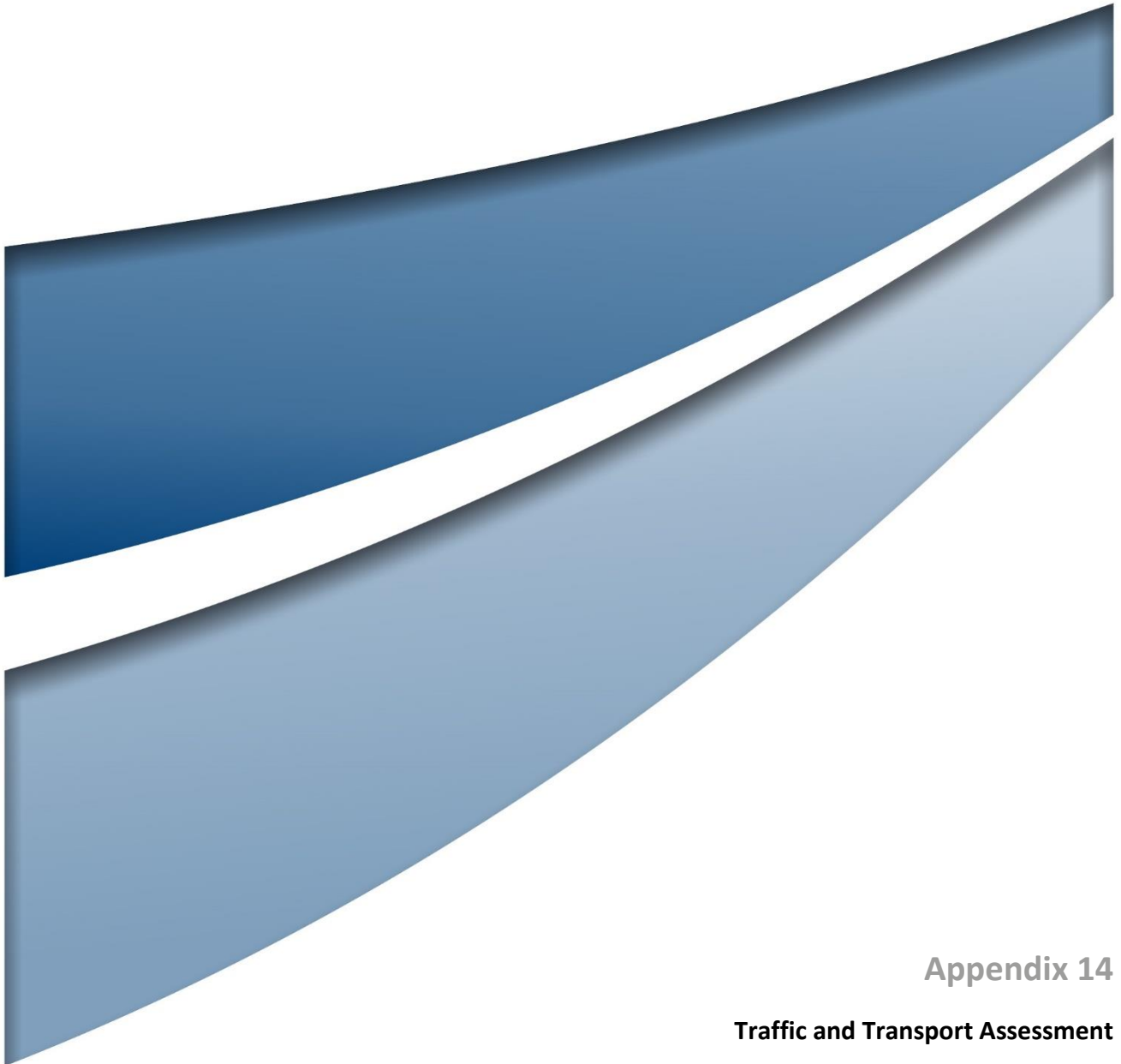




Appendix 14

Traffic and Transport Assessment



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Junction Rivers Wind Farm EIS Traffic and Transport Assessment May 2024

Prepared for Umwelt Australia Pty Ltd



Quality Information

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Executive Summary

Access Traffic Consulting was commissioned by Umwelt Australia Pty Ltd (Umwelt) on behalf of Windlab Developments Pty Ltd (Windlab) to undertake a traffic and transport assessment for the proposed Junction Rivers Wind Project (the Project), which is to be located approximately 140km west of Hay and 15km to the south of the regional township of Balranald, on land within the Murray River Council (MRC) local government area. The Project is located within the South-West Renewable Energy Zone (SW REZ), which the NSW Government has identified as a target area for renewable energy development in its Transmission Infrastructure Strategy and Electricity Infrastructure Roadmap.

The Project would involve the construction, operation and eventual decommissioning of a wind farm with up to 96 Wind Turbine Generators (WTG) and associated ancillary infrastructure, with a generating capacity of up to approximately 750MW. The delivery strategy for the Project is yet to be confirmed, and it may be constructed in either one or two stages. If delivered in two stages the first stage would include the construction of up to 30 wind turbine generators (WTGs) and associated infrastructure, with the second stage delivering the remaining balance of the overall 96 WTGs and additional site infrastructure.

This traffic and transport assessment was carried out to determine the level of potential impacts of the construction, operations and decommissioning phases of each of the identified stages of the Project on the operation of the surrounding state and local government-controlled road networks. The outcomes of this assessment will be used in support of the Environmental Impact Statement (EIS) for the Project, with MRC and Transport for New South Wales (TfNSW) expected to be advice agencies.

Based on the assessment completed, it was identified that the increase in traffic volumes anticipated as a result of the construction, operations and decommissioning phases of both stages of the Project were anticipated to have a minor impact on the traffic operation of the surrounding road networks.

Notwithstanding this, the technical assessment identified the requirement for the provision of the following upgrade works and mitigation treatments as part of the Project to maximise the safety and operational performance of the external road network:

Stage 1 (up to 30 WTGs)

- Completion of minor works along the identified transport route to accommodate the swept paths of the OSOM turbine component transport vehicles, including the relocation of signage and road lighting infrastructure and construction of required temporary hardstand pavement areas as identified in the Preliminary Transport Route Assessment for the Project (Rex J Andrews Route Assessment, refer **Appendix A**). It is noted that the exact extents and scope of these works will be determined in subsequent detailed design phases of the Project once the turbine component and transport vehicle configurations are confirmed.

In addition, further consultation with the relevant local government road authorities will be required to establish infrastructure or maintenance agreements to cover any required works to offset the potential pavement impacts of the OSOM vehicle movements for the Project on the lower order, local government controlled road links along the identified OSOM transport routes. This would also include pre and post dilapidation inspections to be undertaken on the sections of the local government roads used by Project traffic, with these inspections to be completed by representatives of Windlab and the appropriate Council. These inspections are required to identify and document the current condition of the roads (pre-construction) and establish the required maintenance and/or rehabilitation works deemed necessary to reinstate the roads to their documented condition prior to the introduction of Project traffic at the completion of their use.

- Provision of upgrade works to the Yanga Way / Balranald-Moulamein Road intersection to provide basic right (BAR) and basic left (BAL) turn treatments, generally in accordance with Figure 8.2 of Part 4A (rural BAL) and Figure A6 of Part 4 (rural BAR) of Austroads Guide to Road Design, and provision of additional hardstand area required to accommodate OSOM turn movements (as per Rex J Andrews Route Assessment).
- Provision of upgrade works to the section of Balranald-Moulamein Road between Yanga Way and Site Access 5 (SA5– approx. 11.095km). These upgrade works are proposed to include road grading and

resheeting works to provide a suitable unsealed (gravel) road surface up to 8m minimum in width. (to match the current minimum road width on this link).

It is also noted that as part of Stage 1, pre and post construction phase dilapidation surveys will be required to be undertaken on this section of Balranald-Moulamein Road (Yanga Way to SA5). The pre construction inspection is to be undertaken upon the completion of the proposed regrading / resheeting works and is to establish the pre-construction road condition, with the post construction dilapidation survey then used to identify rehabilitation works required to be completed by the Project to bring road conditions / standards on this section of Balranald-Moulamein Road back to the recorded pre construction condition.

- Provision of suitable site access configurations at Site Access 2,3 & 5 on Balranald-Moulamein Road, with provision for additional hardstand areas as required to accommodate OSOM heavy vehicle movements. It is proposed that these site access points are to be provided generally in accordance with the site access arrangement/configuration outlined in Figure 7.4 of Austroads Guide to Road Design Part 4: Intersections and Crossings – General.
- Installation of advisory “truck turning” signage be installed on the approaches to the Yanga Way / Balranald-Moulamein Road intersection, to highlight to motorists the potential for turning heavy vehicles to/from the side road.
- Preparation of traffic management plan for Stage 1 of the Project outlining proposed management measures and processes to minimise the impact of Project traffic (including OSOM turbine component transport vehicles) on the external road network.

Stage 2 (66 or the remaining balance of the 96 WTGs after Stage 1 construction)

- Completion of identified route upgrade works as identified in Rex Andrews route assessment, if previous route works have been remediated upon completion of Stage 1 OSOM haulage operations.
- Provision of basic right (BAR) and basic left (BAL) turn treatments, as well as additional hardstand area required to accommodate OSOM turn movements (as per Rex Andrews Route Assessment), at the proposed Yanga Way / Site Access 1 intersection.
- Provision of upgrade works to the Balranald-Moulamein Road / Arundel Road intersection to provide basic right (BAR) and basic left (BAL) turn treatments, generally in accordance with Figure 8.2 of Part 4A (rural BAL) and Figure A6 of Part 4 (rural BAR) of Austroads Guide to Road Design.
- Provision of upgrade works to the section of Balranald-Moulamein Road between Site Access 5 (SA5 – approx. 11.095km) and Site Access 8 (SA8 – approx. 22.140km). These upgrade works are proposed to include road grading and resheeting works to provide a suitable unsealed (gravel) road surface up to 8m minimum in width.
- Provision of upgrade works to the section of Arundel Road between Balranald-Moulamein Road and Site Access 4 (SA8 – approx. 0.710km). These upgrade works are proposed to include road grading and resheeting works to provide a suitable unsealed (gravel) road surface up to minimum 7m width (on 9m formation).
- It is also noted that as part of Stage 2, pre and post construction phase dilapidation surveys will be required to be undertaken on the relevant sections of Balranald-Moulamein Road (Yanga Way to SA8) and Arundel Road (Balranald-Moulamein Road to SA4). The pre construction inspection is to be undertaken upon the completion of the proposed regrading / resheeting works and is to establish the pre-construction road condition, with the post construction dilapidation survey then used to identify rehabilitation works required to be completed by the Project to bring road conditions / standards on this section of Balranald-Moulamein Road back to the recorded pre construction condition.
- Provision of suitable site access configurations at Site Access 6,7 & 8 on Balranald-Moulamein Road and Site Access 4 of Arundel Road, with provision for additional hardstand areas as required to accommodate OSOM heavy vehicle movements. It is proposed that these site access points are to be provided generally in accordance with the site access arrangement/configuration outlined in Figure 7.4 of Austroads Guide to Road Design Part 4: Intersections and Crossings – General.

- Installation of advisory “truck turning” signage be installed on the approaches to the Yanga Way / Balranald-Moulamein Road and Balranald-Moulamein Road / Arundel Road intersections, to highlight to motorists the potential for turning heavy vehicles to/from the side roads.
- Preparation of traffic management plan for Stage 2 of the Project outlining proposed management measures and processes to minimise the impact of Project traffic (including OSOM turbine component transport vehicles) on the external road network.

If the mitigation measures and road network upgrade works listed above are carried out, then the Project can be considered to have a minimal impact on the traffic operation of the relevant sections of the local government and state-controlled road networks.

Taking the above into consideration, this report (in combination with the Preliminary Route Assessment) demonstrates the compliance of the Project with Part 8 of the Environmental and Planning Regulation (2021), as outlined in the traffic and transport items of the Secretary's Environmental Assessment Requirements (SEARs).

Access Traffic Consulting therefore recommends that the Project be approved from a traffic engineering and traffic impact viewpoint.

1.0 Introduction

1.1 Project Background

Windlab Developments Pty Ltd (Windlab) proposes to develop the Junction Rivers Wind Project (the Project) to provide a reliable and affordable source of energy for the people of New South Wales (NSW) and contribute to reducing greenhouse gas (GHG) emissions associated with energy generation.

The Project is located approximately 15 kilometres (km) south of Balranald, 140 km west of Hay and 20 km northeast of the NSW and Victorian border within the southern section of the Murray-Darling Basin. The Project is within the Murray River Council Local Government Area (LGA) and immediately east of Balranald Shire LGA. The Project is located within the South-West Renewable Energy Zone (SW REZ), which the NSW Government has identified as a target area for renewable energy development in its Transmission Infrastructure Strategy and Electricity Infrastructure Roadmap.

The Project is a State Significant Development (SSD) as defined under State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP) and will require development consent under Part 4 of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act).

The Project will have a generating capacity of approximately 750 megawatts (MW) and would connect to the existing 220 kilovolt transmission line that traverses the Project Area and/or the proposed Project EnergyConnect transmission line. The key components of the Project include:

- Approximately 96 (3 blade) WTGs with a total height (tip height) of approximately 300 metres (m).
- Electrical connections between the proposed WTGs and substations/switching stations consisting of underground or a combination of underground cables and overhead powerlines.
- Substations/switching stations and transmission connections to connect to the existing 220 kV transmission line and/or the approved Project EnergyConnect transmission line.
- up to four battery energy storage system (BESS) facilities (to a total of 200 megawatts (MW) with a 4-hour delivery capacity), or up to four static synchronous compensator (STATcom) facilities.
- Permanent Power Performance Masts
- Other associated infrastructure including access roads and tracks, operation and maintenance buildings and construction facilities.
- Temporary on-site concrete batching plants, rock crushing facilities, and calibration meteorological masts during the construction phases.
- Targeted road network upgrades to facilitate delivery of WTG components to the Project Area as required.

The Project may be constructed in two stages, with Stage 1 proposing the construction of up to 30 WTGs and required ancillary infrastructure, with Stage 2 proposing the construction of the remaining WTGs (approx. 66 WTGs) and required ancillary infrastructure (refer **Section 3.2.1** for further staging details). If the Project is not staged, then construction would be one continuous process establishing all 96 WTGs and required ancillary infrastructure.

Regardless of the staging option, the overall construction period would be approximately four years (Stage 1 approximately 18 months and Stage 2 approximately 30 months).

1.2 Scope and Study Area

Access Traffic Consulting was commissioned by Umwelt Australia Pty Ltd (Umwelt) on behalf of Windlab to undertake a traffic and transport impact assessment (TTIA) as part of the Environmental Impact Statement (EIS) for the Project.

This TTIA was carried out to determine the level of potential impacts of the construction, operations and decommissioning phases of each identified stage of the Project on the operation of the surrounding road

network. The outcomes of this assessment will be used in support of the EIS for the Project, with Murray River Council (MRC) and Transport for New South Wales (TfNSW) expected to be advice agencies.

Further to this, the purpose of this report is also to assess the Project's compliance with the requirements of Part 8 of the Environmental and Planning Regulation (2021), as outlined in the traffic and transport items of the Secretary's Environmental Assessment Requirements (SEARs) provided for the Project (refer **Table 1 of Section 1.3.1** below).

The following methodology was adopted to undertake the required assessments as part of the TTIA, as summarised in the key tasks listed below.

- Broadly identify the existing transport infrastructure which is of relevance to the Project.
- Estimate traffic generation associated with the construction, operations and decommissioning phases of the Project and the distribution of this Project traffic on the identified road network, including the movement of materials, plant, equipment and turbine components in addition to the construction, operations and decommissioning phase workforces.
- Assess the potential impact of the Project on the surrounding transport infrastructure during the construction, operations and decommissioning phases.
- Identify potential mitigation and management strategies to be implemented during the construction, operations and decommissioning phases to offset the impact of the proposed Project (if required).

The adopted methodology centres on establishing a background, "without Project" traffic scenario for the identified transport routes and comparing this with scenarios incorporating the expected Project-generated traffic (i.e. "with Project"), and an additional scenario considering cumulative traffic volumes from both the Project and relevant State Significant Projects which are expected to concurrently utilise the same sections of the road network.

The process allows for the assessment of the traffic impacts of the Project in terms of road safety, access requirements, intersection operations, road link capacity, road pavements and other transport infrastructure. Following this, if required, potential mitigation and/or management measures would be formulated to address the potential traffic impacts of the Project.

1.2.1 Study Area

As noted above, the Project Area is located approximately 140km west of Hay and 15km to the south of the regional township of Balranald. This assessment relates to both Stage 1 and Stage 2 of the Junction Rivers Wind Farm, with the relevant Project areas located on both sides of the MRC controlled Balranald-Moulamein Road, south of the Sturt Highway, as shown on **Figure 1** overpage.

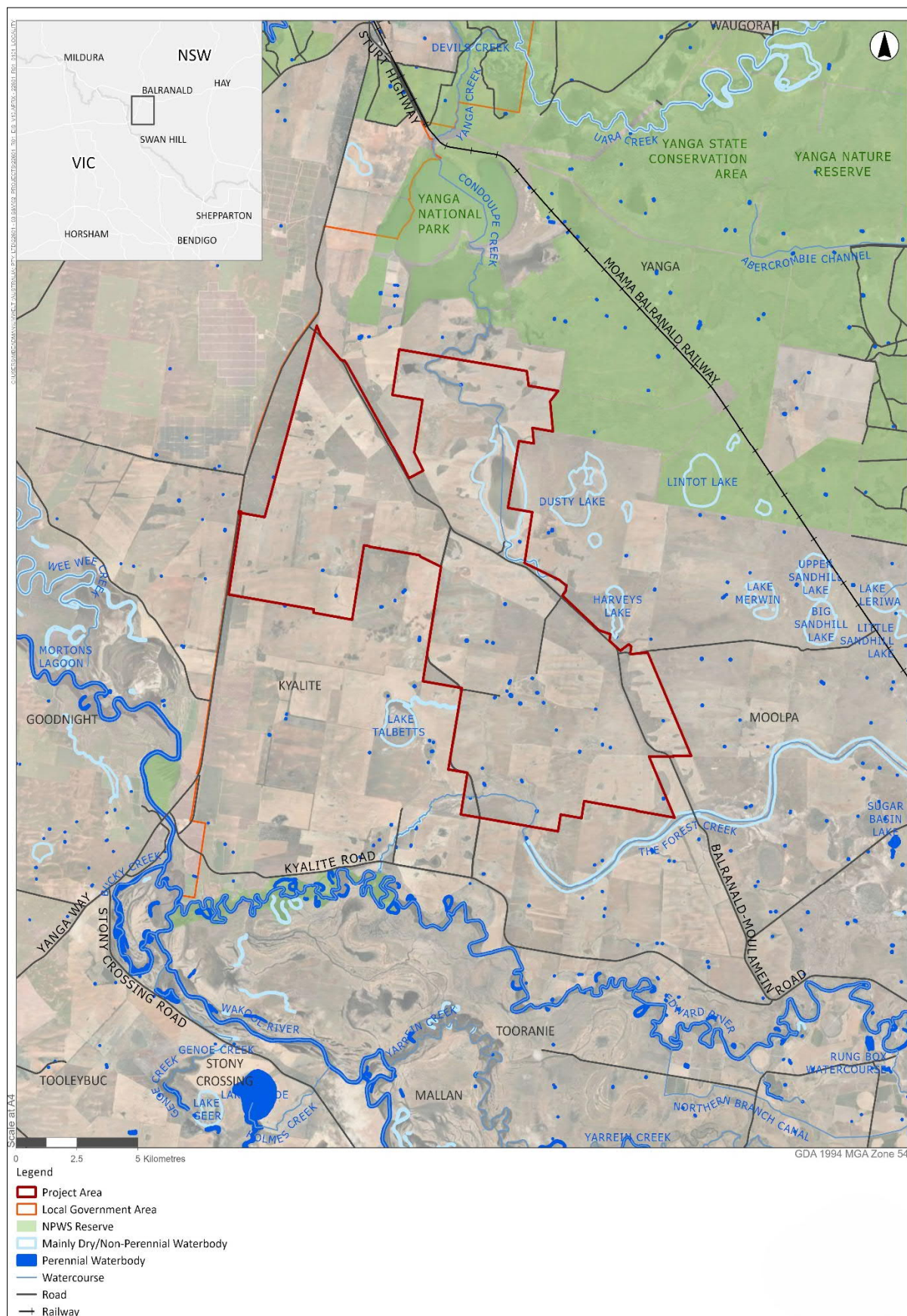


Figure 1 Site Locality - Junction Rivers Wind Farm

[Source: Umwelt]

1.3 Approval Agency Advice

1.3.1 State Environmental Assessment Requirements

The SEARs are a set of technical considerations that the EIS must address. Details of the SEARs for the Project were received on 19 December 2023 (Application No. SSD-30448824), with a summary of the specific requirements relating to transport provided in **Table 1** below.

Table 1 Transport SEARs Items

SEARS Items		Reference / Response
i)	an assessment of the construction, operational and decommissioning traffic impacts of the development on the local and State road network;	The assessment contained within this report (refer Section 5.0) includes an evaluation of the traffic impacts of the construction, operational and decommissioning phases of the Project on the relevant sections of the external road network expected to be utilised by traffic generated by the Project.
ii)	details of the peak and average traffic volumes (including light, heavy and over-mass / over-dimensional vehicles) and transport and haulage routes during construction, operation and decommissioning, including traffic associated with sourcing raw materials (water, sand and gravel);	Estimates of the Project traffic volumes have been provided in Section 4.0 of this report, with additional Project traffic calculations also provided for reference in Appendix F and Appendix G .
iii)	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;	A summary of the results of the assessment of the impacts of the Project can be seen in Section 5.0 of this report, and are noted to include assessments of the construction, operations and decommissioning phases of the Project as requested.
iv)	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;	An assessment of the potential impact of the Project (construction, operations and decommissioning phase) on the road link capacity is provided in Section 5.4 of this report. Further to this, it is noted that further traffic management measures and processes are proposed to be provided in a subsequent Traffic Management Plan for the Project, expected to be developed as part of subsequent detailed design phases of the Project.
v)	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 under bridges and overbridges;	An assessment of the transport impacts to the Project Area access and haulage routes is provided in Section 5.0 of this report, noting further details of haulage route assessment completed for Project are provided in the Preliminary Transport route assessment by Rex J Andrews, included for reference as Appendix A . No specific assessment has been completed of existing rail infrastructure as impact of the Project is expected to be limited to the requirement for the OSOM turbine component transport vehicles traversing a number of rail overbridges and crossings on the transport routes, as identified in the preliminary transport route assessment prepared by Rex J Andrews (refer Appendix A). As such it has been identified that further negotiation and approval from the relevant rail authority will be required before loads can access the routes, with these discussions proposed to be undertaken in subsequent phases of the Project, once exact turbine component and transport vehicle configurations are confirmed.

		Refer to Section 2.3.4 for details of TSRs in vicinity of site and Section 5.8 for assessment of impacts of Project on TSRs.
vi)	a cumulative impact assessment of traffic from nearby developments including Sunraysia Solar Farm, Limondale Solar Farm and Project EnergyConnect; and	As requested, further assessment of the cumulative traffic impacts of the Project with those from identified SSD Projects in the vicinity of the Project Area, with details of the outcomes of this assessment included in the results summarised in Section 5.0 of this report. Further to this, Section 4.5 of the report identifies the review undertaken to establish the other renewable energy projects in the vicinity of the Project Area that are likely to be constructed concurrently with the Project.
vii)	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.	Schedule of measures to mitigate and manage the identified impacts of Project are provided in Section 6.0 of this report.

1.3.2 Transport for New South Wales SEARs Inputs

In addition to the main SEARS for the Project, further input regarding the Project was received from Transport for New South Wales (TfNSW) on 8 December 2021 (Ref: WST21/00276/01), with a summary of the specific TfNSW input requirements provided in **Table 2**.

Table 2 TfNSW SEARs Input Items

SEARS Items		Reference / Response
1.	Due to the significant scope of the logistics assessment a concept-level route analysis is to be provided at the SSD application stage based on high-level 3D swept path analysis to generally indicate locations where civil works are likely to be required. The route analysis is to include at a minimum the following:	
	Identify the OSOM route to be utilised and any indicative pinch points within the network vertically, horizontally and laterally and the potential civil works required to accommodate the OSOM vehicles.	Please refer to the Preliminary Transport Route Assessment undertaken for the Project (Appendix A) for further details of the proposed OSOM transport routes, pinch points and required mitigation measures.
	The logistics assessment is to highlight each at-risk road structures that the haulage route crosses including bridges, traffic signals, signage, major culverts, and minor culverts that may not meet the desirable cover to cater for proposed axle loads.	Please refer to the Preliminary Transport Route Assessment undertaken for the Project (Appendix A).
	- The design vehicle templates used with the swept path analysis software are also requested for TfNSW to review the performance within the software. Provide the maximum parameters of the materials to be moved: - Identify OSOM vehicles proposed to be used for the project. - Maximum blade length. - Maximum blade overhang length. - Minimum overhang heights above the road surface. - Wheelbase dimensions. - Minimum mid-wheelbase height clearance.	Please refer to the Preliminary Transport Route Assessment undertaken for the Project (Appendix A).

	- Maximum load widths. - Maximum load heights (clearance to overhead obstructions such as structures, utilities and vegetation). - Maximum trailer articulation angle(s). - Axle loads and axle group loads in terms of both tonnes and Equivalent Standard Axles.	
2.	In addition to the above a Traffic Impact Assessment (TIA) is required to be prepared in accordance with Austroads Guide to Traffic Management Part 12, the Roads and Maritime Supplements to Austroads and the RTA Guide to Traffic Generating Developments. The TIA is to address the following:	
	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. • Section 2.4.1 of the scoping report identifies that concrete batching facilities to be provided onsite. The TIA and EIS should identify the source for input materials and quantify the traffic generation associated with the haulage of the source material.	Please refer to Section 3.1 for further details of the proposed site layouts of both Stage 1 and Stage 2 of the Project.
	Cumulative impacts: • Identify and assess the implications of road and rail projects including the projects identified in section 6.2.9 of the scoping report, 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 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.	Please refer to Section 4.5 of this report which identifies the adjacent developments which are required to be incorporated into the cumulative assessment for this Project. Additionally, further details of the assessment of the cumulative traffic impacts are included within Section 5.3 & Section 5.4 of this report.

	Heavy vehicle and OSOM routes: - Identify all OSOM routes for each potential transport route highlighted in Section 6.2.5 of the scoping report dated November 2021. - 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 rest areas required along the OSOM routes. - Flooding events and the implications to the OSOM and heavy vehicle routes should be considered within the TIA given the proximity of the development to the Murrumbidgee River.	Please refer to the Preliminary Transport Route Assessment undertaken for the Project (Appendix A). It is noted that further details of the OSOM movements, timing of movements, rest area locations and potential implications to OSOM routes during flood events are yet to be confirmed. However it is anticipated that further details regarding these matters will be provided as part of the detailed TMP for the Project and the OSOM haulage operations to be completed as part of future phases of the Project delivery process.
	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.	Please refer to Section 3.2 of this report which provides the details of the expected schedule for both Stage 1 and Stage 2 of the Project.
	Traffic volumes: - 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.	Please refer to Section 2.4, Section 4.4 and Section 4.5 of this report which outlines the details of the existing background, Project traffic and cumulative traffic volumes for both Stage 1 and Stage 2 of the Project.
	Traffic characteristics: - 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. - Inclusion of the traffic generated from ancillary components such as haulage from quarries to the project site, transmission lines etc.	Please refer to Section 4.0 of this report which outlines the expected traffic characteristics of both Stage 1 and Stage 2 of the Project.
	The origins, destinations and routes for: - Commuter (employee and contractor) light vehicles and pool vehicles. - Heavy (haulage) vehicles. - Over size and over mass vehicles.	Please refer to Section 3.3 of this report which outlines the expected transport routes for both Stage 1 and Stage 2 of the Project.

	Road safety assessment of key haulage route/s. The impact of traffic generation on the public road network and measures employed to ensure traffic efficiency and road safety during construction, operation and decommissioning of the project.	Please refer to Section 5.0 of this report (and Section 5.6 in particular) for further details of the road safety assessment of the key haulage routes for the Project.
	The need for improvements to the road network, and the improvements proposed such as road widening and intersection treatments, to cater for and mitigate the impact of project related traffic.	Please refer to Section 6.1.1 and Section 6.1.2 which identify the proposed upgrade or mitigation measures to the external road network that are recommended to be provided as part of Stage 1 and Stage 2 of the Project respectively.
	Proposed road facilities, access and intersection treatments are to be identified and be in accordance with Austroads Guide to Road Design including provision of Safe Intersection Sight Distance (SISD).	Please refer to Section 6.1.1 and Section 6.1.2 which identify the proposed upgrade or mitigation measures to the external road network that are recommended to be provided as part of Stage 1 and Stage 2 of the Project respectively.
	Local climate conditions that may affect road safety during the life of the project (e.g. fog, wet and dry weather, icy road conditions).	No specific local climate conditions were noted that may affect road safety (more than for existing operation of network) during the life of the Project. That being said, it is noted that the provision of upgrade works to the relevant sections of Balranald-Moulamein Road and Arundel Road are proposed to enable wet weather access to the site for general Project traffic, noting that restrictions to OSOM transport vehicle movements may be required during wet weather events, with confirmation of any controls to be detailed in TMP for Project and haulage operation proposed to be provided as part of subsequent stages of the Project delivery process.
	The layout of the internal road network, parking facilities and infrastructure.	The proposed layout of the internal site road/access track network for each stage can be seen in Figure 24 & Figure 25 within Section 3.2 of this report. No specific details are provided regarding the proposed parking facilities for the Project, it is expected that they will be provided in accordance with the requirements of all relevant standards, guidelines and policies. In addition, due to the large area of land available within the Project Area for the required parking facilities and the current setback from the external road network, it is not anticipated that any of the construction, operations or decommissioning phases of the Project will lead to an overspill of parking or vehicle queuing at the Project Area accesses that would lead to negative impacts to the operation of the surrounding road network.
	Impact on rail corridors and level crossings detailing any proposed interface treatments.	No specific rail crossings were identified on the key sections of the road network in the vicinity of the Project area. Notwithstanding this, a number of rail crossings were identified along the proposed OSOM transport routes for the Project. However no significant impacts were expected to these crossings, with operational details of the use of these crossings as part of the OSOM haulage route to be negotiated further with relevant rail authority as part of the future haulage permit application process.

Impact on public transport (public and school bus routes) and consideration for alternative transport modes such as walking and cycling.	Please refer to Section 5.7 & Section 5.9 of this report which details the assessment of the impact of the Project on the operation of the public transport and active transport network in the vicinity of the Project.
Identification and assessment of potential impacts of the project, lighting, visual, noise, dust and drainage on the function and integrity of all affected public roads	Assessment of the Project's impacts to lighting, visual, noise, dust and drainage are expected to be covered in other technical reports provided as part of the Project EIS.
Provide concept plans for the transmission lines proposed to cross the Sturt Highway and identify the locations to provide access to undertake the work associated with the transmission lines from of access for classified or local road network.	Not required as no transmission line works over the Sturt Highway (or Yanga Way) are proposed to be provided as part of this Project.
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 Australian Standard 4452 Storage and Handling of Toxic Substances.	Further details of controls proposed to be provided once confirmed as part of the detailed TMP for the Project and the OSOM haulage operations to be completed as part of future phases of Project delivery process.

1.3.3 Response to SEARS

This TTIA has been prepared in response to the items identified above in **Table 1** and **Table 2** above, and aims to provide additional information and clarification to the traffic assessment undertaken, in particular regarding the expected traffic and transport impacts of the Project on the state and local government-controlled road networks.

Further information regarding the turbine component transport movements and routes for the Project is provided in the Preliminary Transport Route Assessment report (refer **Appendix A**) prepared by Rex J Andrews Transport, which should be read in conjunction with this TTIA.

In addition, the preparation of a detailed traffic management plan (TMP) is proposed to be undertaken as part of the detailed design phases of the Project once the detailed project design and configuration of the turbine components and associated transport vehicles, is confirmed.

1.4 Limitations

Whilst the assessment undertaken is deemed appropriate to assess the anticipated traffic impacts of the Project on the surrounding road network, the following limitations should be noted:

- No assessment has been undertaken to determine the acceptability of the use of the existing culvert and bridge infrastructure along the identified turbine component transport route from a structure load limits / restrictions perspective. This is due to the fact that the vehicle and load configurations for the turbine component transport operations adopted in this assessment are indicative only, with the exact vehicle and load configurations to be confirmed by a suitable transport contractor. It is therefore expected that the assessment of these structures will be completed by the relevant transport contractor as part of the preparation of a detailed route assessment / traffic management plan to be prepared during the detailed design phase of the Project.
- The assessment of the traffic impacts associated with the Project does not consider the works located outside of NSW anticipated to be required as part of the route preparation works for the turbine component transport operation, as identified in the associated Preliminary Transport Route Assessment completed for the Project (dated 20 November 2023). It is expected that these works will be subject to further consultation, detailed design and approval (as required).

2.0 Existing Conditions

2.1 Land Use and Zoning

The Project Area is generally used for agricultural purposes, with the full Project Area located within the identified “RU1 – Primary Production” zoning under the Wakool Shire Local Environmental Plan (2013), as shown in **Figure 2**.

