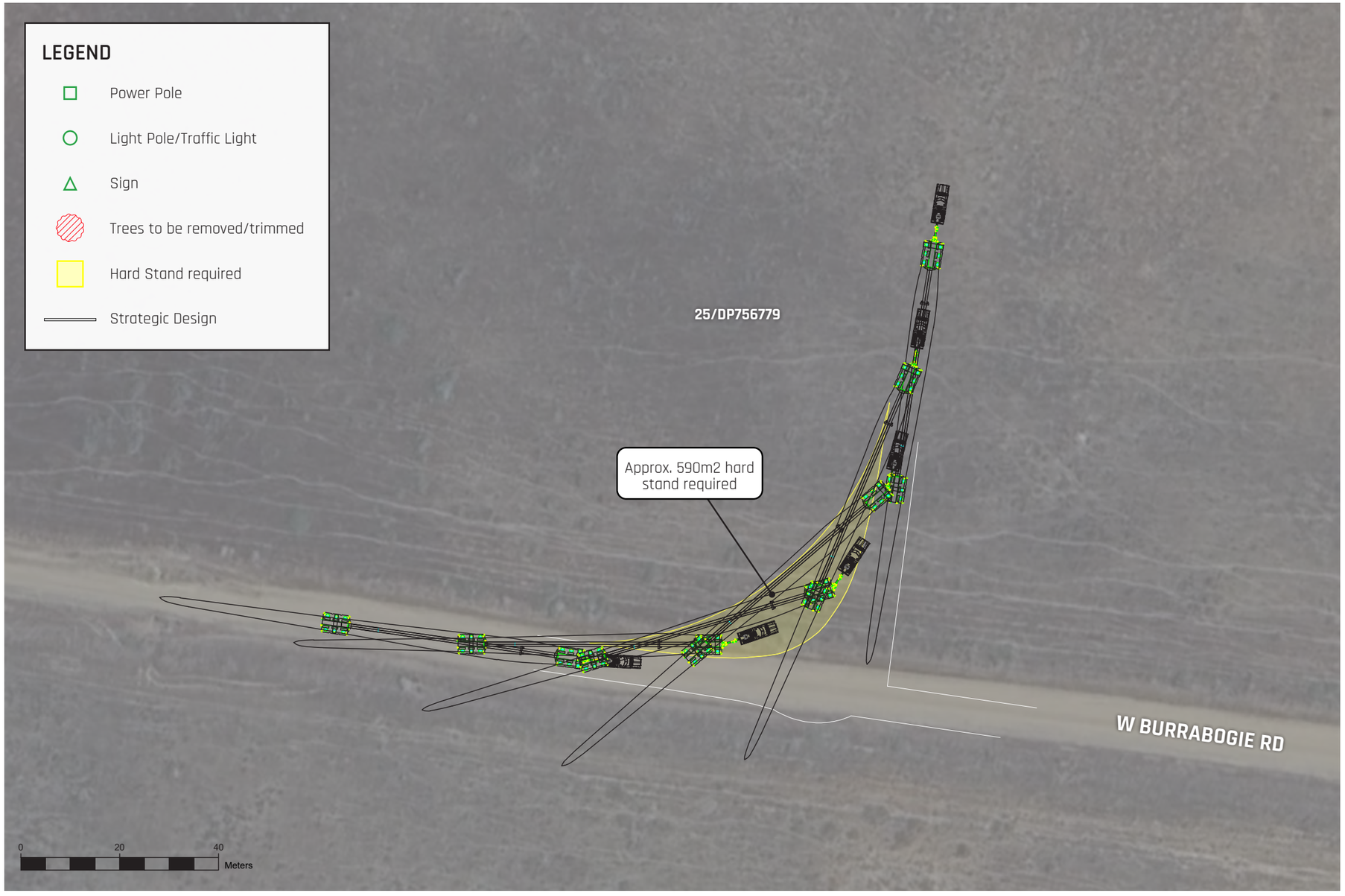
S06

LEFT TURN

W Burrabogie Rd &
Site Entrance F

A new intersection will need to be built at this location turning left off West Burrabogie Rd. Amber Consulting has completed a strategic design for this site entrance which has been overlaid on the swept path analysis.

Some additional hard stand will be required on the inside of the corner for OSOM loads such as blades.



DRAWING NOTES:

ALL DIMENSIONS ARE IN mm UNLESS NOTED OTHERWISE (UNO) ALL WEIGHTS ARE IN t (METRIC TONNES) UNO ALL DETAILS ARE PROVISIONAL AND SUBJECT TO CONFIRMATION LASHINGS CALCULATIONS AS PER RESTRAINT GUIDELINES

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DRAWN BY:	
DRAWN DATE:	
CHECKED BY:	

CUSTOMER:	Engie	SIZE:
PROJECT:	The Plains R.E.P.	SCALE NTS
DRAWING TITLE:	SWEPT PATH DRAWING	SHEET NO:
DRAWING NAME:	Route Survey	REV

ARES PROJECT SERVICES PTY LTD - ABN: 45 643 587 115

Pinch Point

S07

LEFT TURN

W Burrabogie Rd &
Site Entrance G

A new intersection will need to be built at this location turning left off West Burrabogie Rd. Amber Consulting has completed a strategic design for this site entrance which has been overlaid on the swept path analysis.

Some additional hard stand will be required on the inside of the corner for OSOM loads such as blades.

DRAWING NOTES:

ALL DIMENSIONS ARE IN mm UNLESS NOTED OTHERWISE (UNO) ALL WEIGHTS ARE IN t (METRIC TONNES) UNO ALL DETAILS ARE PROVISIONAL AND SUBJECT TO CONFIRMATION LASHINGS CALCULATIONS AS PER RESTRAINT GUIDELINES

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CUSTOMER:	Engie	SIZE:
PROJECT:	The Plains R.E.P.	SCALE NTS
DRAWING TITLE:	SWEPT PATH DRAWING	SHEET NO:
DRAWING NAME:	Route Survey	REV

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04

Conclusion

Warradarge WF

A convoy of 3 blades leaves Henderson Port early in the morning on its way to site.

Conclusion

A brief outline of the report's major findings and any recommendations for actions to progress with the transport feasibility study.

> **...transport of 86m blades and 6.31m towers is feasible to The Plains R.E.P."**

Summary

Following our physical survey and swept path analysis, ARES believe that transport of turbine components including 86m GW86 blades and 6.31m towers is feasible from the **Port of Adelaide** to The Plains Renewable Energy Park.

Blades can be transported using state highways (Horrocks, Barrier and Cobb Hwys) with only minor detours. Modifications will be required at a number of pinch points, and some private land access will be required especially in the Broken Hill area, but there is no physical impediment to the blades along this route when using a conventional blade trailer setup.

For the tower sections, the overheight route from Adelaide is clear of any non-bypassable overhead structures. Overhead powerlines will need to be surveyed to gain an understanding of the quantity of lines requiring permanent lifting.

From a width perspective, travelling at 6.3m wide for such large distances will present challenges, but the quality of the roads being taken (overtaking lanes, rest areas, etc.) will mitigate these risks as much as reasonably practicable.

The Port of Adelaide is well suited to host the components for the project, having processed a number of significant wind projects in the recent past, including Goyder Wind Farm currently. Storage space is sufficient and the only concern would be if multiple wind projects were arriving into the port at the same time.

From the Stage 1 Desktop Assessment, Adelaide stood out as the best single-port solution for The Plains turbine components, and the physical survey and analysis has confirmed that it is an excellent option.

Next Steps

Based on the findings in this route survey, we recommend the following actions:

- Engage with transport authorities (DIT and TfNSW) for preliminary feedback on proposed routes
- Engage power authorities to perform overhead surveys in their respective jurisdictions
- Liaise with land owners affected by proposed routes
- Liaise with local councils along routes

Summary of Road Modifications

The following table lists all required modifications to allow transport of wind turbine components to take place.

Pinch Point	Road/Intersection	Modifications Required	Risk
01	Oceam Steamers Rd & Eastern Pde	Gate to be widened at storage area exit.	Low
02	Eastern Pde & Port River Expy	1 light pole and possibly 1 traffic light to be relocated (subject to blade tip positioning)	Medium
03	Sturt Hwy & Horrocks Hwy	2 signs to be made removeable and 1 light pole to be relocated. Approx. 420m2 of temporary hardstand required.	High
04	Horrocks Hwy	Minor tree trimming south of Tarlee	Low
05	Barrier Hwy & Copperhouse Rd	2 signs to be made removeable, approx. 550m2 of temporary hardstand to be laid down	Medium
06	Copperhouse St & West St	Tree trimming and/or removal, approx. 150m2 of temporary hardstand to be laid down	High
07A	Barrier Hwy 2.4km from Broken Hill	Construction of new temporary gravel bypass track to Gaffney St (approx. 3.7km). Track to be wind farm specification, i.e. min 5.5m width, suitable for min 14 tons per axle loading. New intersection off Barrier Hwy required. 1 sign to be moved.	Very High
08A	Crystal St & Sturt St	Temporary gravel track to be built through private land. Track to be wind farm specification, i.e. min 5.5m width, suitable for min 14 tons per axle loading. 1x sign to be made removeable.	High
08B	Chettle St & Barrier Hwy	Temporary gravel track to be built through private land. Track to be wind farm specification, i.e. min 5.5m width, suitable for min 14 tons per axle loading. An egress gate to be installed on Barrier Hwy.	Very High
09	Cobb Hwy	3 light poles to be relocated, and 3 signs to be made removeable, 300m2 of temporary hardstand to be laid down	High
10	Cobb Hwy & W Burrabogie Rd	Approx. 550m2 of temporary hardstand required.	Medium

05

Appendices

Murra Warra WF

Deliveries to Murra Warra included towers up to 5.8m in diameter - the largest ever at the time.

From:	Andrew Rigelsford
To:	Ian Wong
Cc:	HeavyVehicle; Affan Ismail KHATTAK
Subject:	RE: OSOM Permit Enquiry
Date:	Tuesday, 11 March 2025 2:50:34 PM
Attachments:	image008.png image009.png image010.png image004.png
Importance:	High

Good Afternoon Ian,

Following a review of the limited information and specifications you have provided to date UGLRL engineering provides '**in principle' approval** for the proposed heavy vehicle access over the Lachlan Street level crossing at Hay.

The S80 Wilbriggie-Hay rail line is non-operational and there is no evidence of rail/rail infrastructure across and adjacent to the road pavement based on available information at the time of this response being provided.

It is envisaged that any restrictions/conditions imposed by the relevant roads authority, NHVR and other stakeholders (where applicable) for travel along Lachlan Street would also similarly apply to the UGLRL rail corridor/level crossing section of the road.

In accordance with UGLRL heavy vehicle access requirements Ares Group (or delegated representative) will need to submit a compliant heavy vehicle access application to UGLRL for assesment a minimum of 6 weeks prior to proposed travel. Due to the OSOM nature of the application a Traffic Management Plan would be required which demonstrates that the route has been assessed for the specified vehicles/loads and there is suitable control measures implemented to ensure safe access etc etc.
For further information please refer to the information on our website:
https://www.uglregionallinx.com.au/ugl-regional-linx-operations/network-access/oversize-overmass-enquiries

If you have any questions or require further information please email or call.

Regards

Andrew Rigelsford
Survey Lead
Transport
UGL Regional Linx Pty. Ltd.

161 Kite Street | Orange NSW 2800 | Australia
Mobile: 0419 201 527
Email: andrew.rigelsford@uglregionallinx.com.au
Web: www.uglregionallinx.com.au

From: HeavyVehicle <heavyvehicle@uglregionallinx.com.au>
Sent: Thursday, 27 February 2025 4:49 PM
To: Andrew Rigelsford <andrew.rigelsford@uglregionallinx.com.au>
Subject: FW: OSOM Permit Enquiry

Hi Andrew,

Hope you are doing well.

I received below email regarding crossings. Do you have any idea about this?

Thanks,
Affan Ismail KHATTAK

Transport
UGL Regional Linx Pty. Ltd.

161 Kite Street | Orange NSW 2800 | Australia

Email: affanismail.khattak@uglregionallinx.com.au
Web: www.uglregionallinx.com.au

From: Ian Wong <ian.wong@aresgroup.com.au>
Sent: Thursday, February 27, 2025 2:35 PM
To: HeavyVehicle <heavyvehicle@uglregionallinx.com.au>
Subject: RE: OSOM Permit Enquiry

Hi,

Just following up this enquiry. I received a phone call from someone from the UGL engineering department (did not get a name) late last year regarding this who mentioned he would send an email with details on crossing requirements at this inactive/disused crossing in Hay on the CRN, however I have yet to receive anything. Can you please advise?

Regards,

IAN WONG
ARES GROUP
P: 1300 243 289 | M: +61 423 772 742
E: ian.wong@aresgroup.com.au | W: www.aresgroup.com.au

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From: Ian Wong
Sent: Thursday, 14 November 2024 4:00 PM
To: HeavyVehicle <heavyvehicle@uglregionallinx.com.au>
Subject: RE: OSOM Permit Enquiry

Hi,

It has been over 2 months since we lodged this enquiry. This information is required in multiple development approval submissions for major projects in the South West Renewable Energy Zone and is now causing delays in approvals. Can you please advise on crossing requirements (if any) for OSOM vehicles over this disused line? Is there someone I can call directly to get this information?

Regards,

IAN WONG
ARES GROUP
P: 1300 243 289 | M: +61 423 772 742
E: ian.wong@aresgroup.com.au | W: www.aresgroup.com.au
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From: Sophie Cain <sophie.cain@uglregionallinx.com.au> **On Behalf Of** HeavyVehicle
Sent: Tuesday, 15 October 2024 3:39 PM
To: Ian Wong <ian.wong@aresgroup.com.au>
Subject: RE: OSOM Permit Enquiry

Hi Ian,

Apologies for the delayed response.

I have just followed up engineering.

Kind Regards,

Sophie Cain
Third Party Works Officer
Transport
UGL Regional Linx Pty. Ltd.
161 Kite Street | Orange NSW 2800 | Australia
Direct: 02 4923 5341
Email: sophie.cain@uglregionallinx.com.au
Web: www.uglregionallinx.com.au

From: Ian Wong <ian.wong@aresgroup.com.au>
Sent: Tuesday, 15 October 2024 1:52 PM
To: HeavyVehicle <heavyvehicle@uglregionallinx.com.au>
Subject: RE: OSOM Permit Enquiry

Hi,

Can you please advise? We have not had any updates or response on this at all for over 4 weeks.

Regards,

IAN WONG
ARES GROUP
P: 1300 243 289 | M: +61 423 772 742

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E: ian.wong@aresgroup.com.au | W: www.aresgroup.com.au

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From: Ian Wong
Sent: Monday, 30 September 2024 3:35 PM
To: HeavyVehicle <heavyvehicle@uglregionallinx.com.au>
Subject: RE: OSOM Permit Enquiry

Hi Sophie,

Do you have any news on this please?

Regards,

ARES

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IAN WONG
ARES GROUP
P: 1300 243 289 | M: +61 423 772 742
E: ian.wong@aresgroup.com.au | W: www.aresgroup.com.au

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From: Ian Wong
Sent: Tuesday, 24 September 2024 2:40 PM
To: HeavyVehicle <heavyvehicle@uglregionallinx.com.au>
Subject: RE: OSOM Permit Enquiry

Hi Sophie,

Just following up on this request, can you please advise? We are only after preliminary information at this stage and it is a disused line.

Regards,

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Follow us:

IAN WONG
ARES GROUP
P: 1300 243 289 | M: +61 423 772 742
E: ian.wong@aresgroup.com.au | W: www.aresgroup.com.au

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From: Sophie Cain <sophie.cain@uglregionallinx.com.au> **On Behalf Of** HeavyVehicle
Sent: Wednesday, 11 September 2024 1:43 PM
To: Ian Wong <ian.wong@aresgroup.com.au>
Subject: RE: OSOM Permit Enquiry

No problem Ian,

I have forwarded your enquiry on to our Engineering SME. I'll be in touch as soon as I have received a response.

Kind Regards,

Sophie Cain
Third Party Works Officer
Transport
UGL Regional Linx Pty. Ltd.

161 Kite Street | Orange NSW 2800 | Australia
Direct: 02 4923 5341
Email: sophie.cain@uglregionallinx.com.au
Web: www.uglregionallinx.com.au

From: Ian Wong <ian.wong@aresgroup.com.au>
Sent: Wednesday, 11 September 2024 1:38 PM
To: thirdpartyworks <thirdpartyworks@uglregionallinx.com.au>
Subject: RE: OSOM Permit Enquiry

Hi Sophie,

Thanks for getting back to me!

We are not actually looking for an OSOM permit. We are supporting a number of developers who are proposing to transport OSOM wind turbine components through the town of Hay into the South West Renewable Energy Zone. Note that these projects are at the pre-EIS stage and are at least 3 years away from commencement, with transport possibly commencing another year after that, so a lot of information is preliminary or assumed at this stage.

As part of the EIS submissions, Transport for NSW have asked us to include preliminary advice from all rail authorities regarding any conditions which may exist at rail level crossings crossed by the proposed loads.

We note that the level crossing at Lachlan St, Hay is part of the disused Willbriggie to Hay line, and wish to understand if there are any requirements from UGLRL for crossing this line.

For your information, the longest combination under consideration is 110m long (prime mover and blade trailer with 100m wind blade). The highest gross combination mass would be a transformer at up to 350 tons.

Please let me know if you require anything further.

Regards,

IAN WONG
ARES GROUP
P: 1300 243 289 | M: +61 423 772 742
E: ian.wong@aresgroup.com.au | W: www.aresgroup.com.au
ISO 9001 | ISO 14001 | ISO 45001

From: Sophie Cain <sophie.cain@uglregionallinx.com.au> **On Behalf Of** thirdpartyworks
Sent: Wednesday, 11 September 2024 12:54 PM
To: Ian Wong <ian.wong@aresgroup.com.au>
Subject: OSOM Permit Enquiry

Hi Ian,

We have received notification that you are wishing to acquire an OSOM permit for a level crossing in Hay.

So we can process your request, can you please submit an OSOM application. The process is as follows:
Over Sized Over Mass (OSOM) applications are to be submitted through the following Link - Sign in (powerappsportals.com).
In the application please provide the minimum applicable parts of the following sections (based on the information you have available):

- Contact details;
- Proposed Permit Dates;
- Engineering Data;
- Axle Spacing and Weights;
- Vehicle information; and
- Attach any other pertinent information/documents in support of the application (i.e. NHVR permit for the vehicle/s you intend to use, Traffic Management Plan (TMP) and any other relevant documents that you believe would assist with supporting your application).

Please we request that a reasonable effort is undertaken from applicants to fill out as much as possible. It not only allows us to process the application in a quicker timeframe, by not having to go back and ask on multiple occasions, so an extra 5 or 10 minutes doing a good job will save much more time for all us beyond the application submission.

Please allow a minimum of two weeks for the application to be processed

Important: UGLRL can only give approval for access on CRN managed assets.

Kind Regards,

Sophie Cain
Third Party Works Officer
Transport
UGL Regional Linx Pty. Ltd.