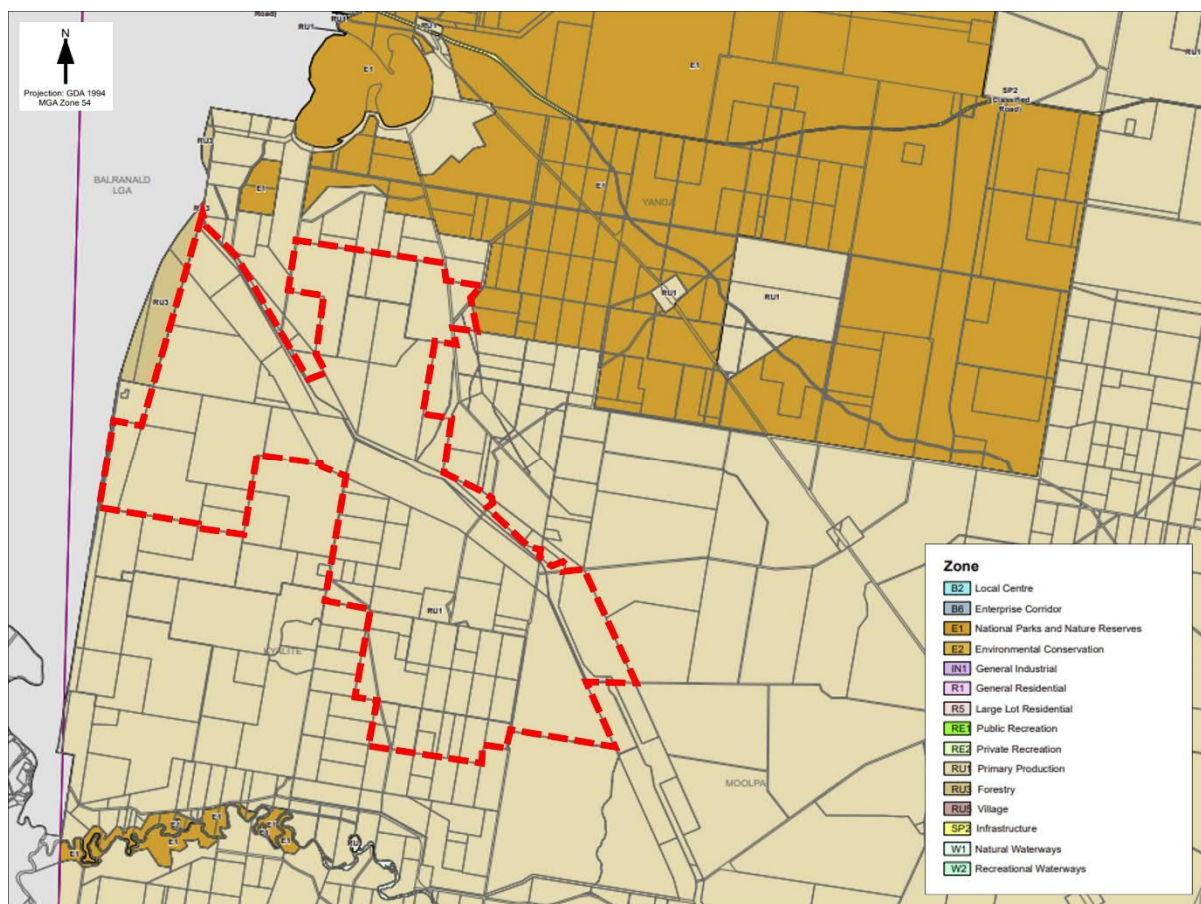


Figure 2 Project Area Land Use Zoning

[Source: NSW Planning Portal ePlanning Spatial Viewer]

2.2 Adjacent Land Use / Approvals

As shown in **Figure 2** above, the adjacent land parcels to the Project Area are primarily zoned as “RU1 – Primary Production”, while a section of land to the west is zoned as “RU3 – Forestry” and the land further to the north is zoned as “E1 – National Parks and Nature Resources”.

Further to this, no active or planned development approvals which could influence this TTIA are understood to be currently held over the properties directly adjacent to the Project Area, while both the Limondale and Sunraysia Solar Farms are currently operating on the opposite (western) side of Yanga Way, to the north-west of the Project Area.

Notwithstanding this, it is noted that as part of the SEARs for the Project further assessment is required regarding the potential cumulative impacts of other State Significant Developments in the vicinity of the Project Area that are expected to utilise the same sections of the state and local government road networks. This assessment is to be completed generally in accordance with the requirements of NSW Government's Cumulative Impact Assessment Guidelines for State Significant Projects, with further detail regarding the cumulative assessment completed provided in **Section 4.5** of this report.

2.3 Surrounding Road Network Details

2.3.1 Road Links

Based on the transport routes for the construction, operations and decommissioning phases outlined above, the critical road links in terms of the potential impacts of the proposed Stage 1 and Stage 2 works for the Project were determined to be the section of the Sturt Highway between Mildura and Yanga Way, Swan Hill Road, Stony Crossing Road, Yanga Way, Balranald-Moulamein Road and Arundel Road, as shown in **Figure 5**.

All of the other road links identified were noted to only be utilised by turbine component transport vehicles. As these movements are only temporary and are expected to travel out of hours and under full escort, the Project is not anticipated to have a significant, ongoing impact on the operation of the road links forming the OSOM transport routes.

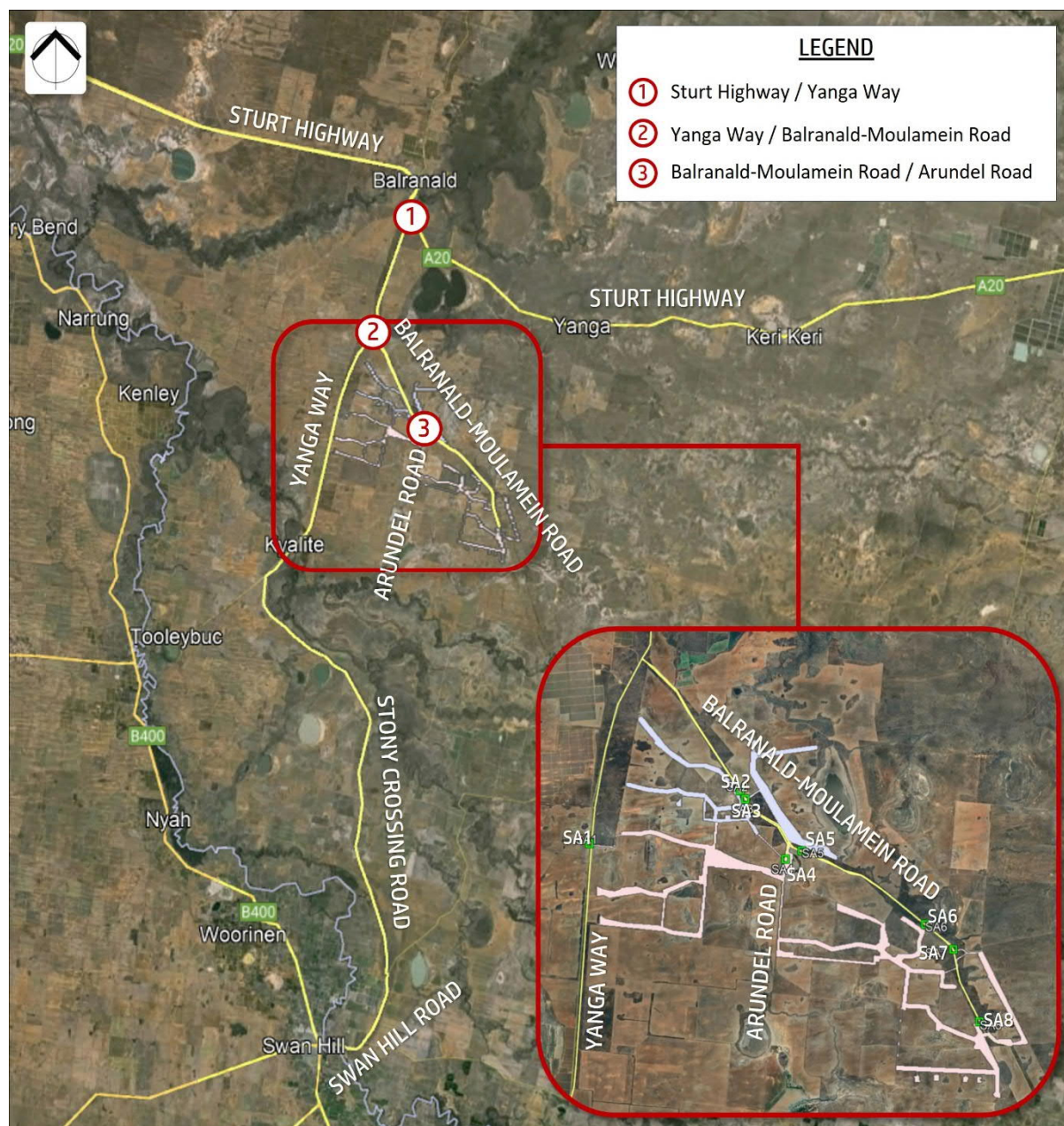


Figure 5 Surrounding Road Network – Relevant Road Links and Intersections

2.3.1.1 Sturt Highway (A20)

As noted above, the section of the Sturt Highway critical to the Project is the approximately 165km length of the link between Mildura and its intersection with Yanga Way, to the south-east of Balranald. The majority of this section of the Sturt Highway is currently operating as a high speed (100km/hr) two-way, two-lane rural highway (refer **Figure 6**), with lower speed (50km/hr) sections provided through regional townships, such as Balranald, where an urban cross section with wider parking lanes/shoulders is provided in both directions of travel (refer **Figure 7**).



Figure 6 Sturt Highway (A20) – Rural High Speed Configuration



Figure 7 Sturt Highway (A20) – Urban Low Speed Configuration

2.3.1.1 Yanga Way (Mallee Highway)

The section of Yanga Way (also known as the Mallee Highway) critical to the Project has been identified as the 49.100km section spanning between the Sturt Highway in the north to Tooleybuc in the south. The majority of this section of the link currently operates as a high speed (100km/hr) two-way, two-lane rural highway. In the vicinity of the Project Area, Yanga Way provides one lane of travel in each direction as well as sealed road shoulders typically 0.5-1.0m in width, with the existing configuration and condition of the road shown further in **Figure 8** and **Figure 9**.



Figure 8 Yanga Way – Looking South from Sturt Highway Intersection



Figure 9 Yanga Way – Looking South along Project Area frontage

2.3.1.1 Swan Hill Road

Based on the expected transport routes for the Project, the section of Swan Hill Road relevant to the Project is the 11.100km length between the Murray Valley Highway in Swan Hill and the intersection with Stony Crossing Road to the north-east, and is expected to primarily be utilised for staff and quarry material movements from Swan Hill and Lake Boga respectively. This section of the link currently operates as a high speed (100km/hr) two-way, two lane rural arterial road with a 6.0-6.5m wide central sealed pavement and 1.0m wide unsealed shoulders as shown in **Figure 10** and **Figure 11**.



Figure 10 Swan Hill Road – Looking North East on departure from Swan Hill



Figure 11 Swan Hill Road – Looking North East on Approach to Stony Crossing Road

2.3.1.1 Stony Crossing Road

The section of the Stony Crossing Road relevant to the Project is the 40.900km length of the link between Swan Hill Road in the south and Yanga Way in the north, which will primarily be utilised for staff and quarry material movements from Swan Hill and Lake Boga respectively. This section of road is currently operating as a high speed (100km/hr) two-way, two-lane rural collector road which provides 6.5m wide sealed pavement with narrow (0.5-1.0m wide) unsealed shoulders as indicatively shown in **Figure 12** and **Figure 13**.



Figure 12 Stony Crossing Road – Looking North from Swan Hill Road Intersection



Figure 13 Stony Crossing Road – Looking North on Approach to Yanga Way Intersection

2.3.1.1 Balranald-Moulamein (Balranald) Road

The section of Balranald-Moulamein Road relevant to the Project varies for both Stage 1 and Stage 2, with Stage 1 initially utilising the 11.095km length between Yanga Way and the proposed Site Access 5, while Project traffic for Stage 2 is expected to utilise a longer length (approx. 22.140km) of the link between Yanga Way and the proposed Site Access 8.

The current configuration of Balranald-Moulamein Road varies along its length, with the initial 40m south-east of Yanga Way providing a sealed two-way, two-lane road section approx. 8m in width, which then transitions to an unsealed two-way, two-lane local collector carriageway which varies in width between 8.0-10.0m along the relevant length as shown in **Figure 14** and **Figure 15**.

Further to this, the relevant length of Balranald-Moulamein Road currently carries relatively low traffic volumes (approx. 50-60vpd), with the existing alignment generally enabling the provision of suitable sight distances along its length.



Figure 14 Balranald-Moulamein Road – Looking South East from Proposed Site Access 3



Figure 15 Balranald-Moulamein Road – Looking North West from Proposed Site Access 7

2.3.1.1 Arundel Road

The section of Arundel Road expected to be utilised by Project traffic is the 710m long length spanning between Balranald-Moulamein Road and the proposed Site Access 4 location, noting that this section of road is only proposed to be utilised during Stage 2 of the Project. As shown in **Figure 16** and **Figure 17** below, the current configuration of the relevant length of Arundel Road provides a two-way, one-lane unsealed rural access road carriageway, with varying road widths of 4.0-4.5m.



Figure 16 Arundel Road – Looking North to Balranald-Moulamein Road from Proposed Site Access 4



Figure 17 Arundel Road – Looking South from Proposed Site Access 4

2.3.2 Intersections

In terms of the traffic impact assessment for the Project, the key intersections on the external road network were identified to be the intersections of Sturt Highway / Yanga Way, Yanga Way / Balranald-Moulamein Road and Balranald-Moulamein Road / Arundel Road, with the indicative location of these intersections provided in **Figure 5** above and further details of the current configuration of these intersections provided below.

All other intersections on the external road network were noted to primarily only be utilised by turbine component transport vehicles. The movements of these Project related vehicles are only temporary and as they are expected to travel out of hours and under full escort, they are not anticipated to have a significant impact on the operation of any relevant intersections. As such no further assessment of these intersections was deemed warranted.

2.3.2.1 Sturt Highway / Yanga Way

The existing configuration of the Sturt Highway / Yanga Way intersection currently operates as a three-way, priority controlled (give way) intersection, with the Sturt Highway approaches having priority as the major road and Yanga Road forming the minor side road approach to the intersection. Two lanes are provided in each direction on the Sturt Highway through the intersection, providing auxiliary left and right

turn treatments for movements turning into Yanga Way, while one lane in each direction is provided on the Yanga Way approach/departure to the intersection, as shown in **Figure 18** below.

It is noted that as part of the traffic assessment undertaken for the nearby Balranald Mineral Sands project, it was identified that the existing AUR treatment configuration on the western approach to the intersection should be modified to provide the new standard of a short channelised (or CHRs) treatment for right turn movements into Yanga Way. Construction of the Balranald Mineral Sands project commenced in August 2023 and is expected to take approximately 18-months¹. As such it is expected that the identified upgrade works will be provided at this intersection prior to the commencement of the Stage 1 construction works for the proposed Junction Rivers Wind Farm Project.

Finally it is noted that based on site observations, adequate sight distance (Safe Intersection Sight Distance – approx. 226m for 90km/hr design speed / 2.5sec R_T / $d=0.36$) is available to/from the intersection in both directions on the Sturt Highway.



Figure 18 Existing Sturt Highway / Yanga Way Intersection

[Source: Google Earth Pro]

2.3.2.2 Yanga Way / Balranald-Moulamein Road

The existing configuration of the Yanga Way / Balranald-Moulamein Road intersection also currently operates as a three-way, priority controlled (give way) intersection, with the Yanga Way approaches having priority as the major road and Balranald-Moulamein Road acting as the minor side road approach. One lane is provided in each direction on all approaches, with no specific turn treatments or widenings provided on Yanga Way for movements entering Balranald-Moulamein Road, as depicted in **Figure 19**.

Finally it is noted that based on site observations, adequate sight distance (SISD – approx. 300m for 110km/h design speed/ 2.5sec R_T / $d=0.36$) is available to/from the intersection in both directions on Yanga Way.

¹ Refer <https://iluka.com/media/vkhp0eet/iluka-murray-basin-update-nov-23.pdf> and <https://iluka.com/media/s3gl3yyt/balranald-community-factsheet-a4-final-web.pdf>



Figure 19 Existing Yanga Way / Balranald-Moulamein Road Intersection

[Source: Google Earth Pro]

2.3.2.3 Balranald-Moulamein Road / Arundel Road

The existing configuration of the Balranald-Moulamein Road / Arundel Road intersection is configured as a three-way, priority-controlled intersection, with one lane in each direction of traffic provided on each approach to the intersection. As shown in **Figure 20** below, a large splitter island is located in the centre of the intersection, with right and left turn movements from the various approaches undertaken using two, two-way, one lane slip lanes from the Arundel Road approach.



Figure 20 Existing Balranald-Moulamein Road / Arundel Road Intersection

[Source: Google Earth Pro]

2.3.3 Public Transport Routes

It is understood that a bus services currently operates out of a depot in Balranald, with school bus services provided between both Balranald and Kyalite and Balranald and Swan Hill. All services are noted to operate twice daily across Monday-Friday during the NSW school term, with the services travelling outbound from Balranald in the AM and inbound in the PM, as outlined in the indicative timetables for the school services in **Table 3** below.

Table 3 Balranald School Bus Service Stop Locations and Indicative Timings			
AM		PM	
Depart Depot	8:05 AM	Depart Depot	2.50 PM
Condoulpe	8:25 AM	Balranald Central School	2.55 PM
Gastons	8.30 AM	Court Street	3.09 PM
Malcolm Street	8.40 AM	Malcolm Street	3.15 PM
St Joseph's	8:45 AM	Gaston's Stop	3.20 PM
Balranald Central School	8.46 AM	Condoulpe	3.27 AM
Depot	8.50 AM	Depot	3.40 PM
Balranald – Swan Hill			
AM		PM	
Depart Depot	7:20 AM	Depart Depot	2.50 PM
Information Centre	7:25 AM	MacKillop	3:10 PM
Gracedale	7:52 AM	Swan Hill College	3:24 PM
Kyalite Store	8:00 AM	Bonnie Doon	3:51 PM
Bonnie Doon	8:22 AM	Kyalite Store	4:13 PM
MacKillop	8:42 AM	Information Centre	4:43 PM
Swan Hill College	8:46 AM	Depot	4:48 PM
Swan Hill Primary	8:52 AM		
Depot	10:05 AM		

It was also advised that the bus operator also provides additional daily service from Balranald to Swan Hill, as well as services along the Sturt Highway to both Euston (twice daily) and approx. 55km to the east towards Hay.

Based on the information above, it is anticipated that the bus services in the area will primarily utilise the Sturt Highway, Yanga Way, Stony Crossing Road and Swan Hill Road to travel between Balranald, Kyalite and Swan Hill, with no bus movements anticipated to utilise either Balranald-Moulamein Road or Arundel Road. Furthermore, it is noted that the school bus movements on the road network are shown to occur outside of what is expected to be the peak hours for traffic movements associated with either stage of the proposed Junction Rivers Wind Project.

2.3.4 Travelling Stock Reserve Network

Based on the available mapping from the NSW Government (refer **Figure 21**), it is noted that a number of travelling stock reserves (TSR) are located along the lengths of the relevant roads for the Project, including Yanga Way, Balranald-Moulamein Road, Stony Crossing Road and Swan Hill Road.

In particular, it is identified that mapped TSRs are located within the road reserves for the section of Yanga Way fronting the site, and along Balranald-Moulamein Road from Yanga Way to the approximate location of the proposed Site Access 7 (SA7). The TSRs in these key areas are noted to generally be designated as Category 2 TSRs, which as per the NSW Government's Travelling Stock Reserves State-Wide Plan of Management are identified to be used for travelling stock, emergency management or biosecurity

purposes, and are important for other reasons, e.g. biodiversity conservation, First Nations People's heritage or recreational purposes.

Notwithstanding this, based on discussions with the Project's host landholders it is understood that the TSR's along Yanga Way and Balranald-Moulamein Road are rarely utilised by others or the landholders themselves, with the TSR on Balranald-Moulamein Road also advised to be unfit for use unless used in conjunction with water truck/tanks due to the lack of waterways for stock to drink along this road.

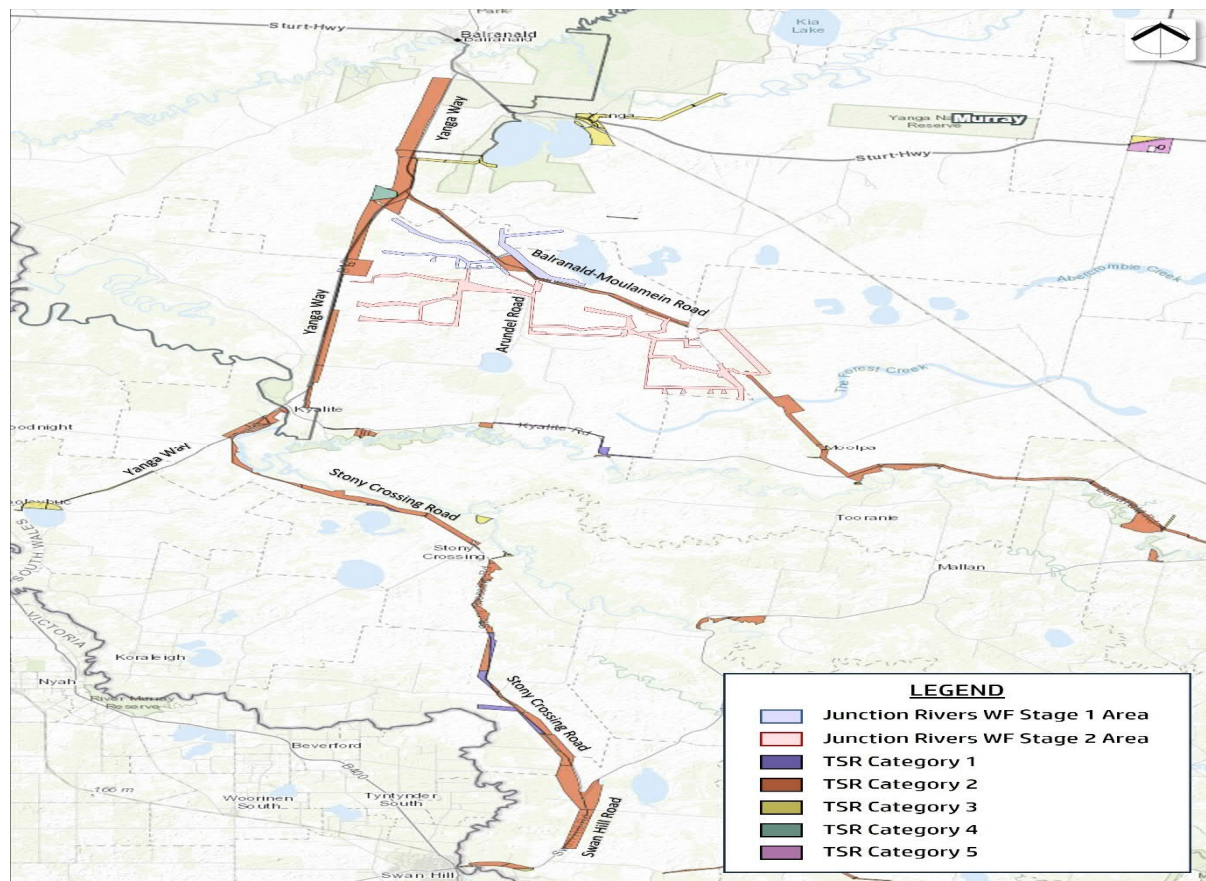


Figure 21 Travelling Stock Reserve Locations

[Source: NSW Government]

2.3.5 Active Transport Network

Based on the isolated, rural nature of the Project Area there are no specific active transport facilities or infrastructure on the surrounding road network (i.e. bike lanes or pedestrian pathways) that could be utilised as part of required movements for the Project.

2.4 Existing Traffic Volumes

2.4.1 Road Link Volumes

The road link volumes for the relevant sections of the external state-controlled road network have been estimated from the available historical link count data from TfNSW, while an estimate of the daily volume on Balranald-Moulamein Road was established from the observed peak hour traffic volumes on the Balranald-Moulamein Road leg of the Yanga Way / Balranald-Moulamein Road intersection, with a factor (x5) applied to the combined AM and PM volumes on the leg. Finally a conservative estimate of 20vpd (10vpd each direction) was assumed for Arundel Road based on the low volumes observed on site.

A conservative background growth of 2% per annum (compound) was then applied to the identified baseline year volumes to establish forecasts of the current (2024) volumes on the link (refer **Table 4**), as well as the expected background volumes at future design horizons for the Project (i.e. decommissioning horizons of 2056 (Stage 1) / 2058 (Stage 2) approx.).

Table 4 Current (2023) External Road Network AADT Traffic Volumes

Road Seg. ID	Road Segment		Base Data Year	Base Year AADT				10 Yr. GR %	Current (2024) AADT Estimate			
	Start (km)	End (km)		Gaz	% HV	A-Gaz	% HV		Gaz		A-Gaz	
									Total	HV	Total	HV
A20 Sturt Highway (Mildura to Yanga Way)												
98064	0.000	82.400	2007	1,023	26.7%	1,047	26.9%	2.0%	1,432	382	1,466	395
98064	82.400	162.100	2007	1,023	26.7%	1,047	26.9%	2.0%	513	302	524	315
T0234	162.100	165.500	2021	483	59.0%	494	60.1%	2.0%	513	302	524	315
Yanga Way (Sturt Highway to Tooleybuc)												
97488	0.000	11.800	2012	272	26.9%	376	27.7%	2.0%	345	92	477	132
97494	11.800	19.800	2012	283	26.9%	285	27.7%	2.0%	359	96	361	100
97494	19.800	36.200	2012	283	26.9%	285	27.7%	2.0%	359	96	361	100
97207	36.200	49.100	2006	221	34.8%	220	34.1%	2.0%	316	110	314	107
Balranald-Moulamein Road (Yanga Way to Site Access 8)												
MRC	0.000	6.930	2022	25	40.0%	30	50.0%	2.0%	26	10	31	16
MRC	6.930	7.750	2022	25	40.0%	30	50.0%	2.0%	26	10	31	16
MRC	7.750	10.402	2022	25	40.0%	30	50.0%	2.0%	26	10	31	16
MRC	10.402	11.095	2022	25	40.0%	30	50.0%	2.0%	26	10	31	16
MRC	11.095	17.340	2022	25	40.0%	30	50.0%	2.0%	26	10	31	16
MRC	17.340	18.955	2022	25	40.0%	30	50.0%	2.0%	26	10	31	16
MRC	18.955	22.140	2022	25	40.0%	30	50.0%	2.0%	26	10	31	16
Arundel Road (Balranald-Moulamein Road to Site Access 4)												
-	0.000	0.710	2022	10	40.0%	10	40.0%	2.0%	10	4	10	4
Stony Crossing Road (Yanga Way to Swan Hill Road)												
97206	0.000	40.900	2006	122	18.9%	123	26.8%	2.0%	174	33	176	47
Swan Hill Road (Swan Hill to Stony Crossing Road)												
97200	0.000	11.100	2010	342	17.0%	362	16.9%	2.0%	451	77	478	80
B400 Murray River Highway (Swan Hill to Lake Boga)												
-	0.000	16.000	2020	2,000	9.6%	2,100	9.0%	2.0%	2,165	208	2,273	203

Gaz (Gazetted direction of travel or with chainage) | A-Gaz (Against Gazetted direction of travel or against chainage) | H V (Heavy vehicles)

Sturt Highway chainage assumed to run east from Mildura | Yanga Way chainage assumed to run south from Sturt Highway | Swan Hill Road chainage assumed to run north-east from Swan Hill | Stony Crossing Road chainage assumed to run south from Yanga Way | Balranald-Moulamein Road chainage assumed to run south-east from Yanga Way | Arundel Road chainage assumed to run south from Balranald-Moulamein Road.

A20 Ch. 82.400km Euston | A20 Ch. 162.100km Balranald | A20 Ch. 165.500km Intersection Sturt Highway / Yanga Way | Ch. 11.800km Yanga Way – Intersection with Balranald-Moulamein Road | Ch. 19.800km Yanga Way – Site Access 1 (LHS) | Ch. 36.200km Yanga Way – Intersection with Stony Crossing Road | Ch. 49.100km Yanga Way – Tooleybuc | Ch. 6.930km Balranald-Moulamein Road – Site Access 2 (RHS) | Ch. 7.750km Balranald-Moulamein Road – Site Access 3 (LHS) | Ch. 10.402km Balranald-Moulamein Road – Intersection with Arundel Road | Ch. 11.095km Balranald-Moulamein Road – Site Access 5 (LHS) | Ch. 17.340km Balranald-Moulamein Road – Site Access 6 (RHS) | Ch. 18.955km Balranald-Moulamein Road – Site Access 7 (LHS) | Ch. 22.140km Balranald-Moulamein Road – Site Access 8 (RHS) | Ch. 0.710km Arundel Road – Site Access 4 (LHS).

2.4.2 Intersection Volumes

As noted above, turning movement counts were undertaken at the Sturt Highway / Yanga Way and Yanga Way / Balranald-Moulamein Road intersections on the 6th and 7th December 2022 respectively, with the counts undertaken for the expected AM and PM peak hours for Project traffic at the intersections (6-7am and 5:30-6:30pm). The raw count data for these intersections is provided for reference in **Appendix B**.

A conservative 2% per annum (compound) growth rate has been applied to all movements at the intersections to establish forecasts of the current (2024) peak hour volumes at the intersection and future year forecast volumes. A summary of the resultant 2024 AM and PM peak hour volume forecasts for the intersections are provided in **Table 5** and **Table 6**.

Finally it is noted that no requirement to undertake a count was identified for the minor intersection of Balranald-Moulamein Road and Arundel Road based on the extremely low volumes observed at this intersection, with minimal turning movements into/out of Arundel Road (i.e. 0-1vph).

Table 5 Existing (2024) Peak Hour (Project) Traffic Volumes, Sturt Highway / Yanga Way

Year	Sturt Highway NW				Yanga Way S				Sturt Highway SE			
	Through		Right		Left		Right		Left		Through	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Sturt Highway / Yanga Way												
2024 AM Peak (Project)	21	9	15	6	8	1	5	0	5	3	15	18
2024 PM Peak (Project)	18	27	17	3	15	3	5	2	4	0	22	21

Table 6 Existing (2024) Peak Hour (Project) Traffic Volumes, Yanga Way Highway / Balranald-Moulamein Road

Year	Yanga Way SW				Balranald-Moulamein Road E				Yanga Way NE			
	Through		Right		Left		Right		Left		Through	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Yanga Way / Balranald-Moulamein Road												
2024 AM Peak (Project)	15	7	1	0	1	0	1	1	1	1	16	3
2024 PM Peak (Project)	18	3	0	1	0	2	1	0	1	0	22	3

2.5 Existing Intersection and Network Performance

2.5.1 Road Links

Based on the road link volumes forecasts in **Table 4** above, it is expected that the existing configurations of the relevant external road links will have adequate capacity to cater for the current 2024 volume forecasts, considering the generally accepted capacities of two-lane rural highways (approx. 12,000-15,000vpd – Sturt Highway & Murray River Highway), rural arterial roads (approx. 3,000vpd – Yanga Way and Swan Hill Road), rural collector roads (sealed approx. 1,000vpd – Stony Crossing Road, and unsealed rural collector (approx. 500vpd – Balranald-Moulamein Road) and rural access roads (approx. 150vpd – Arundel Road).

In addition, it is noted that no assessment has been made on the current operation of the additional road links identified to form part of the proposed OSOM turbine component transport routes. As these movements are expected to be temporary in nature, undertaken out of hours and under escort and be of relatively low volume (max 15vpd including 5 OSOM vehicles) it is not anticipated that they will have a significant ongoing impact to the operation or capacity of the road links forming the turbine transport routes.

2.5.2 Intersections

2.5.2.1 Performance Metrics

To understand the current operational performance of the Sturt Highway / Yanga Way and Yanga Way / Balranald-Moulamein Road intersections, detailed intersection analysis was undertaken utilising the Signalised Intersection Design and Research Aid (SIDRA) software package (Ver 9.1.6.228).

The critical performance metrics of the intersection analysis, and acceptable limits of operation outputs for such priority-controlled intersections are provided below, with further details identified in Section 4.4.10 of Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development and Section 4.2.2 of RTA's (now TfNSW) Guide to Traffic Generating Developments.

Degree of Saturation (DOS) – Defined as the ratio of the volume of traffic observed making a movement (in vehicles per hour) compared to the maximum capacity for that movement (vehicles per hour). For priority-controlled intersections, the maximum acceptable degree of saturation is noted to be 80% or 0.800.

Level of Service (LOS) & Average Delay (sec) – Is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. The LOS is closely linked to the delay time (in seconds), which can be expected over all vehicles making a movement in the peak hour. The different Levels of Service (RTA NSW criteria) can generally be described as per **Table 7** below:

Table 7 Level of Service (LOS) Criteria – Priority Controlled Intersections

LOS	Description	Average Delay
A	Free-flow operation (best conditions)	≤ 14.5 sec
B	Reasonable free-flow operations	14.5 – 28.5 sec
C	At or near free-flow operations	28.5 – 42.5 sec
D	Decreasing free-flow operations	42.5 – 56.5 sec
E	Operations at capacity	56.5 – 70.5 sec
F	A breakdown in vehicular flow (worst conditions)	≥ 70.5 sec

In terms of acceptable limits of operation for priority-controlled intersections, a maximum LOS of C and delay of 42.5 seconds applies.

95th Percentile (95thile) Queue – Defined as the maximum queue length, in metres, that can be expected in 95% of observed queue lengths in the peak hour. For acceptable operation of a priority-controlled intersection, all vehicle queues for individual movements must be contained within the extents of their own lane (in particular for turning lanes), with no vehicle flows or movements to be blocked by queued vehicles.

2.5.2.2 Intersection Assessment

An assessment of the current operational performance of the key Sturt Highway / Yanga Way and Yanga Way / Balranald-Moulamein Road intersections has been undertaken, based upon the current (2023) AM peak and PM peak period volumes forecasts identified in **Table 5** and **Table 6** above. It is noted that no assessment has been completed for the existing traffic conditions at the Balranald-Moulamein Road / Arundel Road intersection as based on the extremely low volumes observed at this intersection, with minimal turning movements into/out of Arundel Road (i.e. 0-1vph) it is expected to be operating well within capacity.

The results of these analyses are summarised in **Table 8** below, with the detailed results provided for reference in **Appendix C** and **Appendix D** respectively. These results revealed that the current configurations of both intersections are expected to operate satisfactorily for current (2023) background or pre-Project traffic conditions, with all calculated values of Degree of Saturation (DOS), Level of Service (LOS), average delay and vehicle queue lengths for both intersections well within the acceptable limits of operation for priority-controlled intersections (as identified above) for all scenarios assessed.

Table 8 SIDRA Results – Existing (2024) Traffic Conditions

Analysis Scenario	Intersection Degree of Saturation	Level of Service**	Intersection Average Delay (sec)	Maximum 95% Back of Queue Length (m)
Unsignalised / Priority Controlled Intersections				
Acceptable Limits of Operation	< 0.800	LOS C	< 42.5	Varies *
Sturt Highway / Yanga Way Intersection				
2024 AM Peak (Project)	0.019	LOS A	2.5	0.7
2024 PM Peak (Project)	0.025	LOS A	2.2	0.9
Yanga Way / Balranald-Moulamein Road Intersection				
2024 AM Peak (Project)	0.014	LOS A	0.8	0.1
2024 PM Peak (Project)	0.014	LOS A	0.7	0.1

** LOS value identified is for worst movement at the intersection, not the overall intersection.

2.6 Road Crash History Review

A review of the road crash history on the relevant sections of the external road network in the vicinity of the Project Area was undertaken using the interactive crash statistic data available from the TfNSW Centre for Road Safety database for the period between 2018-2022. The results of this search identified 6 recorded crashes within the relevant sections of the network, as shown in **Figure 22**, with a summary of the details of the recorded crash data provided for reference in **Table 9**.

Table 9 Summary of Road Crash History

Crash Reference Number	Crash Year	Degree of Crash	Crash Type	RUM Code	RUM Description
Yanga Way - Eastern Approach to Tooleybuc					
1252609	2021	Non-Casualty (Towaway)	Single Vehicle	88	Out of Control on Carriageway (Bend)
1273362	2021	Minor/Other Injury	Single Vehicle	81	Off Left / Right Bend into Object
1311034	2022	Non-Casualty (Towaway)	Single Vehicle	70	Off Road to Left
Yanga Way - Kyalite					
1297301	2022	Non-Casualty (Towaway)	Single Vehicle	73	Off Road to Right into Object
Yanga Way – South of Balranald-Moulamein Road					
1217824	2019	Non-Casualty (Towaway)	Single Vehicle	71	Off Road to Left into Object
Stony Crossing Road – Approach to Swan Hill Road					
1218699	2019	Minor/Other Injury	Single Vehicle	80	Off Left / Right Bend

Based on the relatively low number (6) of crashes recorded, the spread of the locations on the network and the type of crashes recorded being primarily single vehicle off road accidents typical for rural conditions, it can be concluded that there is not any particular existing road feature or design deficiency which is likely to be contributing to crashes in the vicinity of the Project Area.

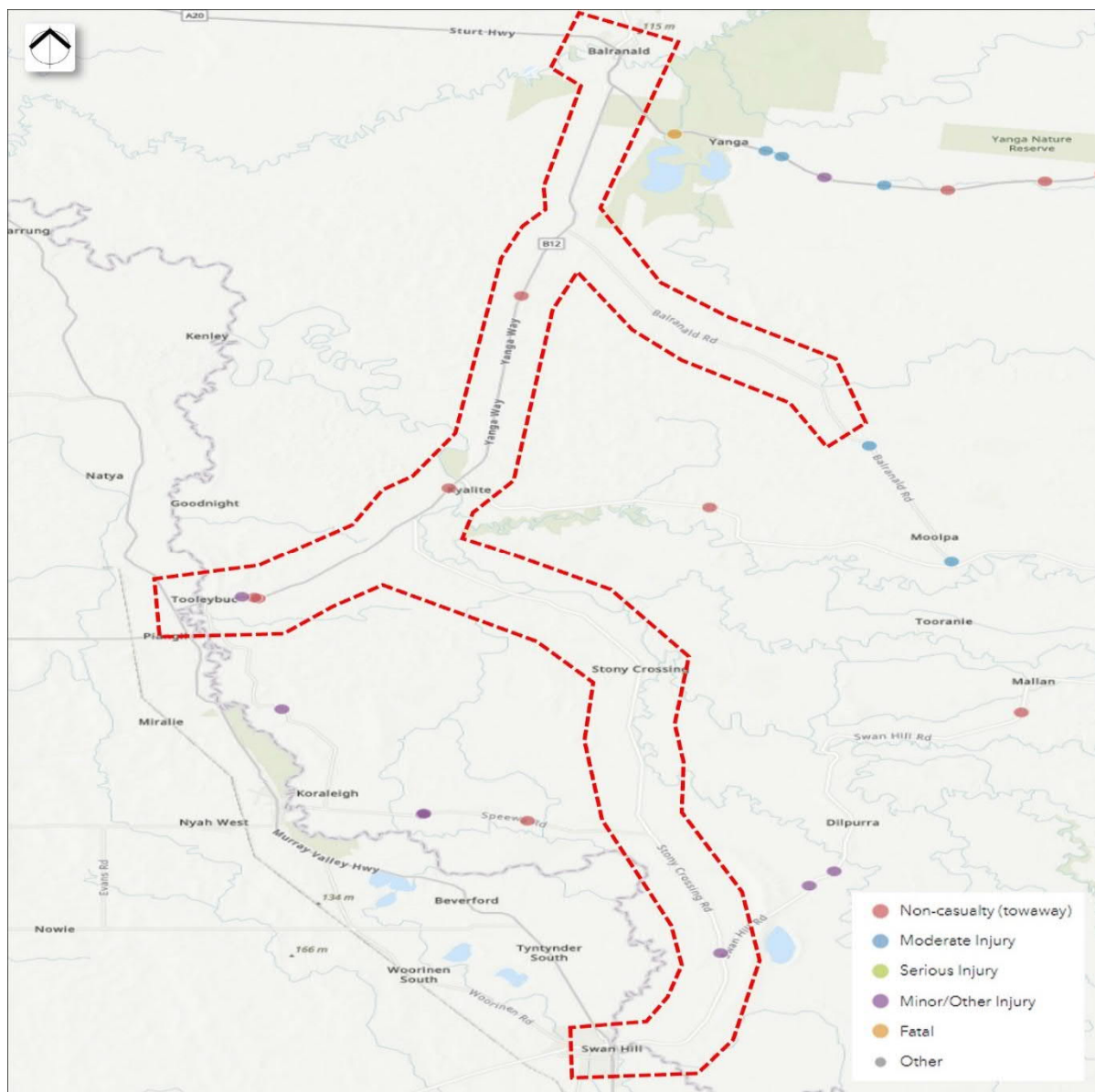


Figure 22 Road Crash Locations

[Source: TfNSW Crash & Casualty Statistics]

3.0 Project Details

3.1 Conceptual Project Layout

As shown in **Figure 23**, the overall Project includes up to 96 turbines and associated infrastructure, including up to 30 turbines as part of the Stage 1 works, and the remaining of the 96 total Project turbines as part of Stage 2.

Vehicular access to the Project area is proposed via 2 site access locations off Balranald-Moulamein Road (SA2 & SA3) for the Stage 1 works, while the wider Stage 2 works proposes a combination of access points to service the Project Area, including a single access location on Yanga Way (SA1), four additional locations on Balranald-Moulamein Road (SA5, SA6, SA7 & SA8) and a further access from Arundel Road (SA4).

The conceptual Project layout also identifies a number of internal construction site facilities, including construction compounds, site laydown areas, batching plant areas, operations and maintenance compounds, substations and battery energy storage system areas within each stage of the Project.

A copy of the overall conceptual layout for the Project has been included for reference in **Appendix E**, while further details of the Stage 1 and Stage 2 works are shown in **Figure 24** and **Figure 25**.

3.2 Project Details

Information regarding the proposed construction activities, day to day operations and decommissioning of the Project has been provided by the proponent (Windlab), with a summary of the key elements of each stage of the Project provided in **Table 9**.

Table 9 Key Elements of Junction Rivers Wind Farm

Element	Stage 1	Stage 2
Turbines	Up to 30	66 or remainder following stage 1, up to 96 in total
Site Accesses – Yanga Way	0	1 (SA1)
Site Accesses – Balranald-Moulamein Road	3 (SA2, SA3 & SA5)	3 (SA6, SA7 & SA8)
Site Accesses – Arundel Road	0	1 (SA4)
Length of Balranald-Moulamein Road Upgrade	11,095m	11,046m
Length of Arundel Road Upgrade	0m	710m
Length of Internal Access Roads	29,866m	64,299m
Substations / Switching Stations	1	3
Battery Energy Storage Systems/STATCOM	1	1
Turbine Construction Hardstand Areas	30	66
Site Construction Compounds	1	4
Site Laydown Areas	1	4
Site Batch Plant Areas	1	3
Site Operational and Maintenance Facility Areas	1	1
Meteorological Masts (PPM)	2	5
Length of Underground Electrical Reticulation	51,170m	126,557m
Length of Overhead Transmission Line	0m	17,200m

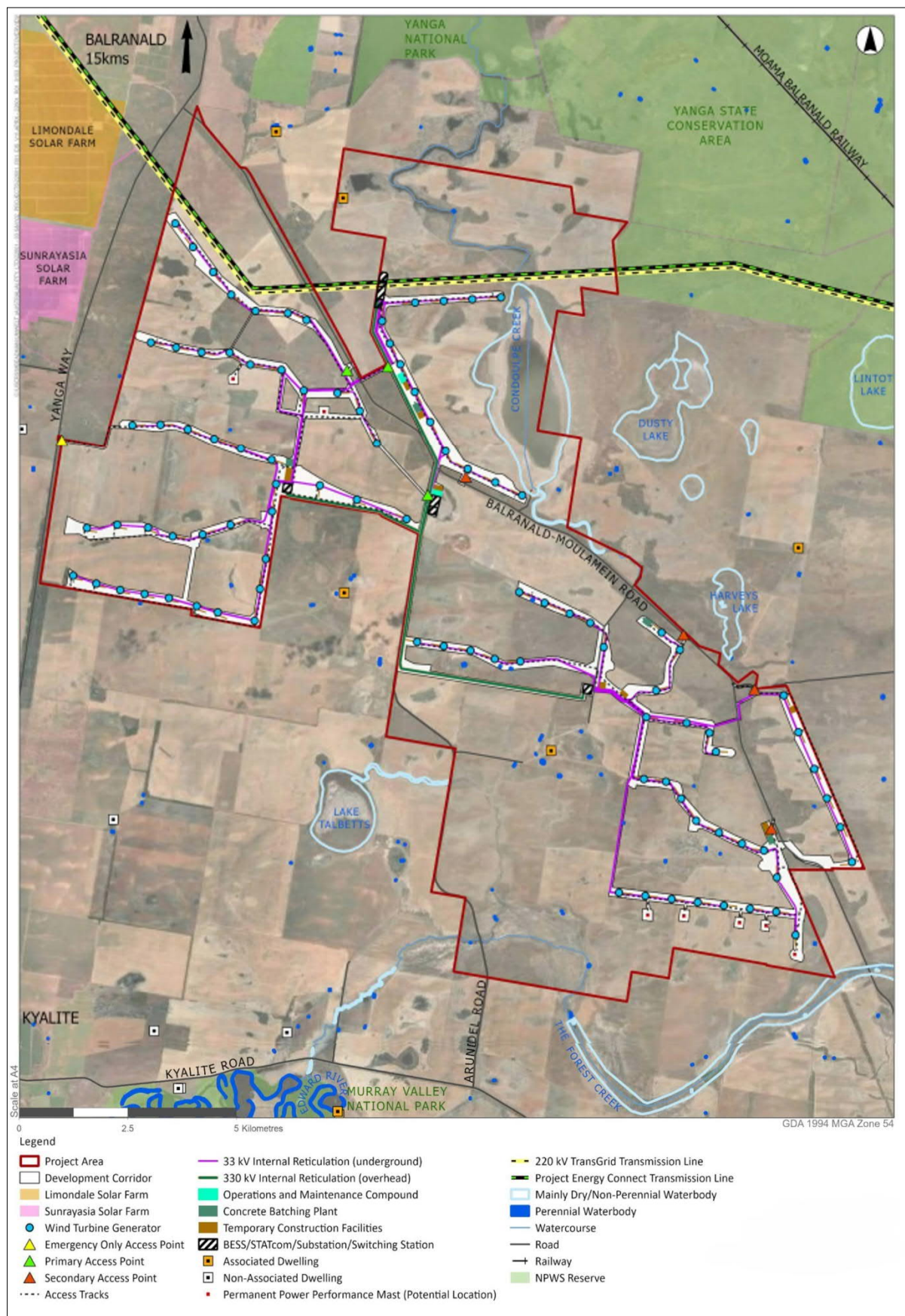


Figure 23 Junction Rivers Wind Farm – Project Layout (Stage 1 & 2 Combined)

[Source: Umwelt]

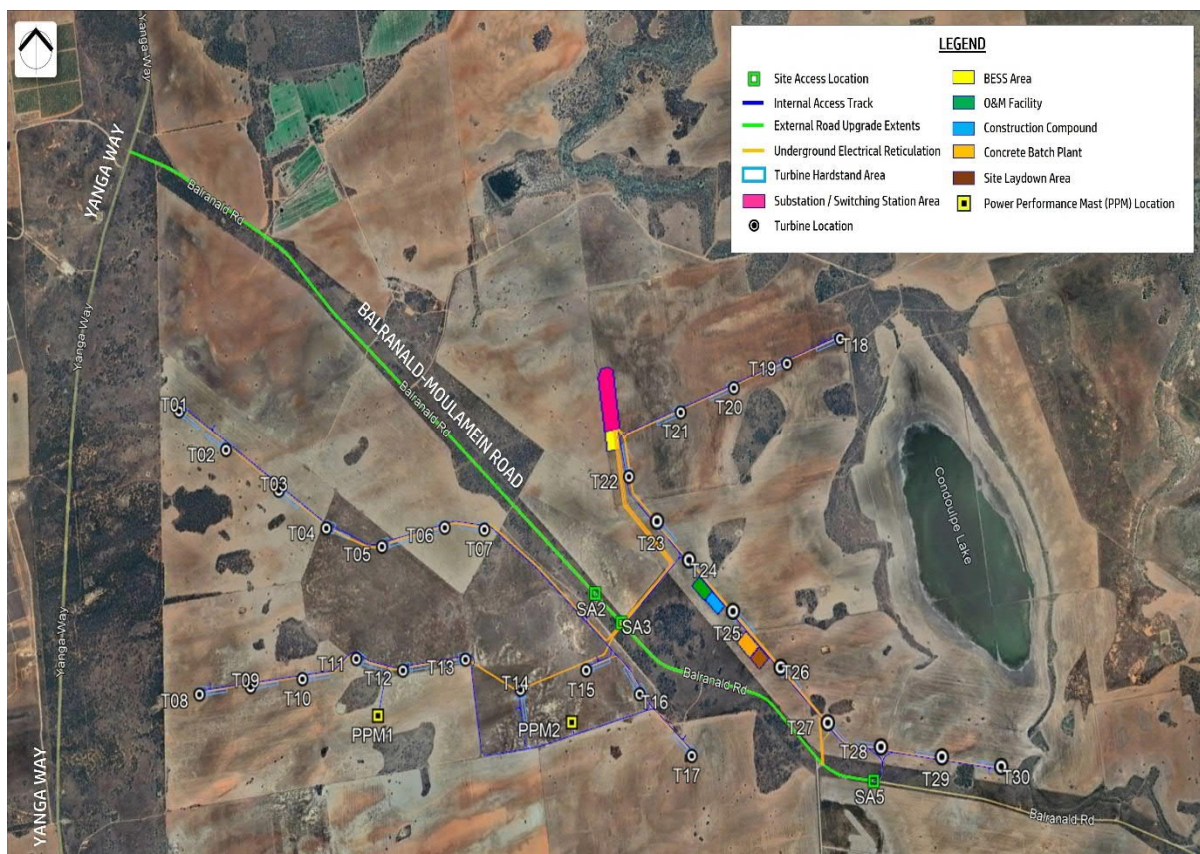


Figure 24 Junction Rivers Wind Farm – Conceptual Stage 1 Project Layout

[Source: Windlab & Google Earth Pro]

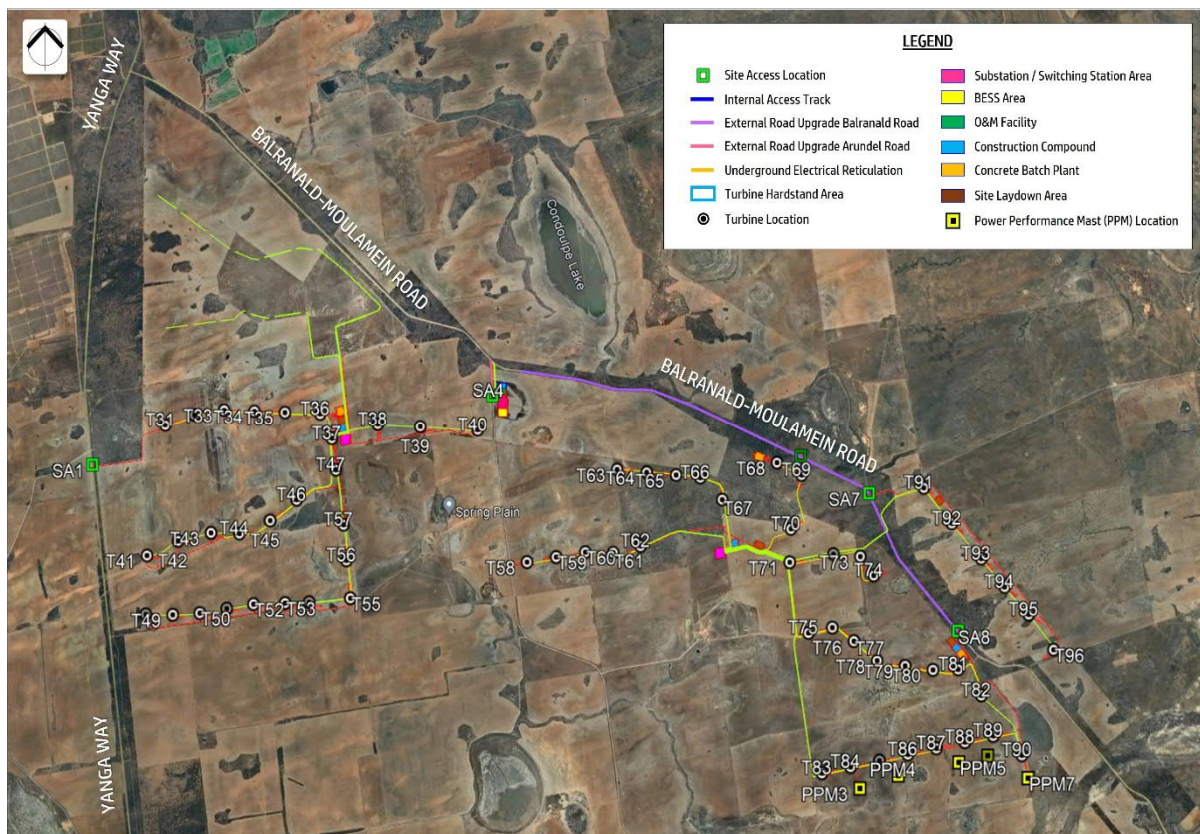


Figure 25 Junction Rivers Wind Farm – Conceptual Stage 2 Project Layout

[Source: Windlab & Google Earth Pro]

3.2.1 Construction Phase

The construction of the overall Project is anticipated to be completed over a 48-month period (approx. 4 years), which is made up of the proposed Stage 1 works (approx. 18 months) and the proposed Stage 2 works (approx. 30 months).

The Stage 1 works are expected to commence in Q3 2025 (July 2025) (pending approvals) with all construction works (Stage 1) to be completed by the end of Q4 2026 (December 2026), with the peak period of construction for Stage 1 expected to occur within Q1 and Q2 2026.

The Stage 2 works are expected to commence following the completion of Stage 1, in Q1 2027 (January 2027) (pending approvals), with all construction works to be completed by the end of Q2 2029 (June 2029), with the peak period of construction for Stage 2 expected to occur over the 12-month period between Q4 2027 and Q4 2028.

Based on information provided by Windlab, it is understood that the proposed hours of the construction operations for the Project will typically be 11 hours per day Monday to Friday (7am to 6pm), with an additional 5 hours on Saturdays (8am to 1pm). This equates to approximately 6 working days per week and 24 working days per month, noting that there may be minor exceptions to these timings as required throughout the construction process.

Preliminary details of the proposed construction phase activities have been provided by Windlab, with a high-level summary of the key construction tasks, the likely order of completion and anticipated timeframes for Stage 1 and Stage 2 provided in **Table 8** and **Table 9** respectively.

Table 8 Proposed Construction Schedule – Junction Rivers Wind Farm (Stage 1)

[Source: Windlab]

TASK ID	TASK	DURATION	MONTH																	
			Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26
			Q3 2025			Q4 2025			Q1 2026			Q2 2026			Q1 2026			Q4 2026		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1A	Mobilisation & Site Establishment	1 M	■																	
1B	Access Roads, Hardstands and Site Entrances	10 M		■	■	■	■	■	■	■	■	■	■	■						
1C	Site Compound Areas (Civil Works)	4 M				■	■	■	■											
1D	Turbine Foundations	8 M					■	■	■	■	■	■	■	■						
2A	Cabling	8 M								■	■	■	■	■	■	■	■			
2B	Site Compound Areas (Electrical Works)	6 M											■	■	■	■	■	■		
3A	Turbine Transportation	6 M								■	■	■	■	■	■					
3B	Turbine Erection	6 M											■	■	■	■	■	■		
4	Finalisation / Commissioning / Demobilisation	2 M																	■	■

Table 9 Proposed Construction Schedule – Junction Rivers Wind Farm (Stage 2)

[Source: Windlab]

TASK ID	TASK	DURATION	MONTH																													
			Jan-27	Feb-27	Mar-27	Apr-27	May-27	Jun-27	Jul-27	Aug-27	Sep-27	Oct-27	Nov-27	Dec-27	Jan-28	Feb-28	Mar-28	Apr-28	May-28	Jun-28	Jul-28	Aug-28	Sep-28	Oct-28	Nov-28	Dec-28	Jan-29	Feb-29	Mar-29	Apr-29	May-29	Jun-29
			Q1 2027			Q2 2027			Q3 2027			Q4 2027			Q1 2028			Q2 2028			Q3 2028			Q4 2028			Q1 2029			Q2 2029		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1A	Mobilisation & Site Establishment	2 M																														
1B	Access Roads, Hardstands and Site Entrances	18 M																														
1C	Site Compound Areas (Civil Works)	9 M																														
1D	Turbine Foundations	18 M																														
2A	Cabling	15M																														
2B	Site Compound Areas (Electrical Works)	10 M																														
3A	Turbine Transportation	15 M																														
3B	Turbine Erection	15 M																														
4	Finalisation / Commissioning / Demobilisation	5 M																														

3.2.2 Operations Phase

Based on information provided by Windlab, it is understood that the operations phases of both stages of the Project will commence upon completion of the relevant construction works, meaning that Stage 1 is expected to be operating during the construction phase for Stage 2.

Furthermore, it has been advised that both stages of the wind farm are proposed to be operated by a relatively small number of staff (approximately 15), with limited numbers of heavy vehicles anticipated to access the Project Area during operations, with only periodic maintenance (monthly) and routine service/refuse collection vehicles (approx. 1 per week) anticipated to travel to/from the Project Area.

3.2.3 Decommissioning Phase

Finally, at the end of the operational life of the Project infrastructure (approx. 30 - 35 years) it is proposed that decommissioning works will be undertaken to remove wind turbine structures and site building infrastructure, as well as complete rehabilitation works to the access roads and hardstand areas throughout the Project Area (as required). As part of the removal of the wind turbines it is understood that the components will be removed from the Project Area and recycled pending technical feasibility at decommissioning time.

Based on information provided by Windlab it is understood that at this stage the decommissioning phase works are anticipated to be completed over a 12–18-month period, with the peak traffic movements to/from the Project Area during decommissioning conservatively estimated to be approximately 70% of the identified peak construction movements (both material/equipment delivery and peak staff movements).

It should be noted that after 35 years of operation the Project may be repowered, utilising contemporary equipment. In this situation, there would not be a decommissioning phase with any works to be undertaken as part of repowering to be subject to a subsequent, separate project approval process.

3.3 Project Transport Routes

3.3.1 Construction Phase

Based on preliminary operational details provided by Windlab, the following transport routes have been identified for traffic associated with the Project, as indicatively shown in **Figure 26** (OSOM transport routes) and **Figure 27** (General construction transport routes). Further to this, it is noted that the identified routes are anticipated to be utilised for both Stage 1 and Stage 2 of the Project:

- The construction workforce is assumed to commute daily to/from the Project Area from the nearby townships of Balranald (80%) to the north, or Tooleybuc (5%) and Swan Hill (15%) to the south.
- Construction equipment (bulk earthworks plant, prefabricated buildings) and general construction materials (such as cement, reinforcing steels, diesel fuel, waste removal etc) are proposed to be sourced from larger regional centres such as Mildura or Swan Hill, travelling to/from the Project Area via the Sturt Highway, Yanga Way and Balranald-Moulamein Road.
- Quarry materials (gravel, sand, aggregates) are proposed to be sourced from local quarry operations in Lake Boga to the south of the Project Area and transported via Swan Hill Road, Stony Crossing Road, Yanga Way and Balranald-Moulamein Road.
- Site water requirements are also proposed to be sourced locally from Balranald, and transported to the Project Area via the Sturt Highway, Yanga Way and Balranald-Moulamein Road.
- Significant turbine components and specialist equipment will be imported from overseas and shipped to the Port Adelaide, before being transported by road to the Project Area utilising both state and local government controlled roads.

A preliminary transport route assessment for the proposed routes has been undertaken (refer **Appendix A**), with the following routes to the Project Area for the transportation of turbine components from the Port of Adelaide identified as outlined in **Table 10** overpage.



Table 10 Preliminary Turbine Component Transport Routes

From Port Adelaide			
Route 1: Blade Route	Route 2: Smaller Components with a Max Loads Under 40m Overall Length & Max Loaded Height 5.2m (Hub / Nacelle / Drivetrain)	Route 3: High Load Detour (Option 1) Loads Under 35m Overall Length & Max Loaded Height 6.4m (Tower Sections)	Route 4: High Load Detour (Option 2) Loads Under 35m Overall Length & Max Loaded Height 6.4m (Tower Sections)
Distance: 658 km	Distance: 610 km	Distance: 638 km	Distance: 659 km
Ocean Steamers Road / Eastern Parade / Port River Expressway (A9) / North South Motorway (M2) / Northern Expressway / Sturt Highway (A20) / Kingston Rd / Karoonda Highway (B55) / Bookpurnong Road / Stanitzki Road / Sturt Highway (A20) / Werrimull North Road / Millewa Road (C254) / Calder Highway (A79) / Hattah Robinvale Road (C252) / Robinvale-Sea Lake Road (C251) / Murray Valley Highway (B400) / Sturt Highway (A20) / Mallee Hwy (Yanga Way) / Balranald Rd	Ocean Steamers Road / Eastern Parade / Port River Expressway (A9) / North South Motorway (M2) / Northern Expressway / Sturt Highway (A20) / Kingston Rd / Karoonda Highway (B55) / Bookpurnong Road / Stanitzki Road / Sturt Highway (A20) / Seventeenth Street / Benetook Avenue / Seventh Street / Sturt Highway (A20) / Mallee Hwy (Yanga Way) / Balranald Rd	Ocean Steamers Road / Eastern Parade / Port River Expressway (A9) / Northern Connector / Port Wakefield Highway (A1) / Mallala Road / Old Port Wakefield Road / Gawler Road / Wilkinson Road / Hatcher Road / Oates Road / Redbanks Road / Mudla Wirra Road / College Road / Cliff Road / Gartrell Street / Roseworthy Road / Thiele Highway / East Terrace / Truro Road / Sturt Highway (A20) / Kingstone Road / Karoonda Highway (B55) / Bookpurnong Road / Stanitzki Road / Sturt Highway (A20) / Seventeenth Street / Benetook Avenue / Seventh Street / Sturt Highway (A20) / Kidman Way / Mallee Hwy (Yanga Way) / Balranald Rd	Ocean Steamers Road / Eastern Parade / Port River Expressway (A9) / Northern Connector / Port Wakefield Highway (A1) / Mallala Road / Old Port Wakefield Road / Gawler Road / Wilkinson Road / Hatcher Road / Oates Road / Redbanks Road / Mudla Wirra Road / College Road / Cliff Road / Gartrell Street / Roseworthy Road / Thiele Highway / East Terrace / Thiele Highway / Goyder Highway / Sturt Highway (A20) / Airport Road / Government Road / Ral Ral Avenue / Wentworth-Renmark Road / Renmark Road / Silver City Highway / Armstrong Street / Silver City Highway, Sturt Highway (A20) / Mallee Hwy (Yanga Way) / Balranald Rd

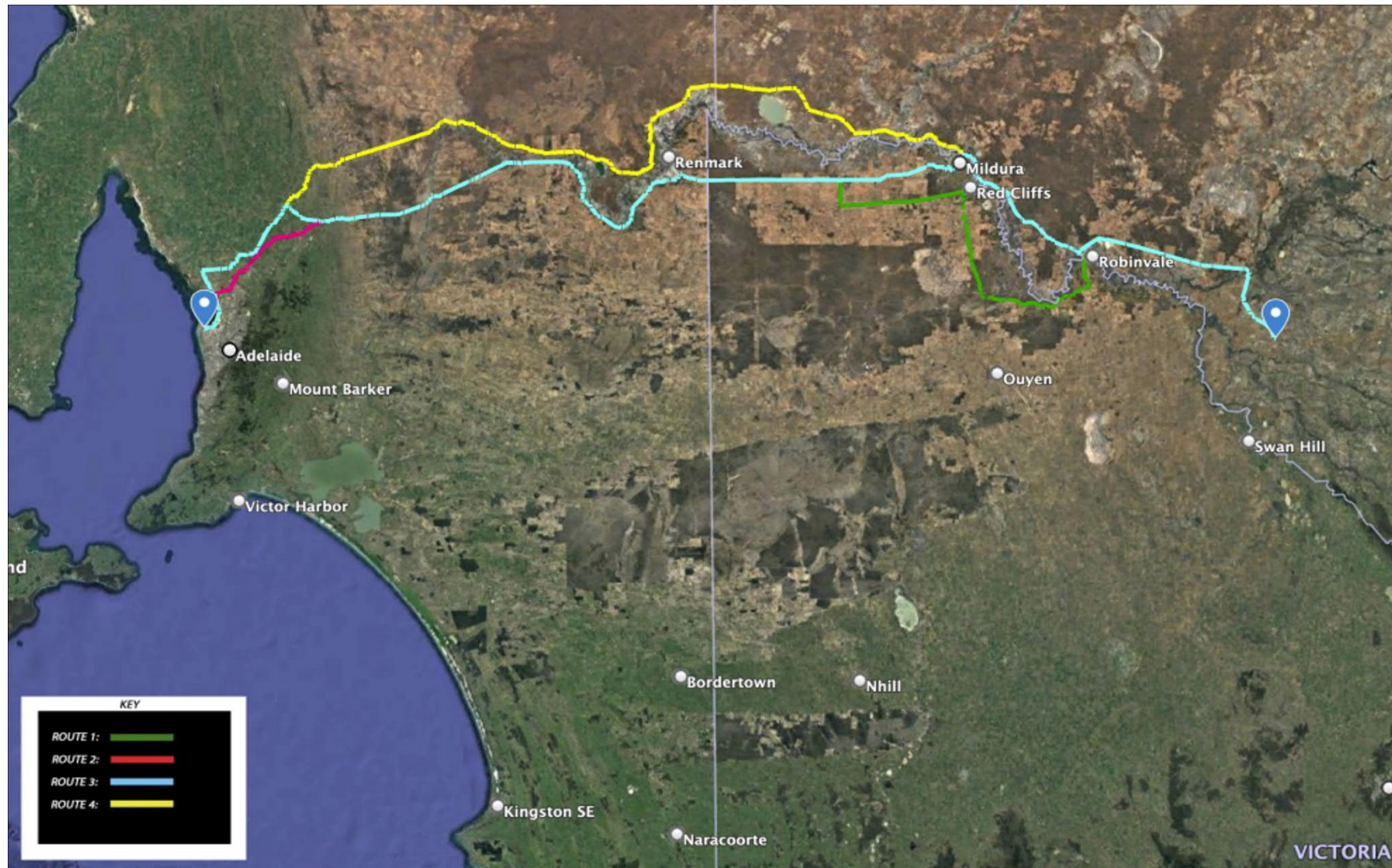


Figure 26 Project Construction Phase Transport Routes (OSOM Turbine Component Transport)