161 Kite Street | Orange NSW 2800 | Australia
Direct: 02 4923 5341
Email: sophie.cain@uglregionallinx.com.au
Web: www.uglregionallinx.com.au

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Rest Stop

02

Woodcutters Rd
Parking, Barrier Hwy

This parking area is approximately 100m long by 10m wide. Blades will occupy about half of the area with the remainder available for other road users.

No modifications are required.

DRAWING NOTES:

ALL DIMENSIONS ARE IN mm UNLESS NOTED OTHERWISE (UNO) ALL WEIGHTS ARE IN t (METRIC TONNES) UNO ALL DETAILS ARE PROVISIONAL AND SUBJECT TO CONFIRMATION LASHINGS CALCULATIONS AS PER RESTRAINT GUIDELINES

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PROJECT:	The Plains R.E.P.	SCALE NTS
DRAWING TITLE:	SWEPT PATH DRAWING	SHEET NO:
DRAWING NAME:	Route Survey	REV

ARES PROJECT SERVICES PTY LTD - ABN: 45 643 587 115

Rest Stop

05

Outalpa Truck Parking,
Barrier Hwy

This parking area is approximately 110m long by 15m wide. Once parked to one side there is ample space for other road users to use the rest stop.

No modifications are required.

DRAWING NOTES:

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CUSTOMER:	Engie	SIZE:
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DRAWING TITLE:	SWEPT PATH DRAWING	SHEET NO:
DRAWING NAME:	Route Survey	REV

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Rest Stop

07

Cockburn Rest Stop, Barrier Hwy

The rest area at Cockburn on the SA-NSW border is very large. Blades can park on the opposite (south) side of the road and leave room for other traffic to manoeuvre around. Alternatively there is also a parking area on the north side but it is narrower and blades will use all of the space.

No modifications are required.

DRAWING NOTES:

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DRAWING TITLE:	SWEPT PATH DRAWING	SHEET NO:
DRAWING NAME:	Route Survey	REV

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Rest Stop

12

Wilcannia,
Barrier Hwy

The town of Wilcannia has a truck parking area on the northbound side of Barrier Hwy, approximately 7m wide and 220m long. There will be plenty of room for other road users to stop along this stretch.

No modifications are required.

DRAWING NOTES:

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CUSTOMER:	Engie	SIZE:
PROJECT:	The Plains R.E.P.	SCALE NTS
DRAWING TITLE:	SWEPT PATH DRAWING	SHEET NO:
DRAWING NAME:	Route Survey	REV

ARES PROJECT SERVICES PTY LTD - ABN: 45 643 587 115

Rest Stop

15

Abbotsford Bore,
Cobb Hwy

This rest area is approximately 15m wide and 130m long. Blades can park to one side and allow other traffic to use the rest stop.

No modifications are required.

DRAWING NOTES:

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DRAWN BY:	
DRAWN DATE:	
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CUSTOMER:	Engie	SIZE:	
PROJECT:	The Plains R.E.P.	SCALE	NTS
DRAWING TITLE:	SWEPT PATH DRAWING	SHEET NO:	
DRAWING NAME:	Route Survey	REV	

ARES PROJECT SERVICES PTY LTD - ABN: 45 643 587 115

Rest Stop

XX

Hay North (proposed),
Cobb Hwy

In order to layover in Hay without passing through the town itself during peak daytime hours, a temporary parking area for OSOM components will need to be constructed north of the town. The road reserve on the Cobb Hwy is quite wide north of Rye Ln and provided sufficient hard stand is installed, the side of the road can potentially be used. There are multiple areas which are suitable, one is shown to the right which is closest to town.

DRAWING NOTES:

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DRAWN BY:	
DRAWN DATE:	
CHECKED BY:	

CUSTOMER:	Engie	SIZE:
PROJECT:	The Plains R.E.P.	SCALE NTS
DRAWING TITLE:	SWEPT PATH DRAWING	SHEET NO:
DRAWING NAME:	Route Survey	REV

ARES PROJECT SERVICES PTY LTD - ABN: 45 643 587 115

PT2911 Broken Hill to Booroorban for ARES Transport Pty Ltd
NHVR Route ID 1VNSY-1 v1

VEHICLE CONSIDERED:

Permit No.:	**2911**	**Date Received:**	7/11/2024
Vehicle Description:	Prime mover + 2 - 6x8 platforms		
Item Carried:	Base Tower Section		
Item Weight:	110		
Axle Width:	4.2		
Axle Spacings:	3.2, 1.2, 3.2, 5x1.8, 13.5, 5x1.8		
Axles:	O--OO / OOOOOO / OOOOOO		
Wheels per Axle:	2--44 / 888888 / 888888		
Tyre Dimensions:	279mm on Prime mover, 190mm on platform trailers		
Gross Weight per Axle:	6.0, 18.5, 90.0, 90.0		
Total Weight:	204.50		
Axle Summary:	6x8/4.2 6x8/4.2		
Weight Summary:	90.0, 90.0		
Tonne per Axle Group 1:	15		
Tonne per Axle Group 2:	15		
Width:	6.3		
Length:	42		
Height:	6.6		
Starting Point:	Broken Hill		
Destinationt:	Engie Wind Farm (Booroorban)		
Route Requested:	Broken Hill to Engie Wind Farm near Booroorban - NHVR Journey ID 1VNSY-1 v1 Barrier Hwy (HW8), Creedon St / Gaffney St (Ccl Rds), South St / Crystal St / Iodide St(HW22), Barrier Hwy (HW8), Cobb Hwy (HW21) to Booroorban		

Route:
The route assessed are as above. Alternative route was not assessed.

Axle spacings must not be less than above and weights must not be greater than above.

ASSUMPTION:

In assessing the bridges on the route, assumption has been made that the bridges are in fair to good condition, and do not have any inadequacies.

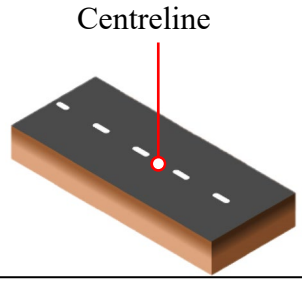
Route: As Above
(TRAVEL IN ONE DIRECTION)

The vehicle travelling as a permit vehicle can be permitted to travel over the requested route as shown in this permit subject to the following:

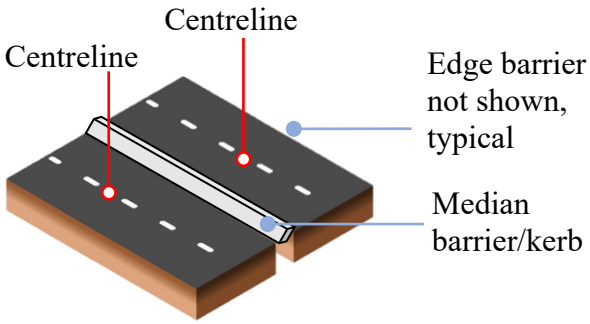
1. The vehicles travel on all the bridges on the route at a speed not exceeding 10 km/h with no sudden braking or acceleration. No other vehicles are permitted on the bridge while the Permit vehicle is on the bridge.

2. The vehicle shall travel only along centreline of the carriageway of all the bridges.

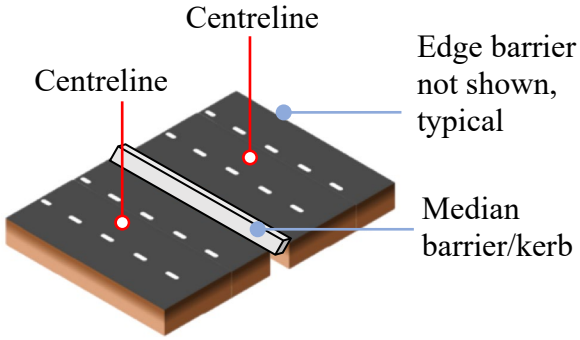
   Note: The centreline of the carriageway on the bridge is the centreline of the roadway between the faces of the barriers/kerbs.



Bridge supporting single carriageway with two-way traffic with any line marking in middle – Permit vehicle to travel along centreline of carriageway



Bridge supporting two carriageways with median barrier/kerb as divider between carriageway – Permit vehicle to travel along the centreline of each carriageway



Bridge supporting two carriageways with three lanes each way traffic with median barrier or kerb as divider between carriageway – Permit vehicle to travel along centreline of middle lane / carriageway.

3. The permit vehicle's platform and payload loading is to be equally distributed between all axles of the platform.

4. Western and Southern Region's concurrence is obtained to the movement of the vehicles over the route.

5. Transport firm is required to obtain approval from UGL/ARTC, Sydney Trains (formerly Railway Access Corporation or State Rail Authority), NSW Ports, and Department of

Land and Water Conservation or private infrastructure owners for travel over their infrastructures.

6. Councils' approval is obtained by the transport firm for travel over the structures on the route maintained by the Councils, and for travel over the local roads.

7. The transport firm shall satisfy itself that adequate height clearance is available under the overhead structures on the above route. The firm should refer to Region for further details.

8. The transport firm shall satisfy itself that the vehicle width including load can navigate the bridges on the above route. The firm should refer to Region for further details.

9. This approval is for the direction of route from **Broken Hill to Booroorban** along the route stated above, with no return trip.

Cost of assessment is $800 + GST

Titus Khor
A/ Senior Bridge Engineer
Bridge Assessment and Evaluation
22 January 2025

PT2912 Broken Hill to Booroorban for ARES Transport Pty Ltd
NHVR Route ID 1VNSY-1 v1

VEHICLE CONSIDERED:

Permit No.:	**2912**	**Date Received:**	17/11/2024
Vehicle Description:	Prime mover + 20x8 platform + push truck		
Item Carried:	transformer		
Item Weight:	187		
Axle Width:	4.20		
Axle Spacings:	3.2, 1.2, 6.0, 19x1.8, 6.0, 3.2, 1.2		
Axles:	O--OO / OOOOOOOOOOOOOOOOOOO / O--OO		
Wheels per Axle:	2, 44 / 88888888888888888 / 2, 44		
Tyre Dimensions:	279mm on prime mover, 190mm on platform		
Gross Weight per Axle:	6.0, 18.50, 280.0, 6.0, 18.50		
Total Weight:	329.00		
Axle Summary:	20x8/4.2		
Weight Summary:	280.0		
Tonne per Axle Group 1:	14.0		
Tonne per Axle Group 2:			
Width:	4.2		
Length:	66		
Height:	5.3		
Starting Point:	Broken Hill		
Destinationt:	Engie Wind Farm (Booroorban)		
Route Requested:	Broken Hill to Engie Wind Farm near Booroorban - NHVR Journey ID 1VNSY-1 v1 Barrier Hwy (HW8), Creedon St / Gaffney St (Ccl Rds), South St / Crystal St / Iodide St(HW22), Barrier Hwy (HW8), Cobb Hwy (HW21) to Booroorban		

Route:
The route assessed are as above. Alternative route was not assessed.

Axle spacings must not be less than above and weights must not be greater than above.

ASSUMPTION:

In assessing the bridges on the route, assumption has been made that the bridges are in fair to good condition, and do not have any inadequacies.

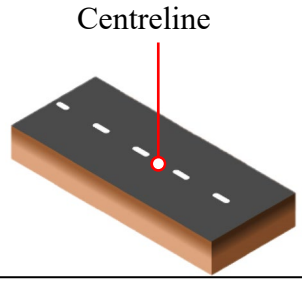
Route: As Above
(TRAVEL IN ONE DIRECTION)

The vehicle travelling as a permit vehicle can be permitted to travel over the requested route as shown in this permit subject to the following:

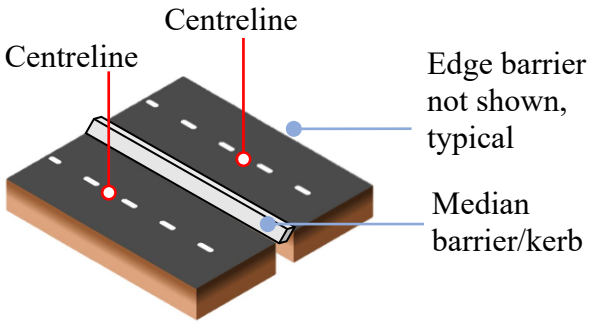
1. The vehicles travel on all the bridges on the route at a speed not exceeding 10 km/h with no sudden braking or acceleration. No other vehicles are permitted on the bridge while the Permit vehicle is on the bridge.

2. The vehicle shall travel only along centreline of the carriageway of all the bridges.

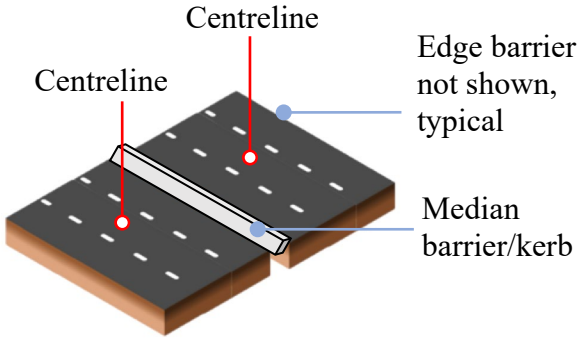
   Note: The centreline of the carriageway on the bridge is the centreline of the roadway between the faces of the barriers/kerbs.



Bridge supporting single carriageway with two-way traffic with any line marking in middle – Permit vehicle to travel along centreline of carriageway



Bridge supporting two carriageways with median barrier/kerb as divider between carriageway – Permit vehicle to travel along the centreline of each carriageway



Bridge supporting two carriageways with three lanes each way traffic with median barrier or kerb as divider between carriageway – Permit vehicle to travel along centreline of middle lane / carriageway.

3. The permit vehicle's platform and payload loading is to be equally distributed between all axles of the platform.

4. Western and Southern Region's concurrence is obtained to the movement of the vehicles over the route.

5. Transport firm is required to obtain approval from UGL/ARTC, Sydney Trains (formerly Railway Access Corporation or State Rail Authority), NSW Ports, and Department of

Land and Water Conservation or private infrastructure owners for travel over their infrastructures.

6. Councils' approval is obtained by the transport firm for travel over the structures on the route maintained by the Councils, and for travel over the local roads.

7. The transport firm shall satisfy itself that adequate height clearance is available under the overhead structures on the above route. The firm should refer to Region for further details.

8. The transport firm shall satisfy itself that the vehicle width including load can navigate the bridges on the above route. The firm should refer to Region for further details.

9. This approval is for the direction of route from **Broken Hill to Booroorban** along the route stated above, with no return trip.

Cost of assessment is $800 + GST

Titus Khor
A/ Senior Bridge Engineer
Bridge Assessment and Evaluation
22 January 2025

www.aresgroup.com.au

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Melbourne VIC, 3004

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Appendix B

Turning Movement Count Survey – Cobb Highway / West Burrabogie Road

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of Cobb Hwy and W Burrabogie Rd, Hay South NSW

GPS *-34.807492, 144.774936*

Date:	Tue 14/11/23
Weather:	Overcast
Suburban:	Hay South NSW
Customer:	N/A

North:	Cobb Hwy
East:	W Burrabogie Rd
South:	Cobb Hwy
West:	N/A

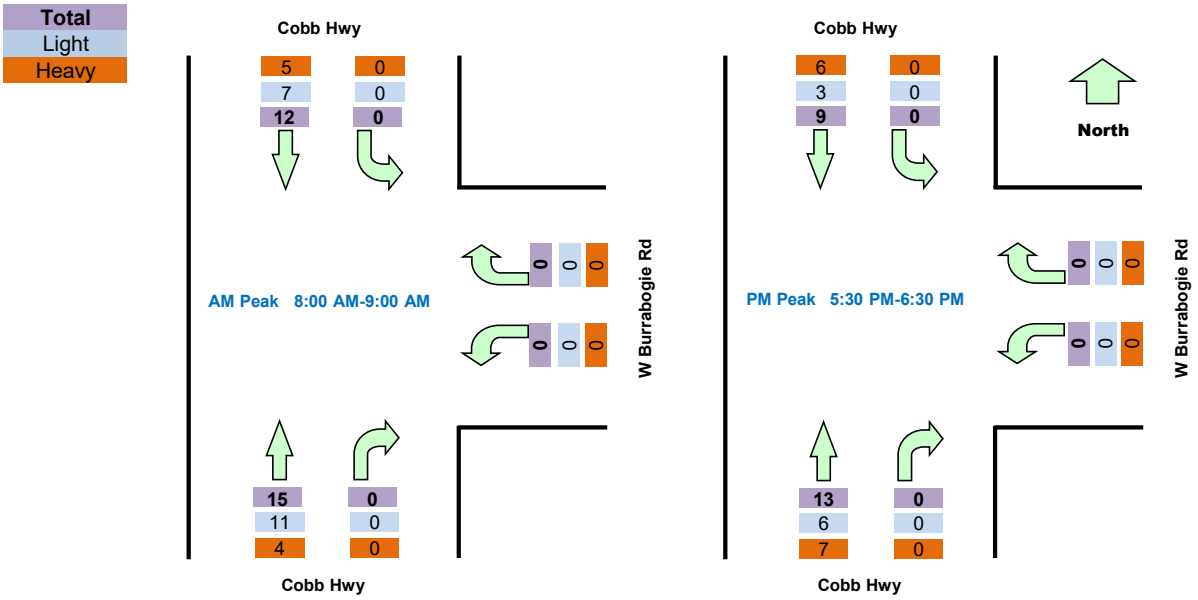
Survey Period	AM:	6:00 AM-9:00 AM
	PM:	4:30 PM-6:30 PM
Traffic Peak	AM:	8:00 AM-9:00 AM
	PM:	5:30 PM-6:30 PM

All Vehicles

Time		North Approach Cobb Hwy			East Approach W Burrabogie Rd			South Approach Cobb Hwy			Hourly Total	
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	Hour	Peak
6:00	6:15	0	5	0	0	0	0	0	0	2	22	
6:15	6:30	0	3	0	0	0	0	0	0	0	17	
6:30	6:45	0	2	0	0	0	0	0	1	4	18	
6:45	7:00	0	1	0	0	0	0	0	2	2	19	
7:00	7:15	0	2	0	0	0	0	0	0	0	16	
7:15	7:30	0	2	0	0	0	0	0	0	2	19	
7:30	7:45	0	7	0	0	0	0	0	0	1	24	
7:45	8:00	0	0	0	0	0	0	0	0	2	21	
8:00	8:15	0	1	0	0	0	0	0	0	4	27	Peak
8:15	8:30	0	6	0	0	0	0	0	0	3		
8:30	8:45	0	1	0	0	0	0	0	0	4		
8:45	9:00	0	4	0	0	0	0	0	0	4		
16:30	16:45	0	4	1	0	0	0	0	0	1	16	
16:45	17:00	0	2	0	0	0	0	0	0	3	17	
17:00	17:15	0	2	0	0	0	0	0	0	2	17	
17:15	17:30	0	0	0	0	0	0	0	0	1	18	
17:30	17:45	0	3	0	0	0	0	0	0	4	22	Peak
17:45	18:00	0	2	0	0	0	0	0	0	3		
18:00	18:15	0	4	0	0	0	0	0	0	1		
18:15	18:30	0	0	0	0	0	0	0	0	5		

Peak Time		North Approach Cobb Hwy			East Approach W Burrabogie Rd			South Approach Cobb Hwy			Peak total
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	
8:00	9:00	0	12	0	0	0	0	0	0	15	27
17:30	18:30	0	9	0	0	0	0	0	0	13	22

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.