[Source: Rex J Andrews Transport]

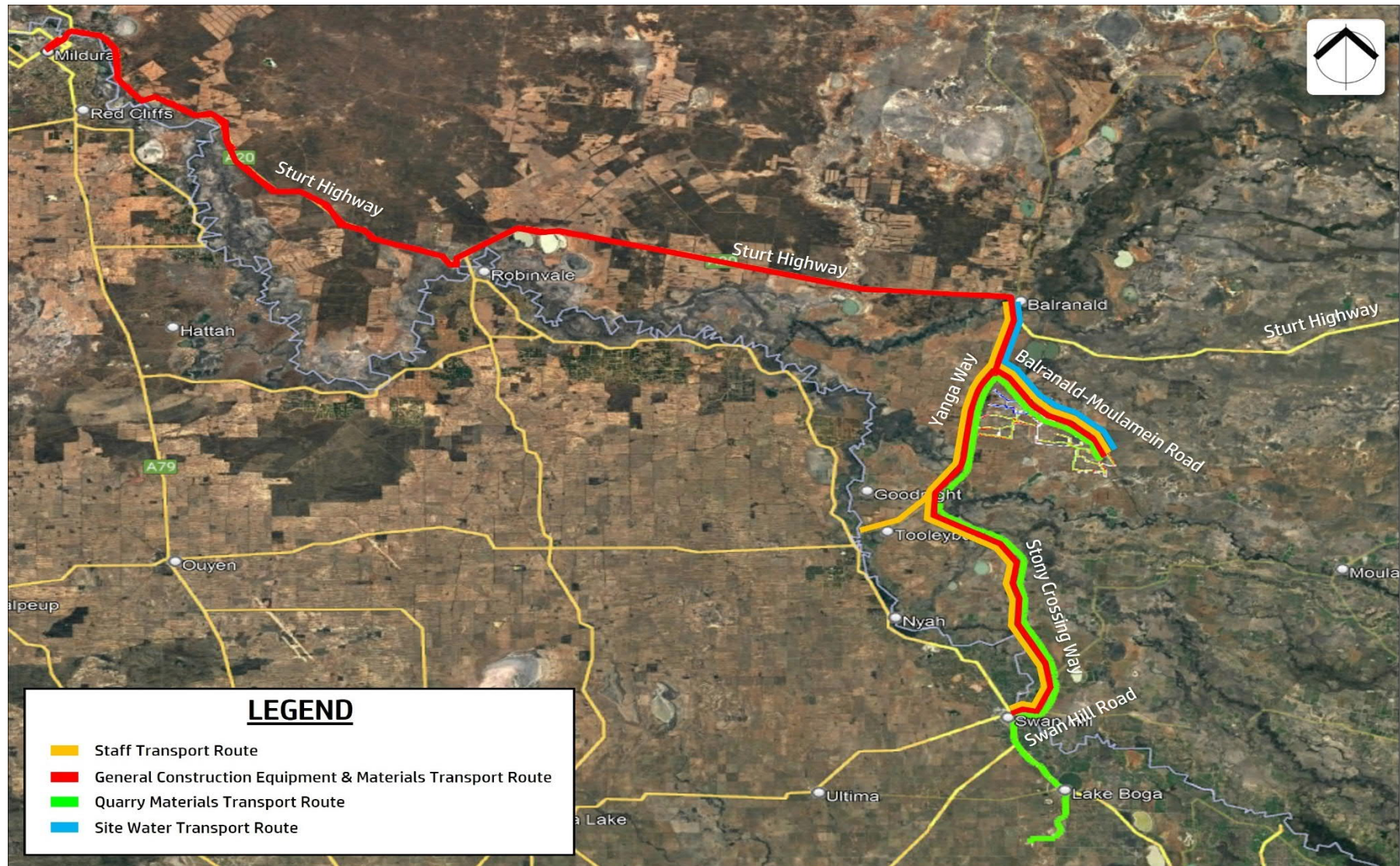


Figure 27 Project Transport Routes (General Construction Traffic)

[Source: Google Earth Pro]

3.3.2 Operations Phase

The following transport routes relevant to the operations phase of the Project have been identified:

- The workforce during operation will consist of a small number of local workers (i.e. approx. 10-15 staff) who are expected to reside locally to the Project Area (likely in Balranald).
- Heavy vehicle movements during the operations stage of the Project are anticipated to be extremely low, with only occasional movements to/from the Project Area (in the order of 1 vehicle per week) associated with maintenance activities, routine removal of waste and delivery of consumables to the Project operations facility. These heavy vehicle movements are expected to originate from either Mildura or Swan Hill and travel to the Project Area via the Sturt Highway (from Mildura), Yanga Way and Balranald-Moulamein Road.

3.3.3 Decommissioning Phase

While the details regarding the expected vehicle movements during the decommissioning phase of the Project are difficult to confirm at this stage, it is understood that they are likely to be similar to the construction phase in relation to the movements of staff and materials, equipment and site components. Based on this, the following assumptions have been made regarding the transport routes for the Project during decommissioning:

- The workforce during decommissioning is assumed to commute daily to/from the Project Area from Balranald, Tooleybuc or Swan Hill and travel to the Project Area via the Sturt Highway (from Mildura), Yanga Way and Balranald-Moulamein Road.
- Plant and equipment required for decommissioning (bulk earthworks plant, prefabricated buildings and other general materials) are proposed to be sourced from larger regional centres such as Mildura or Swan Hill, travelling to/from the Project Area via the Sturt Highway, Yanga Way and Balranald-Moulamein Road.
- Quarry materials (gravel, sand, aggregates) for decommissioning and reinstatement are proposed to be sourced from local quarry operations in Lake Boga to the south of the Project Area and transported via Swan Hill Road, Stony Crossing Road, Yanga Way and Balranald-Moulamein Road.
- Site water requirements are also proposed to be sourced locally from Balranald, and transported to the Project Area via the Sturt Highway, Yanga Way and Balranald-Moulamein Road.
- The turbines are expected to be dismantled, removed and transported to nearby metal recycling facilities, which are expected to be located in the larger regional centres of Mildura and Swan Hill.

It should be noted that after approximately 30 - 35 years of operation the Project may be repowered, utilising contemporary equipment. In this situation, there would not be a decommissioning phase with any works to be undertaken as part of repowering to be subject to a subsequent, separate project approval process.

3.4 Site Access Arrangements

Based on the proposed site configurations for the Project provided by Windlab, it is noted that 8 site access locations are proposed to be utilised to access the Project Area by Project traffic, including 3 points from Balranald-Moulamein Road (SA2, SA3 and SA5) as part of Stage 1 and a further 5 access points from a combination of Yanga Way (SA1), Arundel Road (SA4) and Balranald-Moulamein Road (SA6, SA7 and SA8) as part of the Stage 2 construction works.

The indicative locations of these proposed site access points from the external road network for the proposed Junction Rivers Wind Project are shown further in **Figure 28** overpage.



Figure 28 Junction Rivers Wind Farm – Stage 1 & Stage 2 Site Access Locations

[Source: Windlab & Google Earth Pro]

3.4.1 Stage 1

As identified above, it is expected that all transport routes associated with Stage 1 of the Project will utilise the intersection of Yanga Way / Balranald-Moulamein Road as the sole access point from the external state-controlled road network, with direct access to the proposed Stage 1 Project Area proposed to be gained via two access locations on the MRC controlled Balranald-Moulamein Road. Further details of the proposed access arrangements for the Stage 1 works are provided in the following sections.

3.4.1.1 Yanga Way / Balranald-Moulamein Road Intersection

As outlined in **Section 2.3.3.2** above, the existing configuration of the Yanga Way / Balranald-Moulamein Road intersection operates as a three-way priority controlled (give way) intersection, with no turn treatments currently provided. Further to this, site observations have identified that suitable sight distances are available to/from the intersection in both directions on Yanga Way, as shown in **Figure 29** and **Figure 30**.



Figure 29 Available Sight Distances South on Yanga Way from Balranald-Moulamein Road



Figure 30 Available Sight Distances North on Yanga Way from Balranald-Moulamein Road

Notwithstanding this, based on the forecast increase in turning volumes at this intersection as a result of the proposed Stage 1 and Stage 2 works, and the completed turn warrant assessment completed for the intersection in **Section 5.3**, it is proposed that the intersection be upgraded to provide basic left (BAL) and basic right (BAR) turn treatments. It is recommended that these upgrade works be provided generally in accordance with Figure 8.2 of Part 4A (rural BAL) and Figure A6 of Part 4 (rural BAR) of Austroads Guide to Road Design, adopting a design speed of 110km/h and a 26m B-Double design vehicle.

In addition, the route assessment undertaken for the turbine component transport movements identified that additional works, including the provision of additional hardstand area to the north-eastern corner of the intersection, is required to accommodate the swept paths of the oversize blade transport vehicle movements. The extents of these additional access works are shown in **Figure 31** below, noting that the exact configuration of the works will be confirmed in subsequent detailed design phases of the Project once the final configuration of the turbine components and OSOM transport vehicles are confirmed.



Figure 31 Additional OSOM Route Works – Yanga Way / Balranald-Moulamein Road

[Source: Rex J Andrews]

3.4.1.2 Balranald-Moulamein Road Upgrade

The Stage 1 works for the Project will also lead to an increase in traffic volumes on the 11.095km long section of Balranald-Moulamein Road between its intersection with Yanga Way and the easternmost access point proposed for Stage 1 (SA5 – refer **Figure 24** above). Based on this increase it is recommended that upgrade works be completed on this section of Balranald-Moulamein Road to offset the impacts of the Stage 1 works, with these upgrade works to include road grading and resheeting works to provide a suitable unsealed (gravel) road surface up to 8m minimum in width (to match the current minimum road width on this link).

It is also noted that as part of Stage 1, pre and post construction phase dilapidation surveys will be required to be undertaken on this section of Balranald-Moulamein Road (Yanga Way to SA5). The pre construction inspection is to be undertaken upon the completion of the proposed regrading / resheeting works and is to establish the pre-construction road condition, with the post construction dilapidation survey then used to identify rehabilitation works required to be completed by the Project to bring road conditions / standards on this section of Balranald-Moulamein Road back to the recorded pre construction condition.

3.4.1.3 Site Access Locations & Configurations

As shown in **Figure 24** above, the proposal identifies the provision of three access points to the Stage 1 Project area from Balranald-Moulamein Road. The first of which (SA2) is located at an existing property access on the western (RHS) side of Balranald-Moulamein Road, approximately 6.930km from the intersection with Yanga Way, the second (SA3) is proposed to be constructed on the eastern (LHS) of the link, approximately 7.750km from Yanga Way and the third (SA5) is proposed to also be constructed at an existing access on the LHS of the road, 11.095km from Yanga Way.

Based on site observations, appropriate sight distances are available to/from each of the proposed Stage 1 access points in both directions on Balranald-Moulamein Road, with the existing sightlines from SA2 and SA5 shown in **Figure 32** to **Figure 35**.



Figure 32 Available Sight Distances South-East on Balranald-Moulamein Road from SA2



Figure 33 Available Sight Distances North-West on Balranald-Moulamein Road from SA2



Figure 34 Available Sight Distances South-East on Balranald-Moulamein Road from SA5



Figure 35 Available Sight Distances North-West on Balranald-Moulamein Road from SA5

Also in lieu of an available Council standard for rural property accesses, it is proposed that the existing accesses at SA2 and SA5 be upgraded and the new SA3 access be constructed generally in accordance with the site access arrangement for articulated vehicles outlined in Figure 7.4 of Austroads Guide to Road Design Part 4: Intersections and Crossings – General, as shown in **Figure 36**.

It is also noted that additional hardstand areas are likely to be required to be provided at the site access locations to accommodate the swept paths of the OSOM turbine transport vehicles, with the exact extents of the hardstand areas will be confirmed in subsequent detailed design phases of the Project once the final configuration of the turbine components and associated transport vehicles are confirmed.

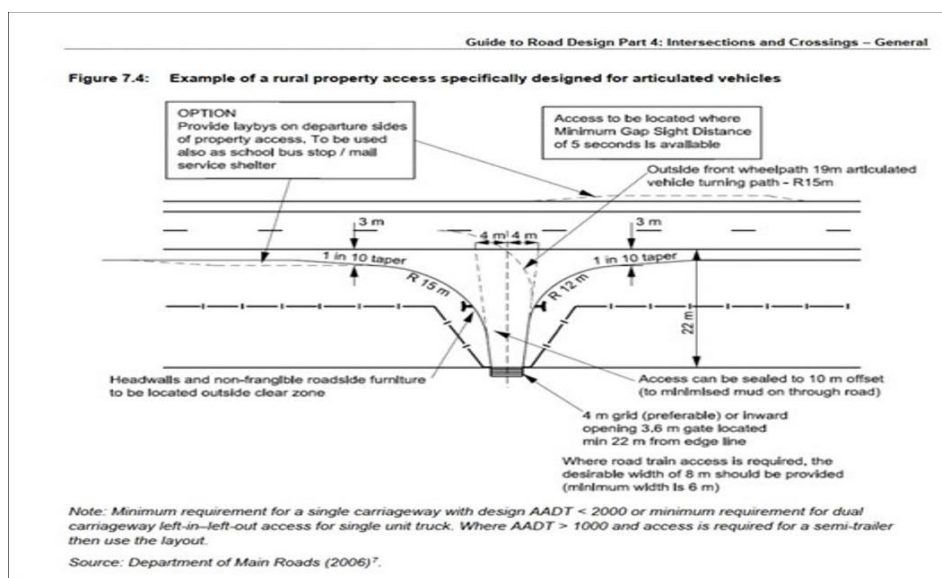


Figure 36 Proposed Site Access Configuration – Balranald-Moulamein Road [Source: Fig 7.4 Austroads GTRD Pt 4]

3.4.2 Stage 2

3.4.2.1 Balranald-Moulamein Road / Arundel Road Intersection

In addition to the Yanga Way / Balranald-Moulamein Road intersection, the Stage 2 works will also see an increase in turning movements at the Balranald-Moulamein Road / Arundel Road intersection as a result of Stage 2 Project traffic travelling to/from site access SA4.

As such it is recommended that the current non-standard configuration of this intersection be upgraded to remove the existing slip lanes to/from Arundel Road, with the Arundel Road approach amended to intersect Balranald-Moulamein Road at 90 degrees. Further to this, to cater for the expected traffic volumes at the intersection it is recommended that the intersection be provided with basic left (BAL) and basic right (BAR) turn treatments / widenings as part of the Stage 2 works, generally in accordance with Figure 8.2 of Part 4A (rural BAL) and Figure A6 of Part 4 (rural BAR) of Austroads Guide to Road Design.

3.4.2.2 Balranald-Moulamein Road Upgrade

The Stage 2 works will also see an extension to the length of Balranald-Moulamein Road utilised by Project traffic, with vehicles now anticipated to travel on the full 22.140km long section between Yanga Way and proposed site access SA8 (refer **Figure 25** above).

Based on this increase it is recommended that upgrade works are undertaken to the section of Balranald-Moulamein Road between Site Access 5 (SA5 – approx. 11.095km) and Site Access 8 (SA8 – approx. 22.140km), noting that the length of the link between Yanga Way and SA5 is expected to be upgraded and maintained as part of the previous Stage 1 works. These upgrade works are proposed to include road grading and resheeting works to provide a suitable unsealed (gravel) road surface up to 8m minimum in width (to match the current minimum road width on this link).

As with the recommendation for Stage 1, pre and post construction phase dilapidation surveys will be required to be undertaken on the full section of Balranald-Moulamein Road between Yanga Way to Site Access 8 (SA8 – approx. 22.140km). The pre construction inspection is to be undertaken upon the completion of the proposed regrading / resheeting works and is to establish the pre-construction road condition, with the post construction dilapidation survey then used to identify rehabilitation works required to be completed by the Project to bring road conditions / standards on this section of Balranald-Moulamein Road back to the recorded pre construction condition.

3.4.2.3 Arundel Road Upgrade

In addition to Balranald-Moulamein Road, the Stage 2 works will also see increase in traffic on the 710m section of Arundel Road between Balranald-Moulamein Road and the proposed site access SA4 (refer **Figure 25** above). Based on this increase it is recommended that upgrade works are undertaken to this section of Arundel Road to offset the impacts of the Stage 2 works, with these to include road widening, regrading and resheeting works to provide a suitable unsealed (gravel) road surface of 7m (on 9m formation) in accordance with the requirements for an unsealed, rural minor road (50-150vpd) as per Table 3.9 of ARRB's Unsealed Roads Best Practice Guide.

As with the proposed Balranald-Moulamein Road upgrade works, it is recommended that pre and post construction phase dilapidation surveys be undertaken on this section of Arundel Road (Balranald-Moulamein Road to SA4), with the pre-construction inspection is to be undertaken upon the completion of the proposed upgrade works and is to establish the pre-construction road condition, with the post construction dilapidation survey then used to identify rehabilitation works required to be completed by the Project to bring road conditions / standards on this section of Arundel Road back to the recorded pre construction condition.

3.4.2.4 Site Access Locations & Configurations

3.4.2.4.1 Yanga Way / Site Access 1

As part of the Stage 2 works, a direct access (SA1 refer **Figure 25**) is proposed to be constructed at the location of an existing property access on the eastern side of Yanga Way, approximately 8km to the south of the existing Yanga Way / Balranald-Moulamein Road intersection. This site access is proposed to service the north-western portion of the Stage 2 area, including 27 turbines and associated infrastructure and site

compounds. Based on site observations, appropriate sight distances are available to from SA1 in both directions on Yanga Way, as demonstrated in **Figure 37** and **Figure 38** below.



Figure 37 Available Sight Distances South on Yanga Way from proposed SA1



Figure 38 Available Sight Distances North on Yanga Way from proposed SA1

Based on the expected volumes at the access (lower than those at Yanga Way / Balranald-Moulamein Road), it is recommended that the proposed SA1 access be provided generally in accordance with Figure 8.2 of Part 4A (rural BAL) and Figure A6 of Part 4 (rural BAR) of Austroads Guide to Road Design, adopting a design speed of 110km/h and a 26m B-Double design vehicle.

Finally it is noted that although not identified in the completed route assessment, the provision of additional temporary hardstand area to the north-eastern corner of the new access intersection will be required to accommodate the swept paths of the oversize turbine transport vehicle movements, with the exact configuration of the works to be confirmed in subsequent detailed design phases of the Project once the final configuration of the turbine components and OSOM transport vehicles are confirmed.

3.4.2.4.2 Site Access 6 / 7 / 8 on Balranald-Moulamein Road

As shown in **Figure 25** above, the proposal identifies the provision of three additional access points to the Stage 2 Project area from Balranald-Moulamein Road, with these accesses located to the south-east of Arundel Road. A summary of the proposed locations of these Stage 2 access points from Balranald-Moulamein Road is provided in **Table 11** below.

Table 11 Proposed Stage 2 Site Access Locations from Balranald-Moulamein Road

Access ID	Distance from Yanga Way	LHS / RHS	Existing Access / New Access Location	No. Turbines Served
SA6	17.340km	RHS	New Access Location	17
SA7	18.955km	LHS	Upgrade Existing	6
SA8	22.140km	RHS	New Access Location	16

Furthermore, based on site observations it is concluded that based on the relatively flat terrain and limited adjacent vegetation, appropriate sight distances are available to/from both directions on Balranald-Moulamein Road at each of the proposed Stage 2 access points, with the existing sightlines from each access shown further in **Figure 39** to **Figure 44** overpage.

It is also proposed that the upgraded access at SA7, and the new access locations at SA6 and SA8 be constructed generally in accordance with the site access arrangement for articulated vehicles outlined in Figure 7.4 of Austroads Guide to Road Design Part 4: Intersections and Crossings – General, as shown in **Figure 29** above.

Furthermore, it is again noted that additional hardstand areas are likely to be required at these site access locations to accommodate the OSOM turbine transport vehicles movements, with the exact extents of these areas will be confirmed in subsequent detailed design phases of the Project once the final configuration of the turbine components and associated transport vehicles are provided.



Figure 39 Available Sight Distances South-East on Balranald-Moulamein Road from SA6



Figure 40 Available Sight Distances North-West on Balranald-Moulamein Road from SA6



Figure 41 Available Sight Distances South-East on Balranald-Moulamein Road from SA7



Figure 42 Available Sight Distances North-West on Balranald-Moulamein Road from SA7



Figure 43 Available Sight Distances South-East on Balranald-Moulamein Road from SA8



Figure 44 Available Sight Distances North-West on Balranald-Moulamein Road from SA8

3.4.2.4.3 Site Access 4 on Arundel Road

Finally, it is also proposed that a new site access (SA4) be constructed on the eastern side of Arundel Road, approximately 710m south of Balranald-Moulamein Road. This access is proposed to be a relocation of the exiting site access approximately 125m to the south (refer **Figure 23** above). Based on site observations, appropriate sight distances are available to/from each direction on Arundel Road from SA4 as shown in **Figure 45** and **Figure 46** below.

Again, the SA4 access is proposed to be constructed generally in accordance with the site access arrangement for articulated vehicles outlined in Figure 7.4 of Austroads Guide to Road Design Part 4: Intersections and Crossings – General, as shown in **Figure 29** above, with additional hardstand area expected to be required to be provided to accommodate the swept paths of the OSOM transformer transport vehicle associated with the substation and BESS facilities serviced by SA4 (noting that no turbines are proposed to be serviced by SA4). The exact configuration of the access including additional hardstand

area extents will be confirmed in subsequent detailed design phases of the Project once the final configuration of the transformer / BESS components and associated transport vehicles are confirmed.



Figure 45 Available Sight Distances South on Arundel Road from Site Access SA4



Figure 46 Available Sight Distances North on Arundel Road from Site Access SA4

3.5 Internal Site Facilities

As previously identified, the conceptual layouts for both Stage 1 and Stage 2 of the Project (refer **Figure 22** and **Figure 23** above and overall Project Area layout in **Appendix E**) includes a series of internal access tracks throughout the Project Area which provide vehicular access between the external road network and the turbine locations and associated internal infrastructure. The access track layout has been designed to utilise the existing topography of the land, avoiding steep areas where possible, and to avoid areas of sensitive native vegetation.

The Project will comprise a total of approximately 90.2km of access roads in total, with a summary of the intended design criteria for the internal tracks provided below:

- The internal access tracks will typically between 5.5m (light vehicle only track) to 10min width.
- Regular passing places and turning areas will be provided.
- The access tracks will only link to the identified Project Area access points, with no other connections to adjacent external roads proposed.
- Tracks will not be sealed but will be constructed from aggregate which is expected to be sourced from local quarries (Lake Boga).

The conceptual layout also identifies that a number of site facilities/compounds, including the proposed substations, switching stations, construction compounds, operations and maintenance compound, laydown areas and onsite concrete batch plant areas, as shown in **Figure 22** (Stage 1) and **Figure 23** (Stage 2) above.

3.5.1 On Site Vehicle Parking

Further to this, whilst not currently shown on the conceptual layout it is understood that the suitable parking facilities will be provided for the Project in accordance with the requirements of all relevant standards, guidelines and policies.

In addition, due to the large area of land available within the Project Area for the required internal facilities (including the construction site office and parking facilities), and the current setback from the external road network, it is not anticipated that any of the construction, operations or decommissioning phases of the Project will lead to an overspill of parking or vehicle queuing at the Project Area access that would lead to negative impacts to the operation of the surrounding road network.

3.6 Turbine Component Transport Route Upgrades

As previously identified, a transport route assessment has been separately undertaken for the Project by Rex J Andrews Transport to assess the impact of the movements of the various turbine component transport vehicle configurations on the sections of the external road network proposed to form part of the

proposed transport routes for these oversize, over-mass (OSOM) vehicles between the port facilities in Adelaide and the Project Area.

The transport route assessment completed (refer **Appendix A**) has identified four separate routes to the Project Area from the Port Adelaide, including one for blade transport vehicles, one for other components less than 40m long and 5.2m high (hub / nacelle / drivetrain) and two options for high load diversion for loads less than 35m long and 6.4 high (tower sections). A summary of these identified transport routes was provided previously in **Table 10** above.

In addition to identifying the proposed transport routes, the assessment also highlighted a number of specific locations or pinch points along the four transport routes where additional works are expected to be required to accommodate the swept paths and vehicle clearance envelopes of the proposed turbine component transport vehicle configurations.

Further details of the route pinch points, and the currently proposed works are outlined in the transport route assessment included for reference in **Appendix A**. It is noted that the majority of the route pinch points identified will only require traffic management measures or minimal works (signage relocation works) to accommodate the expected OSOM vehicle movements, while a summary of the pinch points requiring modification works is provided in **Table 12** to **Table 15** for identified turbine transport routes 1 and 4 respectively.

It is anticipated that those works located outside of NSW will form part of additional approvals for the Project, with the extent and scope of the additional works to be clarified through a subsequent route assessment to be undertaken in subsequent stages of the Project, once the exact configurations of both the turbine components and associated transport vehicles proposed to be utilised for both stages of the Junction Rivers Wind Farm are confirmed by Windlab.

Table 12 Turbine Transport Route 1 – Route Modification Works Pinch Point Summary [Source: Rex J Andrews]

KM Index	Location	Section of Road	Procedure	Comments
0.00	Port Adelaide (SA)	Ocean Steamers Rd and Eastern Pde	Slight right hand turn	The perimeter fence will need to be modified to allow transit. Sign to be made removable and overhead conductor clearances confirmed.
0.75	Port Adelaide (SA)	Eastern Parade onto Port River Expressway	Left Hand Merge	To enable the blade to make this corner 1 x light poles and 1x street sign need to be removed. An area of hardstand is also required on the outside of the corner on the Port River on ramp. The blade tip will hang over the drain on the outside of the corner and traffic light on centre island. Blade must be able to lift over traffic signals (4m) The area must be clear of obstacles.
246.45	Loxton (SA)	Karoonda Highway onto Bookpurnong Road	Second Exit on Roundabout	Hardstand is required on the edge of the roundabout so the blade can cut straight across. 2x signs need to be made removable. Spotter to guide load throughout the intersection. Police to control traffic, pilots to warn all traffic.
284.45	Pike River (SA)	Stanitzki Road onto Sturt Highway	Right Hand Turn	A large amount of hardstand is required on the inside of the corner. Existing shoulder on entry to be made trafficable. Vegetation on the outside of the corner to be trimmed or removed. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
355.5	Cullelleraie (VIC)	Sturt Highway onto Werrimull North Road	Right Hand Turn	Hardstand is required on the outside of the corner. Numerous trees will need to be removed to allow the tail swing to pass. 2x signs need to be made removable. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

KM Index	Location	Section of Road	Procedure	Comments
368.1	Werrimull (VIC)	Werrimull North Road onto Millewa Road	Left Hand Turn	Hardstand is required on the entry and inside of the corner. 1x sign needs to be made removable. Vegetation to be removed or trimmed. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
422.7	Red Cliffs (VIC)	Millewa Road onto Calder Highway	Right Hand Turn	The sharp right hand turn on to the Calder highway will need a significant amount of work, including a new bypass road and a new rail crossing. Signs and obstacles to be removed. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
474.5	Hattah (VIC)	Calder Highway onto Hattah-Robinvale Road	Left Hand Turn First Exit off Roundabout	New bypass road to be installed, vegetation removed and trimmed as required. Overhead conductor clearance to be confirmed. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
527.7	Bannerton (VIC)	Hattah-Robinvale Road onto Robinvale-Sea Lake Road	Left Hand Turn	Hardstand is required on the centre island and 6x signs will need to be made removable. Delineators made removable, Vegetation trimmed as required. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
546.0	Euston (NSW)	Murray River Highway onto Sturt Highway	Right Hand Turn	This is a very tight corner that cuts back on itself. A large amount of hardstand is required. The new alignment will need a lot of fill to bring it level with the highway. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
623.7	Balranald (NSW)	Sturt Highway (Market Street) onto Sturt Highway	Right Hand Turn	This section is very tight. A large area of hardstand will be required along with the removal of 5 x trees, 2x light poles and numerous signs. Median strip to be made trafficable. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
638.3	Yanga (NSW)	Yanga Way onto Balranald-Moulamein Road	Left Hand Turn	An area of hardstand is required on the inside of the corner. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
645.8	Kyalite (NSW)	Balranald-Moulamein Road onto Arundel Road	Site Entrances	Some vegetation may need to be trimmed/removed on the inside and outside of this corner. The first site entrances are proposed in this location. The land is very flat with limited vegetation. Client to provide adequate swept path for the blade to enter site.
659.0	Moolpa (NSW)	Balranald-Moulamein Road into Western Site Entrances	Site Entrances	The western site entrances are proposed in this location. As with the eastern entrances the land is very flat with limited vegetation. Client to provide adequate swept path for the blade to enter site.

Table 13 Turbine Transport Route 2 – Route Modification Works Pinch Point Summary [Source: Rex J Andrews]

KM Index	Location	Section of Road	Procedure	Comments
596.0	Kyalite (NSW)	Balranald-Moulamein Road onto Arundel Road	Site Entrances	Client to provide adequate swept path for the load to enter site.
587.0 to 610.0	Moolpa (NSW)	Balranald-Moulamein Road into Western Site Entrances	Site Entrances	Client to provide adequate swept path for the load to enter site.

Table 14 Turbine Transport Route 3 – Route Modification Works Pinch Point Summary [Source: Rex J Andrews]

KM Index	Location	Section of Road	Procedure	Comments
431.0	Mildura (VIC)	Sturt Highway onto Seventeenth Street	Right Hand Turn	Loads to cross to the incorrect side. Median strips will need to be made trafficable and signs relocated or made removable.
434.0	Mildura (VIC)	Benetook Avenue	Travel directly ahead	A roundabout will need the centre filled with hardstand and temporary bollards installed. Vegetation will need to be trimmed on sections of this road.
439.0	Mildura (VIC)	Benetook Avenue at Eleventh Street	Travel directly ahead.	A temporary hardstand will need to be added to the centre of the roundabout. This will allow the loads a direct path across the railway crossing. Temporary bollards would need to be installed over this hardstand.
441.0	Mildura (VIC)	Seventh Street E onto Sturt Highway	Right Hand Turn	Load to cross the incorrect side of the roundabout. 2 Median strips will need to be made trafficable, and signs made removable.
519.0	Euston (NSW)	Sturt Highway	Left Hand Turn	Travel left at round-about. Median strips will need to be made trafficable, and signs made removable.
599.0	Balranald (NSW)	Sturt Highway	Right Hand Turn	Load to cross the incorrect side of the corner. Median strips will need to be made trafficable, and signs made removable.
623.0	Kyalite (NSW)	Balranald-Moulamein Road onto Arundel Road	Site Entrances	Client to provide adequate swept path for the load to enter site.
638.0	Moolpa (NSW)	Balranald-Moulamein Road into Western Site Entrances	Site Entrances	Client to provide adequate swept path for the load to enter site.

Table 15 Turbine Transport Route 4 – Route Modification Works Pinch Point Summary [Source: Rex J Andrews]

KM Index	Location	Section of Road	Procedure	Comments
88.3	Kapunda (SA)	Thiele Highway onto East Terrace	Right Hand Turn	Sign to be made removable
281.4	Renmark South (SA)	Airport Road onto Government Road	Left Hand Turn	Hardstand to be installed on outside of corner. Overhead conductor clearance to be confirmed.
434.0	Wentworth (NSW)	Silver City Highway onto Armstrong Avenue	Left Hand Turn	Signs to be made removable as required and island made trafficable
441.0	Curlwaa (NSW)	Corner on Silver City Highway at Calder Highway	Left Hand Turn	Signs to be removed and median made trafficable. Load to cross over median strip.
464.0	Buronga (NSW)	Silver City Highway onto Sturt Highway	Left Hand Turn	Signs to be removed on island and island made trafficable.
540.0	Euston (NSW)	Sturt Highway	Left Hand Turn	Signs on entry and exit island to be relocated or made removable and islands made trafficable.
620.0	Balranald (NSW)	Sturt Highway	Right Hand Turn	Load to cross the incorrect side of the roundabout. Median strips will need to be made trafficable, and signs made removable.
644.0	Kyalite (NSW)	Balranald-Moulamein Road onto Arundel Road	Site Entrances	Client to provide adequate swept path for the load to enter site.
659.0	Moolpa (NSW)	Balranald-Moulamein Road into Western Site Entrances	Site Entrances	Client to provide adequate swept path for the load to enter site.

4.0 Development Traffic

As required by the SEARs for the Project, this assessment considers three distinct periods of traffic generation for the Project, including the construction, operations and decommissioning phases. The expected traffic generation and distribution during all three of these phases of the Project is discussed in the sections below.

4.1 Construction Phase

4.1.1 Stage 1

As identified above, the Stage 1 construction phase of the Project is proposed to commence in Q3 2025 (July 2025 - pending approvals) with an overall construction period of 18 months. Adopting an assumed 18-month overall construction period, it is expected that all Stage 1 construction works will be completed by the end of Q4 2026 (December 2026), with the peak period of construction expected to occur between Q1 and Q2 2026 (refer **Table 8** above).

The main traffic generating activities occurring within the Stage 1 construction phase of the Project are the transport of the various construction materials / equipment to the Project Area and the daily construction staff movements. Further details of these activities, including the Project traffic generation and its expected distribution on the surrounding road network, are provided in the following sections.

4.1.1.1 OSOM Turbine Component Transport Movements

As previously identified, the components for the 30 turbines within Stage 1 will be imported from overseas, shipped to port facilities in Port Adelaide, before being transported by road to the Project Area. Based on information provided by Windlab, it is understood that each of the turbines will likely consist of up to 13 main turbine components depending on the configuration adopted, including 3 blade pieces, hub, nacelle and drivetrain components, and up to 7 tower sections.

Further to this, additional ancillary turbine components (such as base rings and other assembly components) and performance monitoring masts for the Project are also anticipated to be delivered to site from Port Adelaide utilising standard semi-trailer vehicles.

Finally, on average, two light escort vehicles will accompany each over dimension turbine component to site. Based on these numbers, the proposed turbine transport traffic volumes for Stage 1 of the Project were established, as summarised below:

- 1,216 vehicles total from Port Adelaide, including:
 - 780 light vehicle escorts.
 - 390 turbine component transport vehicles.
 - 41 ancillary turbine component transport vehicles.
 - 5 performance monitoring mast transport vehicles.

Based on a potential turbine component haulage rate of 2 full turbines per week, and an assumed 6 day a week haulage operation, this would equate to up to 26 main turbine components per week or a maximum of 5 components per day. Combined with the assumed 2 light escort vehicles per component and the 1-2 semi-trailer vehicles for the turbine ancillary components, the maximum daily vehicles on the network from the turbine transport operations would be in the order of 16-17 vehicles (including 5 OSOM turbine component transport vehicles / 10 light vehicle escorts / 1-2 ancillary turbine component semi-trailers).

Further to this, it is noted that as various routes have been identified for the different turbine components, a number of the identified road sections (particularly those forming over dimension bypasses) would be utilised less frequently and see lower daily traffic volumes from the haulage operations.

4.1.1.2 Materials and Equipment Delivery Movements

Windlab has provided preliminary information and assumptions regarding the construction phase of Stage 1 of the Project based on their experience in developing similar wind farm developments, as well as insights post-construction from large infrastructure projects located locally such as the Limondale and Sunraysia solar farms (adjacent to the Project also on Yanga Way).

This information has been used to calculate the expected material and equipment quantities for the Project and the associated vehicle movements for the delivery of these items, based on the following general assumptions regarding the expected Project traffic numbers.

- The required gravel materials for the internal access roads, infrastructure areas and cable trench sand and concrete aggregates have conservatively been assumed to be 100% imported from external quarry sources in Lake Boga, with no internal sources currently identified within the Project Area.
- Similarly, while it may not eventuate this way, it has been conservatively assumed 100% of the construction water requirements will be imported from an external source (likely standpipe) in Balranald.
- Concrete is to be sourced from the on-site batch plant facility, with the associated materials (cement / aggregates etc.) proposed to be 100% imported to the Project Area from either Mildura or Swan Hill.
- Other miscellaneous site equipment (site buildings, fencing etc.) and materials, including diesel fuel, steel reinforcement etc. are expected to be imported from external sources in Mildura or Swan Hill.
- Waste from the Project Area is proposed to be removed and transported to management facilities in Mildura or Balranald.

A calculated breakdown of the Project generated traffic movements by construction task, is summarised in **Table 16**, while the detailed calculations completed in order to convert operational / construction information into vehicle movements are included for reference in **Appendix F**.

Table 16 Summary of Total Project Material / Equipment Delivery Movement Volumes – Stage 1

Task	Duration	Total Vehicles	Type of Vehicles	Max Vehicles per Day (Avg)
Task 1A – Mobilisation and Site Establishment	1 month	185 vehicles (external)	Semi-Trailers Low Loaders (Plant)	8 vehicles / day (external)
Task 1B – Access Roads, Hardstands & Site Entrances	10 months	11,750 vehicles (external)	Semi-Trailers Truck and Dog Combinations	58 vehicles / day (external)
Task 1C – Site Compound Areas (Civil Works)	4 months	2,528 vehicles (external) 997 internal concrete truck movements	Semi-Trailers Water Trucks Truck and Dog Combinations Concrete Trucks	27 vehicles / day (external)
Task 1D – Turbine Foundations	8 months	1,594 vehicles (external) 4,000 internal concrete truck movements	Semi-Trailers Water Trucks Truck and Dog Combinations Concrete Trucks	9 vehicles / day (external)
Task 2A – Cabling (Underground & Overhead)	8 months	333 vehicles (external)	Semi-Trailers Truck and Dog Combinations	2 vehicles / day (external)
Task 2B – Site Compound Areas (Electrical Works)	3 months (for transport task)	307 vehicles (external), including 2 special permit vehicles (transformer and switch room).	Semi-Trailers Special Transport Vehicles (Permit)	5 vehicles / day (external) 1 OSOM vehicle /day for transformer and switch room delivery
Task 3A – Turbine Transportation	6 months	1216 vehicles total (including 650 light vehicle escorts)	Special Transport Vehicles (Permit) Escorts (light vehicle) Semi-Trailers	16-17 vehicles / day (including 5 OSOM vehicles)

Task	Duration	Total Vehicles	Type of Vehicles	Max Vehicles per Day (Avg)
Task 3B – Turbine Erection	1 week (for transport task)	9 vehicles required for crane delivery.	Special Transport Vehicles (Permit) Crane	3 vehicles / day (external)
Task 4 – Finalisation / Commissioning / Demobilisation	2 months	185 vehicles (external)	Semi-Trailers Low Loaders (Plant)	4 vehicles / day (external)
Other – Site Water (Does not include internal water truck movements)	18 months	1,806 vehicles (external)	Water Trucks	5 vehicles / day (external)
Other – Fuel	18 months	115 vehicles (external)	Semi-Tankers	1 vehicle / day (external)
Other – Waste Removal	18 months	235 vehicles (external)	Semi-Trailers	1 vehicle / day (external)

4.1.1.3 Construction Staff Movements

The proponent has also provided the following information and assumptions regarding the proposed staff movements for the construction phase for Stage 1 of the Project:

- Maximum (peak) construction workforce will comprise approximately 200 staff, of which 80% are assumed to travel from Balranald, 5% from Tooleybuc and 15% from Swan Hill.
- Outside of the peak construction period, the daily staff numbers associated with the Project are expected to be significantly less (i.e. up to 120 staff).
- Construction staff commuting from Balranald are expected to commute to the Project Area using a mix of private vehicles (light vehicles and 4WDs) and minibuses, with an average capacity of 2 staff per vehicle and 15 staff members per bus, and a split of private vehicles and minibus usage by staff is anticipated to be approximately 50% / 50%.
- Construction staff commuting to/from both Tooleybuc and Swan Hill are anticipated to travel using private vehicles only, with an average capacity of 2 staff per vehicle.

Based on these general staff assumptions, the expected staff numbers and associated vehicle movements were established, with **Table 17** summarising the expected number of staff by construction task and by month and **Table 18** converting the estimated staff numbers to anticipated vehicle movement numbers.

Table 17 Forecast Staff Numbers during Construction (Stage 1)

ID	Duration (Days)	TASK	MAX STAFF	MONTH															
				Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				Q3 2025	Q4 2025			Q1 2026			Q2 2026			Q3 2026			Q4 2026		
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1A	24	Mobilisation & Site Establishment	20	20															
1B	240	Access Roads, Hardstands and Site Entrances	50	25	50	50	50	50	50	50	50	50	50	25					
1C	96	Site Compound Areas (Civil Works)	20				20	20	20	20									
1D	192	Turbine Foundations	50				50	50	50	50	50	50	50	50					
2A	192	Cabling	50								50	50	50	50	50	50	50	50	
2B	144	Site Compound Areas (Electrical Works)	20											20	20	20	20	10	10
3A	144	Turbine Transportation	20							20	20	20	20	20	20				
3B	144	Turbine Erection	30										30	30	30	30	30	30	
4	48	Finalisation / Commissioning / Demobilisation	20															20	20
Total Daily Staff Numbers				20	25	50	70	120	120	120	170	170	200	195	170	120	100	90	10

Table 18 Forecast Daily Staff Vehicle Volumes (Stage 1)

				MONTH																			
				Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	Apr-26	May-26	Jun-26	Jul-26	Aug-26	Sep-26	Oct-26	Nov-26	Dec-26		
				Q3 2025			Q4 2025			Q1 2026			Q2 2026			Q3 2026			Q4 2026				
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
Total Staff Vehicle Numbers				20	25	50	70	120	120	120	170	170	200	195	170	120	100	90	10	20	20		
Local Staff	Vehicle	80%																					
		Capacity	Utilisation by Staff	16	20	40	56	96	96	96	136	136	160	156	136	96	80	72	8	16	16		
Required Vehicle Movements (1-Way)	Mini Bus (Balranald)	15	40%	1	1	2	2	3	3	3	4	4	5	5	4	3	3	2	1	1	1		
	LV (Balranald)	2	40%	4	4	8	12	20	20	20	28	28	32	32	28	20	16	15	2	4	4		
	LV (Tooleybuc)	2	5%	1	1	1	2	3	3	3	4	4	4	4	4	3	2	2	1	1	1		
	LV (Swan Hill)	2	15%	2	2	3	5	8	8	8	11	11	12	12	11	8	6	6	1	2	2		
Non-Local (FIFO) Staff	Vehicle	20%																					
		Capacity	Utilisation by Staff	4	5	10	14	24	24	24	34	34	40	39	34	24	20	18	2	4	4		
Required Vehicle Movements (1-Way)	Mini Bus (Balranald)	15	75%	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1		
	LV (Balranald)	2	25%	1	1	2	2	3	3	3	5	5	5	5	5	3	3	3	1	1	1		
Total Daily Vehicle Movements				10	10	17	24	39	39	39	54	54	60	60	54	39	31	29	7	10	10		

4.1.2 Stage 2

As previously outlined, the construction phase of Stage 2 of the Project is proposed to commence in Q1 2027 (January 2026 - pending approvals) with an overall Stage 2 construction period of 30 months, with all construction works expected to be completed by the end of Q2 2029 (June 2029), with the peak period of construction expected to occur for a 12 month period between Q4 2027 and Q4 2028 (refer **Table 9** above).

As with the Stage 1 works, the main traffic generating activities within the construction phase of Stage 2 are the transport of the various construction materials / equipment to the Project Area and the daily construction staff movements. Further details of these activities, including the Project traffic generation and its expected distribution on the surrounding road network, are provided in the following sections.

4.1.2.1 Turbine Component Transport Movements

For the purpose of this assessment it has been assumed that the turbine components for Stage 2 of the Project will also be imported from overseas and transported from Port Adelaide to the Project area. Based on the 66 proposed turbines in Stage 2 of the Project, the anticipated turbine transport traffic volumes for Stage 2 were established:

- 2,666 vehicles total from Port Adelaide, including:
 - 1,716 light vehicle escorts.
 - 858 turbine component transport vehicles.
 - 89 ancillary turbine component transport vehicles.
 - 3 performance monitoring mast transport vehicles.

Again assuming a proposed turbine component haulage rate of 2 full turbines per week, and an assumed 6 day a week haulage operation, this would equate to up to 26 main turbine components per week or a maximum of 5 components per day. Combined with the assumed 2 light escort vehicles per component and the 1-2 semi-trailer vehicles for the turbine ancillary components, the maximum daily vehicles on the network from the turbine transport operations would be in the order of 16-17 vehicles (including 5 OSOM turbine component transport vehicles / 10 light vehicle escorts / 1-2 ancillary turbine component semi-trailers).

Further to this, it is noted that as various routes have been identified for the different turbine components, a number of the identified road sections (particularly those forming over dimension bypasses) would be utilised less frequently and see lower daily traffic volumes from the haulage operations.

4.1.2.2 Materials and Equipment Delivery Movements

Project traffic volumes for the Stage 2 works have been established assuming the same sources for the general construction material and equipment as those previously identified for Stage 1. Based on this, the calculated breakdown for Stage 2 generated traffic movements by construction task is summarised in **Table 19**, while the detailed calculations are included for reference in **Appendix G**.

Table 19 Summary of Total Project Material / Equipment Delivery Movement Volumes – Stage 2

Task	Duration	Total Vehicles	Type of Vehicles	Max Vehicles per Day (Avg)
Task 1A – Mobilisation and Site Establishment	2 months	400 vehicles (external)	Semi-Trailers Low Loaders (Plant)	7 vehicles / day (external)
Task 1B – Access Roads, Hardstands & Site Entrances	18 months	25,028 vehicles (external)	Semi-Trailers Truck and Dog Combinations	62 vehicles / day (external)
Task 1C – Site Compound Areas (Civil Works)	9 months	4,869 vehicles (external) 2,141 internal concrete truck movements	Semi-Trailers Water Trucks Truck and Dog Combinations Concrete Trucks	22 vehicles / day (external)
Task 1D – Turbine Foundations	18 months	3,5056 vehicles (external) 8,800 internal concrete truck movements	Semi-Trailers Water Trucks Truck and Dog Combinations Concrete Trucks	7 vehicles / day (external)
Task 2A – Cabling (Underground & Overhead)	15 months	855 vehicles (external)	Semi-Trailers Truck and Dog Combinations	2 vehicles / day (external)
Task 2B – Site Compound Areas (Electrical Works)	6 months (for transport task)	491 vehicles (external), including 6 special permit vehicles (transformers & switch rooms).	Semi-Trailers Special Transport Vehicles (Permit)	3 vehicles / day (external) 1 OSOM vehicle /day for transformer and switch room delivery
Task 3A – Turbine Transportation	15 months	2,666 vehicles total (including 1,716 light vehicle escorts)	Special Transport Vehicles (Permit) Escorts (light vehicle)	16-17 vehicles / day (including 5 OSOM vehicles)
Task 3B – Turbine Erection	1 week (for transport task)	9 vehicles required for crane delivery.	Special Transport Vehicles (Permit) Crane	3 vehicles / day (external)
Task 4 – Finalisation / Commissioning / Demobilisation	6 months	445 vehicles (external)	Semi-Trailers Low Loaders (Plant)	3 vehicles / day (external)
Other – Site Water (Not including internal water trucks)	30 months	4,479 vehicles (external)	Water Trucks	7 vehicles / day (external)
Other – Fuel	30 months	283 vehicles (external)	Semi-Tankers	1 vehicle / day (external)
Other – Waste Removal	30 months	782 vehicles (external)	Semi-Trailers	2 vehicles / day (external)

4.1.2.3 Construction Staff Movements

The proponent has also provided the following information and assumptions regarding the proposed staff movements for the construction phase of Stage 2 of the Project:

- Maximum (peak) construction workforce will comprise approximately 400 staff, of which 80% are assumed to travel from Balranald, 5% from Tooleybuc and 15% from Swan Hill.
- Outside of the peak construction period, the daily staff numbers associated with the Project are expected to be significantly less (i.e. 150-250 staff).
- Construction staff commuting from Balranald are expected to commute to the Project Area using a mix of private vehicles (light vehicles and 4WDs) and minibuses, with an average capacity of 2 staff per vehicle and 15 staff members per bus, and a split of private vehicles and minibus usage by staff is anticipated to be approximately 50% / 50%.
- Construction staff commuting to/from both Tooleybuc and Swan Hill are anticipated to travel using private vehicles only, with an average capacity of 2 staff per vehicle.

Based on these general staff assumptions, the expected staff numbers and associated vehicle movements were established, with **Table 20** summarising the expected number of staff by construction task and by month and **Table 21** converting the estimated staff numbers to anticipated vehicle movement numbers.

Table 20 Forecast Staff Numbers during Construction (Stage 2)

ID	Duration (Days)	Task	Max Staff	MONTH																													
				Jan-27	Feb-27	Mar-27	Apr-27	May-27	Jun-27	Jul-27	Aug-27	Sep-27	Oct-27	Nov-27	Dec-27	Jan-28	Feb-28	Mar-28	Apr-28	May-28	Jun-28	Jul-28	Aug-28	Sep-28	Oct-28	Nov-28	Dec-28	Jan-29	Feb-29	Mar-29	Apr-29	May-29	Jun-29
				Q1 2027			Q2 2027			Q3 2027			Q4 2027			Q1 2028			Q2 2028			Q3 2028			Q4 2028			Q1 2029			Q2 2029		
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1A	48	Mobilisation & Site Establishment	40	40	40																												
1B	432	Access Roads, Hardstands and Site Entrances	100			75	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
1C	216	Site Compound Areas (Civil Works)	75				50	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	
1D	432	Turbine Foundations	100							75	75	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
2A	360	Cabling	75												50	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	
2B	240	Site Compound Areas (Electrical Works)	75																														
3A	360	Turbine Transportation	20													20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
3B	360	Turbine Erection	50														30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
4	120	Finalisation / Commissioning / Demobilisation	50																														
Total Daily Staff Numbers				40	40	75	100	100	150	175	250	250	275	275	345	400	375	345	345	345	345	395	395	395	320	320	295	295	175	130	100	50	50

Table 21 Forecast Daily Staff Vehicle Volumes (Stage 2)

				MONTH																													
				Jan-27	Feb-27	Mar-27	Apr-27	May-27	Jun-27	Jul-27	Aug-27	Sep-27	Oct-27	Nov-27	Dec-27	Jan-28	Feb-28	Mar-28	Apr-28	May-28	Jun-28	Jul-28	Aug-28	Sep-28	Oct-28	Nov-28	Dec-28	Jan-29	Feb-29	Mar-29	Apr-29	May-29	Jun-29
				Q1 2027			Q2 2027			Q3 2027			Q4 2027			Q1 2028			Q2 2028			Q3 2028			Q4 2028			Q1 2029			Q2 2029		
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
				Total Staff Vehicle Numbers				40	40	75	100	150	175	250	250	275	275	345	400	375	345	345	345	345	395	395	395	320	320	295	295	175	130
Local Staff	Vehicle	80%																															
		Capacity	Utilisation by Staff	32	32	60	80	120	140	200	200	220	220	276	320	300	276	276	276	276	316	316	316	256	256	236	236	140	104	80	40	40	40
Required Vehicle Movements (1-Way)	Mini Bus	15	40%	1	1	2	3	4	4	6	6	6	6	8	9	8	8	8	8	8	9	9	9	7	7	7	7	4	3	3	2	2	2
	LV (Balranald)	2	40%	7	7	12	16	24	28	40	40	44	44	56	64	60	56	56	56	56	64	64	64	52	52	48	48	28	21	16	8	8	8
	LV (Tooleybuc)	2	5%	1	1	2	2	3	4	5	5	6	6	7	8	8	7	7	7	7	8	8	8	7	7	6	6	4	3	2	1	1	1
	LV (Swan Hill)	2	15%	3	3	5	6	9	11	15	15	17	17	21	24	23	21	21	21	21	24	24	24	20	20	18	18	11	8	6	3	3	3
Non-Local (FIFO) Staff	Vehicle	20%																															
		Capacity	Utilisation by Staff	8	8	15	20	30	35	50	50	55	55	69	80	75	69	69	69	69	79	79	79	64	64	59	59	35	26	20	10	10	10
Required Vehicle Movements (1-Way)	Mini Bus	15	75%	1	1	1	1	2	2	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	3	3	2	2	1	1	1	1	
	LV	2	25%	1	1	2	3	4	5	7	7	7	7	9	10	10	9	9	9	9	10	10	10	8	8	8	8	5	4	3	2	2	2
Total Daily Vehicle Movements				14	14	24	31	46	54	76	76	83	83	105	119	113	105	105	105	105	119	119	119	98	98	90	90	54	41	31	17	17	17

4.2 Operations Phase

The estimated workforce during the proposed 30-year operations phase of the Project (i.e. following the completion of the construction stages) is anticipated to only consist of a small number of local workers (i.e. approximately 15 staff) who are expected to reside locally to the Project Area and commute daily (most likely to/from Balranald). Further to this, the heavy vehicle movements during the operations phase of the Project are also likely to be extremely low (approx. 1 HV per week) and are considered to be negligible from a traffic engineering or transport planning perspective.

4.3 Decommissioning Phase

As previously identified, based on information provided by Windlab it is understood the decommissioning phase works associated with the Project are anticipated to be completed over a 12-18 month period for the overall Project Area, with the peak traffic movements to/from the Project Area during decommissioning conservatively estimated to be approximately 70% of the peak construction movements for the Project to/from the Project Area (both daily and during AM and PM peak periods).

However, as these works are likely to occur in more than 30 years the exact nature of the works and associated traffic movements are difficult to confirm at this stage. As such it is proposed that prior to the start of the decommissioning works, an updated traffic impact assessment be completed as part of the required decommissioning and rehabilitation strategy, to clearly outline the proposed decommissioning works, the associated traffic movements, their anticipated impact on the surrounding road network and any management and mitigation required.

4.4 Project Traffic Volumes on the Network

The calculated Project traffic volumes for the construction, operations and decommissioning phases of the Project outlined above have been distributed onto the public road network based upon assumed trip origins and destinations based on known equipment / materials sources and other Project operational information provided by the proponent.

Further details of the expected Project traffic volumes on the key road links and intersections of the relevant sections of the external road network are provided in the following sections.

4.4.1 Road Links

As previously identified, the use of the external road network by general Project traffic during each stage of the Project is anticipated to be generally limited to the relevant sections of the Sturt Highway, Yanga Way, Swan Hill Road, Stony Crossing Road, Balranald-Moulamein Road and Arundel Road in close proximity to the Project Area.

Detailed calculations were undertaken to establish the peak daily traffic volumes from each stage of the Project for each phase (i.e. construction / operations / decommissioning) of the works on the relevant sections of the external road network, with a copy included for reference as **Appendix F** (Stage 1) and **Appendix G** (Stage 2).

A summary of the calculated construction, operations and decommissioning Project traffic volumes on the identified road links is provided in **Table 22**, noting:

- The peak construction phase Project volumes are experienced during the construction period where Task 1B (access roads, hardstands and site entrances), Task 1D (turbine foundations), Task 2A (cabling), Task 2B (site compound areas (electrical), and Task 3B (turbine erection) (refer **Table 8** & **Table 9**) are being completed simultaneously with typical site water, fuel, waste management and peak construction staff movements on the network (noting that for the Stage 2 works the peak construction phase will also include operations staff movements for Stage 1).
It is noted that these volumes do not include volumes associated with Task 3A Turbine Transport which also occurs concurrently in the period of peak construction. This is due to the fact that these movements occur under full escort and out of hours for the construction works.
- The operations phase Project volumes are based on the potential maximum volumes for staff movements on each section of the link (maximum 15 staff), noting that these staff are assumed to

commute to/from the Project Area daily from Balranald, with a maximum of 1 HV movement to/from the Project Area also anticipated (per stage area).

- The decommissioning phase Project volumes are conservatively assumed to be 70% of the calculated maximum peak construction phase volumes for the Project.

Table 22 Project Traffic Volumes on External Road Network Links

AADT Segment		Maximum Daily Project Traffic Volumes											
		Stage 1 Construction			Stage 2 Construction**			Operations			Decommissioning		
Start (km)	End (km)	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
A20 Sturt Highway (Mildura to Yanga Way)													
0.000	82.400	11	11	22	10	10	20	2	2	4	7	7	14
82.400	162.100	11	11	22	10	10	20	2	2	4	7	7	14
162.100	165.500	60	60	120	108	108	216	32	32	64	76	76	151
Yanga Way (Sturt Highway to Tooleybuc)													
0.000	11.800	60	60	120	108	108	216	32	32	64	76	76	151
11.800	19.800	87	87	174	83	83	166	0	0	0	58	58	116
19.800	36.200	87	87	174	103	103	206	0	0	0	72	72	144
36.200	49.100	4	4	8	7	7	14	0	0	0	5	5	10
Balranald-Moulamein Road (Yanga Way to Site Access SA8)													
0.000	6.930	143	143	286	177	177	354	32	32	64	124	124	248
6.930	7.750	117	117	234	177	177	354	32	32	64	124	124	248
7.750	10.402	15	15	30	177	177	354	16	16	32	124	124	248
10.402	11.095	15	15	30	158	158	316	0	0	0	111	111	221
11.095	17.340	0	0	0	157	157	314	0	0	0	110	110	220
17.340	18.955	0	0	0	136	136	272	0	0	0	95	95	190
18.955	22.140	0	0	0	128	128	256	0	0	0	90	90	179
Arundel Road (Balranald-Moulamein Road to Site Access SA4)													
0.000	0.710	0	0	0	34	34	68	16	16	32	24	24	48
Stony Crossing Road (Yanga Way to Swan Hill Road)													
0.000	40.900	83	83	166	96	96	192	0	0	0	67	67	134
Swan Hill Road (Swan Hill to Stony Crossing Road)													
0.000	11.100	83	83	166	96	96	192	0	0	0	67	67	134
B400 Murray River Highway (Swan Hill to Lake Boga)													
0.000	16.000	65	65	130	70	70	140	0	0	0	49	49	98

** Stage 2 Construction phase includes operations phase movements from Stage 1.

Gaz (Gazetted direction of travel or with chainage) | A-Gaz (Against Gazetted direction of travel or against chainage) | H V (Heavy vehicles)
 Sturt Highway chainage assumed to run east from Mildura | Yanga Way chainage assumed to run south from Sturt Highway | Swan Hill Road chainage assumed to run north-east from Swan Hill | Stony Crossing Road chainage assumed to run south from Yanga Way | Balranald-Moulamein Road chainage assumed to run south-east from Yanga Way | Arundel Road chainage assumed to run south from Balranald-Moulamein Road.
 A20 Ch. 82.400km Euston | A20 Ch. 162.100km Balranald | A20 Ch. 165.500km Intersection Sturt Highway / Yanga Way | Ch. 11.800km Yanga Way – Intersection with Balranald-Moulamein Road | Ch. 19.800km Yanga Way – Site Access 1 (LHS) | Ch. 36.200km Yanga Way – Intersection with Stony Crossing Road | Ch. 49.100km Yanga Way – Tooleybuc | Ch. 6.930km Balranald-Moulamein Road – Site Access 2 (RHS) | Ch. 7.750km Balranald-Moulamein Road – Site Access 3 (LHS) | Ch. 10.402km Balranald-Moulamein Road – Intersection with Arundel Road | Ch. 11.095km Balranald-Moulamein Road – Site Access 5 (LHS) | Ch. 17.340km Balranald-Moulamein Road – Site Access 6 (RHS) | Ch. 18.955km Balranald-Moulamein Road – Site Access 7 (LHS) | Ch. 22.140km Balranald-Moulamein Road – Site Access 8 (RHS) | Ch. 0.710km Arundel Road – Site Access 4 (LHS).

Notwithstanding this, a number of other state and local government controlled roads were also identified in the preliminary transport route assessment (refer **Appendix A**) to be utilised as part of the turbine component transport operations from the Port Adelaide to the Project Area during construction.

However, these turbine transport movements will typically be completed in off peak (or night) periods and under permit utilising escort vehicles. Further to this, based on the proposed transport schedule the maximum number of Project vehicles per day on the road links forming the turbine transport routes is 18vpd (including 6 OSOM transport vehicles and 12 light escort vehicles), with several road sections forming part of the alternate routes for the over dimension components likely to see even lower Project traffic volumes.

4.4.2 Intersections

Based on the information provided by Windlab and the subsequent traffic calculations undertaken, the peak hour traffic volumes from the construction, operations and decommissioning phases of the Project were also established at the key intersections of the Sturt Highway / Yanga Way and Yanga Way / Balranald-Moulamein Road. As noted above, the AM and PM periods of peak Project traffic generation (6-7am and 5:30-6:30pm) from the Project has been assessed, with the relevant Project traffic volumes established by combining the expected staff / visitor movements to the Project Area with the calculated hourly heavy vehicle movements for each Project phase.

A summary of the identified construction, operations and decommissioning phase Project traffic volumes at these two intersections are outlined in **Table 23** and **Table 24** for the project traffic peaks, with further detailed traffic volume calculations provided for reference in **Appendix H**.

Table 23 Peak Hour (Project) Traffic Volumes, Sturt Highway / Yanga Way Intersection

Year	Sturt Highway NW				Yanga Way S				Sturt Highway SE			
	Through		Right		Left		Right		Left		Through	
	LV	HV	LV	LV	HV	LV	LV	HV	LV	LV	HV	LV
Construction Phase – Stage 1												
AM Peak (Project)	0	0	44	2	0	2	0	0	0	0	0	0
PM Peak (Project)	0	0	0	2	44	2	0	0	0	0	0	0
Construction Phase – Stage 2												
AM Peak (Project)	0	0	92	2	0	2	0	0	0	0	0	0
PM Peak (Project)	0	0	0	2	92	2	0	0	0	0	0	0
Operations Phase												
AM Peak (Project)	0	0	30	2	0	2	0	0	0	0	0	0
PM Peak (Project)	0	0	0	2	30	2	0	0	0	0	0	0
Decommissioning Phase												
AM Peak (Project)	0	0	54	2	0	2	0	0	0	0	0	0
PM Peak (Project)	0	0	0	2	54	2	0	0	0	0	0	0

Table 24 Peak Hour (Project) Traffic Volumes, Yanga Way / Balranald-Moulamein Road Intersection

Year	Yanga Way SW				Balranald-Moulamein Road E				Yanga Way NE			
	Through		Right		Left		Right		Left		Through	
	LV	HV	LV	LV	HV	LV	LV	HV	LV	LV	HV	LV
Construction Phase – Stage 1												
AM Peak (Project)	0	0	16	7	0	7	0	2	44	2	0	0
PM Peak (Project)	0	0	0	7	16	7	44	2	0	2	0	0
Construction Phase – Stage 2												
AM Peak (Project)	0	0	28	5	0	5	0	2	92	2	0	0
PM Peak (Project)	0	0	0	5	28	5	92	2	0	2	0	0
Operations Phase												
AM Peak (Project)	0	0	0	0	0	0	0	2	30	2	0	0
PM Peak (Project)	0	0	0	0	0	0	30	2	0	2	0	0
Decommissioning Phase												
AM Peak (Project)	0	0	20	4	0	4	0	2	54	2	0	0
PM Peak (Project)	0	0	0	4	0	4	54	2	0	2	0	0

4.5 Cumulative Project Traffic Volumes

As identified in the SEARs for this Project, an assessment of the potential cumulative traffic impact of the Project in conjunction with other State Significant Developments in the area was requested to be undertaken. As such a review of the known projects in the vicinity of the Project Area (as shown in **Figure 47**) was undertaken to determine which were expected to lead to an increase in traffic volumes on the relevant sections of the road network concurrently with anticipated increases from the Project. A summary of this review, including commentary regarding the requirements to consider each identified Project in the area are provided for reference in **Table 25**.

As shown by this review, a number of projects in the region were identified to likely have overlapping periods of construction with the Project, and be likely to lead to increases in traffic volumes on the critical sections of the Sturt Highway (near Balranald) and/or Yanga Way. The identified projects included:

- Balranald Mineral Sands Project.
- Baldon Wind Farm.
- Keri Keri Solar Farm.
- Keri Keri Wind Farm.
- Tchelery Wind Farm.
- Wilan Wind Farm.

In regard to the haulage of the large OSOM turbine components associated with the other wind farm projects identified, it is expected that some of the required OSOM movements will originate from the Port Adelaide and follow a similar route to that identified for the Project. However, as all of these OSOM movements will be required to be undertaken under permit, it is expected that restrictions and management measures will be implemented to ensure that movements from one Project only will occur at any time, to minimise the impacts on the operation of the road links forming part of the identified transport routes. As such the additional traffic expected to travel past the Project Area on the Sturt Highway from the identified wind farm projects to the east is anticipated to be limited to turbine transport volumes from one wind farm only at any one time (approx. 18 vpd).

It is noted however, that higher traffic volumes from the identified projects are anticipated to be generated during their construction phase (solar and wind farms) or their operations phase (Balranald Mineral Sands Project). While specific project traffic volumes on the relevant links adjacent to the Project Area have been identified in the TTIA for the Balranald Mineral Sands Project (EMM, 2015), no data is available for the other projects identified. As such, to account for the potential concurrent traffic from these projects, an allowance for additional traffic volumes on the Sturt Highway has been made to reflect the material/equipment deliveries from Mildura, as well as potential staff movements to/from Balranald.

A summary of the traffic volumes adopted for each of the identified projects in the following sections, while further details of the cumulative impact assessment undertaken for the Project are provided in **Section 5.2** and **Section 5.3** below.

4.5.1 Balranald Mineral Sands Project

As noted above the volumes adopted for Balranald Mineral Sands Project as part of the cumulative assessment were sourced from the previous EMM TTIA for the project, and included:

- Operations phase of the Balranald Mineral Sands Project was shown to generate the largest volumes on the sections of the Sturt Highway and Yanga Way relevant to the proposed Junction Rivers Project.
- Additional daily volumes of:
 - 86vpd (43vpd each direction – heavy vehicles) on Sturt Highway west of Balranald.
 - 190vpd (95vpd each direction – heavy vehicles) on Sturt Highway between Balranald and Yanga Way.
 - 20vpd (10vpd each direction – heavy vehicles) on Sturt Highway east of Yanga Way.
 - 170vpd (85vpd each direction – heavy vehicles) on Yanga Way between Sturt Highway and Tooleybuc.