Light Vehicles

Time		North Approach Cobb Hwy			East Approach W Burrabogie Rd			South Approach Cobb Hwy		
Period Start	Period End	U	SB	L	U	R	L	U	R	NB
6:00	6:15	0	4	0	0	0	0	0	0	0
6:15	6:30	0	2	0	0	0	0	0	0	0
6:30	6:45	0	1	0	0	0	0	0	1	3
6:45	7:00	0	1	0	0	0	0	0	0	1
7:00	7:15	0	2	0	0	0	0	0	0	0
7:15	7:30	0	1	0	0	0	0	0	0	2
7:30	7:45	0	5	0	0	0	0	0	0	1
7:45	8:00	0	0	0	0	0	0	0	0	2
8:00	8:15	0	0	0	0	0	0	0	0	3
8:15	8:30	0	3	0	0	0	0	0	0	2
8:30	8:45	0	1	0	0	0	0	0	0	3
8:45	9:00	0	3	0	0	0	0	0	0	3
16:30	16:45	0	3	1	0	0	0	0	0	1
16:45	17:00	0	1	0	0	0	0	0	0	2
17:00	17:15	0	2	0	0	0	0	0	0	1
17:15	17:30	0	0	0	0	0	0	0	0	1
17:30	17:45	0	1	0	0	0	0	0	0	1
17:45	18:00	0	0	0	0	0	0	0	0	2
18:00	18:15	0	2	0	0	0	0	0	0	0
18:15	18:30	0	0	0	0	0	0	0	0	3

Peak Time		North Approach Cobb Hwy			East Approach W Burrabogie Rd			South Approach Cobb Hwy			Peak
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	total
8:00	9:00	0	7	0	0	0	0	0	0	11	18

17:30	18:30	0	3	0	0	0	0	0	0	6	9

Heavy Vehicles

Time		North Approach Cobb Hwy			East Approach W Burrabogie Rd			South Approach Cobb Hwy		
Period Start	**Period End**	U	SB	L	U	R	L	U	R	NB
6:00	6:15	0	1	0	0	0	0	0	0	2
6:15	6:30	0	1	0	0	0	0	0	0	0
6:30	6:45	0	1	0	0	0	0	0	0	1
6:45	7:00	0	0	0	0	0	0	0	2	1
7:00	7:15	0	0	0	0	0	0	0	0	0
7:15	7:30	0	1	0	0	0	0	0	0	0
7:30	7:45	0	2	0	0	0	0	0	0	0
7:45	8:00	0	0	0	0	0	0	0	0	0
8:00	8:15	0	1	0	0	0	0	0	0	1
8:15	8:30	0	3	0	0	0	0	0	0	1
8:30	8:45	0	0	0	0	0	0	0	0	1
8:45	9:00	0	1	0	0	0	0	0	0	1
16:30	16:45	0	1	0	0	0	0	0	0	0
16:45	17:00	0	1	0	0	0	0	0	0	1
17:00	17:15	0	0	0	0	0	0	0	0	1
17:15	17:30	0	0	0	0	0	0	0	0	0
17:30	17:45	0	2	0	0	0	0	0	0	3
17:45	18:00	0	2	0	0	0	0	0	0	1
18:00	18:15	0	2	0	0	0	0	0	0	1
18:15	18:30	0	0	0	0	0	0	0	0	2

Peak Time		North Approach Cobb Hwy			East Approach W Burrabogie Rd			South Approach Cobb Hwy			Peak
Period Start	**Period End**	U	SB	L	U	R	L	U	R	NB	**total**
8:00	9:00	0	5	0	0	0	0	0	0	4	9
17:30	18:30	0	6	0	0	0	0	0	0	7	13

Appendix C

Tube Count Survey Data – Cobb Highway

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

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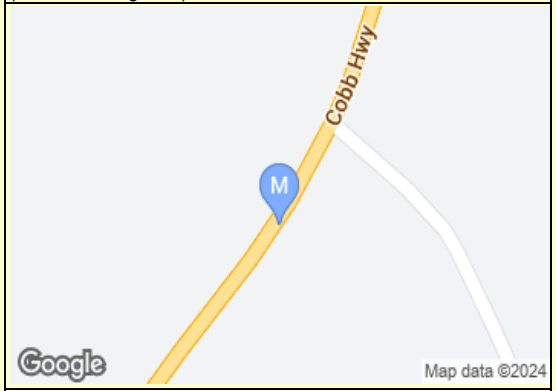
AUTOMATIC COUNT SUMMARY

Street Name :	Cobb Hwy	**Location :**	South of Jerilderie Rd
Suburb :	Hay South	**Start Date :**	00:00 Mon 13/November/2023
Machine ID:	MD00QXA4	**Finish Date :**	00:00 Mon 20/November/2023
Site ID:	17833	**Speed Zone :**	110 km/h
Prepared By :	Vo Son Binh	**Email:**	binh@trafficsurvey.com.au

GPS information	Lat 34° 35' 9.23 South Long 144° 49' 43.10 East		Direction of Travel	
		Both directions	**Northbound**	**Southbound**
Traffic Volume :	Weekdays Average	392	199	193
(Vehicles/Day)	7 Day Average	350	180	170
Weekday **AM**	09:00	30	13	17
Peak hour starts **PM**	12:00	34	16	18
Speeds :	85th Percentile	107.5	108.5	107.5
(Km/Hr)	Average	100.1	100.5	99.9
Classification % :	Light Vehicles up to 5.5m	63.6%	63.2%	64.1%

Location

GPS Information	Load Google Map (internet required)
(Latitude, Longitude)	-34.585897, 144.828638



Speed Data	Speed Graph	Speed Bin
Volume Data	Volume Graph	Classification

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001
SAFETY SYSTEM CERTIFICATION DNV·GL AS/NZS 4801
ENVIRONMENTAL SYSTEM CERTIFICATION DNV·GL ISO 14001

QUALITY ASSURED COMPANY BY ISO 9001:2015
OH&S SYSTEM CERTIFIED TO ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.
These results should be used for indicative assessment only."

TRANS TRAFFIC SURVEY
trafficsurvey.com.au

Site Cobb Hwy

Direction Northbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	13/11/2023	14/11/2023	15/11/2023	16/11/2023	17/11/2023	18/11/2023	19/11/2023	Total	Average	Total	Average	Total	Average
AM Peak	07:00	10:00	11:00	08:00	09:00	11:00	10:00	N/A	10:00	N/A	09:00	N/A	11:00
PM Peak	12:00	17:00	17:00	16:00	16:00	14:00	14:00	N/A	16:00	N/A	16:00	N/A	14:00
00:00	5	0	0	0	1	1	2	9	1	6	1	3	2
01:00	0	1	2	2	1	0	0	6	1	6	1	0	0
02:00	0	3	1	1	0	0	0	5	1	5	1	0	0
03:00	0	1	0	0	1	0	0	2	0	2	0	0	0
04:00	0	2	1	0	0	0	1	4	1	3	1	1	1
05:00	2	2	0	3	1	0	2	10	1	8	2	2	1
06:00	8	5	2	6	5	0	4	30	4	26	5	4	2
07:00	14	4	9	8	10	5	5	55	8	45	9	10	5
08:00	10	10	14	13	11	4	8	70	10	58	12	12	6
09:00	14	13	12	13	12	11	3	78	11	64	13	14	7
10:00	13	20	16	9	8	14	12	92	13	66	13	26	13
11:00	12	8	19	8	10	17	11	85	12	57	11	28	14
12:00	23	15	11	15	16	6	11	97	14	80	16	17	9
13:00	15	17	15	11	14	7	12	91	13	72	14	19	10
14:00	11	6	13	16	16	13	18	93	13	62	12	31	16
15:00	14	17	13	21	23	7	8	103	15	88	18	15	8
16:00	18	18	15	23	37	9	16	136	19	111	22	25	13
17:00	20	20	21	13	18	11	11	114	16	92	18	22	11
18:00	9	12	10	5	12	5	12	65	9	48	10	17	9
19:00	4	10	7	4	5	5	10	45	6	30	6	15	8
20:00	4	1	1	8	3	2	2	21	3	17	3	4	2
21:00	4	4	4	3	4	7	3	29	4	19	4	10	5
22:00	2	4	5	5	2	3	3	24	3	18	4	6	3
23:00	2	2	2	2	5	1	1	15	2	13	3	2	1
Total	204	195	193	189	215	128	155	1279	180	996	199	283	146
% Heavy	40.69%	40.51%	39.38%	37.04%	29.30%	30.47%	38.71%	36.75%		37.25%		34.98%	

TRANS TRAFFIC SURVEY
trafficsurvey.com.au

Site Cobb Hwy

Direction Southbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	13/11/2023	14/11/2023	15/11/2023	16/11/2023	17/11/2023	18/11/2023	19/11/2023	Total	Average	Total	Average	Total	Average
AM Peak	06:00	09:00	08:00	06:00	09:00	11:00	08:00	N/A	09:00	N/A	06:00	N/A	11:00
PM Peak	17:00	12:00	13:00	12:00	12:00	15:00	15:00	N/A	12:00	N/A	12:00	N/A	15:00
00:00	0	0	1	1	0	1	3	6	1	2	0	4	2
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	1	1	2	0	0	0	0	4	1	4	1	0	0
03:00	0	2	2	0	1	1	0	6	1	5	1	1	1
04:00	0	1	1	2	1	2	0	7	1	5	1	2	1
05:00	6	8	2	5	4	2	1	28	4	25	5	3	2
06:00	21	20	18	22	9	8	2	100	14	90	18	10	5
07:00	9	9	18	8	10	3	9	66	9	54	11	12	6
08:00	15	9	20	15	19	6	13	97	14	78	16	19	10
09:00	9	21	19	18	20	7	12	106	15	87	17	19	10
10:00	5	8	19	20	11	9	5	77	11	63	13	14	7
11:00	7	10	16	18	14	15	13	93	13	65	13	28	14
12:00	10	19	16	26	19	8	9	107	15	90	18	17	9
13:00	11	14	17	12	11	3	9	77	11	65	13	12	6
14:00	14	14	16	14	10	8	9	85	12	68	14	17	9
15:00	13	9	11	17	17	14	15	96	14	67	13	29	15
16:00	9	13	5	7	10	9	4	57	8	44	9	13	7
17:00	15	11	12	10	10	4	3	65	9	58	12	7	4
18:00	3	2	3	10	10	7	8	43	6	28	6	15	8
19:00	3	3	7	2	8	3	5	31	4	23	5	8	4
20:00	0	1	3	4	3	0	3	14	2	11	2	3	2
21:00	1	6	1	2	2	3	3	18	3	12	2	6	3
22:00	0	2	3	3	1	0	1	10	1	9	2	1	1
23:00	1	0	1	1	0	3	1	7	1	3	1	4	2
Total	153	183	213	217	190	116	128	1200	170	956	193	244	128
% Heavy	35.95%	44.81%	34.27%	38.25%	34.21%	29.31%	30.47%	35.92%		37.45%		29.92%	

Appendix D

Tube Count Survey Data – West Burrabogie Road

TRANS TRAFFIC SURVEY
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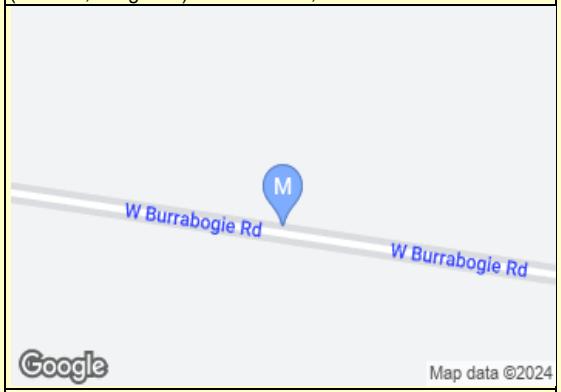
AUTOMATIC COUNT SUMMARY

Street Name :	West Burrabogie Rd	**Location :**	East of Cobb Hwy
Suburb :	Booroorban	**Start Date :**	00:00 Mon 13/November/2023
Machine ID:	K365MK64	**Finish Date :**	00:00 Mon 20/November/2023
Site ID:	17835	**Speed Zone :**	50 km/h
Prepared By :	Vo Son Binh	**Email:**	binh@trafficsurvey.com.au

GPS information		Lat 34° 48' 36.64 South Long 144° 47' 26.44 East	Direction of Travel		
			Both directions	**Westbound**	**Eastbound**
Traffic Volume :		Weekdays Average	12	7	5
(Vehicles/Day)		7 Day Average	10	5	5
Weekday	**AM**	06:00	2	1	2
Peak hour start	**PM**	17:00	2	1	1
Speeds :		85th Percentile	47.8	53.1	42.4
(Km/Hr)		Average	45.7	51.2	40.5
Classification % :		Light Vehicles up to 5.5m	78.6%	83.3%	85.7%

Location

GPS Information	Load Google Map (internet required)
(Latitude, Longitude)	-34.810179, 144.790677



Speed Data	Speed Graph	Speed Bin
Volume Data	Volume Graph	Classification

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001
SAFETY SYSTEM CERTIFICATION DNV·GL AS/NZS 4801
ENVIRONMENTAL SYSTEM CERTIFICATION DNV·GL ISO 14001

QUALITY ASSURED COMPANY BY ISO 9001:2015
OH&S SYSTEM CERTIFIED TO ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

Status of movement – Covid 19

"Traffic behaviour is not the same as pre-pandemic (traditional morning/afternoon peak is much less pronounced and school start/finish times are much more pronounced), the current patterns are close enough to what probably is going to be a 'COVID normal' situation for at least the next year or two. Workplaces are currently not all yet open.
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TRANS TRAFFIC SURVEY
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Site West Burrabogie Rd

Direction Westbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	13/11/2023	14/11/2023	15/11/2023	16/11/2023	17/11/2023	18/11/2023	19/11/2023	Total	Average	Total	Average	Total	Average
AM Peak	06:00	11:00	09:00	06:00	06:00	10:00	00:00	N/A	06:00	N/A	06:00	N/A	00:00
PM Peak	17:00	14:00	12:00	12:00	20:00	12:00	21:00	N/A	12:00	N/A	12:00	N/A	21:00
00:00	0	0	0	0	0	0	1	1	0	0	0	1	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	1	0	1	1	1	0	0	4	1	4	1	0	0
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	1	0	1	2	0	1	0	1	1
09:00	1	0	2	0	0	0	0	3	0	3	1	0	0
10:00	0	0	0	0	0	2	0	2	0	0	0	2	1
11:00	0	1	0	0	1	0	0	2	0	2	0	0	0
12:00	0	0	3	1	0	2	0	6	1	4	1	2	1
13:00	1	0	0	0	0	0	2	3	0	1	0	2	1
14:00	1	4	0	0	0	0	0	5	1	5	1	0	0
15:00	0	3	0	1	0	0	0	4	1	4	1	0	0
16:00	0	0	0	1	0	1	0	2	0	1	0	1	1
17:00	4	0	0	0	1	0	0	5	1	5	1	0	0
18:00	0	0	1	0	0	0	0	1	0	1	0	0	0
19:00	0	0	0	0	0	0	1	1	0	0	0	1	1
20:00	0	1	0	0	2	0	0	3	0	3	1	0	0
21:00	0	0	0	0	0	0	3	3	0	0	0	3	2
22:00	0	2	0	0	0	0	1	3	0	2	0	1	1
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	8	11	7	4	6	5	9	50	5	36	7	14	10
% Heavy	25.00%	36.36%	28.57%	0.00%	50.00%	20.00%	44.44%	32.00%		30.56%		35.71%	

TRANS TRAFFIC SURVEY
trafficsurvey.com.au

Site West Burrabogie Rd

Direction Eastbound

Back to Site Summary Page

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	7 days		Weekday		Weekend	
Date	13/11/2023	14/11/2023	15/11/2023	16/11/2023	17/11/2023	18/11/2023	19/11/2023	Total	Average	Total	Average	Total	Average
AM Peak	06:00	06:00	08:00	06:00	09:00	09:00	07:00	N/A	06:00	N/A	06:00	N/A	07:00
PM Peak	15:00	18:00	17:00	12:00	13:00	17:00	18:00	N/A	15:00	N/A	15:00	N/A	18:00
00:00	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	4	3	0	1	0	0	0	8	1	8	2	0	0
07:00	2	0	0	0	0	0	1	3	0	2	0	1	1
08:00	0	0	1	0	0	0	0	1	0	1	0	0	0
09:00	0	0	0	0	1	2	0	3	0	1	0	2	1
10:00	0	0	0	0	1	0	0	1	0	1	0	0	0
11:00	1	1	1	1	0	0	1	5	1	4	1	1	1
12:00	0	0	1	1	0	0	0	2	0	2	0	0	0
13:00	0	0	0	0	1	0	1	2	0	1	0	1	1
14:00	0	0	0	0	0	0	1	1	0	0	0	1	1
15:00	1	0	0	1	1	1	1	5	1	3	1	2	1
16:00	0	1	0	0	0	0	1	2	0	1	0	1	1
17:00	1	0	2	1	1	2	0	7	1	5	1	2	1
18:00	0	2	0	0	0	0	4	6	1	2	0	4	2
19:00	0	0	0	0	0	0	1	1	0	0	0	1	1
20:00	0	0	0	1	0	1	0	2	0	1	0	1	1
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	9	7	5	6	5	6	11	49	5	32	5	17	12
% Heavy	0.00%	14.29%	40.00%	16.67%	40.00%	33.33%	18.18%	20.41%		18.75%		23.53%	

Appendix E

Project Traffic Volumes

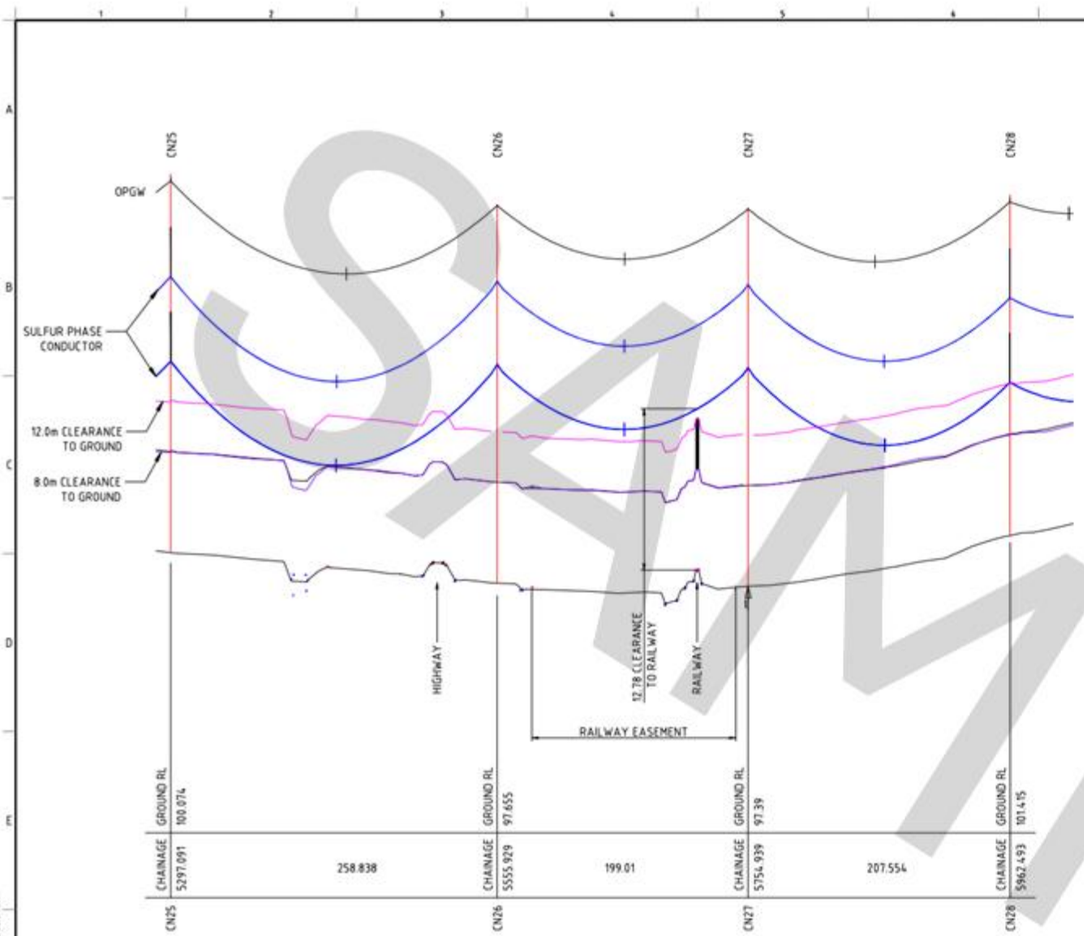
5 Vehicle estimates

		Unit	Total	Vehicle capacity	Vehicle movements	Transport		
						Wind Farm		
						Peak Daily (AM)	Peak Daily (PM)	Total Daily Trips
5.01	Total Pavement material ex potential	t	1,679,067.57	32	104,941.72	72.00	72.00	144.00
5.02	total concrete aggregates	t	227,431.50	32	14,214.47	10.00	10.00	20.00
5.03	total cement and fly ash	t	67,033.50	32	4,189.59	3.00	3.00	6.00
5.04	total sand (concrete only)	t	191,030.40	32	11,939.40	9.00	9.00	18.00
5.05	total steel reinforcement	t	32,160.00	25	2,572.80	2.00	2.00	4.00
						-	-	-
5.06	total culverts	no.	1,567.05	60	52.23	1.00	1.00	2.00
5.07	Solar, OHL, BESS, Substations (BW)	Various	Various	Various	686.00	-	-	-
5.08	Total electrical plant and equipment (Wind Only) (BW)	Various	Various	Various	3,750.00	4.00	4.00	8.00
						-	-	-
5.09	total water	kL	413,581.37	20	41,358.14	29.00	29.00	58.00
						-	-	-
5.10	total fuel	kL	49,431.43	20	4,943.14	4.00	4.00	8.00
						-	-	-
5.11	total work force (100 personnel wind and solar) 2x personnel per LV	no.	53,400.00	1	106,800.00	26.00	26.00	52.00
						-	-	-
5.12	turbine supply and install LV numbers from other projects / OEM					45.00	45.00	90.00
								-
5.13	Delivery of all panels, inverters, core transformers for Solar/BESS information from other projects / OEM					-	-	
5.14	Oversize and Overmass deliveries for Solar/BESS					-	-	-
5.15	Light Vehicles for OEM site teams					-	-	-
5.16	Oversize and Overmass deliveries for wind farm					3.00	3.00	6.00
5.17	Fill if imported	t	479,352.51	32	29,959.53	21.00	21.00	42.00

Appendix F

Transmission Line Crossing - Example Strategic Design

Example of Rail & Road Crossing Drawing



275kV LINE PROFILE
NTS

275kV LINE PLAN
NTS

NOTES:

1. ALL DIMENSIONS IN METRES (m);
2. COORDINATE SYSTEM MGA-GDA 94 ZONE 53;
3. PHASE CONDUCTOR TYPE IS SULPHUR AAAC 61/3.75 DISPLAYED AT MOT 80 DEG C;
4. POLE IDENTIFICATION NUMBERS ARE CONSTRUCTION NUMBERS ONLY;
5. AT RAIL CROSSING, STRUCTURES ARE PLACED IN LOCATIONS THAT MAXIMISE THE CLEARANCE OVER THE RAILWAY.
   STRUCTURES ARE INSTALLED EITHER SIDE OF THE RAILWAY.
   STRUCTURES ARE SUITABLE FOR TEMPORARY TERMINATION OF ALL PHASE AND OHEW CONDUCTORS FOR A SERVICEABILITY WIND SPEED.

POLE No	STRUCTURE TYPE	EASTING	NORTHING
CN25	SUSPENSION	742363.171	6389343.917
CN26	STRAIN	742520.238	6389138.182
CN27	STRAIN	742641.000	6388980.000
CN28	SUSPENSION	742770.696	6388817.958

No	DESCRIPTION	DRAWN	CHKD	APPRVD	DATE
0	ISSUED FOR CONSTRUCTION	VDL	NB	DB	26/03/2018
C-01	ISSUED FOR VERIFICATION	VDL	NB	FS	19/02/2018
B-01	80% DETAIL DESIGN REVIEW	VDL	NB	FS	29/01/2018
A-01	15% PRELIMINARY DESIGN REVIEW	VDL	NB	FS	24/10/2017

REVISIONS

Appendix G

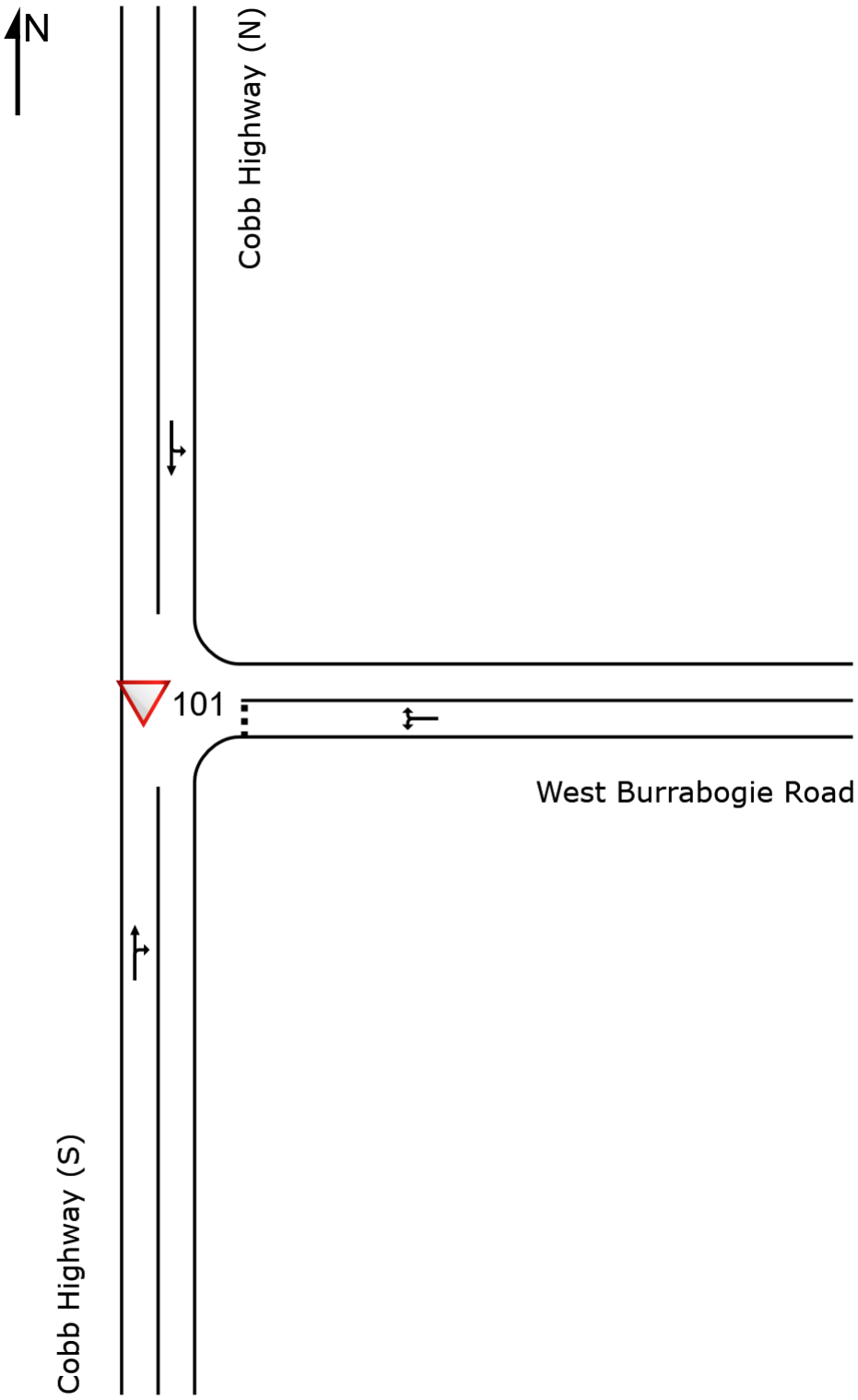
SIDRA Traffic Modelling Results – Cobb Highway / West Burrabogie Road

SITE LAYOUT

Site: 101 [Cobb Highway and West Burrabogie Road Intersection (AM peak) (Site Folder: Project)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [Cobb Highway and West Burrabogie Road Intersection (AM peak) (Site Folder: Project)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Cobb Highway (S)															
2	T1	All MCs	84	47.5	84	47.5	0.137	0.5	LOS A	0.6	5.2	0.27	0.43	0.27	92.1
3	R2	All MCs	116	12.7	116	12.7	0.137	8.7	LOS A	0.6	5.2	0.27	0.43	0.27	73.0
Approach			200	27.4	200	27.4	0.137	5.3	NA	0.6	5.2	0.27	0.43	0.27	80.0
East: West Burrabogie Road															
4	L2	All MCs	1	0.0	1	0.0	0.002	8.0	LOS A	0.0	0.0	0.18	0.60	0.18	75.8
6	R2	All MCs	1	0.0	1	0.0	0.002	8.6	LOS A	0.0	0.0	0.18	0.60	0.18	75.6
Approach			2	0.0	2	0.0	0.002	8.3	LOS A	0.0	0.0	0.18	0.60	0.18	75.7
North: Cobb Highway (N)															
7	L2	All MCs	100	21.1	100	21.1	0.094	8.8	LOS A	0.0	0.0	0.00	0.45	0.00	53.9
8	T1	All MCs	51	6.3	51	6.3	0.094	0.0	LOS A	0.0	0.0	0.00	0.45	0.00	95.3
Approach			151	16.1	151	16.1	0.094	5.8	NA	0.0	0.0	0.00	0.45	0.00	63.1
All Vehicles			353	22.4	353	22.4	0.137	5.5	NA	0.6	5.2	0.15	0.44	0.15	71.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [Cobb Highway and West Burrabogie Road Intersection (PM peak) (Site Folder: Project)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Cobb Highway (S)															
2	T1	All MCs	53	16.0	53	16.0	0.032	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	109.2
3	R2	All MCs	1	0.0	1	0.0	0.032	7.7	LOS A	0.0	0.1	0.01	0.01	0.01	90.5
Approach			54	15.7	54	15.7	0.032	0.2	NA	0.0	0.1	0.01	0.01	0.01	108.8
East: West Burrabogie Road															
4	L2	All MCs	113	11.2	113	11.2	0.181	8.5	LOS A	0.7	5.8	0.25	0.63	0.25	66.3
6	R2	All MCs	100	21.1	100	21.1	0.181	8.8	LOS A	0.7	5.8	0.25	0.63	0.25	64.1
Approach			213	15.8	213	15.8	0.181	8.7	LOS A	0.7	5.8	0.25	0.63	0.25	65.2
North: Cobb Highway (N)															
7	L2	All MCs	1	0.0	1	0.0	0.066	8.2	LOS A	0.0	0.0	0.00	0.01	0.00	61.0
8	T1	All MCs	85	49.4	85	49.4	0.066	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	109.3
Approach			86	48.8	86	48.8	0.066	0.1	NA	0.0	0.0	0.00	0.01	0.00	108.3
All Vehicles			353	23.9	353	23.9	0.181	5.3	NA	0.7	5.8	0.15	0.39	0.15	77.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Appendix H

Strategic Designs – OSOM Route Upgrades

Notes:
Property boundaries shown indicatively based on mapping data.
Access gates to remain closed at all times except when required for Project traffic.
Vehicle turning paths provided within Ares report.
Site Location: Barrier Highway, Broken Hill NSW

07A - Broken Hill Bypass
Strategic Design
The Plains Wind Farm

DRAWN: OM
DATE: 13/12/2024
DWG NO: 583 SD54B
SCALE at A3: 1:1000

Amber 07A

Notes:
Property boundaries shown indicatively based on mapping data.
Vehicle turning paths provided within Ares report.
Site Location: Crystal Street / Sturt Street, Broken Hill NSW

08A - Crystal Street / Sturt Street, Broken Hill
Strategic Design
The Plains Wind Farm

DRAWN: OM
DATE: 13/12/2024
DWG NO: 583 SD54B
SCALE at A3: 1:1000

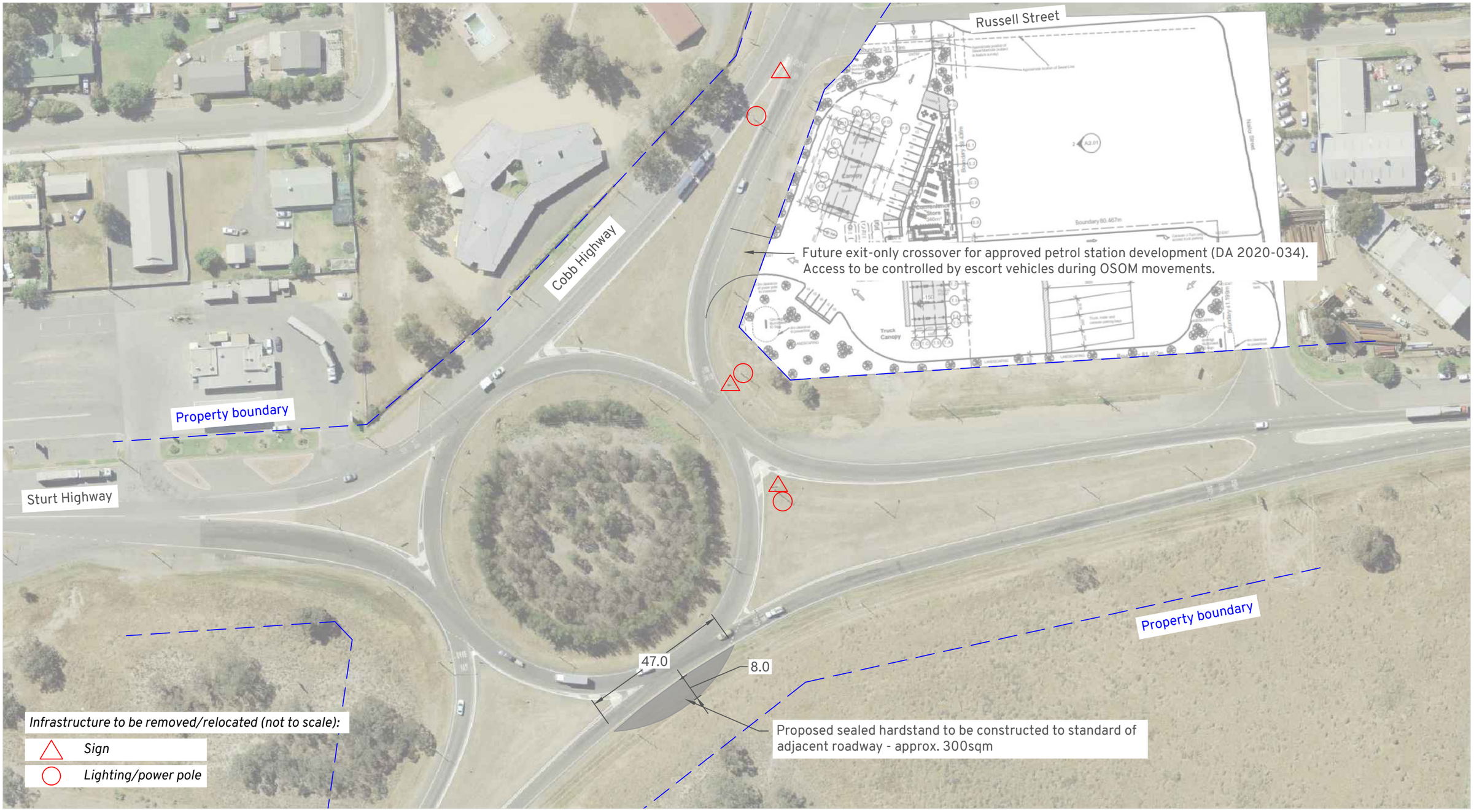
Amber 08A

Notes:
Property boundaries shown indicatively based on mapping data.
Vehicle turning paths provided within Ares report.
Site Location: Chettle Street / Barrier Highway, Broken Hill NSW

08B - Chettle Street / Barrier Highway, Broken Hill
Strategic Design
The Plains Wind Farm

DRAWN: OM
DATE: 13/12/2024
DWG NO: 583 SD54B
SCALE at A3: 1:1000

Amber 08B



Notes:
Property boundaries shown indicatively based on mapping data.
Vehicle turning paths provided within Ares report.
Site Location: Cobb Highway / Sturt Highway, Hay South NSW