- Peak hour volumes for conservatively assumes 10hr haulage operation daily for Balranald Mineral Sands Project, which equates to:
 - 9vph (heavy vehicles) travelling in each direction between Yanga Way and Sturt Highway (west) at Sturt Highway / Yanga Way intersection.
 - 1vph (heavy vehicle) travelling in each direction on Sturt Highway through the Sturt Highway / Yanga Way intersection.
 - 9vph (heavy vehicle) travelling in each direction on Yanga Way through the Yanga Way / Balranald-Moulamein Road intersection.

4.5.2 Baldon Wind Farm

The volumes adopted for the Baldon Wind Farm as part of the cumulative assessment included:

- Allowance of 22vpd (11vpd each direction – heavy vehicles) on Sturt Highway for peak material / equipment delivery movements to/from Mildura. This equates to approx. 1vph each direction during the AM and PM peak periods.
- Allowance for movements for up to 50 staff to/from Balranald, which equates to approx. 50vpd (25vpd each direction) on Sturt Highway east of Balranald. This would also equate to 25vph heading east in AM peak and 25vph heading west in PM peak. Due to remote location of the Baldon Wind Farm site, it is anticipated that an on-site construction camp will be provided to accommodate the majority of staff.

4.5.3 Keri Keri Solar Farm

The volumes adopted for the Keri Keri Solar Farm as part of the cumulative assessment included:

- Allowance of 22vpd (11vpd each direction – heavy vehicles) on Sturt Highway for peak material / equipment delivery movements to/from Mildura. This equates to approx. 1vph each direction during the AM and PM peak periods.
- Allowance for movements for up to 50 staff to/from Balranald, which equates to approx. 50vpd (25vpd each direction) on Sturt Highway east of Balranald. This would also equate to 25vph heading east in AM peak and 25vph heading west in PM peak. Due to remote location of Keri Keri Solar Farm site, it is anticipated that an on-site construction camp will be provided to accommodate the majority of staff.

4.5.4 Keri Keri Wind Farm

The volumes adopted for the Keri Keri Wind Farm as part of the cumulative assessment included:

- Allowance of 22vpd (11vpd each direction – heavy vehicles) on Sturt Highway for peak material / equipment delivery movements to/from Mildura. This equates to approx. 1vph each direction during the AM and PM peak periods.
- Allowance for movements for up to 50 staff to/from Balranald, which equates to approx. 50vpd (25vpd each direction) on Sturt Highway east of Balranald. This would also equate to 25vph heading east in AM peak and 25vph heading west in PM peak. Due to remote location of Keri Keri Wind Farm site, it is anticipated that an on-site construction camp will be provided to accommodate the majority of staff.

4.5.5 Tchelery Wind Farm

The volumes adopted for the Tchelery Wind Farm as part of the cumulative assessment included:

- No allowance on Sturt Highway for peak material / equipment delivery movements to/from Mildura. It is assumed that these movements will be via the regional centre of Hay, which is closer to the Tchelery Wind Farm site.
- Allowance for movements for up to 25 staff to/from Balranald, which equates to approx. 26vpd (13vpd each direction) on Sturt Highway east of Balranald. This would also equate to 8vph heading east in AM peak and 8vph heading west in PM peak. Due to remote location of Tchelery Wind Farm site, it is anticipated that an on-site construction camp will be provided to accommodate the majority of staff.

4.5.6 Wilan Wind Farm

The volumes adopted for the Wilan Wind Farm as part of the cumulative assessment included:

- Allowance of 22vpd (11vpd each direction – heavy vehicles) on Sturt Highway for peak material / equipment delivery movements to/from Mildura. This equates to approx. 1vph each direction during the AM and PM peak periods.
- Allowance for movements for up to 50 staff to/from Balranald, which equates to approx. 50vpd (25vpd each direction) on Sturt Highway east of Balranald. This would also equate to 25vph heading east in AM peak and 25vph heading west in PM peak. Due to remote location of Wilan Wind Farm site, it is anticipated that an on-site construction camp will be provided to accommodate the majority of staff.

4.5.7 Summary of External Project Traffic Volumes for Cumulative Assessment

Based on the volumes for the individual projects above, the combined external traffic volumes on the relevant sections of the network were identified, with a summary of the additional daily volumes on the identified road links (refer **Table 26**) and peak hour volumes at the critical Sturt Highway / Yanga Way and Yanga Way / Balranald-Moulamein Road intersections provided in **Table 27** and **Table 28** respectively.

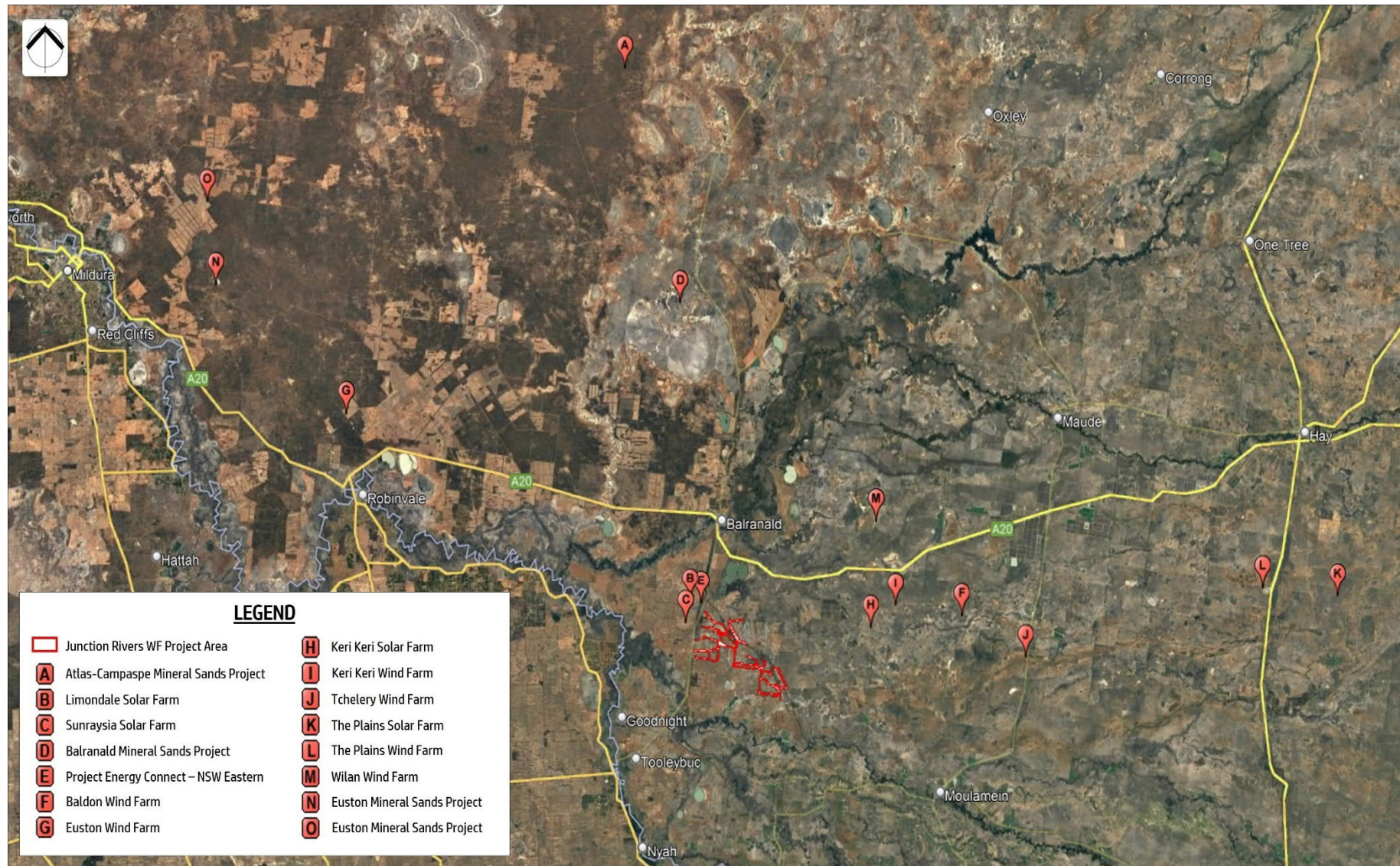


Figure 47 Identified SSD in Vicinity of Junction Rivers Wind Farm

[Source: NSW State Significant Applications Database & Google Earth Pro]



Table 25 Cumulative Project Traffic Review Summary

ID	Project	Location	Status & Timeframes	Required for Cumulative Assessment	Review Comments	Relevant Project Scenario	
						Stage 1	Stage 2
A	Atlas – Campaspe Mineral Sands Project	108km north of Project Area.	Approved Operational	No	Atlas – Campaspe Mineral Sands Project traffic generally contained to network north of Balranald. Does generates minor (<10vpd) volumes of traffic on sections of Sturt Highway relevant to Project (east of Balranald) and up to 27vpd (west of Balranald), but this is within capacity of Highway. Also operations traffic would have already been included in background traffic volumes for intersection and link assessments for Project, including Sturt Highway / Yanga Way intersection.	✗	✗
B	Limondale Solar Farm	1km north-west (opposite side of Yanga Way) of Project Area.	Approved Operational	No	Operations phase traffic volumes from Limondale Solar Farm would have already been included in background traffic volumes for intersection and link assessment. In particular for volumes on Yanga Way and Sturt Highway / Yanga Way intersection.	✗	✗
C	Sunraysia Solar Farm	1km west of (opposite side of Yanga Way) Project Area.	Approved Operational	No	Operations phase traffic volumes from Sunraysia Solar Farm would have already been included in background traffic volumes for intersection and link assessment. In particular for volumes on Yanga Way and Sturt Highway / Yanga Way intersection.	✗	✗
D	Balranald Mineral Sands Project	45km north west of Project Area.	Approved Construction 2023-2025 Operations 2025 Onwards	Yes	TTIA for Balranald Mineral Sands Project (BMSP) identifies significant increases in traffic on critical sections of Sturt Highway and Yanga Way during both construction and operations phase of BMSP	✓	✓
E	Project Energy Connect - NSW Eastern Section	Runs through Project site. Balranald construction compound and substation for Energy Connect project located 1km to west of Project Area.	Approved Construction works to be completed in 2024	No	All construction works for Project EnergyConnect – NSW Eastern Section is expected to be completed prior to commencement of works on Project site, with negligible operations phase traffic in vicinity of Project Area.	✗	✗



ID	Project	Location	Status & Timeframes	Required for Cumulative Assessment	Review Comments	Relevant Project Scenario	
						Stage 1	Stage 2
F	Baldon Wind Farm	40km east of Project Area.	Under Assessment – Prepare EIS Construction from 2024 for 2-3 years	Yes	Potential 162 WTGs., with option of transport from Port Adelaide for OSOM loads. Traffic volumes associated with construction phase of Baldon Wind Farm (BWF) expected to be primarily focussed to areas east of the Project Area. Expected to lead to increase in traffic on relevant sections of Sturt Highway due to material/equipment deliveries from Mildura, with potential for percentage of staff being located in Balranald and commuting to site.	✓	✓
G	Euston Wind Farm	80km north-west of Project Area.	Under Assessment – Prepare EIS	No	Traffic volumes associated with construction and operations phase of Euston Wind Farm expected to be generally contained to Mildura & Euston/Robinvale areas. As such no additional traffic anticipated on critical sections of Sturt Highway, Yanga Way and Balranald-Moulamein Road in vicinity of Project Area.	✗	✗
H	Keri Keri Solar Farm	20km east of Project Area.	Under Assessment – Prepare EIS Construction 2024-25 for up to 2 years	Yes	Traffic volumes associated with construction phase of Keri Keri Solar Farm (KKSF) expected to be primarily focussed to areas east of the Project Area. Expected to lead to increase in traffic on relevant sections of Sturt Highway due to material/equipment deliveries from Mildura, with potential for percentage of staff being located in Balranald and commuting to site.	✓	✓
I	Keri Keri Wind Farm	20km east of Project Area.	Under Assessment – Prepare EIS 2024-25 for up to 3 years	Yes	Potential 176 WTGs., with option of transport from Port Adelaide for OSOM loads. Traffic volumes associated with construction phase of Keri Keri Wind Farm expected to be primarily focussed to areas east of the Project Area. Expected to lead to increase in traffic on relevant sections of Sturt Highway due to material/equipment deliveries from Mildura, with potential for percentage of staff being located in Balranald and commuting to site.	✓	✓



ID	Project	Location	Status & Timeframes	Required for Cumulative Assessment	Review Comments	Relevant Project Scenario	
						Stage 1	Stage 2
J	Tchelery Wind Farm	50km east of Project Area	Under Assessment – Prepare EIS Construction 2026 for 2.5 years	Yes	Potential 120 WTGs., with option of transport from Port Adelaide for OSOM loads. Traffic volumes associated with construction phase of Tchelery Wind Farm expected to be primarily focussed to areas east of the Project Area Expected to lead to increase in traffic on relevant sections of Sturt Highway due to material/equipment deliveries from Mildura, with potential for small percentage of staff being located in Balranald and commuting to site.	✓	✓
K	The Plains Solar Farm	110km east of Project Area.	Under Assessment – Prepare EIS Construction 2026 for 2 years		Traffic volumes associated with construction and operations phase of The Plains Solar Farm Project expected to be generally contained to Hay area to the east of the Project Area.	✗	✗
L	The Plains Wind Farm	100km east of Project Area.	Under Assessment – Prepare EIS Construction 2026 for 2 years		Potential 226 WTGs., with option of transport from Port Adelaide for OSOM loads, but more likely via Melbourne or Geelong. Traffic volumes associated with construction and operations phase of The Plains Wind Farm Project expected to be generally contained to Hay area to the east of the Project Area.	✗	✗
M	Wilan Wind Farm	35km north-east of Project Area.	Under Assessment – Prepare EIS Construction 2025 for 2.5 years	Yes	Potential 138 WTGs., with option of transport from Port Adelaide for OSOM loads. Traffic volumes associated with construction phase of Wilan Wind Farm expected to be primarily focussed to areas east of the Project Area. Expected to lead to increase in traffic on relevant sections of Sturt Highway due to material/equipment deliveries from Mildura, with potential for percentage of staff being located in Balranald and commuting to site.	✓	✓



ID	Project	Location	Status & Timeframes	Required for Cumulative Assessment	Review Comments	Relevant Project Scenario	
						Stage 1	Stage 2
N	Euston Mineral Sands Project	115km north-west of Project Area.	Under Assessment – Prepare EIS	No	Traffic volumes associated with construction and operations phase of Euston Mineral Sands Project expected to be generally contained to Mildura area. As such no additional traffic anticipated on critical sections of Sturt Highway, Yanga Way and Balranald-Moulamein Road in vicinity of Project Area.	✗	✗
O	Mallee Wind Farm	125km north-west of Project Area.	Under Assessment – Prepare EIS	No	Traffic volumes associated with construction and operations phase of Mallee Wind Farm expected to be generally contained to Mildura area. As such no additional traffic anticipated on critical sections of Sturt Highway, Yanga Way and Balranald-Moulamein Road in vicinity of Project Area.	✗	✗



Table 26 Project Traffic Volumes on External Road Network Links

AADT Segment		External Project Cumulative Traffic Volumes																				
		Balranald Mineral Sands			Baldon Wind Farm			Keri Keri Solar Farm			Keri Keri Wind Farm			Tchelery Wind Farm			Wilan Wind Farm			Total External Project		
Start (km)	End (km)	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
A20 Sturt Highway (Mildura to Yanga Way)																						
0.000	82.400	43	43	86	11	11	22	11	11	22	11	11	22	0	0	0	11	11	22	87	87	174
82.400	162.100	43	43	86	11	11	22	11	11	22	11	11	22	0	0	0	11	11	22	87	87	174
162.100	165.500	95	95	190	36	36	72	36	36	72	36	36	72	13	13	26	36	36	72	252	252	504
Yanga Way (Sturt Highway to Tooleybuc)																						
0.000	11.800	85	85	170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85	85	170
11.800	19.800	85	85	170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85	85	170
19.800	36.200	85	85	170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85	85	170
36.200	49.100	85	85	170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	85	85	170
Balranald-Moulamein Road (Yanga Way to Site Access SA8)																						
0.000	6.930	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6.930	7.750	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7.750	10.402	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10.402	11.095	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11.095	17.340	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17.340	18.955	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18.955	22.140	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Arundel Road (Balranald-Moulamein Road to Site Access SA4)																						
0.000	0.710	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)																						
0.000	40.900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Swan Hill Road (Swan Hill to Stony Crossing Road)																						
0.000	11.100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B400 Murray River Highway (Swan Hill to Lake Boga)																						
0.000	16.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 27 External Project Peak Hour Traffic Volumes, Sturt Highway / Yanga Way Intersection

Year	Sturt Highway NW				Yanga Way S				Sturt Highway SE			
	Through		Right		Left		Right		Left		Through	
	LV	HV	LV	LV	HV	LV	LV	HV	LV	LV	HV	LV
External Projects												
AM Peak (Project)	113	5	0	9	0	9	0	0	0	0	0	5
PM Peak (Project)	0	5	0	9	0	9	0	0	0	0	113	5

Table 28 External Project Peak Hour Traffic Volumes, Yanga Way / Balranald-Moulamein Road Intersection

Year	Yanga Way SW				Balranald-Moulamein Road E				Yanga Way NE			
	Through		Right		Left		Right		Left		Through	
	LV	HV	LV	LV	HV	LV	LV	HV	LV	LV	HV	LV
External Projects												
AM Peak (Project)	0	9	0	0	0	0	0	0	0	0	0	9
PM Peak (Project)	0	9	0	0	0	0	0	0	0	0	0	9

5.0 Impact Assessment and Mitigation

Based on the information provided above, it was determined that the critical elements of the surrounding road network in terms of the potential impact of the Project were the identified road links forming the proposed transport routes for the Project and the key intersections of Sturt Highway / Yanga Way and Yanga Way / Balranald-Moulamein Road and Balranald-Moulamein Road / Arundel Road.

Further assessment of the impact of the Project on these elements is provided in the following sections.

5.1 With and Without Project Traffic Volumes

5.1.1 Road Link Volumes

As identified above, the peak traffic generation associated with each stage of the Project is expected to occur during the associated peak construction periods, with the expected maximum traffic volumes from the Project during the construction phase of both Stage 1 and Stage 2, the subsequent operations phase (10-year design horizon from Stage 2 construction – 2038) and decommissioning phase identified in **Table 22** above.

Based on these volumes, the forecast traffic volumes on the relevant sections of the road network were established for both with and without Project scenarios. These volumes were developed at the relevant design horizons for each phase of the Project, with summaries for the construction, operations and decommissioning phases outlined in **Table 29** overpage.

Further road link volumes were then also identified for the required cumulative assessment incorporating volumes from other state significant developments in the vicinity of the Project, with this assessment only completed for the critical Stage 1 and Stage 2 construction periods. These additional link volume forecasts are summarised in **Table 30**.

Table 29 Forecast Road Link Traffic Volumes – Pre and Project Traffic Scenarios

AADT Segment		Daily Traffic Volumes																							
		Background 2026			Stage 1 Peak Construction 2026			Background 2028			Stage 2 Peak Construction 2028			Background 2038			Operations 2038			Background 2058			Decommissioning 2058		
Start (km)	End (km)	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
A20 Sturt Highway (Mildura to Yanga Way)																									
0.000	82.400	1,490	1,525	3,016	1,501	1,536	3,038	1,551	1,587	3,137	1,561	1,597	3,157	1,890	1,934	3,825	1,892	1,936	3,829	2,809	2,874	5,683	2,816	2,881	5,697
82.400	162.100	1,129	1,156	2,285	1,140	1,167	2,307	1,175	1,203	2,378	1,185	1,213	2,398	1,432	1,466	2,898	1,434	1,468	2,902	2,129	2,178	4,307	2,136	2,185	4,321
162.100	165.500	533	545	1,079	593	605	1,199	555	567	1,122	663	675	1,338	676	692	1,368	708	724	1,432	1,005	1,028	2,033	1,081	1,103	2,184
Yanga Way (Sturt Highway to Tooleybuc)																									
0.000	11.800	373	516	890	433	576	1,010	388	537	926	496	645	1,142	474	655	1,128	506	687	1,192	704	973	1,676	779	1,048	1,828
11.800	19.800	373	376	749	460	463	923	388	391	780	471	474	946	474	477	951	474	477	951	704	709	1,412	762	767	1,529
19.800	36.200	373	376	749	460	463	923	388	391	780	491	494	986	474	477	951	474	477	951	704	709	1,412	776	781	1,557
36.200	49.100	328	327	655	332	331	663	342	340	682	349	347	696	416	415	831	416	415	831	619	616	1,235	624	621	1,245
Balranald-Moulamein Road (Yanga Way to Site Access SA8)																									
0.000	6.930	27	32	60	170	175	346	28	34	62	205	211	416	34	41	76	66	73	140	51	61	112	175	185	360
6.930	7.750	27	32	60	144	149	294	28	34	62	205	211	416	34	41	76	66	73	140	51	61	112	175	185	360
7.750	10.402	27	32	60	42	47	90	28	34	62	205	211	416	34	41	76	50	57	108	51	61	112	175	185	360
10.402	11.095	27	32	60	42	47	90	28	34	62	186	192	378	34	41	76	34	41	76	51	61	112	162	172	333
11.095	17.340	27	32	60	27	32	60	28	34	62	185	191	376	34	41	76	34	41	76	51	61	112	161	171	332
17.340	18.955	27	32	60	27	32	60	28	34	62	164	170	334	34	41	76	34	41	76	51	61	112	146	156	303
18.955	22.140	27	32	60	27	32	60	28	34	62	156	162	318	34	41	76	34	41	76	51	61	112	141	151	291
Arundel Road (Balranald-Moulamein Road to Site Access SA4)																									
0.000	0.710	11	11	22	11	11	22	11	11	23	46	46	91	14	14	27	30	30	59	20	20	41	44	44	89
Stony Crossing Road (Yanga Way to Swan Hill Road)																									
0.000	40.900	181	183	364	264	266	530	189	190	379	285	286	571	230	232	462	230	232	462	342	344	686	409	412	820
Swan Hill Road (Swan Hill to Stony Crossing Road)																									
0.000	11.100	469	497	966	552	580	1,132	488	517	1,005	584	613	1,197	595	630	1,226	595	630	1,226	885	937	1,821	952	1,004	1,956
B400 Murray River Highway (Swan Hill to Lake Boga)																									
0.000	16.000	3,266	3,266	6,532	3,331	3,331	6,662	3,398	3,398	6,796	3,468	3,468	6,936	4,142	4,142	8,284	4,142	4,142	8,284	6,155	6,155	12,309	6,204	6,204	12,407



Table 30 Forecast Road Link Traffic Volumes – Cumulative Assessment Scenarios

AADT Segment		Daily Traffic Volumes (Cumulative with External Projects)											
		2026 Stage 1 Peak Construction (Project Only)			2026 Stage 1 Peak Construction (Cumulative including External)			2028 Stage 2 Peak Construction (Project Only)			2028 Stage 2 Peak Construction (Cumulative including External)		
Start (km)	End (km)	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
A20 Sturt Highway (Mildura to Yanga Way)													
0.000	82.400	1,501	1,536	3,038	1,588	1,623	3,212	1,561	1,597	3,157	1,648	1,684	3,331
82.400	162.100	1,140	1,167	2,307	1,227	1,254	2,481	1,185	1,213	2,398	1,272	1,300	2,572
162.100	165.500	593	605	1,199	845	857	1,703	663	675	1,338	915	927	1,842
Yanga Way (Sturt Highway to Tooleybuc)													
0.000	11.800	433	576	1,010	518	661	1,180	496	645	1,142	581	730	1,312
11.800	19.800	460	463	923	545	548	1,093	471	474	946	556	559	1,116
19.800	36.200	460	463	923	545	548	1,093	491	494	986	576	579	1,156
36.200	49.100	332	331	663	417	416	833	349	347	696	434	432	866
Balranald-Moulamein Road (Yanga Way to Site Access SA8)													
0.000	6.930	170	175	346	170	175	346	205	211	416	205	211	416
6.930	7.750	144	149	294	144	149	294	205	211	416	205	211	416
7.750	10.402	42	47	90	42	47	90	205	211	416	205	211	416
10.402	11.095	42	47	90	42	47	90	186	192	378	186	192	378
11.095	17.340	27	32	60	27	32	60	185	191	376	185	191	376
17.340	18.955	27	32	60	27	32	60	164	170	334	164	170	334
18.955	22.140	27	32	60	27	32	60	156	162	318	156	162	318
Arundel Road (Balranald-Moulamein Road to Site Access SA4)													
0.000	0.710	11	11	22	11	11	22	46	46	91	46	46	91
Stony Crossing Road (Yanga Way to Swan Hill Road)													
0.000	40.900	264	266	530	264	266	530	285	286	571	285	286	571
Swan Hill Road (Swan Hill to Stony Crossing Road)													
0.000	11.100	552	580	1,132	552	580	1,132	584	613	1,197	584	613	1,197
B400 Murray River Highway (Swan Hill to Lake Boga)													
0.000	16.000	3,331	3,331	6,662	3,331	3,331	6,662	3,468	3,468	6,936	3,468	3,468	6,936

5.1.2 Intersection Volumes

In addition to road link volumes, traffic volumes at the key intersections of Sturt Highway / Yanga Way and Yanga Way / Balranald-Moulamein Road were established for the peak construction (Phase 1 & 2), operations and decommissioning phases of the Project.

To establish these volumes, the Project volumes as identified in **Section 4.1** above were added to the forecast background traffic volumes at the relevant design horizons for each phase of the Project. Further to this, volumes at the intersections were also established considering the cumulative traffic generated by the other identified state significant developments in the area, with the volumes identified in **Table 27** and **Table 28** above included with the Project traffic.

The resulting turning volumes for these traffic scenarios at the key intersections for the Project are summarised in **Table 31** to **Table 32** below.

Table 31 Project Scenario Traffic Volumes, Sturt Highway / Yanga Way Intersection

Year	Sturt Highway NW				Yanga Way S				Sturt Highway SE			
	Through		Right		Left		Through		Right		Left	
	LV	HV	LV	LV	HV	LV	LV	HV	LV	LV	HV	LV
Stage 1 Peak Construction												
2026 AM Peak (Project)	22	10	59	8	9	3	5	0	5	3	15	18
2026 PM Peak (Project)	18	28	17	5	59	5	5	2	4	0	23	22
Stage 1 Peak Construction - Cumulative												
2026 AM Peak (Project)	135	15	59	17	9	12	5	0	5	3	15	24
2026 PM Peak (Project)	18	34	17	14	59	14	5	2	4	0	136	27
Stage 2 Peak Construction												
2028 AM Peak (Project)	23	10	108	9	9	3	6	0	6	3	16	19
2028 PM Peak (Project)	19	29	18	5	108	5	6	2	5	0	24	23
Stage 2 Peak Construction - Cumulative												
2028 AM Peak (Project)	136	16	108	17	9	12	6	0	6	3	16	25
2028 PM Peak (Project)	19	35	18	14	108	14	6	2	5	0	137	28
Project Operations (10-year Design Horizon from Stage 2 completion)												
2038 AM Peak (Project)	27	12	49	10	11	3	7	0	7	4	19	23
2038 PM Peak (Project)	23	36	22	6	49	6	7	3	5	0	29	27
Project Decommissioning												
2058 AM Peak (Project)	41	18	83	14	16	4	10	0	10	6	29	35
2058 PM Peak (Project)	35	53	33	8	83	8	10	4	8	0	43	41

Table 32 Project Scenario Traffic Volumes, Yanga Way / Balranald-Moulamein Road Intersection

Year	Yanga Way SW				Balranald-Moulamein Road E				Yanga Way NE			
	Through		Right		Left		Through		Right		Left	
	LV	HV	LV	LV	HV	LV	LV	HV	LV	LV	HV	LV
Stage 1 Peak Construction												
2026 AM Peak (Project)	15	8	17	7	1	7	1	3	45	3	16	3
2026 PM Peak (Project)	18	3	0	8	16	9	45	2	1	2	23	3
Stage 1 Peak Construction - Cumulative												
2026 AM Peak (Project)	15	17	17	7	1	7	1	3	45	3	16	12
2026 PM Peak (Project)	18	12	0	8	16	9	45	2	1	2	23	12
Stage 2 Peak Construction												
2028 AM Peak (Project)	16	8	29	5	1	5	1	3	93	3	17	3
2028 PM Peak (Project)	19	3	0	6	28	7	93	2	1	2	24	3
Stage 2 Peak Construction - Cumulative												
2028 AM Peak (Project)	16	17	29	5	1	5	1	3	93	3	17	12
2028 PM Peak (Project)	19	12	0	6	28	7	93	2	1	2	24	12
Project Operations (10-year Design Horizon from Stage 2 completion)												
2038 AM Peak (Project)	19	10	1	0	1	0	1	3	31	3	21	4
2038 PM Peak (Project)	23	4	0	1	0	3	31	2	1	2	29	4
Project Decommissioning												
2058 AM Peak (Project)	29	14	22	4	2	4	2	4	56	4	31	6
2058 PM Peak (Project)	35	6	0	6	0	8	56	2	2	2	43	6

5.2 Access and Frontage Impact Assessment and Mitigation

As identified in **Section 3.0** and **Section 4.0** above, the Project proposal includes three direct vehicular access points to the Project Area from Balranald-Moulamein Road (Site Access 2, 3 & 5) as part of Stage 1, with a further three access points on Balranald-Moulamein Road (Site Access 6,7 & 8), a single access point from Arundel Road (Site Access 4) and a single access point from Yanga Way (Site Access 1) proposed to be provided in Stage 2.

For the access points from the Council controlled links of Balranald-Moulamein Road and Arundel Road, it is proposed that the access locations be constructed generally in accordance with the site access arrangement for articulated vehicles outlined in Figure 7.4 of Austroads Guide to Road Design Part 4: Intersections and Crossings – General (refer **Figure 36** above).

Meanwhile the proposed access location from Yanga Way (Site Access 1) is proposed to be provided generally in accordance with Figure 8.2 of Part 4A (rural BAL) and Figure A6 of Part 4 (rural BAR) of Austroads Guide to Road Design, adopting a design speed of 110km/h and a 26m B-Double design vehicle.

Further to this, it is noted that additional hardstand areas are likely to be required at each site access location to accommodate the swept paths of the OSOM turbine transport vehicles, with the exact extents of these additional areas to be confirmed in subsequent detailed design phases of the Project once the final configuration of the turbine components and associated transport vehicles are provided.

Finally it is noted that an assessment of the location of each site access has also been undertaken, with adequate sight distances expected to be available in each direction to/from each access location.

5.3 Intersection Impact Assessment and Mitigation

5.3.1 Sturt Highway / Balranald-Moulamein Road

5.3.1.1 Turn Warrant Assessment

An assessment has been undertaken to establish the appropriate turn treatments at existing Sturt Highway / Yanga Way intersection. This assessment is based on the turn treatment warrants graph as per Figure 2.26(b) of Austroads Guide to Traffic Management - Part 6: Intersections, Interchanges and Crossings to reflect the high-speed rural highway traffic environment.

The forecast turning movement volumes at this intersection during the AM and PM peak periods of the construction, operations and decommissioning phase of the Project (both Project only and cumulative scenarios) as identified in **Table 31** above have been used as the basis of this assessment, with a summary of the resultant turn warrants from the assessment shown in **Table 33** below. Further details of the turn warrant calculations for each of the identified traffic scenarios is also included for reference as **Appendix I**.

Table 33 Intersection Turn Warrants Assessment – Sturt Highway / Yanga Way Intersection

Project Traffic Scenario	Recommended Turn Warrants	
	Left Turn Treatment	Right Turn Treatment
Stage 1 Peak Construction		
2026 AM Peak (Project)	BAL	BAR
2026 AM Peak (Project)	BAL	BAR
Stage 1 Peak Construction - Cumulative		
2026 AM Peak (Project)	BAL	CHRs
2026 AM Peak (Project)	BAL	BAR
Stage 2 Peak Construction		
2028 AM Peak (Project)	BAL	BAR
2028 AM Peak (Project)	BAL	BAR
Stage 2 Peak Construction - Cumulative		
2028 AM Peak (Project)	BAL	CHRs
2028 AM Peak (Project)	BAL	BAR
Project Operations (10-year Design Horizon from Stage 2 completion)		
2038 AM Peak (Project)	BAL	BAR
2038 PM Peak (Project)	BAL	BAR
Project Decommissioning		
2058 AM Peak (Project)	BAL	BAR
2058 PM Peak (Project)	BAL	BAR
Recommended Intersection Turn Treatments	BAL	CHRs

As shown in **Table 33**, based on the forecast peak hour traffic volumes at the intersection during the critical periods of the Stage 1 and Stage 2 construction, operations and decommissioning phases of the Project, it was shown that the required intersection treatments at the Sturt Highway / Yanga Way intersection were a basic left (BAL) and a short channelised (CHRs) treatment.

Based on the expected provision of an AUL and CHRs treatment at the intersection (based on upgrade of right turn treatment to a CHRs standard as part of the approved Balranald Mineral Sands Project) it is expected that the pre-Project configuration will be adequate to cater for the additional traffic movements associated with the Stage 1 and Stage 2 construction (including cumulative assessment), operations and decommissioning phases of the proposed Junction Rivers Wind Project.

5.3.1.2 Intersection Capacity Assessment

SIDRA analysis was also undertaken to establish the operational performance of Sturt Highway / Yanga Way intersection for the relevant traffic scenarios for the Stage 1 and Stage 2 construction, operations and decommissioning phases of the Project, considering the AM and PM peak periods at the critical design horizons for each phase as outlined in **Section 4.0** above.

A summary of the results of the completed analysis of the Sturt Highway / Yanga Way intersection is provided in **Table 34**, with detailed SIDRA output summaries included for reference in **Appendix C**. Further to this it is noted that the assessments completed assume that previous completion of the update works to provide a CHR treatment for right turn movements into Yanga Way.

Table 34 SIDRA Results – Sturt Highway / Yanga Way Intersection

Analysis Scenario	Intersection Degree of Saturation	Level of Service**	Intersection Average Delay (sec)	Maximum 95% Back of Queue Length (m)
Unsignalised / Priority Controlled Intersections				
Acceptable Limits of Operation	< 0.800	LOS C	< 42.5	Varies *
Stage 1 Peak Construction				
2026 AM Peak (Project)	0.062	LOS A	3.5	2.1
2026 PM Peak (Project)	0.063	LOS A	3.1	1.8
Stage 1 Peak Construction - Cumulative				
2026 AM Peak (Project)	0.129	LOS A	2.4	4.3
2026 PM Peak (Project)	0.080	LOS A	2.5	2.6
Stage 2 Peak Construction				
2028 AM Peak (Project)	0.095	LOS A	4.0	3.0
2028 PM Peak (Project)	0.104	LOS A	3.6	2.9
Stage 2 Peak Construction - Cumulative				
2028 AM Peak (Project)	0.161	LOS A	2.9	5.9
2028 PM Peak (Project)	0.123	LOS A	3.0	3.7
Project Operations (10-year Design Horizon from Stage 2 completion)				
2038 AM Peak (Project)	0.062	LOS A	3.3	2.2
2038 PM Peak (Project)	0.062	LOS A	2.9	1.8
Project Decommissioning				
2058 AM Peak (Project)	0.101	LOS A	3.4	3.6
2058 PM Peak (Project)	0.101	LOS A	3.1	3.0

** LOS value identified is for worst movement at the intersection, not the overall intersection.

The results above indicate that the BAL / CHR configuration of the Sturt Highway / Yanga Way intersection is expected to operate satisfactorily during all Project traffic scenarios identified for the Project (including cumulative assessments), with all values for intersection DOS, LOS, average delay and vehicle queue lengths being within acceptable limits of operation for a priority-controlled (give-way) intersection.

Based on these results, it can therefore be seen that the BAL / CHR configuration of the Sturt Highway / Yanga Way intersection, will be adequate to cater for the additional traffic volumes generated by the peak construction, operations and decommissioning phases of the Project.

5.3.2 Yanga Way Intersection / Balranald-Moulamein Road

5.3.2.1 Turn Warrant Assessment

An assessment has been undertaken to establish the appropriate turn treatments at Yanga Way / Balranald-Moulamein Road intersection. This assessment is based on the turn treatment warrants graph as per Figure 2.26(a) of Austroads Guide to Traffic Management - Part 6: Intersections, Interchanges and Crossings to reflect the high-speed rural highway traffic environment.

The forecast turning movement volumes at this intersection during the AM and PM peak periods of the construction, operations and decommissioning phase of the Project (both Project only and cumulative scenarios) as identified in **Table 32** above have been used as the basis of this assessment, with a summary of the resultant turn warrants from the assessment shown in **Table 35** below. Further details of the turn warrant calculations for each of the identified traffic scenarios are included for reference as **Appendix J**.

Table 33 Intersection Turn Warrants Assessment - Yanga Way / Balranald-Moulamein Road Intersection

Project Traffic Scenario	Recommended Turn Warrants	
	Left Turn Treatment	Right Turn Treatment
Stage 1 Peak Construction		
2026 AM Peak (Project Peak)	BAL	BAR
2026 AM Peak (Project Peak)	BAL	BAR
Stage 1 Peak Construction - Cumulative		
2026 AM Peak (Project Peak)	BAL	BAR
2026 AM Peak (Project Peak)	BAL	BAR
Stage 2 Peak Construction		
2028 AM Peak (Project Peak)	BAL	BAR
2028 AM Peak (Project Peak)	BAL	BAR
Stage 2 Peak Construction - Cumulative		
2028 AM Peak (Project Peak)	BAL	BAR
2028 AM Peak (Project Peak)	BAL	BAR
Project Operations (10-year Design Horizon from Stage 2 completion)		
2038 AM Peak (Project)	BAL	BAR
2038 PM Peak (Project)	BAL	BAR
Project Decommissioning		
2058 AM Peak (Project)	BAL	BAR
2058 PM Peak (Project)	BAL	BAR
Recommended Intersection Turn Treatments	BAL	BAR

As shown in **Table 33** above, based on the forecast peak hour traffic volumes at the intersection during the critical periods of the Stage 1 and Stage 2 construction, operations and decommissioning phases of the Project, it was shown that the required intersection treatments at the Yanga Way / Balranald-Moulamein Road intersection were a basic left (BAL) and basic right (BAR) treatments.

It was noted that the graph for the Stage 2 cumulative construction phase assessment identified that the right turn volumes into Balranald-Moulamein Road during the 2028 AM peak was on the border of the BAR / CHRs treatment areas, however as the forecast Stage 2 volumes are considered conservative (assumes max volume for each coincident construction task, when this is unlikely to occur), and noted to only be temporary and not ongoing at the intersection, the adoption of the BAR treatment was considered adequate.

Based on the assessment above, it can be seen that the provision of upgrade works to include BAL and BAR treatments at the intersection as part of the external network upgrade works for Stage 1 of the Project, will be appropriate to cater for the expected Project traffic volumes. Furthermore, it is recommended that the required turn treatments at the intersection be designed generally in accordance with Figure 8.2 of Austroads Guide to Road Design Part 4A (BAL) and Figure A6 of Austroads Guide to Road Design Part 4 (BAR) respectively.

In addition to the identified turn treatments at the site access intersection, it is also recommended that traffic management measures including advisory “truck turning” signage be installed on the Yanga Way approaches to the intersection (from both directions) during the peak construction phases of each stage of the Project, to highlight to motorists the potential presence of Project traffic at the intersection, including turning heavy vehicles to/from the side road.

Finally, it is noted that pavement works are expected to be required to provide additional hardstand areas to extend the trafficable surface on the north-eastern corner of the intersection of Yanga Way / Balranald-Moulamein Road to accommodate the swept paths of the identified turbine component transport vehicle movements for the Project.

The exact extent of these additional hardstand works at the intersection will be confirmed when the turbine component and transport vehicle configurations are finalised in subsequent stages of the Project, however preliminary details can be seen in the Preliminary Transport Route Assessment report completed for the Project (refer **Appendix A**) and **Figure 26** above.

5.3.2.2 Intersection Capacity Assessment

SIDRA analysis was also undertaken to establish the operational performance of the proposed upgraded configuration of the Yanga Way / Balranald-Moulamein Road intersection. This analysis was completed for the relevant traffic scenarios for the Stage 1 and Stage 2 construction, operations and decommissioning phases of the Project, considering the AM and PM peak periods at the critical design horizons for each phase as outlined in **Section 4.0** above.

A summary of the results of the completed analysis of the Yanga Way / Balranald-Moulamein Road intersection is provided in **Table 34**, with detailed SIDRA output summaries included for reference in **Appendix D**.

Table 34 SIDRA Results – Yanga Way / Balranald-Moulamein Road Intersection

Analysis Scenario	Intersection Degree of Saturation	Level of Service**	Intersection Average Delay (sec)	Maximum 95% Back of Queue Length (m)
Unsignalised / Priority Controlled Intersections				
Acceptable Limits of Operation	< 0.800	LOS C	< 42.5	Varies *
Stage 1 Peak Construction				
2026 AM Peak (Project)	0.039	LOS A	4.0	1.2
2026 PM Peak (Project)	0.061	LOS A	3.8	1.7
Stage 1 Peak Construction - Cumulative				
2026 AM Peak (Project)	0.047	LOS A	3.5	1.4
2026 PM Peak (Project)	0.062	LOS A	3.4	1.8
Stage 2 Peak Construction				
2028 AM Peak (Project)	0.067	LOS A	4.5	1.4
2028 PM Peak (Project)	0.109	LOS A	4.3	2.9
Stage 2 Peak Construction - Cumulative				
2028 AM Peak (Project)	0.075	LOS A	4.1	1.7
2028 PM Peak (Project)	0.111	LOS A	4.0	3.0

Analysis Scenario	Intersection Degree of Saturation	Level of Service**	Intersection Average Delay (sec)	Maximum 95% Back of Queue Length (m)
Project Operations (10-year Design Horizon from Stage 2 completion)				
2038 AM Peak (Project)	0.035	LOS A	2.5	0.2
2038 PM Peak (Project)	0.033	LOS A	2.4	0.8
Project Decommissioning				
2058 AM Peak (Project)	0.057	LOS A	3.3	1.3
2058 PM Peak (Project)	0.061	LOS A	2.8	1.6

** LOS value identified is for worst movement at the intersection, not the overall intersection.

The results above indicate that the proposed upgraded (BAL/BAR) configuration of the Yanga Way / Balranald-Moulamein Road intersection is expected to operate satisfactorily during all traffic scenarios identified for the Project (including cumulative assessment), with all values for intersection DOS, LOS, average delay and vehicle queue lengths being within acceptable limits of operation (refer **Section 2.5.2.1** above) for a priority-controlled (give-way) intersection.

Based on these results, it can therefore be seen that the proposed upgraded (BAL/BAR) configuration of the Yanga Way / Balranald-Moulamein Road intersection, will be adequate to cater for the additional traffic volumes generated by the peak construction, operations and decommissioning phases of the Project.

5.3.3 Balranald-Moulamein Road / Arundel Road

Finally it is noted that detailed intersection analysis of the operation of the Balranald-Moulamein Road / Arundel Road intersection was not considered necessary as the proposed upgrade works at the intersection (refer **Section 3.4.2.1** above) was considered adequate to provide adequate capacity for all Project traffic scenarios, based on the low background and Project traffic volumes forecast at the intersection.

5.4 Road Link Capacity Assessment and Mitigation

In addition to the analysis of the proposed Project Area access intersection, an assessment of the impact of the additional traffic generated by the various phases of the Project on the operation of the road links utilised has also been completed.

This assessment identifies the expected increase in daily traffic volumes on the road network during the key Stage 1 and Stage 2 construction, operations and decommissioning phases of the Project, and comments on the level of impact the increase in traffic is anticipated to have on the operation of the road links.

The assessment is primarily focussed on the relevant sections of the Sturt Highway, Yanga Way, Swan Hill Road, Stony Crossing Road, Balranald-Moulamein Road and Arundel Road, as these links are proposed to be utilised by the additional traffic generated by the Project.

A summary of the assessment of the percentage increase in daily traffic volumes on the relevant sections of the external road network as a result of the Stage 1 and Stage 2 construction, operations and decommissioning phase traffic (refer **Table 29** and **Table 30** above) from the Project is shown in **Table 35** below, with further details of the calculations undertaken provided in **Appendix K**.

As can be seen by the results, the addition of the expected Stage 1 and Stage 2 construction (including cumulative assessment), operations and decommission phase traffic volumes from the Project is shown to lead to increases greater than 5% on the various sections of the Sturt Highway, Yanga Way, Balranald-Moulamein Road, Arundel Road (Stage 2 only), Stony Crossing Road and Swan Hill Road (increases greater than 5% shown in red). Further to this it is noted that the high percentage increases observed are generally as a result of the low background volumes on this fairly remote section of the road network.

Notwithstanding this, it is noted that with Project volumes identified for the various Project traffic scenarios in **Table 27** and **Table 28** above identified the total volumes on the relevant sections of the identified roads

were all still within the generally accepted capacities for two lane rural highways (12,000-15,000vpd – Sturt Highway and Murray River Highway), rural arterial roads (3,000vpd – Yanga Way and Swan Hill Road) and rural collector roads (sealed approx. 1,000vpd – Stony Crossing Road). As such it can be considered that the existing configurations of these roads provide adequate capacity to cater for the additional traffic volumes generated by the Project.

Finally, it is noted that the proposed upgrade works to the relevant sections of Balranald-Moulamein Road and Arundel Road (as part of Stage 2 works) are expected to provide adequate road configurations (widths) with suitable capacity to accommodate the additional traffic volumes generated by the Project, in line with the requirements for a rural major (Balranald-Moulamein Road) and rural minor road (Arundel Road) as per ARRB's Unsealed Roads Best Practice Guide.



Table 35 Road Link Daily Traffic Volume Comparison (Construction Phase)

AADT Segment		% Increase in Daily Traffic from Background Traffic Volumes											
		Stage 1 Construction (2026)		Stage 1 Construction (Cumulative - 2026)		Stage 2 Construction (2028)		Stage 2 Construction (Cumulative - 2028)		Project Operations (2038)		Decommissioning (2058)	
Start (km)	End (km)	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz
A20 Sturt Highway (Mildura to Yanga Way)													
0.000	82.400	0.7%	0.7%	6.6%	6.4%	0.6%	0.6%	6.3%	6.1%	0.1%	0.1%	0.2%	0.2%
82.400	162.100	1.0%	1.0%	8.7%	8.5%	0.9%	0.8%	8.3%	8.1%	0.1%	0.1%	0.3%	0.3%
162.100	165.500	11.3%	11.0%	58.5%	57.2%	19.5%	19.0%	64.9%	63.4%	4.7%	4.6%	7.5%	7.4%
Yanga Way (Sturt Highway to Tooleybuc)													
0.000	11.800	16.1%	11.6%	38.8%	28.1%	27.8%	20.1%	49.7%	35.9%	6.8%	4.9%	10.7%	7.8%
11.800	19.800	23.3%	23.1%	46.1%	45.7%	21.4%	21.2%	43.2%	42.9%	0.0%	0.0%	8.3%	8.2%
19.800	36.200	23.3%	23.1%	46.1%	45.7%	26.5%	26.3%	48.4%	48.1%	0.0%	0.0%	10.2%	10.2%
36.200	49.100	1.2%	1.2%	27.1%	27.2%	2.0%	2.1%	26.9%	27.0%	0.0%	0.0%	0.8%	0.8%
Balranald-Moulamein Road (Yanga Way to Site Access SA8)													
0.000	6.930	528.4%	440.4%	528.4%	440.4%	628.7%	523.9%	628.7%	523.9%	93.2%	77.7%	243.0%	202.5%
6.930	7.750	432.4%	360.3%	432.4%	360.3%	628.7%	523.9%	628.7%	523.9%	93.2%	77.7%	243.0%	202.5%
7.750	10.402	55.4%	46.2%	55.4%	46.2%	628.7%	523.9%	628.7%	523.9%	46.6%	38.9%	243.0%	202.5%
10.402	11.095	55.4%	46.2%	55.4%	46.2%	561.2%	467.7%	561.2%	467.7%	0.0%	0.0%	216.9%	180.7%
11.095	17.340	0.0%	0.0%	0.0%	0.0%	557.6%	464.7%	557.6%	464.7%	0.0%	0.0%	215.5%	179.6%
17.340	18.955	0.0%	0.0%	0.0%	0.0%	483.1%	402.5%	483.1%	402.5%	0.0%	0.0%	186.7%	155.6%
18.955	22.140	0.0%	0.0%	0.0%	0.0%	454.6%	378.9%	454.6%	378.9%	0.0%	0.0%	175.7%	146.4%
Arundel Road (Balranald-Moulamein Road to Site Access SA4)													
0.000	0.710	0.0%	0.0%	0.0%	0.0%	304.1%	304.1%	304.1%	304.1%	116.6%	116.6%	117.5%	117.5%
Stony Crossing Road (Yanga Way to Swan Hill Road)													
0.000	40.900	45.8%	45.4%	45.8%	45.4%	50.9%	50.5%	50.9%	50.5%	0.0%	0.0%	19.7%	19.5%
Swan Hill Road (Swan Hill to Stony Crossing Road)													
0.000	11.100	17.7%	16.7%	17.7%	16.7%	19.7%	18.6%	19.7%	18.6%	0.0%	0.0%	7.6%	7.2%
B400 Murray River Highway (Swan Hill to Lake Boga)													
0.000	16.000	2.0%	2.0%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	0.0%	0.0%	0.8%	0.8%

5.4.1 Turbine Component Transport Routes

It is also noted that additional sections of the external road network have been identified to be temporarily utilised by the Project as part of the turbine component transport routes during both the Stage 1 and Stage 2 construction phases.

However, as the movement of these OSOM vehicles is required to be undertaken under permit (with escort vehicles) and likely out of hours, it is not anticipated that the relatively small increase in daily traffic volumes (up to 16-17vpd, including 5 OSOM vehicles) will have a significant ongoing impact on the operation or capacity of the roads forming the proposed turbine transport routes.

Notwithstanding this, it is noted that a detailed Traffic Management Plan (TMP) is proposed to be prepared as part of subsequent stages of the Project to identify the proposed measures and processes to be implemented to manage the Project traffic movements and reduce their impact traffic on the operation of external road network, in particular the OSOM turbine transport movements. The TMP will be developed in consultation with TfNSW, and the relevant local government agencies located along the proposed OSOM transport routes for the Project.

5.5 Pavement Impact Assessment and Mitigation

In addition to the assessment of the potential traffic impacts of the increased traffic movements associated with the Project, a high-level review of the potential increases in pavement loading as a result of the Project has also been undertaken.

Further details of the assessment of the expected pavement impacts of the construction, operations and decommissioning phase of the Project are provided below.

5.5.1 Construction Phase

The assessment of the potential pavement impact of the Stage 1 and Stage 2 construction traffic consists of a comparison of the overall pavement loading (in Equivalent Standard Axles) during the background traffic volumes on the network and those during the identified peak construction periods for both Stage 1 and Stage 2 of the Project, most notably from the associated heavy vehicle movements during these periods.

The pavement loading (in ESAs/SAR₄) for the background traffic periods was calculated based on the identified heavy vehicle percentages for the relevant sections of the network, adopting the following assumptions:

- The percentage of heavy vehicles identified in the available traffic data utilised for the assessment will be maintained for future years, with the overall background traffic numbers assumed to increase at approximately 2% (compound) per year.
- The impact of light vehicles can be ignored as the contribution to pavement loading is negligible in comparison to heavy vehicles.
- The adopted value for the Equivalent Standard Axles per Heavy Vehicle (ESAs/HV) was adopted from WIM site data (2017) for the Sturt Highway at Merbein South (Mildura – 3.19 ESAs/HV), as specified in Table E1 of Austroads Guide to Pavement Technology Part 2: Pavement Structural Design.
- The background period of the assessment for the relevant construction phases are the proposed duration of construction for both the Stage 1 (18 months or 548 days) and Stage 2 (30 months or 913 days).

The pavement loading generated by the Project construction traffic was then calculated based on the estimated number of heavy vehicle movements during construction and the average loaded and unloaded ESAs/HV values for each vehicle configuration. It is noted that the values for the OSOM turbine component transport movements have been adopted from information provided from a previously assessed wind farm development and provide indicative component loading information which will need to be reassessed in subsequent stages of the Project when the turbine component and transport vehicle configurations have been confirmed.

A summary of the comparison of the background and Project generated pavement loadings is provided in **Table 36** and **Table 37** for Stage 1 and Stage 2 respectively, with further details of the Project pavement loading calculations undertaken included for reference in **Appendix L**.

Table 36 Pavement Loading Comparison – Stage 1 Construction Phase

Road ID	Road Segment		Background ESA			Stage 1 Construction Project-Generated ESA			% Increase in ESAs		
	Start (km)	End (km)	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	
A20 Sturt Highway (Mildura to Yanga Way)											
98064	0.000	82.400	680,990	703,440	1,384,430	11,760	1,659	13,419	1.73%	0.24%	0.97%
98064	82.400	162.100	680,990	703,440	1,384,430	12,793	2,374	15,167	1.88%	0.34%	1.10%
T0234	162.100	165.500	538,791	561,477	1,100,268	21,979	3,324	25,303	4.08%	0.59%	2.30%
Yanga Way (Sturt Highway to Tooleybuc)											
97488	0.000	11.800	171,701	244,989	416,691	21,979	3,324	25,303	12.80%	1.36%	6.07%
97494	11.800	19.800	171,708	178,486	350,194	25,583	98,394	123,977	14.90%	55.13%	35.40%
97494	19.800	36.200	171,708	178,486	350,194	25,583	98,394	123,977	14.90%	55.13%	35.40%
97207	36.200	49.100	195,915	190,827	386,742	0	0	0	0.00%	0.00%	0.00%
Balranald-Moulamein Road (Yanga Way to Site Access 5)											
MRC	0.000	6.930	18,534	27,801	46,336	122,111	32,659	154,770	658.84%	117.47%	334.02%
MRC	6.930	7.750	18,534	27,801	46,336	68,663	25,826	94,489	370.46%	92.90%	203.92%
MRC	7.750	11.095	18,534	27,801	46,336	20,397	3,904	24,301	110.05%	14.04%	52.45%
Stony Crossing Road (Yanga Way to Swan Hill Road)											
97206	0.000	40.900	58,520	83,964	142,484	25,583	98,394	123,977	43.72%	117.19%	87.01%
Swan Hill Road (Swan Hill to Stony Crossing Road)											
97200	0.000	11.100	136,334	143,386	279,721	98,394	25,583	123,977	72.17%	17.84%	44.32%
B400 Murray River Highway (Swan Hill to Lake Boga)											
-	0.000	16.000	831,099	987,292	1,818,391	95,130	25,245	120,375	11.45%	2.56%	6.62%

Table 37 Pavement Loading Comparison – Stage 2 Construction Phase

Road ID	Road Segment		Background ESA			Stage 2 Construction Project-Generated ESA			% Increase in ESAs		
	Start (km)	End (km)	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	
A20 Sturt Highway (Mildura to Yanga Way)											
98064	0.000	82.400	1,180,836	1,219,765	2,400,601	23,284	6,587	29,871	1.97%	0.54%	1.24%
98064	82.400	162.100	894,926	924,429	1,819,356	25,555	8,161	33,716	2.86%	0.88%	1.85%
T0234	162.100	165.500	934,264	973,601	1,907,865	46,776	10,357	57,133	5.01%	1.06%	2.99%
Yanga Way (Sturt Highway to Tooleybuc)											
97488	0.000	11.800	297,730	424,812	722,542	46,776	10,357	57,133	15.71%	2.44%	7.91%
97494	11.800	19.800	297,742	309,495	607,236	51,200	131,863	183,064	17.20%	42.61%	30.15%
97494	19.800	36.200	297,742	309,495	607,236	53,761	206,781	260,542	18.06%	66.81%	42.91%
97207	36.200	49.100	339,717	330,894	670,611	0	0	0	0.00%	0.00%	0.00%
Balranald-Moulamein Road (Yanga Way to Site Access 8)											
MRC	0.000	6.930	32,138	48,208	80,346	157,356	40,226	197,582	489.62%	83.44%	245.91%
MRC	6.930	7.750	32,138	48,208	80,346	157,356	40,226	197,582	489.62%	83.44%	245.91%
MRC	7.750	10.402	32,138	48,208	80,346	157,356	40,226	197,582	489.62%	83.44%	245.91%
MRC	10.402	11.095	32,138	48,208	80,346	144,681	40,356	185,038	450.18%	83.71%	230.30%
MRC	11.095	17.340	32,138	48,208	80,346	144,681	40,356	185,038	450.18%	83.71%	230.30%
MRC	17.340	18.955	32,138	48,208	80,346	77,313	19,881	97,194	240.56%	41.24%	120.97%
MRC	18.955	22.140	32,138	48,208	80,346	55,251	17,094	72,345	171.92%	35.46%	90.04%
Arundel Road (Balranald-Moulamein Road to Site Access 4)											
MRC	0.000	0.710	12,855	12,855	25,711	12,848	3,447	16,296	99.94%	26.82%	63.38%
Stony Crossing Road (Yanga Way to Swan Hill Road)											
97206	0.000	40.900	101,474	145,593	247,067	53,761	206,781	260,542	52.98%	142.03%	105.45%
Swan Hill Road (Swan Hill to Stony Crossing Road)											
97200	0.000	11.100	236,404	248,632	485,035	206,781	53,761	260,542	87.47%	21.62%	53.72%
B400 Murray River Highway (Swan Hill to Lake Boga)											
-	0.000	16.000	1,441,126	1,711,964	3,153,091	198,325	52,887	251,212	13.76%	3.09%	7.97%

The results in **Table 36** and **Table 37** above indicate that the heavy vehicle movements associated with the construction phase of both Stage 1 and Stage 2 of the Project are expected to lead to a minor increase (<10%) in pavement loadings on the sections of the major state-controlled links of the Sturt Highway and Murray River Highway identified to form part of the transport routes for the Project.

The results did however indicate higher increases (>10%) in pavement loading as a result of Project traffic on the following sections of the external road network:

Stage 1

- Yanga Way (Balranald-Moulamein Road and Stony Crossing Road) – TfNSW.
- Stony Crossing Road (Yanga Way to Swan Hill Road) – TfNSW.
- Swan Hill Road (Swan Hill to Stony Crossing Road) – TfNSW.
- Balranald-Moulamein Road (Yanga Way to Site Access 5) - MRC.

Stage 2

- Yanga Way (Balranald-Moulamein Road and Stony Crossing Road) – TfNSW.

- Stony Crossing Road (Yanga Way to Swan Hill Road) – TfNSW.
- Swan Hill Road (Swan Hill to Stony Crossing Road) – TfNSW.
- Balranald-Moulamein Road (Yanga Way to Site Access 8) - MRC.
- Arundel Road (Balranald-Moulamein Road to Site Access 4) – MRC.

In terms of the state-controlled roads, as the calculated in pavement loadings are expected to only occur for the identified construction periods of both Stage 1 (18 months) and Stage 2 (30 months) of the Project, with negligible ongoing traffic volumes (and therefore pavement loadings) during the proposed 30-year operations phase of the Project. As such it is not considered that the temporary increase in traffic on these roads during the construction phases of the Project will lead to a significant impact to the existing road pavements on the relevant sections of Yanga Way, Stony Crossing Road or Swan Hill Road.

Further to this, the identified state roads currently cater for long distance and interstate freight traffic, and as such the use of these roads by standard heavy vehicle configurations utilised by the Project should be considered part of the normal traffic utilising these routes under general heavy vehicle / mass conditions, with the relevant road authority to retain responsibility for sourcing an appropriate maintenance budget to maintain road pavement standards on these roads.

It is anticipated that the proposed upgrade works to the relevant sections of the Council controlled Balranald-Moulamein Road and Arundel Road for each stage of the Project will provide a suitable road pavement to cater for the expected loading from the forecast Project traffic for the construction phases of both Stage 1 and Stage 2.

Notwithstanding this, it is also proposed that pre and post construction phase dilapidation inspections to be undertaken on the relevant sections of Balranald-Moulamein Road (Stage 1 & 2) and Arundel Road (Stage 2) used by Project traffic, with these inspections to be completed by representatives of the proponent and Murray River Council. These inspections are required to identify and document the upgraded condition of the roads (pre construction) and to establish the required maintenance and/or rehabilitation works (to be completed by the proponent at no cost to Council) deemed necessary to reinstate the roads to their documented pre construction condition (post construction).

5.5.2 Turbine Component Transport Routes

In terms of the expected pavement impact on the identified road sections forming the proposed turbine transport routes, it is noted that the vast majority of the routes are comprised of higher order (and volume), state-controlled roads. As such it is expected that the existing road pavements on these links would be more than adequate to cater for the increase in pavement loadings from the proposed OSOM turbine transport vehicle movements during construction.

Notwithstanding this, it is noted that the identified turbine component transport routes propose the use of lower order, local government controlled road links in various local government authorities, particularly on the high load detour from Port Adelaide. As it is expected that these lower order roads are likely to not have been designed to cater for larger heavy vehicles like the OSOM turbine transport vehicles, it is recommended that further consultation be undertaken with the relevant local government agencies regarding the required mitigation works on the identified links to offset any potential pavement impacts of the Project.

It is also recommended that pre and post dilapidation inspections to be undertaken on the sections of the local government roads used by Project traffic prior to the commencement of construction, with these inspections to be completed by representatives of the proponent and the appropriate Council. These inspections are required to identify and document the current condition of the roads (pre OSOM haulage) and establish the required maintenance and/or rehabilitation works relevant to the Project.

5.5.3 Operations Phase

As identified above, it is understood that the operations phase of the overall Project (Stage 1 and Stage 2) will only generate relatively low traffic volumes on the network (approx. 30vpd) with negligible heavy vehicle movements (approximately 1 HV per week). As such it can be considered that this phase of the Project will have a negligible impact to the operation (and pavement loadings) of all relevant road links.

5.5.4 Decommissioning Phase

As previously identified, based on information provided by Windlab it is understood the decommissioning phase works associated with the Project are anticipated to be completed over a 12-18 month period for the overall Project Area, with the peak traffic movements to/from the Project Area during decommissioning conservatively estimated to be approximately 70% of the peak construction movements for the Project to/from the Project Area (both daily and during AM and PM peak periods).

However, as these works are likely to occur in more than 30 years the exact nature of the works and associated traffic movements are difficult to confirm at this stage. As such it is proposed that when more accurate information is available closer to the start of the decommissioning works, an updated traffic impact assessment be completed as part of the required decommissioning and rehabilitation strategy, to clearly outline the proposed decommissioning works, the associated traffic movements, their anticipated impact on the surrounding road network and any management and mitigation required.

Notwithstanding this, as any pavement loading from a future decommissioning phase will only be temporary (12-18 months) with no ongoing increase in traffic (or loading), it is expected that the decommissioning phase of the Project will have a minimal impact to the existing road pavements of the external road network.

5.6 Road Safety Assessment

A high-level road safety assessment has also been undertaken to establish the existing and post development road safety risks relevant to the Project. To establish the level of risk regarding the existing and expected Project road safety considerations identified, a safety risk score matrix as shown in **Figure 48** was utilised, with the results of the road safety risk assessment summarised in **Table 38**.