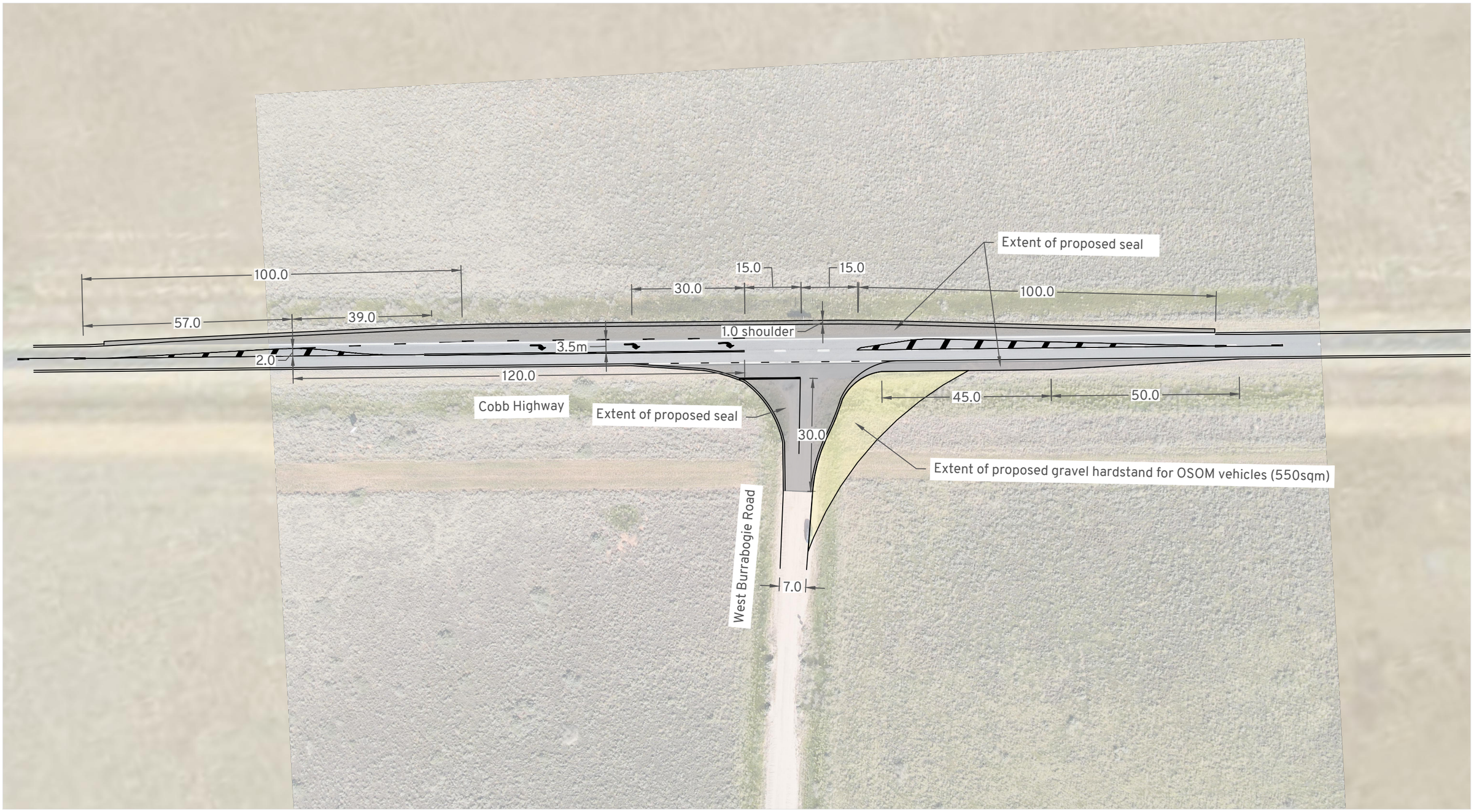
09 - Cobb Highway / Sturt Highway, Hay
Strategic Design
The Plains Wind Farm

DRAWN: OM
DATE: 13/12/2024
DWG NO: 583 SD55B
SCALE at A3: 1:1200

Amber 09

Appendix I

Design and Swept Path Assessment – Cobb Highway / West Burrabogie Road



The following design details have been taken from Austroads Guide to Road Design Part 4A:

Short Channelised Right-turn Treatment (CHR(s))
1. Design speed of 120km/h.
2. Lane widths: 3.5m.
3. Minimum lateral movement (A) is 100m.
4. Desirable radius of 500m has been used.
5. Taper length used is 39m.
6. Storage length is 30m for one B-Double Vehicle.

Rural Left-turn Treatment (BAL)
1: Design speed of 120km/h.
2: Formation/carriageway widening is 3.0m.
3: Taper length calculates to 50m.
4: Minimum length of parallel widened shoulder used from Table 8.1 is 45m.

The Plains Wind Farm

Cobb Highway / West Burrobogie Road

Strategic Design - CHR(s) and BAL

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:1000

Amber D1

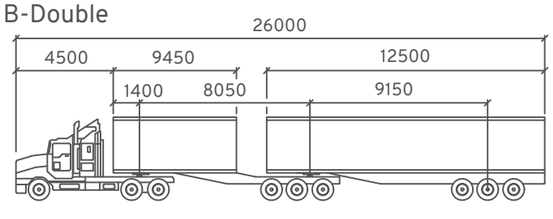
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

The Plains Wind Farm

Cobb Highway / West Burrobogie Road

Strategic Design - CHR(s) and BAL

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:1000

Amber S01

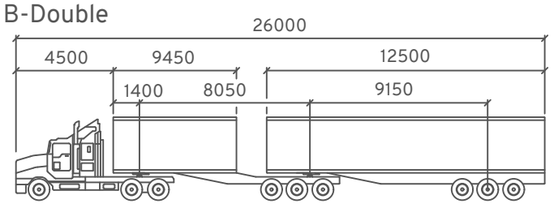
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

The Plains Wind Farm

Cobb Highway / West Burrobogie Road

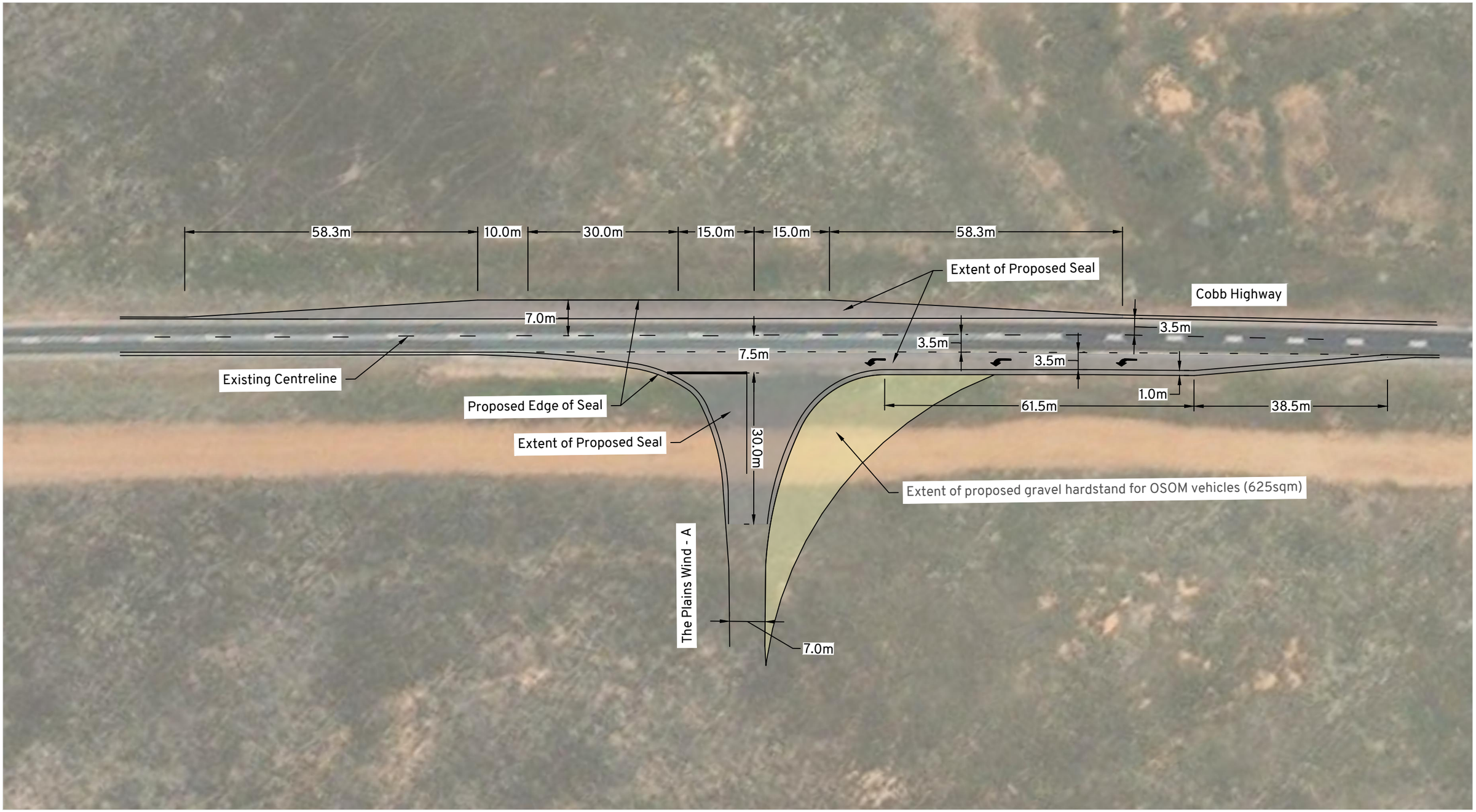
Strategic Design - CHR(s) and BAL

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:1000

Amber S02

Appendix J

Design and Swept Path Assessment – Site Access A, B, C, D, E (Cobb Highway)



The following design details have been taken from Austroads Guide to Road Design Part 4A

Rural Basic Right-turn Treatment (BAR)
1: Design speed of 120km/h.
2: Lane widths of 3.5 have been used.
3: Formation/carriageway widening is 3.5m.
4: Taper lengths calculate to 58.3m.
5: Storage length is 30m for one 26m design vehicle.

Rural Auxiliary Left-turn Lane Treatment (AUL(s))
1. Design speed of 120km/h.
2. Design vehicle is a 26m B-Double.
3. Lane widths: 3.5m.
4. Taper length calculates to 38.5m.
5. Deceleration lane length is 100m.

The Plains Wind Farm - Site Access A

Cobb Highway

Strategic Design - BAR and AUL(s)

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:750

Amber D1-A

Cobb Highway

The Plains Wind - A

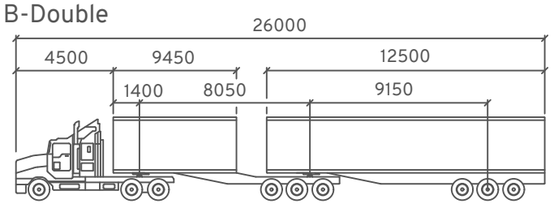
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

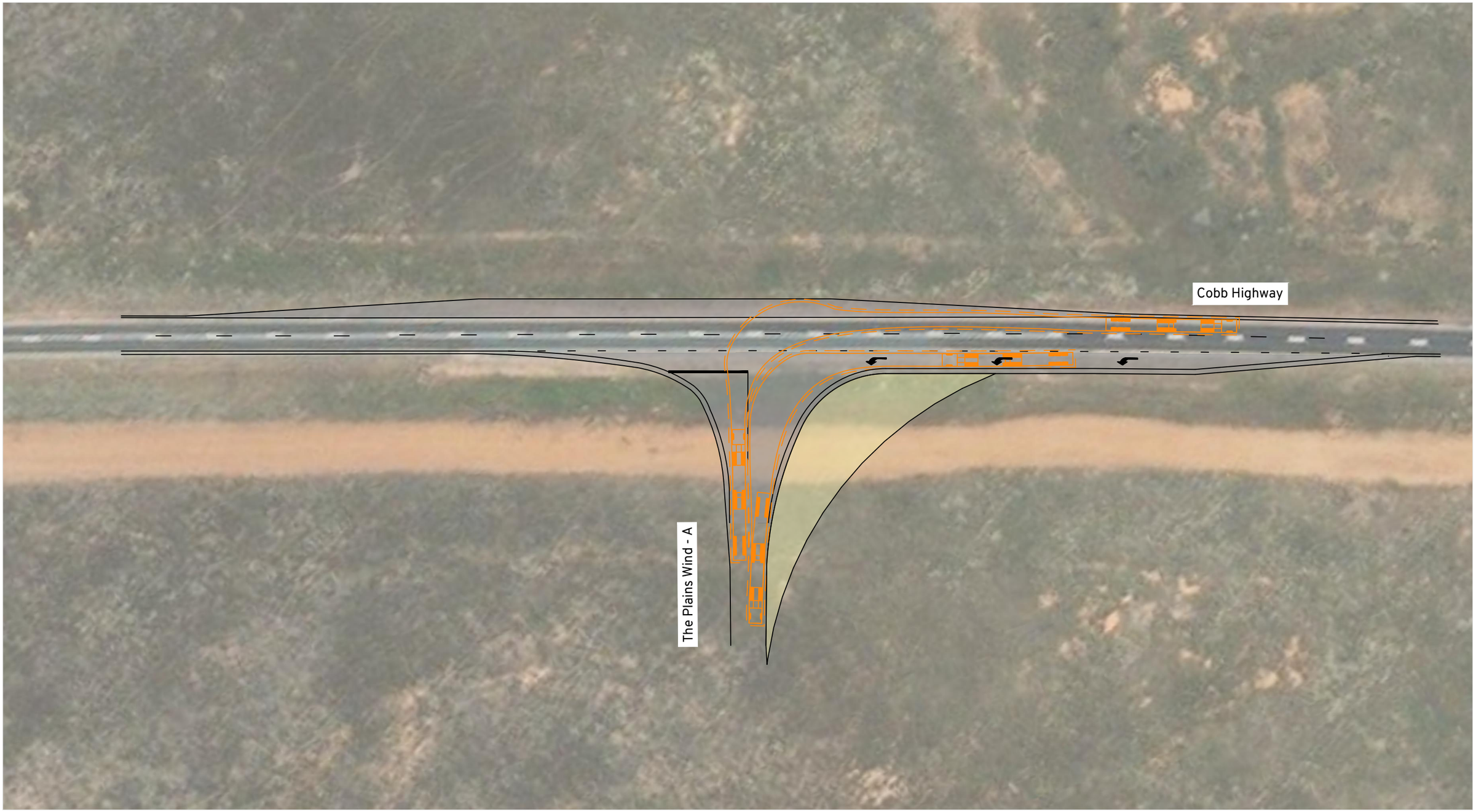
The Plains Wind Farm - Site Access A

Cobb Highway

Strategic Design - BAR and AUL(s)

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:750

Amber S1-A



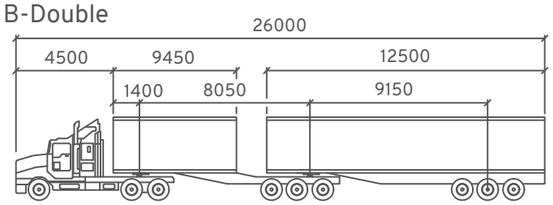
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

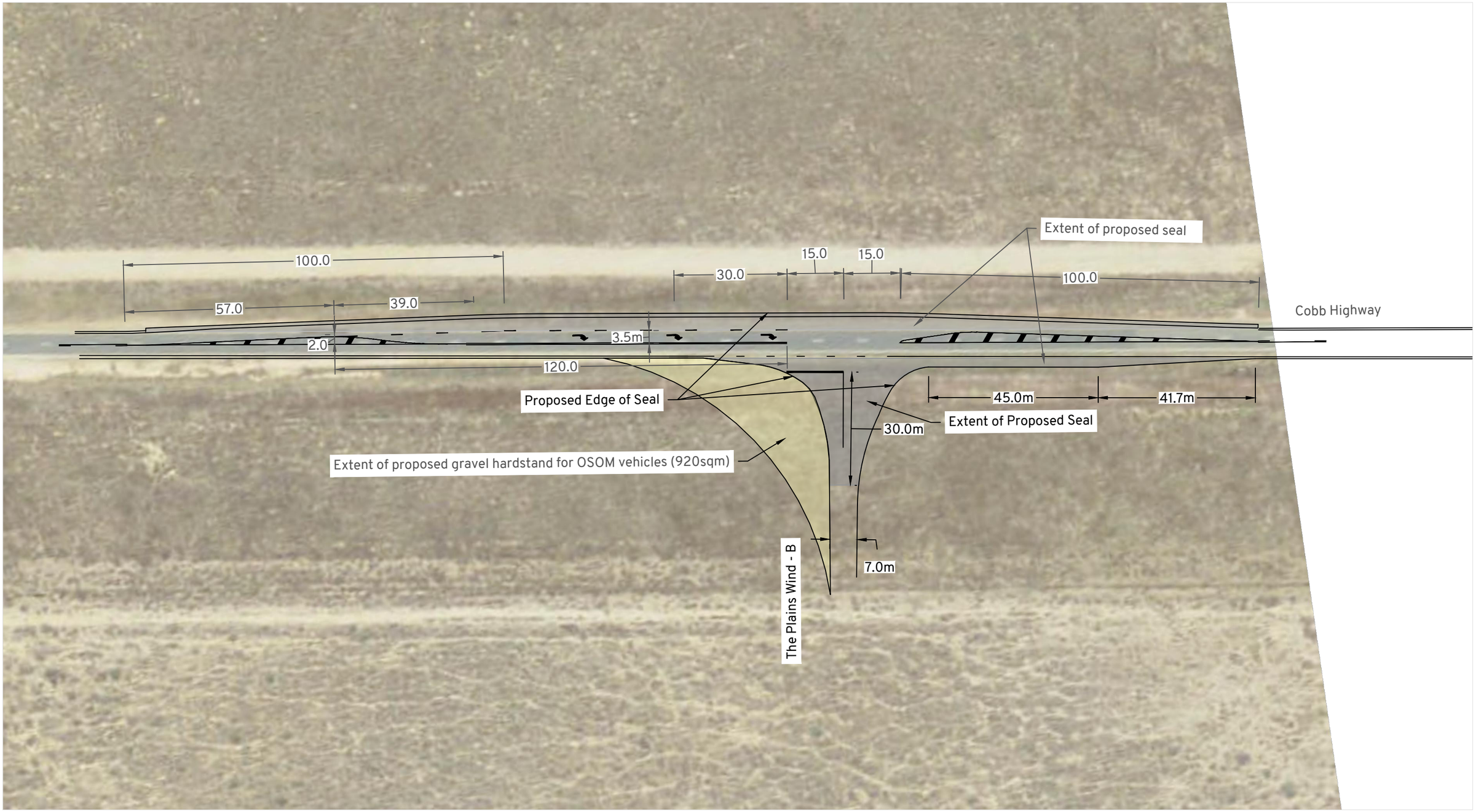
The Plains Wind Farm - Site Access A

Cobb Highway

Strategic Design - BAR and AUL(s)

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:750

Amber S2-A



The following design details have been taken from Austroads Guide to Road Design 4A

Short Channelised Right-turn Treatment (CHR(s))
1. Design speed of 120km/h.
2. Lane widths: 3.5m.
3. Minimum lateral movement (A) is 100m.
4. Desirable radius of 500m has been used.
5. Taper length used is 39m.
6. Storage length is 30m for one B-Double Vehicle.

Rural Left-turn Treatment (BAL)
1: Design speed of 120km/h.
2: Lane widths of 3.5m have been used.
3: Formation/carriageway widening is 2.5m.
4: Taper length calculates to 41.7m.
5: Minimum length of parallel widened shoulder used from Table 8.1 is 45m.

The Plains Wind Farm - Site Access B

Cobb Highway

Strategic Design - CHR(s) and BAL

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:1000

Amber D1-B

Cobb Highway

The Plains Wind - B

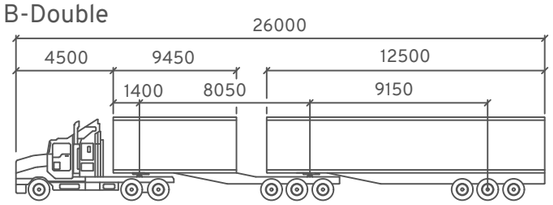
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

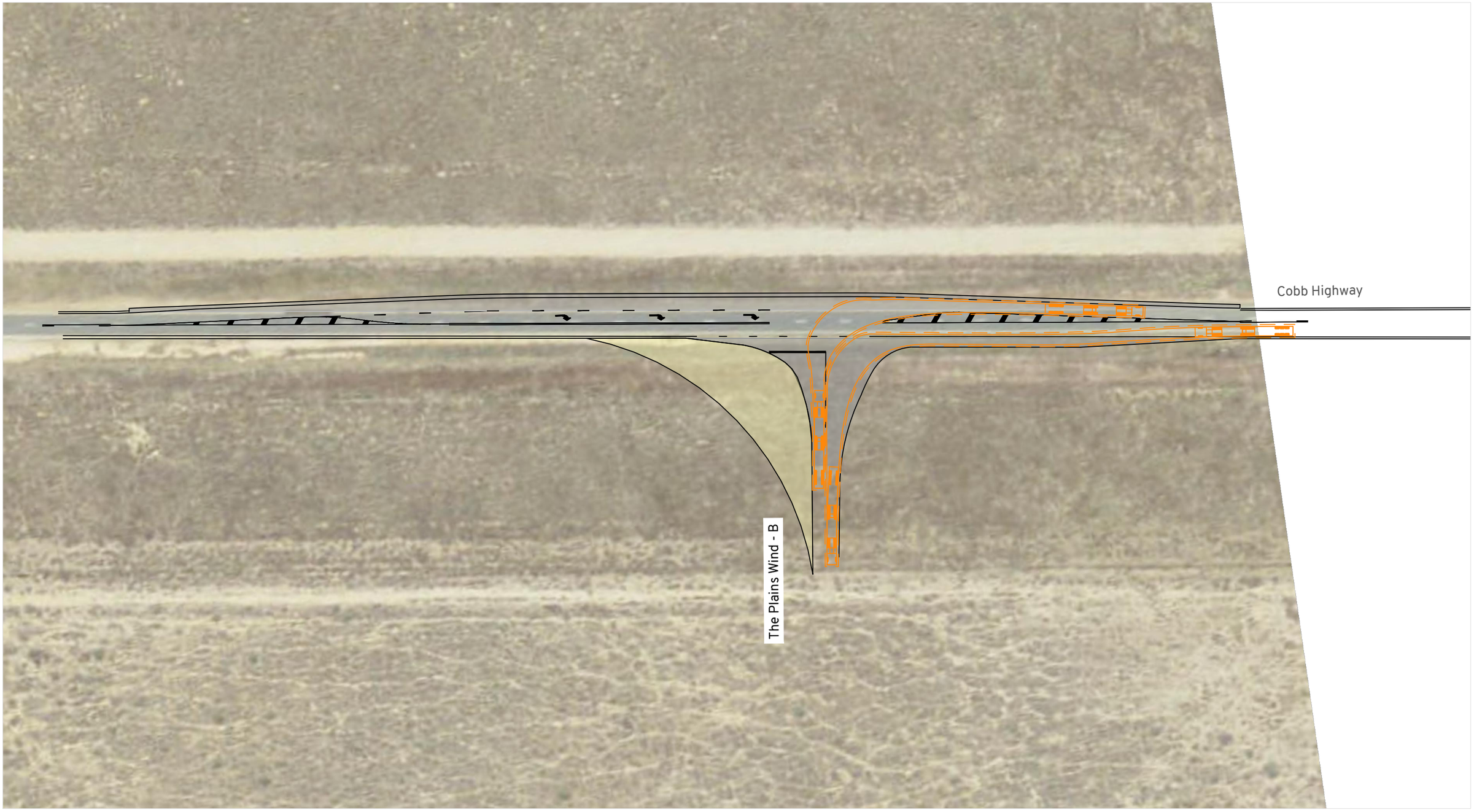
The Plains Wind Farm - Site Access B

Cobb Highway

Strategic Design - CHR(s) and BAL

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:1000

Amber S1-B



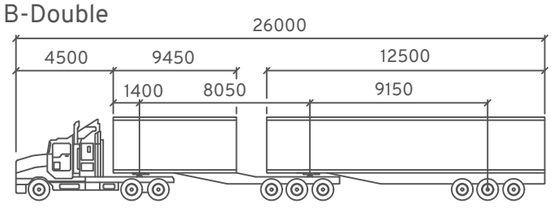
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

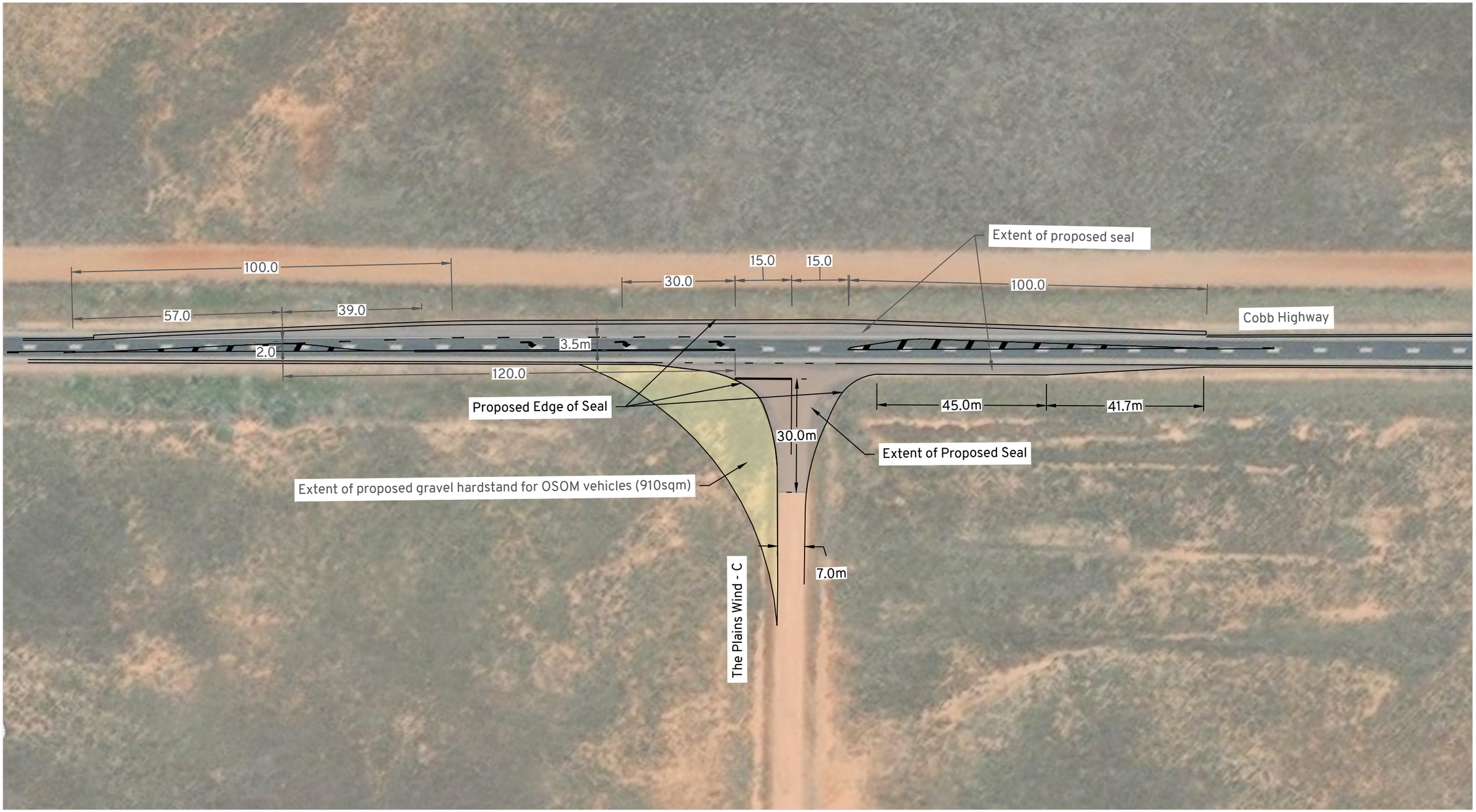
The Plains Wind Farm - Site Access B

Cobb Highway

Strategic Design - CHR(s) and BAL

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:750

Amber S2-B



The following design details have been taken from Austroads Guide to Road Design 4A

Short Channelised Right-turn Treatment (CHR(s))

1. Design speed of 120km/h.
2. Lane widths: 3.5m.
3. Minimum lateral movement (A) is 100m.
4. Desirable radius of 500m has been used.
5. Taper length used is 39m.
6. Storage length is 30m for one B-Double Vehicle.

Rural Left-turn Treatment (BAL)

1: Design speed of 120km/h.
2: Lane widths of 3.5m have been used.
3: Formation/carriageway widening is 2.5m.
4: Taper length calculates to 41.7m.
5: Minimum length of parallel widened shoulder used from Table 8.1 is 45m.

The Plains Wind Farm - Site Access C

Cobb Highway

Strategic Design - CHR(s) and BAL

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:750

Amber D1-C

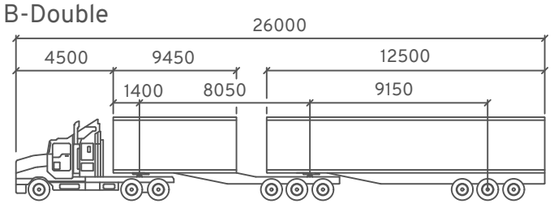
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

The Plains Wind Farm - Site Access C

Cobb Highway

Strategic Design (BAR/BAL)

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:750

Amber S1-C

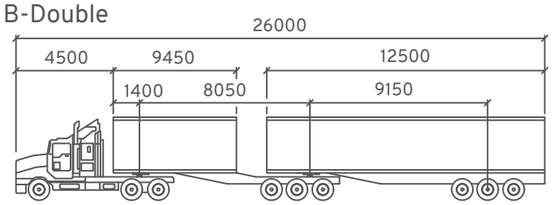
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

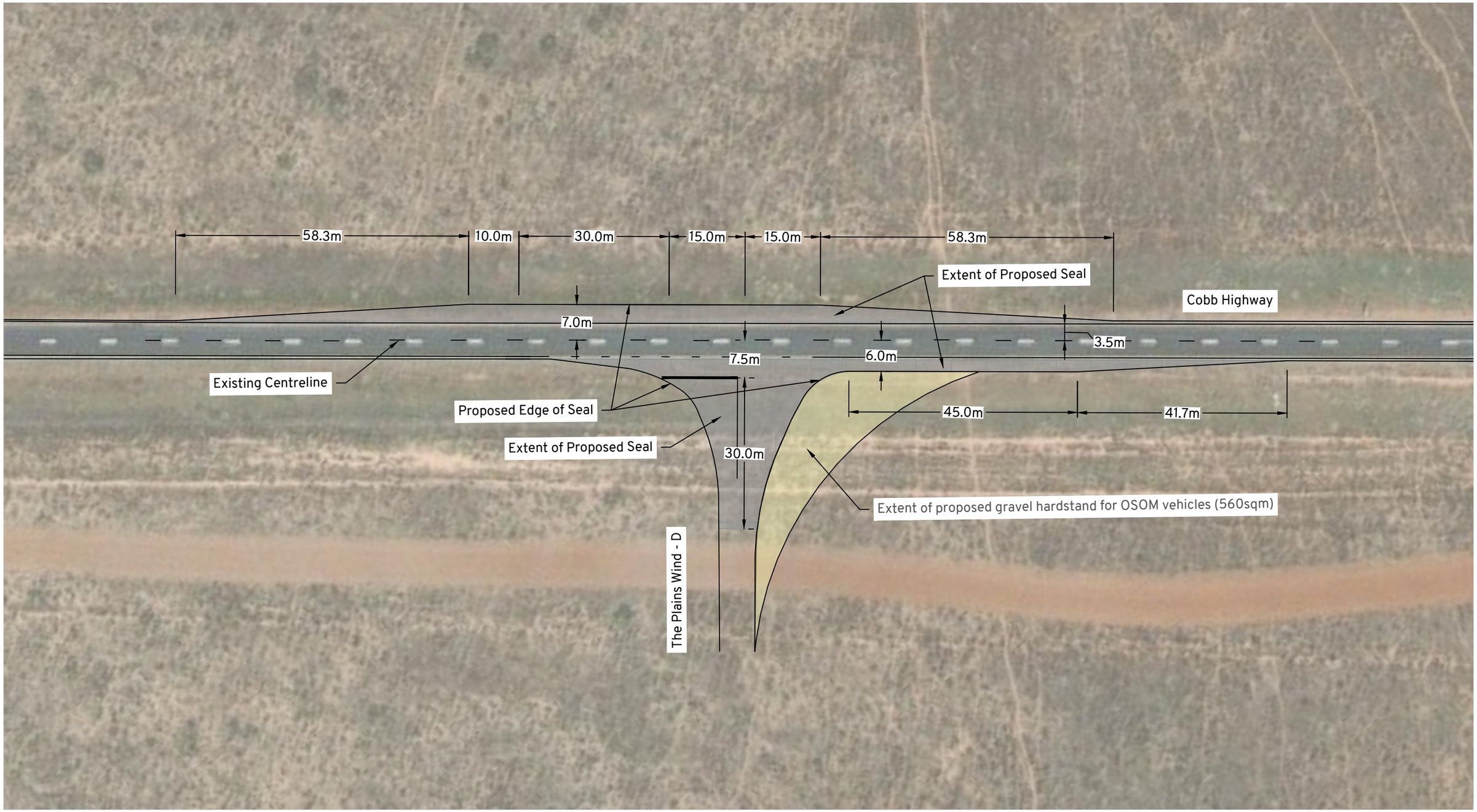
The Plains Wind Farm - Site Access C

Cobb Highway

Strategic Design (BAR/BAL)

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:750

Amber S2-C



The following design details have been taken from Austroads Guide to Road Design Part 4 / 4A

Rural Basic Right-turn Treatment (BAR) - Part 4 Section A.7.5.
1: Design speed of 120km/h.
2: Lane widths of 3.5 have been used.
3: Formation/carriageway widening is 3.5m.
4: Taper lengths calculate to 58.3m.
5: Storage length is 30m for one 26m design vehicle.

Rural Left-turn Treatment (BAL) - Part 4A Section 8.2.1.
1: Design speed of 120km/h.
2: Lane widths of 3.5m have been used.
3: Formation/carriageway widening is 2.5m.
4: Taper length calculates to 41.7m.
5: Minimum length of parallel widened shoulder used from Table 8.1 is 45m.

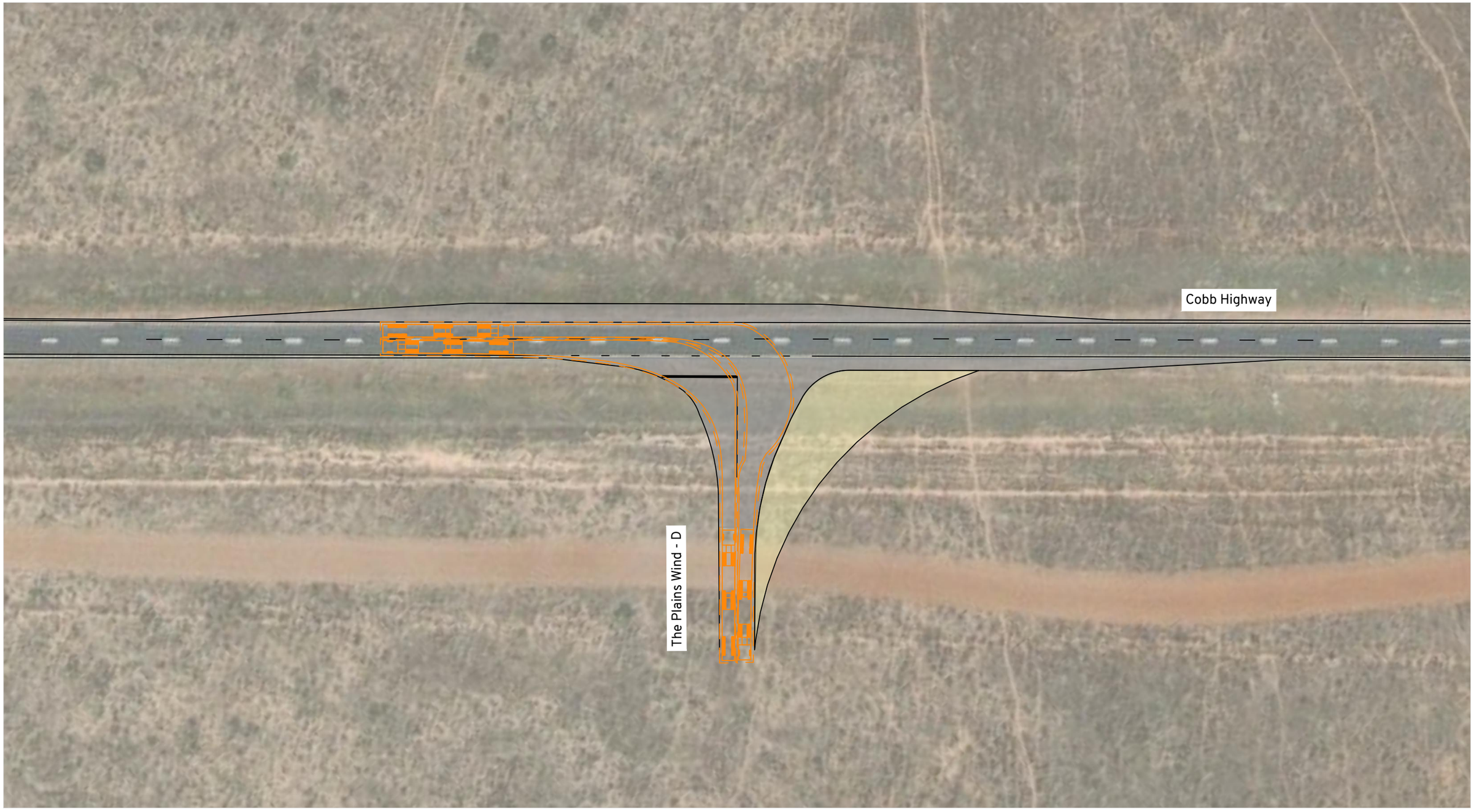
The Plains Wind Farm - Site Access D

Cobb Highway

Strategic Design - BAR and BAL

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:750

Amber D1-D



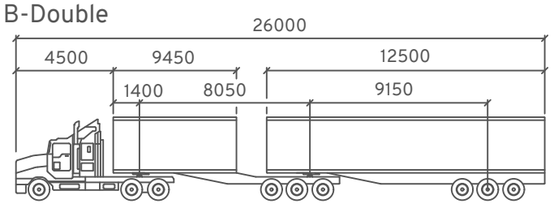
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

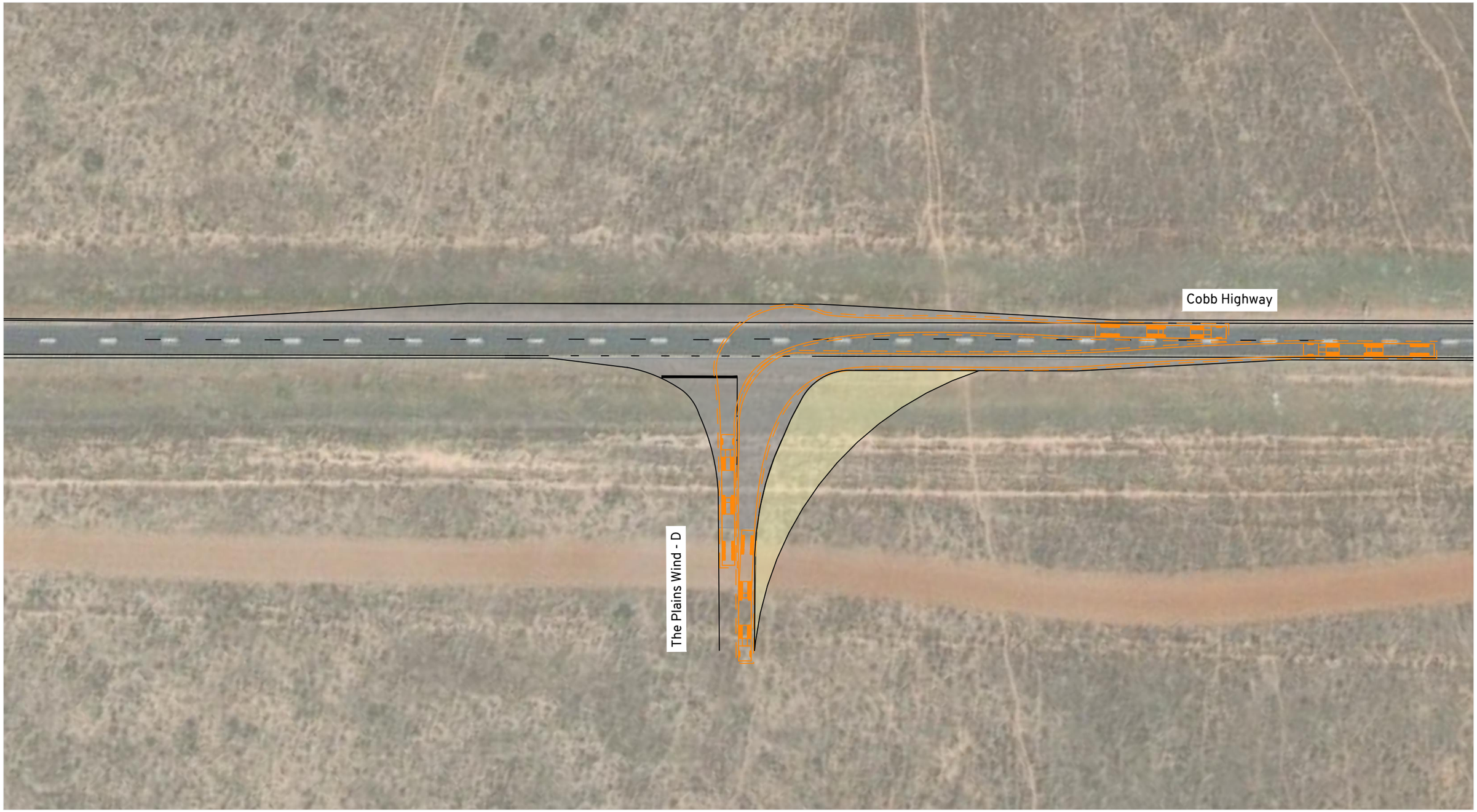
The Plains Wind Farm - Site Access D

Cobb Highway

Strategic Design - BAR and BAL

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:750

Amber S1-D



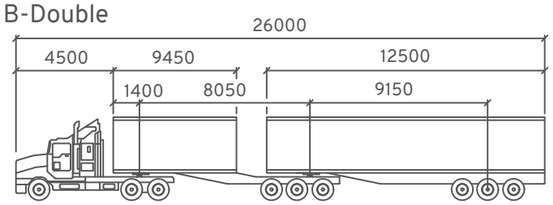
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

The Plains Wind Farm - Site Access D

Cobb Highway

Strategic Design - BAR and BAL

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:750

Amber S2-D

The following design details have been taken from Austroads Guide to Road Design 4A

Short Channelised Right-turn Treatment (CHR(s))
1. Design speed of 120km/h.
2. Lane widths: 3.5m.
3. Minimum lateral movement (A) is 100m.
4. Desirable radius of 500m has been used.
5. Taper length used is 39m.
6. Storage length is 30m for one B-Double Vehicle.

Rural Left-turn Treatment (BAL)
1: Design speed of 120km/h.
2: Lane widths of 3.5m have been used.
3: Formation/carriageway widening is 2.5m.
4: Taper length calculates to 41.7m.
5: Minimum length of parallel widened shoulder used from Table 8.1 is 45m.

The Plains Wind Farm - Site Access E

Cobb Highway

Strategic Design - CHR(s) and BAL

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:750

Amber D1-E

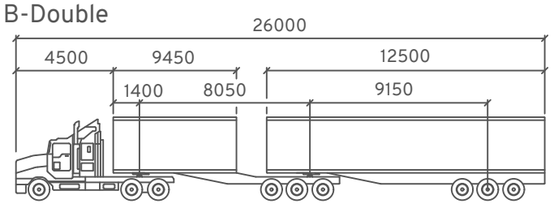
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

The Plains Wind Farm - Site Access E

Cobb Highway

Strategic Design - CHR(s) and BAL

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:750

Amber S1-E

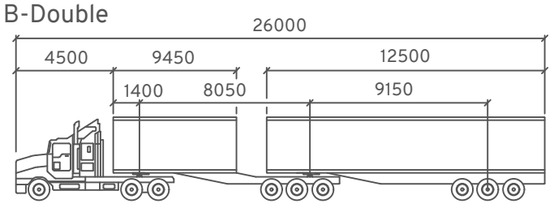
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

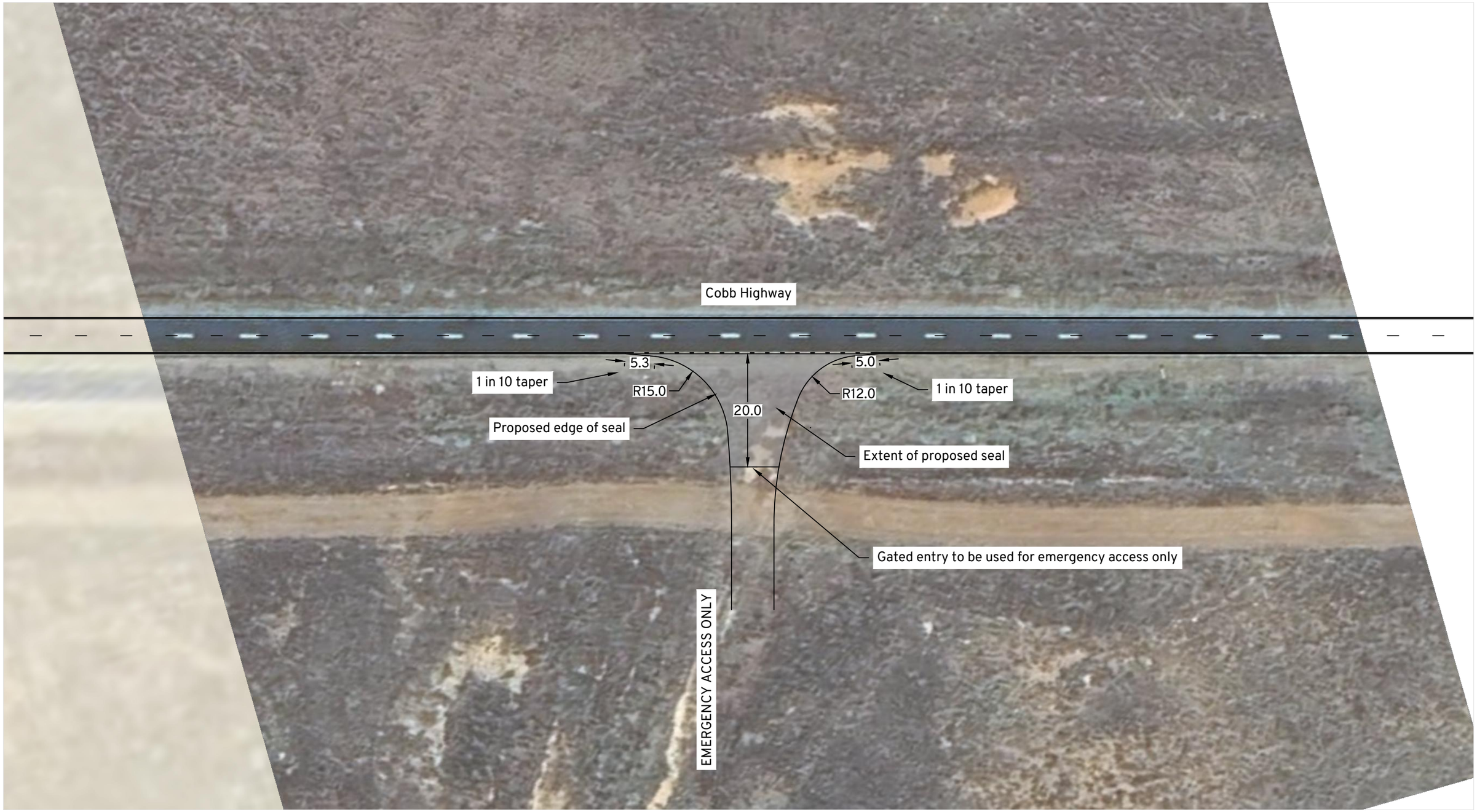
The Plains Wind Farm - Site Access E

Cobb Highway

Strategic Design - CHR(s) and BAL

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:750

Amber S2-E



Design in general accordance with Austroads Guide to Road Design Part 4 - Figure 7.4

The Plains Wind Farm - Dedicated Emergency Access

Cobb Highway

Strategic Design

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:750

Amber D1-EA

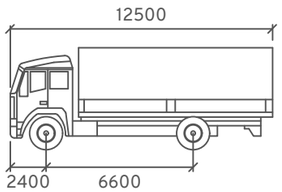
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

HRV



	mm
Width	: 2500
Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 35.2

The Plains Wind Farm - Dedicated Emergency Access

Cobb Highway

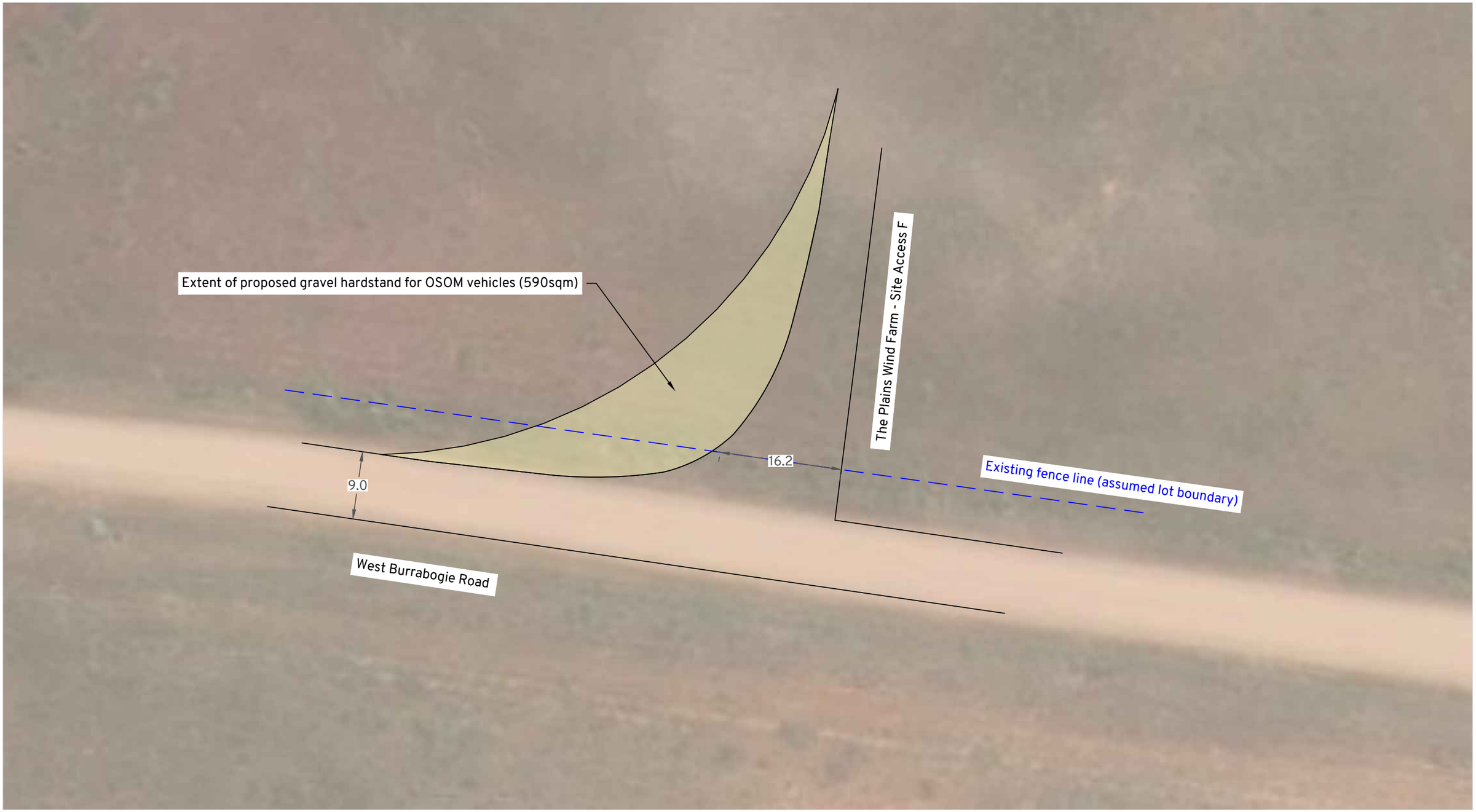
Strategic Design

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:750

Amber S1-EA

Appendix K

Design and Swept Path Assessment – Site Access F, G (West Burrabogie Road)



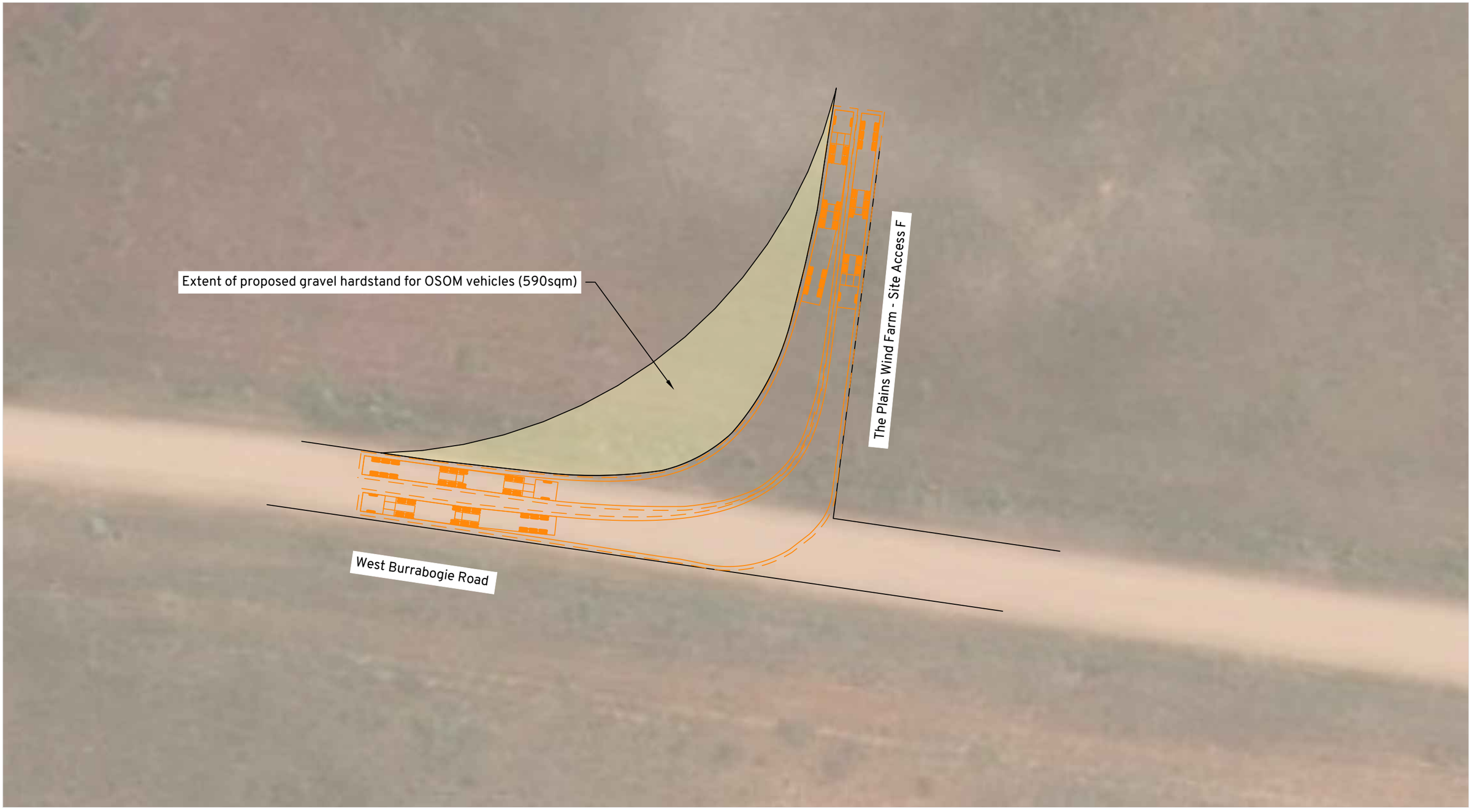
The Plains Wind Farm - Site Access F

West Burrabogie Road

Access Design

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:500

Amber D1-F



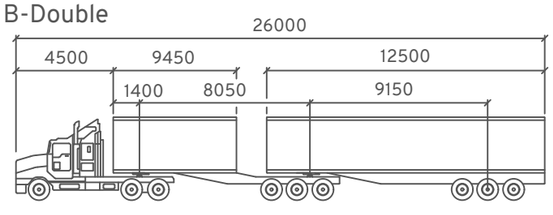
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

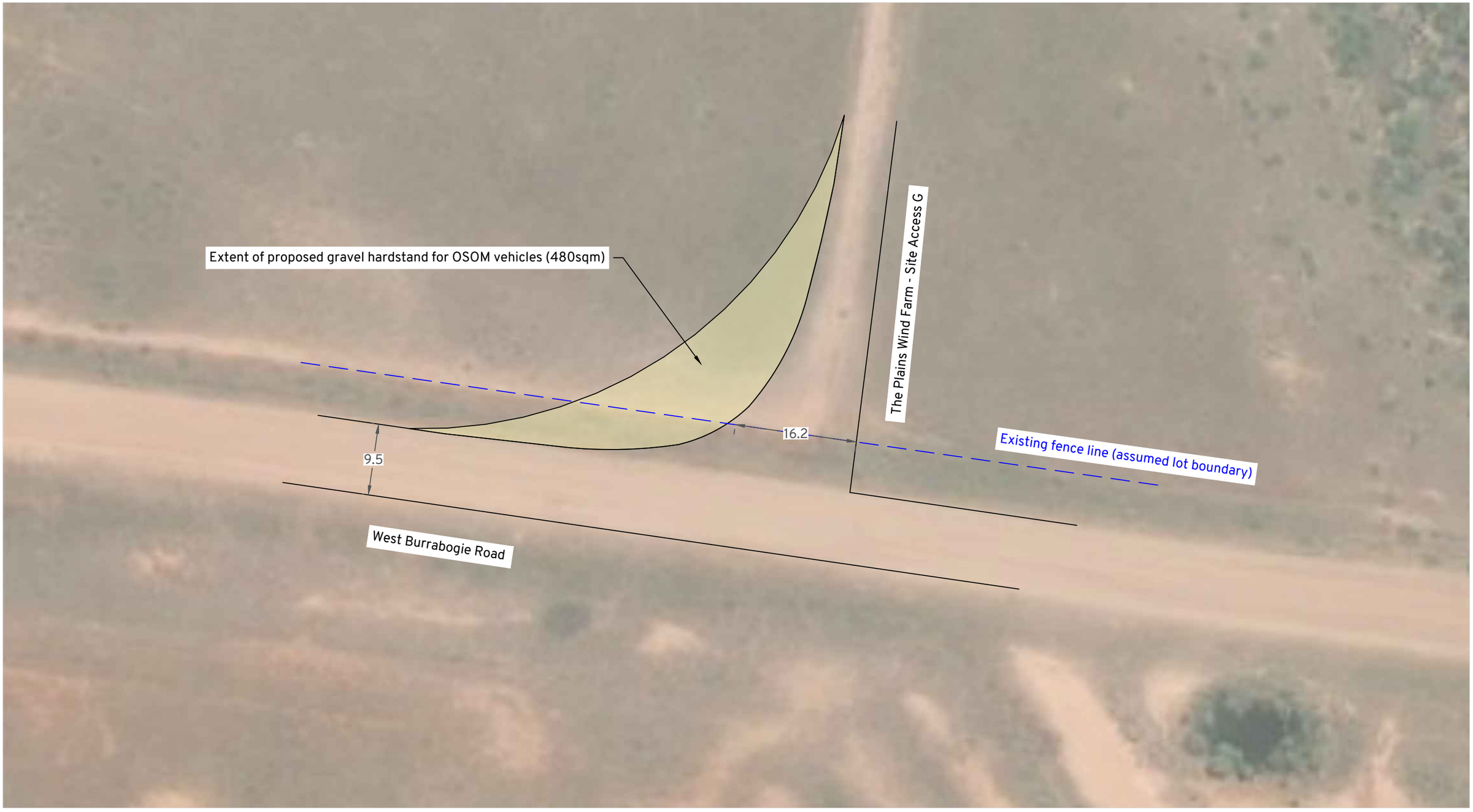
The Plains Wind Farm - Site Access F

West Burrabogie Road

Access Design

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:500

Amber S1-F



The Plains Wind Farm - Site Access G

West Burrabogie Road

Access Design

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:500

Amber D1-G

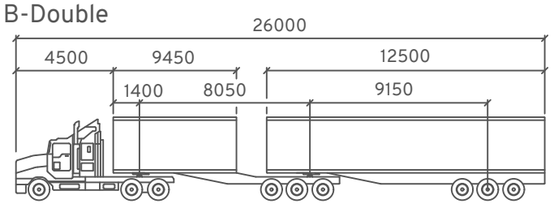
Vehicle Envelope

500mm Clearance

Reverse Manoevure

Min. Design Speed 5km/h

26.0m B-Double



	mm
Tractor Width	: 2500
Trailer Width	: 2500
Tractor Track	: 2500
Trailer Track	: 2500
Lock to Lock	: 6.0s
Steering Angle	: 22.2
Articulating Angle	70.0

The Plains Wind Farm - Site Access G

West Burrabogie Road

Access Design

DRAWN: OM
DATE: 17/07/2025
DWG NO: 583 F06A
SCALE at A3: 1:500

Amber S1-G

Appendix L

Response to Agency Advice - TfNSW and Edward River Council

The Traffic Impact Assessment has been prepared in response to the Agency Advice provided by TfNSW and Edward River Council. A response to each of the comments provided within the Agency Advice is outlined in Table 22 and Table 23, respectively.

Table 22: Response to TfNSW Agency Advice

Comment	Response
Detailed plans identifying the proposed location of any: • Project-related infrastructure within and outside of the project boundary. • Transmission line infrastructure, or any other project-related structures, within a road reserve. Include demarcation of local and classified road reserves. • Permanent or temporary connection/access to classified roads. • Structures on the road network that could be sensitive to blasting (e.g. bridges, pump stations, etc.). Note, if any structures are likely to be affected, an assessment of the impact must ensure that the peak particle velocity is limited to an acceptable level to TfNSW. • The Scoping Report identifies that ancillary infrastructure and temporary facilities are to be provided on-site including (but not limited to) concrete batching facilities and temporary workers accommodation. The TIA should identify: - Concrete batching facility - The source for input materials and quantify the traffic generation associated with the haulage of the source materials. Where the location of source materials is not yet known, worst case scenarios for traffic distribution of those materials to and from the development site are to be addressed. - Accommodation - Details of the accommodation, including but not limited to the maximum accommodation capacity, the work schedules relevant to staff turn over, the transport options available (Light Vehicles, Shuttle Buses, carpooling etc) and traffic generation volumes of workers arriving / departing the camp, any staff pick up locations external to the project site, peak shift change / staff turn over details, any services required to support the accommodation camp and what traffic will those support services generate.	• Figure 1 shows the proposed layout of the site in relation to the road network, access locations and existing infrastructure. • All vehicles would access the site via Cobb Highway with some vehicles also utilising a short section of West Burrabogie Road. It is proposed to provide CHR(s) and BAL turn treatments at the intersection of Cobb Highway and West Burrabogie Road, as well as the required turn treatments at all site access locations along Cobb Highway (Site Access A, B, C, D and E). • An overview of the proposed vehicles and travel routes are provided within Sections 4.2 and 5, respectively. Materials are proposed to be sourced from the local area including the towns of Hay and Deniliquin, and the transport of these materials has been considered in the assessment.

Comment	Response
Cumulative impacts: • Identify and assess the implications of any road and rail projects that will potentially be occurring simultaneously with the scheduling of the OSOM movements along the proposed OSOM routes. • An assessment should be undertaken as a part of the EIS and TIA to identify the projects that will have overlapping construction periods and assess the cumulative traffic impacts with emphasis on the following: - The cumulative impacts from traffic generated from the construction workforces in terms of the origin-destination routes, access, AM/PM peaks where there is overlap with other projects. - The cumulative impacts of heavy vehicle movements in terms of AM/PM peaks and routes where there is an overlap with other projects. - Cumulative impacts and consideration in relation to the timing of movements of OSOMs where other projects will be utilising the same routes as proposed for this development. - The Plains Renewable Energy Park also includes a proposed solar farm and battery energy storage system which is subject to a separate SSD application, however the subject proposal may share some of the infrastructure proposed for the solar farm and should consider each other in relation to timing and staging of each project within the TIA assessment(s) of each project.	The assessment presented within Section 4.4 provides a review of the cumulative impacts of the Project along with other major Projects within the surrounding area. The assessment indicates that several projects are expected to generate additional traffic within the towns of Hay and Deniliquin which would be distributed on the surrounding road network and is expected to have a minimal cumulative impact on the operation of the road network. Pottinger Wind Farm and Bullawah Wind Farm were granted access rights in April 2025 for a maximum capacity of 831.2 MW and 262.3 MW, respectively. Construction of these projects is likely to commence much sooner than The Plains Wind Farm, however there is potential for some overlap in construction activities. An assessment of the potential cumulative traffic impacts has been carried out for both projects which conservatively assumes the peak construction periods would overlap with The Plains Wind Farm. The assessment indicates that the road network is able to accommodate the project traffic during the peak construction period, including the cumulative traffic generated by other major projects within the surrounding area. It is recommended that any oversize/overmass vehicle trips are coordinated to reduce the impact to the road network, which can be undertaken as part of the permit application process.

Comment	Response
Heavy vehicle and OSOM routes: • Identify the return routes for OSOMs. • National Heavy Vehicle Regulator (NHVR) approved routes identified on the Restricted Access Maps (RAV MAP) are to be utilised for the heavy vehicle routes for the proposed development. • The TIA is required to include details on the number of OSOM movements, the intended time for OSOM movements to occur and identify the location of pull-over bays / rest areas along the OSOM routes.	The haulage routes for large plant/equipment arriving from the Port of Geelong using B-Doubles or shorter transport configurations is assessed within Section 5. The access route generally utilises roads that are designated for B-Double vehicles as outlined within the TfNSW Restricted Access Vehicle Map and Victoria's Gazetted B-Double Network map. A swept path assessment was prepared which demonstrates the vehicles are able to suitably access the site from Cobb Highway and West Burrabogie Road. It is noted that West Burrabogie Road is unrated for 26m B-Doubles and requires approval from Hay Shire Council for these vehicles to utilise the road. It is understood that the Applicant has discussed the Project with Hay Shire Council, with no objections received from Council regarding the use of this road. In order to comply with the relevant guidelines, it is recommended that the road carriageway is widened to a general minimum of 7.0m between Cobb Highway and the site access to allow two trucks to pass. The access routes taken by the OSOM vehicles to deliver the wind turbine and tower components to the Project Area have been identified within a Route Assessment prepared by Ares which identifies a number of road upgrades are required in order to allow the transport vehicles to successfully access the site. The vehicles would be able to be accommodated on the road network subject to the road upgrades identified within the Route Assessment and the adoption of suitable road management strategies which would be confirmed as part of specific permits that would be applied for prior to construction. The Route Assessment is provided within Appendix A of this document and is discussed within Section 6. It is noted that the return journey to the Port of Adelaide would be via Mildura, subject to permits and approval.
Project schedule: • Hours and days of work, number of shifts and start and end times, • Phases and stages of the project, including construction, operation and decommissioning.	The proposed hours of operation and staging is provided within Section 3.

Comment	Response
Traffic volumes including: • Existing background traffic, • Project-related traffic for each phase or stage of the project, • Projected cumulative traffic at commencement of operation, and a 10-year horizon post-commencement.	Traffic surveys were carried out on Cobb Highway and West Burrabogie Road. The traffic data is presented within Section 2.4 of this report. The project related traffic is presented within Section 4.2 of this report. The Project is expected to generate the maximum number of vehicle movements during construction, with a minimal level of traffic expected during operation. At the future 10-year scenario the site is expected to generate up to 80 vehicles per day associated with operation which is expected to have a minimal impact on the road network. The traffic assessment within this report has subsequently focused on the traffic impacts during construction when the majority of vehicle movements are generated.
Traffic characteristics including: • Number and ratio of heavy vehicles to light vehicles, • Peak times for existing traffic, • Peak times for project-related traffic including commuter periods, • Proposed hours for transportation and haulage, • Interactions between existing and project-related traffic.	The traffic volumes expected to be generated during construction are presented within Section 4.2 which identifies the various light and heavy vehicle movements. Section 4.3 of the report identifies the distribution of the construction traffic and Sections 4.4 and 4.5 identify the potential traffic impacts of the project.
The origins, destinations and routes for: • Commuter (employee and contractor) light vehicles and pool vehicles, • Heavy (haulage) vehicles, • OSOM vehicles.	An overview of the commuter and heavy vehicle traffic is provided in Section 4.2.1.1 with the travel routes outlined in Section 4.3. The Port of Adelaide is the preferred port where the wind turbine components and large plant will be imported and then transported by road to the site. Section 6 provides an assessment of the proposed route by vehicles transporting the OSOM loads and the impact of the relevant transport vehicles. The Port of Geelong has been identified as the preferred port where the remaining plant will be imported and can be transported in B-Doubles or shorter transport configurations. The access route generally utilises roads that are designated for B-Double vehicles as outlined within the NHVR Restricted Access Vehicle Map as discussed in Section 5.1. It is noted that West Burrabogie Road is unrated for 26m B-Doubles and requires approval from Hay Shire Council for these vehicles to utilise the road. It is understood that the Applicant has discussed the Project with Hay Shire Council, with no objections received from Council regarding the use of this road.

Comment	Response
Identify the necessary road network infrastructure and access upgrades required to cater for and mitigate the impact of project related traffic on both the local and classified road network for the development (for instance, road widening, hardstand areas, pullover bays, site access upgrades, intersection treatments etc). In this regard, a strategic design drawing/s should be submitted with the SSD application for any identified road infrastructure and access upgrades. It should be noted that any identified road infrastructure upgrades will need to be to the satisfaction of TfNSW and Council. Works must be appropriately designed in accordance with Austroads Guide to Road Design for the existing posted speed limit, including provision of Safe Intersection Sight Distance (SISD).	It is proposed to provide the following road upgrades: • Widen West Burrabogie Road between Cobb Highway and Site Access C to a minimum of 7.0m in order to allow two trucks to pass. • Provide CHR(s) and BAL turn treatments at the intersection of Cobb Highway and West Burrabogie Road as shown in Appendix I. • Provide the required turn treatments at Site Access A, B, C, D and E along Cobb Highway as shown in Appendix J. The Route Assessment prepared by Ares for the OSOM wind turbine transport vehicles also identifies a number of road upgrades required in order to allow the vehicles to successfully access the site from the Port of Adelaide, with a summary provided in Section 6.6. The turn treatments and available sight distance at all locations comply with the requirements of the Austroads Guide.
Road safety assessment of key haulage route/s: Where road safety concerns are identified at a specific location along the proposed haulage routes, TfNSW suggests that the TIA be supported by a targeted Road Safety Audit undertaken by suitably qualified persons in accordance with the Austroads Guidelines.	A review of the existing road safety data and casualty crash history is provided within Section 2.7 which indicates that the road network is operating in a relatively safe manner. A TMP is to be developed prior to construction of the Project which should include the recommendations provided within this document. The adoption of the mitigation measures outlined within the TMP would ensure construction traffic has a minimal impact to the capacity and safety of the surrounding road network. Heavy vehicles should avoid travel during peak school bus times to limit the interaction of larger vehicles and vulnerable road users. In addition to the traffic management measures, it is proposed to provide road upgrades as part of the Project which are to be constructed prior to construction commencing. The Route Assessment prepared by Ares for the OSOM wind turbine transport vehicles also identifies a number of road upgrades required in order to allow the vehicles to successfully access the site from the Port of Adelaide. Construction traffic is expected to be able to safely access the site with the inclusion of the traffic management measures and road upgrades.

Comment	Response
A review of crash data along the identified transport route/s for the most recent 5 year reporting period and an assessment of road safety along the proposed transport route/s considering the safe systems principles adopted under Future Transport 2056.	A review of crash data for the most recent 5-year reporting period is provided within Section 2.7. The crash history search identified no discernible crash trends within the surrounding road network, and the crashes are widely distributed on the network with no 'Black Spots'. Further, the road network is proposed to be upgraded to comply with the Austroads Guide. A summary of the key safety matters is provided in Section 12. It is concluded that the vehicle movements generated by the site are expected to be accommodated on the road network in a safe manner.
Consideration of the local climate conditions that may affect road safety during the life of the project (e.g. fog, wet and dry weather, icy road conditions).	The access route utilises roads that are designated for B-Double vehicles. Other recommendations have also been provided for inclusion within the TMP which address the proposed operation measures during local climate events.
The layout of the internal road network, parking facilities and infrastructure.	The site layout is shown within Figure 1.
Impact on rail corridors and level crossings detailing any proposed interface treatments. Note, the rail authority for rail corridors in the vicinity of the site and likely OSOM route is ARTC.	The Ares Report identifies 9 railway level crossing locations along each OSOM route. Written approval will be sought from the relevant rail authorities for all level crossings as part of the TMP. The rail authorities have provided preliminary advice which is included within the Ares Report (Appendix A).
Impact on public transport (public and school bus routes) and consideration for alternative transport modes such as carpooling and shuttle buses during construction.	No public transport services and no school bus stops are provided within the vicinity of the site. Dyson Group operate the school bus services in the surrounding area. The company has advised that there are no bus stops within the vicinity of the site including along West Burrabogie Road. They noted that a school bus travels along Cobb Highway and passes West Burrabogie Road at the following times: • 7:35am travelling to Booroorban. • 8:35am travelling to Hay. • 3:45pm travelling to Booroorban. • 4:20am travelling to Hay. It is recommended that heavy vehicle movements avoid peak school bus times to limit the interaction of larger vehicles and vulnerable road users. The Applicant has advised that a carpooling program would be implemented to support sharing of vehicle trips for the workforce travelling to/from the site, as outlined in Section 9.5.
Identification and assessment of potential environmental impacts of the project, such as blasting, lighting, visual, noise, dust and drainage on the function and integrity of all affected public roads.	Environmental impacts have been assessed by others as part of the Environmental Impact Statement.

Comment	Response
Controls for transport and use of any dangerous goods in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development, the Australian Dangerous Goods Code and AS4452 Storage and Handling of Toxic Substances.	Any controls for transport of dangerous goods are to be provided prior to construction as part of the TMP in the event they are identified by the appointed contractor. At the time of preparing this report no dangerous goods have been identified.
A draft Traffic Management Plan (TMP) that could be implemented following approval of the EIS, in consultation with relevant Councils and TfNSW. The TMP is to address the construction, operation and decommission phases of the proposed development and be prepared and implemented in accordance with Australian Standard 1742.3 and the Work Health and Safety Regulation 2017.	A TMP is to be developed prior to construction of the Project which should include the recommendations provided within this document. The adoption of the mitigation measures outlined within the TMP would ensure construction traffic has a minimal impact to the capacity and safety of the surrounding road network.

Table 23: Response to Edward River Council Agency Advice

Comment	Response
Impact on Road Infrastructure Provide specific detail on the source location of the construction materials and proposed haulage routes, noting that this may impact on the local roads through affected Local Government Areas (LGAs). Where impact is identified details of any proposed upgrade and maintenance works agreements.	The Project does not propose to utilise any local or regional roads within the Edward River LGA. Vehicles will access the site via Cobb Highway which is a State Road under the management of Transport for New South Wales. Some vehicles will also travel along a section of West Burrabogie Road which is entirely managed by Hay Shire Council.