		Potential consequence				
		Property only (1)	Minor injury (2)	Medical treatment (3)	Hospitalisation (4)	Fatality (5)
Potential likelihood	Almost certain (5)	M	M	H	H	H
	Likely (4)	M	M	M	H	H
	Moderate (3)	L	M	M	M	H
	Unlikely (2)	L	L	M	M	M
	Rare (1)	L	L	L	M	M

L: Low risk
 M: Medium risk
 H: High risk

Figure 43 Adopted Risk Score Matrix

Table 38 Project Road Safety Assessment – Junction Rivers Wind Farm

Risk Item	Existing / Pre-Development			With Project			Mitigation Measure	With Project & Mitigation		
	Likelihood	Consequence	Risk Score	Likelihood	Consequence	Risk Score		Likelihood	Consequence	Risk Score
1 The Project is expected to lead to an increase in turning vehicle movements at the Sturt Highway / Yanga Way intersection. This increase in turning vehicles has the potential to lead to an increase in vehicle conflicts at the intersection.	Unlikely	Hospitalisation / Fatality	Medium	Moderate	Hospitalisation / Fatality	Medium / High	Review of the current intersection configuration and nearby SSD Projects identified expected requirement of a CHRs turn treatment to be provided to cater for the additional turning movements at the intersection as part of Balranald Mineral Sands Project. Based on the provision of these upgrade works prior to the Project, the detailed intersection analysis completed (refer Section 5.3.1 above) identified that the intersection was expected to operate within acceptable limits of operation for a priority-controlled intersection for all construction (Stage 1&2) operations and decommissioning phase traffic scenarios for the Project. With these upgrade works also expected to provide safer turn facilities at the intersection, reducing the potential of vehicle conflicts associated with Project traffic at the intersection.	Unlikely	Hospitalisation / Fatality	Medium
2 The Project is expected to lead to an increase in turning vehicle movements at the Yanga Way / Balranald-Moulamein Road intersection. This increase in turning vehicles has the potential to lead to an increase in vehicle conflicts at this intersection.	Unlikely	Hospitalisation / Fatality	Medium	Moderate	Hospitalisation / Fatality	Medium / High	Intersection is proposed to be upgraded as part of Stage 1 of the Project to provide required rural BAL / BAR turn treatments in accordance with the turn warrants assessment undertaken and the requirements of Austroads Guide to Road Design. These upgrade works are expected to provide safer turn facilities at the intersection for Project traffic, reducing the potential of vehicle conflicts at the intersection. Further to this, the detailed analysis of the intersection (refer Section 5.3.2 identified that the proposed BAR/BAL intersection configuration would operate satisfactorily for all Project traffic scenarios assessed.	Unlikely	Hospitalisation / Fatality	Medium

		Existing / Pre-Development			With Project						With Project & Mitigation		
Risk Item		Likelihood	Consequence	Risk Score	Likelihood	Consequence	Risk Score	Mitigation Measure	Likelihood	Consequence	Risk Score		
3	Stage 2 of the Project is expected to lead to an increase in turning vehicle movements at the Balranald-Moulamein Road / Arundel Road intersection. This increase in turning vehicles has the potential to lead to an increase in vehicle conflicts at this intersection.	Unlikely	Hospitalisation / Fatality	Medium	Unlikely	Hospitalisation / Fatality	Medium	Intersection is proposed to be upgraded as part of Stage 2 of the Project to provide required rural BAL / BAR turn treatments in accordance with the turn warrants assessment undertaken and the requirements of Austroads Guide to Road Design. These upgrade works are expected to provide safer turn facilities at the intersection for Project traffic, reducing the potential of vehicle conflicts at the intersection.	Unlikely	Hospitalisation / Fatality	Medium		
4	The Project is also expected to lead to an increase in vehicle movements on the relevant sections of the state-controlled links of the Sturt Highway, Yanga Way, Stony Crossing Road, Swan Hill Road and Murray River Highway. The increase in vehicle movements on these roads has the potential to lead to an increase in vehicle accidents along the links.	Unlikely	Hospitalisation / Fatality	Medium	Unlikely	Hospitalisation / Fatality	Medium	As identified in Section 5.4 above, the road link capacity assessment undertaken identified that while the Project would lead to increases in traffic volumes on the identified sections of the state-controlled links of Sturt Highway, Murray River Highway, Yanga Way, Stony Crossing Road and Swan Hill Road, the traffic volumes during all Project traffic scenarios are expected to be within the existing mid-block capacities of the various road types. No physical mitigation works are therefore expected to be required, however it is noted that a Traffic Management Plan will be developed and implemented as part of subsequent detailed design phases of the Project, with this TMP to outline the proposed measures to reduce the impact of Project traffic on the adjacent road network.	Unlikely	Hospitalisation / Fatality	Medium		
5	The Project is also expected to lead to an increase in vehicle movements on the relevant sections of the Council (MRC) controlled Balranald-Moulamein Road and Arundel Road. The increase in vehicle movements on these roads has the potential to lead to an increase in vehicle accidents along the links.	Unlikely	Hospitalisation / Fatality	Medium	Unlikely	Hospitalisation / Fatality	Medium	Upgrade works are proposed to be provided on both Balranald-Moulamein Road and Arundel Road to provide a suitable unsealed (gravel) road surface up to minimum 8m width and 7m width on 9m formation respectively. The provision of these upgrade works is expected to provide adequate capacity for these road sections to cater for the identified Project traffic volumes.	Unlikely	Hospitalisation / Fatality	Medium		

		Existing / Pre-Development			With Project				With Project & Mitigation		
Risk Item		Likelihood	Consequence	Risk Score	Likelihood	Consequence	Risk Score	Mitigation Measure	Likelihood	Consequence	Risk Score
6	The Project is also expected to lead to an increase in vehicle movements on the road sections proposed to form part of the identified OSOM turbine component transport routes. This increase in vehicle movements on the roads forming the turbine transport routes, in particular the OSOM vehicles has the potential to impact the operation of these links and lead to increased vehicle conflicts along the link.	Unlikely	Medical Treatment / Hospitalisation	Medium	Moderate	Medical Treatment / Hospitalisation	Medium	Additional minor works are proposed to be undertaken at locations along the identified transport routes to enable the OSOM vehicle movements to traverse the network. In addition to the physical works, a Traffic Management Plan will be prepared and implemented as part of subsequent detailed design phase of the Project outlining the proposed measures and processes to reduce the impact of the OSOM vehicle movements on the external road network.	Unlikely	Medical Treatment / Hospitalisation	Medium

5.7 Public Transport Route Impacts

As identified in **Section 2.3.3** above, the public transport (bus) services in the vicinity of the Project site currently operate out of Balranald to the nearby centres of Euston, Kyalite and Swan Hill, including and AM and PM school bus service to Kyalite and Swan Hill.

Based on this the bus movements are expected to be limited to the Sturt Highway, Yanga Way, Stony Crossing Road and Swan Hill Road, with no bus movements anticipated to utilise either Balranald-Moulamein Road or Arundel Road. Furthermore, it is noted that the school bus movements on the road network are shown to occur outside of what is expected to be the AM (6-7am) and PM (5:30-6:30pm) peak hours for traffic movements associated with either stage of the proposed Junction Rivers Wind Project.

In addition, it is noted that the proposed site and external road upgrade works are not anticipated to have a direct impact to the physical bus stop infrastructure in the vicinity of the Project area. As such it is not anticipated that the Project will have a significant impact on the operation of the existing bus services.

Notwithstanding this, consideration should be given within the future TMP for the Project to control/manage the movement of Project traffic (in particular any OSOM loads) on the relevant school bus routes during the AM (7:20-9am) and PM (2:45-4:45pm) school bus periods, to minimise the potential for conflict with bus movements and students waiting at the intermediate bus stop locations on the routes.

5.8 Travelling Stock Reserve Network Impacts

As previously identified in **Section 2.3.4** above, travelling stock reserves (TSR) are identified to be located along the lengths of the relevant roads for the Project, including Yanga Way, Balranald-Moulamein Road, Stony Crossing Road and Swan Hill Road.

However, based on discussions with the Project's host landholders it is understood that the TSRs along Yanga Way and Balranald-Moulamein Road are rarely utilised by others or the landholders themselves, with the TSR on Balranald-Moulamein Road also advised to be unfit for use unless used in conjunction with water truck/tanks due to the lack of waterways for stock to drink along this road.

Notwithstanding this, it is noted that the proposed construction, operation and decommissioning of both stages of the Project is anticipated to lead to an increase in traffic volumes along the road links with identified TSRs, with the construction works also including the provision of additional vehicle access points to the Project area on Balranald-Moulamein Road that would cross the adjacent TSRs.

It is noted however that the larger increase in traffic volumes during the construction phase will be temporary (18 months Stage 1 / 30 months Stage 2), with Project traffic volumes being very minor during the ongoing (30 year) operations phase of the wind farm.

Finally, it is noted that all the Project impacts within the road areas with adjacent TSRs are standard activities associated with the operation and management of rural road reserves, including vehicle movements, use of access points, road maintenance and upgrade works. As such it is not anticipated that the Project will introduce any additional impediments to the access or use of the TSRs.

5.9 Active Transport Infrastructure Impacts

As outlined above, based on the isolated, rural nature of the Project site there are no specific active transport facilities or infrastructure on the surrounding road network (i.e. bike lanes or pedestrian pathways) that could be utilised as part of required movements for the Project.

Furthermore, due to the location of the site, approximately 15 km to the south-east of the regional township of Balranald, staff commuter movements to/from site using active transport modes such as walking or cycling are not considered feasible.

6.0 Conclusions and Recommendations

6.1 Summary of Impacts and Mitigation Measures Proposed

Based on the outcomes of this assessment and the increase in traffic numbers anticipated as a result of the construction, operations and decommissioning phases of the Project, it is anticipated that the Project will have a manageable impact on the traffic operation of the surrounding road network.

Notwithstanding this, the following mitigation treatments are recommended to be provided as part of the Project, with a summary of the recommended upgrade works outlined in **Table 39** and **Table 40**, and the indicative locations of the works shown in **Figure 49** and **Figure 50**:

6.1.1 Stage 1

- Completion of minor works along the identified transport route to accommodate the swept paths of the OSOM turbine component transport vehicles, including the relocation of signage and road lighting infrastructure and construction of required temporary hardstand pavement areas as identified in the Preliminary Transport Route Assessment for the Project (refer **Appendix A**). It is noted that the exact extents and scope of these works will be determined in subsequent detailed design phases of the Project once the turbine component and transport vehicle configurations are confirmed.

In addition, further consultation with the relevant local government road authorities will be required to establish infrastructure or maintenance agreements to cover any required works to offset the potential pavement impacts of the OSOM vehicle movements for the Project on the lower order, local government controlled road links along the identified OSOM transport routes.

This would also include pre and post dilapidation inspections to be undertaken on the sections of the local government roads used by Project traffic, with these inspections to be completed by representatives of Windlab and the appropriate Council. These inspections are required to identify and document the current condition of the roads (pre-construction) and establish the required maintenance and/or rehabilitation works deemed necessary to reinstate the roads to their documented condition prior to the introduction of Project traffic at the completion of their use.

- Provision of upgrade works to the Yanga Way / Balranald-Moulamein Road intersection to provide basic right (BAR) and basic left (BAL) turn treatments, generally in accordance with Figure 8.2 of Part 4A (rural BAL) and Figure A6 of Part 4 (rural BAR) of Austroads Guide to Road Design. Also provision of additional hardstand area required to accommodate OSOM turn movements (as per Rex J Andrews Route Assessment).
- Provision of upgrade works to the section of Balranald-Moulamein Road between Yanga Way and Site Access 5 (SA5 – approx. 11.095km). These upgrade works are proposed to include road grading and resheeting works to provide a suitable unsealed (gravel) road surface up to 8m minimum in width. (to match the current minimum road width on this link).

It is also noted that as part of Stage 1, pre and post construction phase dilapidation surveys will be required to be undertaken on this section of Balranald-Moulamein Road (Yanga Way to SA5). The pre construction inspection is to be undertaken upon the completion of the proposed regrading / resheeting works and is to establish the pre-construction road condition, with the post construction dilapidation survey then used to identify rehabilitation works required to be completed by the Project to bring road conditions / standards on this section of Balranald-Moulamein Road back to the recorded pre construction condition.

- Provision of suitable site access configurations at Site Access 2,3 & 5 on Balranald-Moulamein Road, with provision for additional hardstand areas as required to accommodate OSOM heavy vehicle movements. It is proposed that these site access points are to be provided generally in accordance with the site access arrangement/configuration outlined in Figure 7.4 of Austroads Guide to Road Design Part 4: Intersections and Crossings – General.
- Installation of advisory “truck turning” signage be installed on the approaches to the Yanga Way / Balranald-Moulamein Road intersection, to highlight to motorists the potential for turning heavy vehicles to/from the side road.

- Preparation of traffic management plan for Stage 1 of the Project outlining proposed management measures and processes to minimise the impact of Project traffic (including OSOM turbine component transport vehicles) on the external road network.

Table 39 Stage 1 - External Road Network Upgrades

Road / Intersection	Treatment	Timing
Yanga Way / Balranald-Moulamein Road	Upgrade works to provide BAL / BAR turn treatments to intersection in accordance with relevant Austroads standards.	Prior to the commencement of construction works.
	Additional hardstand area on north-eastern corner of intersection to accommodate OSOM transport vehicle swept paths.	Prior to commencement of OSOM turbine component haulage operations.
Balranald-Moulamein Road (Yanga Way to SA5 – approx. Ch. 0.000 to 11.095km)	Road surface upgrade (regrading / resheeting works) to provide minimum 8m unsealed road surface.	Prior to the commencement of construction works.
	Completion of pre construction dilapidation inspection, including documentation of pre construction condition.	Prior to the commencement of construction works (but post upgrade works).
	Completion of post construction dilapidation inspection, identification of defects and completion of suitable maintenance/rehabilitation works to reinstate road to documented pre construction condition.	Within 3 months of the completion of construction works.
Site Access 2 (RHS) Balranald-Moulamein Road (Approx. Ch. 6.930km)	Upgrade existing property access to rural property access for articulated vehicles standard as per Figure 7.4 of Austroads Guide to Road Design Part 4: Intersections and Crossings – General.	Prior to the commencement of construction works.
	Additional hardstand area at access to accommodate OSOM transport vehicle swept paths.	Prior to commencement of OSOM turbine component haulage operations.
Site Access 3 (LHS) Balranald-Moulamein Road (Approx. Ch. 7.750km)	Provision of new site access to rural property access for articulated vehicles standard as per Figure 7.4 of Austroads Guide to Road Design Part 4: Intersections and Crossings – General.	Prior to the commencement of construction works.
	Additional hardstand area at access to accommodate OSOM transport vehicle swept paths.	Prior to commencement of OSOM turbine component haulage operations.
Site Access 5 (LHS) Balranald-Moulamein Road (Approx. Ch. 11.095km)	Upgrade existing property access to rural property access for articulated vehicles standard as per Figure 7.4 of Austroads Guide to Road Design Part 4: Intersections and Crossings – General.	Prior to the commencement of construction works.
	Additional hardstand area at access to accommodate OSOM transport vehicle swept paths.	Prior to commencement of OSOM turbine component haulage operations.
Various locations on OSOM transport routes	Various infrastructure relocation and hardstand construction works to accommodate vehicle paths of OSOM turbine component transport movements.	Prior to commencement of OSOM turbine component haulage operations.



Figure 49 Stage 1 - External Road Network Upgrade Locations

[Source: Windlab & Google Earth Pro]

6.1.2 Stage 2

- Completion of identified route upgrade works as identified in Rex Andrews route assessment, if previous route works have been remediated upon completion of Stage 1 OSOM haulage operations.
- Provision of basic right (BAR) and basic left (BAL) turn treatments, as well as additional hardstand area required to accommodate OSOM turn movements (as per Rex Andrews Route Assessment), at the proposed Yanga Way / Site Access 1 intersection.
- Provision of upgrade works to the Balranald-Moulamein Road / Arundel Road intersection to provide basic right (BAR) and basic left (BAL) turn treatments, generally in accordance with Figure 8.2 of Part 4A (rural BAL) and Figure A6 of Part 4 (rural BAR) of Austroads Guide to Road Design.
- Provision of upgrade works to the section of Balranald-Moulamein Road between Site Access 5 (SA5 – approx. 11.095km) and Site Access 8 (SA8 – approx. 22.140km). These upgrade works are proposed to include road grading and resheeting works to provide a suitable unsealed (gravel) road surface up to 8m minimum in width.
- Provision of upgrade works to the section of Arundel Road between Balranald-Moulamein Road and Site Access 4 (SA8 – approx. 0.710km). These upgrade works are proposed to include road grading and resheeting works to provide a suitable unsealed (gravel) road surface up to minimum 7m width (on 9m formation).
- It is also noted that as part of Stage 2, pre and post construction phase dilapidation surveys will be required to be undertaken on the relevant sections of Balranald-Moulamein Road (Yanga Way to SA8) and Arundel Road (Balranald-Moulamein Road to SA4). The pre construction inspection is to be undertaken upon the completion of the proposed regrading / resheeting works and is to establish the

pre-construction road condition, with the post construction dilapidation survey then used to identify rehabilitation works required to be completed by the Project to bring road conditions / standards on this section of Balranald-Moulamein Road back to the recorded pre construction condition.

- Provision of suitable site access configurations at Site Access 6,7 & 8 on Balranald-Moulamein Road and Site Access 4 of Arundel Road, with provision for additional hardstand areas as required to accommodate OSOM heavy vehicle movements. It is proposed that these site access points are to be provided generally in accordance with the site access arrangement/configuration outlined in Figure 7.4 of Austroads Guide to Road Design Part 4: Intersections and Crossings – General.
- Installation of advisory “truck turning” signage be installed on the approaches to the Yanga Way / Balranald-Moulamein Road and Balranald-Moulamein Road / Arundel Road intersections, to highlight to motorists the potential for turning heavy vehicles to/from the side roads.
- Preparation of traffic management plan for Stage 2 of the Project outlining proposed management measures and processes to minimise the impact of Project traffic (including OSOM turbine component transport vehicles) on the external road network.

Table 40 Stage 2 - External Road Network Upgrades

Road / Intersection	Treatment	Timing
Yanga Way / Site Access SA1 Intersection (LHS – approx. Ch. 19.800km)	Upgrade works to provide BAL / BAR turn treatments to intersection in accordance with relevant Austroads standards.	Prior to the commencement of construction works.
	Additional hardstand areas at intersection to accommodate OSOM transport vehicle swept paths.	Prior to commencement of OSOM turbine component haulage operations.
Balranald-Moulamein Road (SA5 to SA8 – approx. Ch. 11.095km to 22.140km)	Road surface upgrade (regrading / resheeting works) to provide minimum 8m unsealed road surface	Prior to the commencement of construction works.
Balranald-Moulamein Road (Yanga Way to SA8 – approx. Ch. 0.000 to 22.140km)	Completion of pre construction dilapidation inspection, including documentation of pre construction condition.	Prior to the commencement of construction works.
	Completion of post construction dilapidation inspection, identification of defects and completion of suitable maintenance/rehabilitation works to reinstate road to documented pre construction condition.	Within 3 months of the completion of construction works.
Balranald-Moulamein Road / Arundel Road Intersection (RHS – approx. Ch. 10.402km)	Provision of new access intersection including BAL / BAR turn treatments in accordance with relevant Austroads standards.	Prior to the commencement of construction works.
	Additional hardstand areas at intersection to accommodate OSOM transport vehicle swept paths.	Prior to commencement of OSOM turbine component haulage operations.

Arundel Road (Balranald-Moulamein Road to SA4 – approx. Ch. 0.000 to 0.710km)	Road surface upgrade (widening / regrading / resheeting works) and associated drainage to provide minimum 7m unsealed pavement on 9m formation.	Prior to the commencement of construction works.
	Completion of pre construction dilapidation inspection, including documentation of pre construction condition.	Prior to the commencement of construction works (but post upgrade works).
	Completion of post construction dilapidation inspection, identification of defects and completion of suitable maintenance/rehabilitation works to reinstate road to documented pre construction condition.	Within 3 months of the completion of construction works.
Site Access 4 (LHS) Arundel Road (Approx. Ch. 0.710km)	Provision of new site access to rural property access for articulated vehicles standard as per Figure 7.4 of Austroads Guide to Road Design Part 4: Intersections and Crossings – General.	Prior to the commencement of construction works.
	Additional hardstand area at access to accommodate OSOM transport vehicle swept paths.	Prior to commencement of OSOM turbine component haulage operations.
Site Access 6 (RHS) Balranald-Moulamein Road (Approx. Ch. 17.340km)	Provision of new site access to rural property access for articulated vehicles standard as per Figure 7.4 of Austroads Guide to Road Design Part 4: Intersections and Crossings – General.	Prior to the commencement of construction works.
	Additional hardstand area at access to accommodate OSOM transport vehicle swept paths.	Prior to commencement of OSOM turbine component haulage operations.
Site Access 7 (LHS) Balranald-Moulamein Road (Approx. Ch. 18.995km)	Upgrade existing property access to rural property access for articulated vehicles standard as per Figure 7.4 of Austroads Guide to Road Design Part 4: Intersections and Crossings – General.	Prior to the commencement of construction works.
	Additional hardstand area at access to accommodate OSOM transport vehicle swept paths.	Prior to commencement of OSOM turbine component haulage operations.
Site Access 8 (RHS) Balranald-Moulamein Road (Approx. Ch. 22.140km)	Provision of new site access to rural property access for articulated vehicles standard as per Figure 7.4 of Austroads Guide to Road Design Part 4: Intersections and Crossings – General.	Prior to the commencement of construction works.
	Additional hardstand area at access to accommodate OSOM transport vehicle swept paths.	Prior to commencement of OSOM turbine component haulage operations.
Various locations on OSOM transport routes	Various infrastructure relocation and hardstand construction works to accommodate vehicle paths of OSOM turbine component transport movements	Prior to commencement of OSOM turbine component haulage operations.

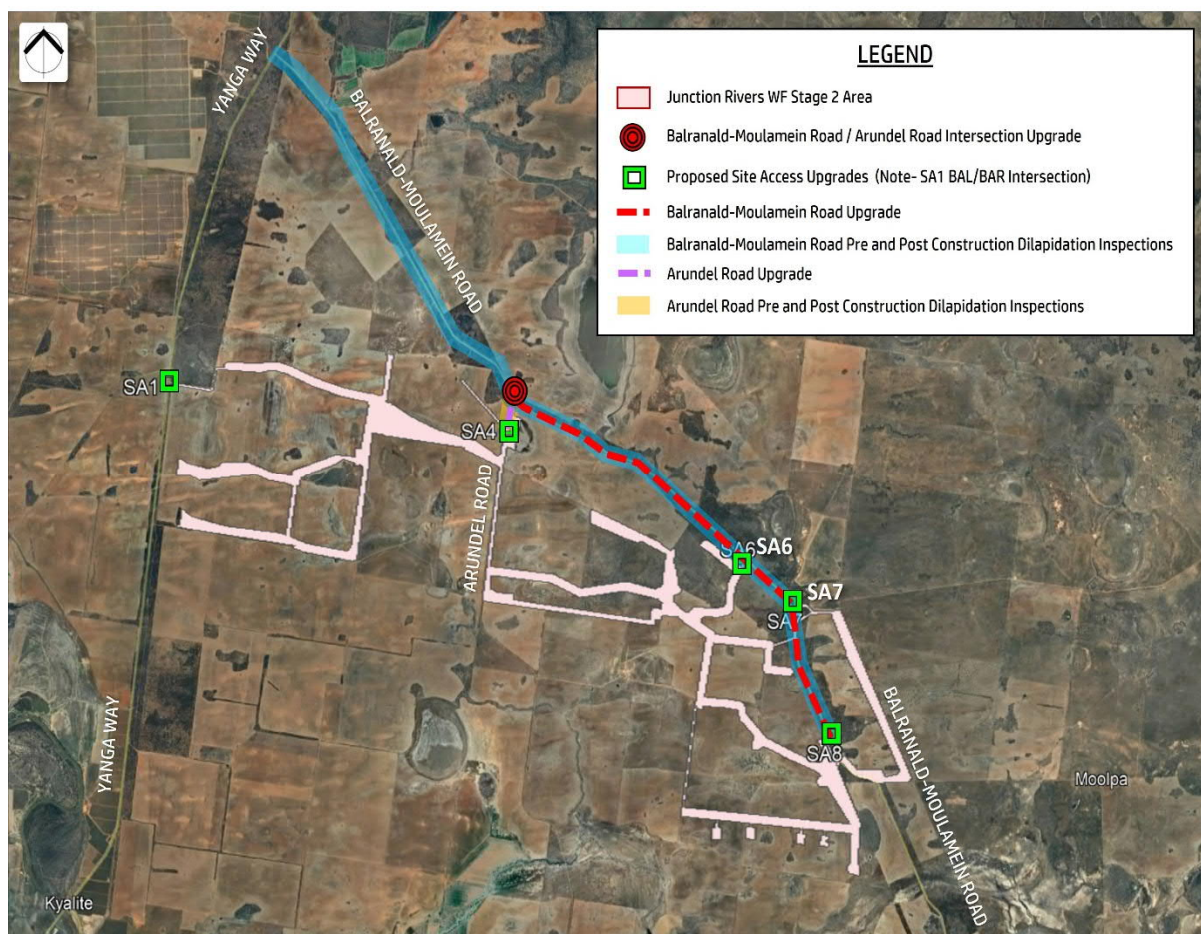


Figure 50 Stage 2 - External Road Network Upgrade Locations

[Source: Windlab & Google Earth Pro]

6.2 Conclusion

Based on the information provided above, it can be seen that if the identified mitigation measures and works are provided as part of the Project, the potential impacts of the construction (Stage 1 & 2), operations and decommissioning phases of the Project will have been appropriately managed, with minimal traffic impacts anticipated on the relevant sections of the local government and state-controlled road networks.

As such it can be concluded that this report, in combination with the Preliminary Route Assessment demonstrates the compliance of the Project with Schedule 8 of the Environmental and Planning Regulation (2021), as outlined in the traffic and transport items of the SEARs provided.

Access Traffic Consulting therefore recommends that the Project be approved from a traffic engineering and traffic impact viewpoint.



Appendix A – Preliminary Transport Route Assessment



ROUTE STUDY:

PROJECT: JUNCTION RIVERS WINDFARM

EX PORT ADELAIDE

BLADE SIZE: 100 METRE

20/11/2023 REV 00

Rev.	Date	Change	Responsible	Checked
00	26/03/22	Route Assessed	C Ewin	✓
00	30/05/22	Report Compiled	C Ewin	✓
00	03/06/22	Report Completed	C Ewin	✓
01	21/09/23	Report updated	W Andrews	✓
00	11/10/23	Report renamed & edits	W Andrews	✓
01	07/11/23	Report renamed & edits	W Andrews	✓
02	20/11/23	Edits	W Andrews	✓ □

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1.0 Introduction

Windlab Developments Pty Ltd (Windlab) proposes to develop the Junction Rivers wind farm project (the Project) to provide a reliable and affordable source of energy for the people of New South Wales (NSW). The Project is located approximately 15 kilometres (km) south of Balranald, 10 km north of Kyalite, 24 km north of Tooleybuc, and 20 km northeast of the NSW and Victorian border within the southern section of the Murray-Darling Basin. The Project is within the Murray River Council Local Government Area (LGA) and immediately east of Balranald Shire LGA. The Project is located within the South-West Renewable Energy Zone (SW REZ), which the NSW Government has identified as a target area for renewable energy development in its Transmission Infrastructure Strategy and Electricity Infrastructure Roadmap. This study is to understand the transport route constraints for the components listed in this report and assist in planning of the windfarm layout.

This document describes observations and previous experience on route and explains the Transport of Wind turbine equipment from Adelaide to Junction Rivers Windfarm.

This study is based on a 100 Metre blade with a hub height of up to 200 metres.

This Route survey took place on the 26/03/2022 and was revised on the 07/08/2023.

2.0 Evaluation

1	No Cost
2	Some Work
3	Moderate Amount of Work
4	Extreme Amount of Work

(Mark below boxes with an X)

		1	2	3	4
A	Harbour		X		
B	Road Modification				X
C	Road Furnishings				X
D	Trees				X
E	Site Entrance				X
F	Bridge Calculations			X	
G	Traffic Control			X	

3.0 Project data

Date of latest Route Assessment: 26/03/2022

Survey undertaken by: (Rex J Andrews P/L)

Project name: Junction Rivers Windfarm

Location: Port Adelaide (SA) to Burrawong (NSW)

Turbine types:

Up to 96 wind turbine generators with blades of up to 100 metres in length and a hub height of up to 200 metres. The overall tip height of the turbine is up to 300 metres.

4.0 Transport combinations (Examples)

TURBINE EXAMPLES:

Blades (100.0 x 4.5w x 4.0h x 30.0T)

Configuration. Prime mover with 2x4 dolly 3x4 Jinker

Overall dimensions: 110.0l x 4.5w x 4.9h x 227.0T

Nacelles (15.1l x 4.2w x 4.2h x 130T)

Configuration. Prime mover with 12x8 Platform trailer + Backup truck.

Overall dimensions: 46.0l x 4.3w x 5.2h x 204.5T + Backup truck.

Drive train/Power train/Generator (8.0l x 5.5w x 4.0h x 110T)

Configuration. Prime mover with 10x8 Platform trailer + Backup truck.

Overall dimensions: 39.9l x 5.5w x 5.0h x 199.5T + Backup truck.

Hubs (5.5l x 5.0w x 4.2h x 70.0T)

Configuration. Prime mover with 2x8 dolly and 5x8 Low loader.

Overall dimensions: 26.0l x 5.0w x 5.2h x 106.5T.

149 METRE TOWER EXAMPLE:

Base Towers (10.1l x 6.0 x 5.5 x 91T)

Configuration. Prime mover with 5x8-5x8 Bookend.

Overall dimension: 42.0l x 5.85w x 6.1h x 164.5T (+ Push truck)

Section 2 Towers (14.1l x 5.5 x 5.5 x 89T)

Configuration. Prime mover with 5x8-5x8 Bookend.

Overall dimension: 44.0l x 5.5w x 5.7h x 164.5T (+ Push truck)

Section 3 Towers (16.5l x 5.5 x 4.95 x 89T)

Configuration. Prime mover with 5x8-5x8 Bookend.

Overall dimension: 46.0l x 5.5w x 5.7h x 164.5T (+ Push truck)

Section 4 Towers (17.2l x 4.95 x 4.65 x 86T)

Configuration. Prime mover with 8x8 low platform.

Overall dimension: 35.0l x 5.0w x 5.9h x 154.5T (+ Push truck)

Section 5 Towers (20.5l x 4.65 x 4.65 x 84T)

Configuration. Prime mover with 10x8 platform trailer.

Overall dimension: 38.0l x 4.7w x 5.7h x 164.5T (+ Push truck)

Section 6 Towers (29.9l x 4.65w x 4.65 x 87T)

Configuration. Prime mover with 5x8-5x8 Extending platform trailer.

Overall dimension: 45.0l x 4.7w x 5.7h x 164.5T (+ Push truck)

Top Towers (35.5l x 4.65w x 3.97h x 74T)

Configuration. Prime mover with 4x8-4x8 Extending platform trailer.

Overall dimension: 54.0l x 5.1w x 5.7h x 152.5T (+ Push truck)

ERECTION CRANES:

LG1750 carrier (19.2l x 3.0 x 4.0 x 96T)

Configuration. Prime mover with 10x8 Platform trailer + Backup truck

Overall dimensions: 36.0l x 4.2w x 5.2h x 174.5T + Backup truck

LTM1500 carrier (21.0l x 3.0 x 4.0 x 96T)

Configuration. Prime mover with 10x8 Platform trailer + Backup truck

Overall dimensions: 36.0l x 5.0w x 5.2h x 174.5T + Backup truck

TRANSFORMER:

Possible Transformer size (9.2l x 4.0 x 4.35 x 167T)

Configuration. Prime mover with 10x8-10x8 Beamset + 4 x Backup trucks

Overall dimensions: 45.0l x 4.3w x 5.4h x 324.5T + 4 x Backup trucks

Or

Configuration. Prime mover with 16x8 Platform trailer + 3 x Backup trucks

Overall dimensions: 45.0l x 4.3w x 5.4h x 256.5T + 3 x Backup trucks

SWITCHROOM:

The largest switchroom size that is recommended for this site would be as follows.

Switchroom dimensions: 30.0l x 6.0w x 4.4h x 90.0T

5.0 Transport Drawings (Possible Combinations)

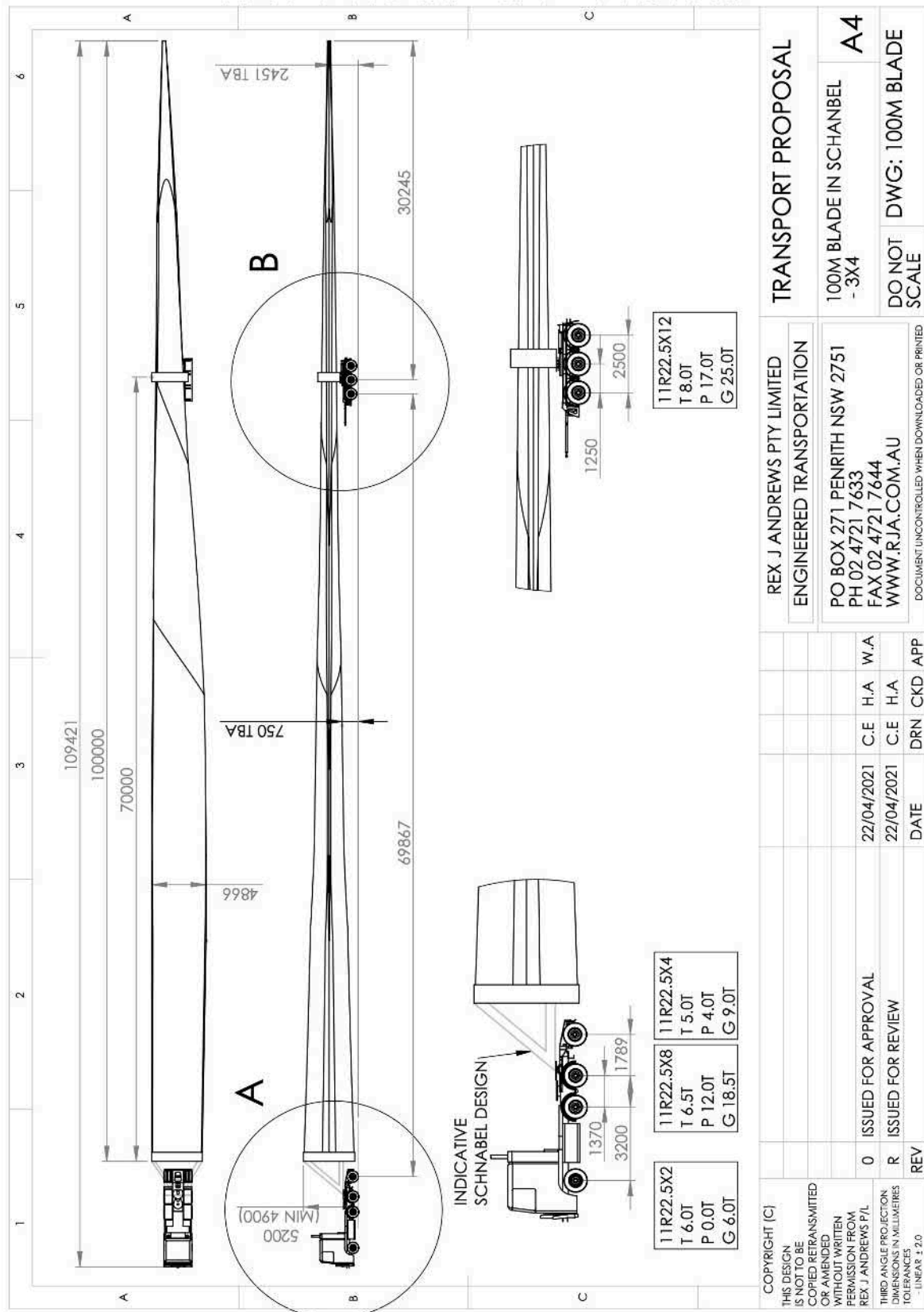


Figure 1 - Blade Diagram (100 Metre blade case study).

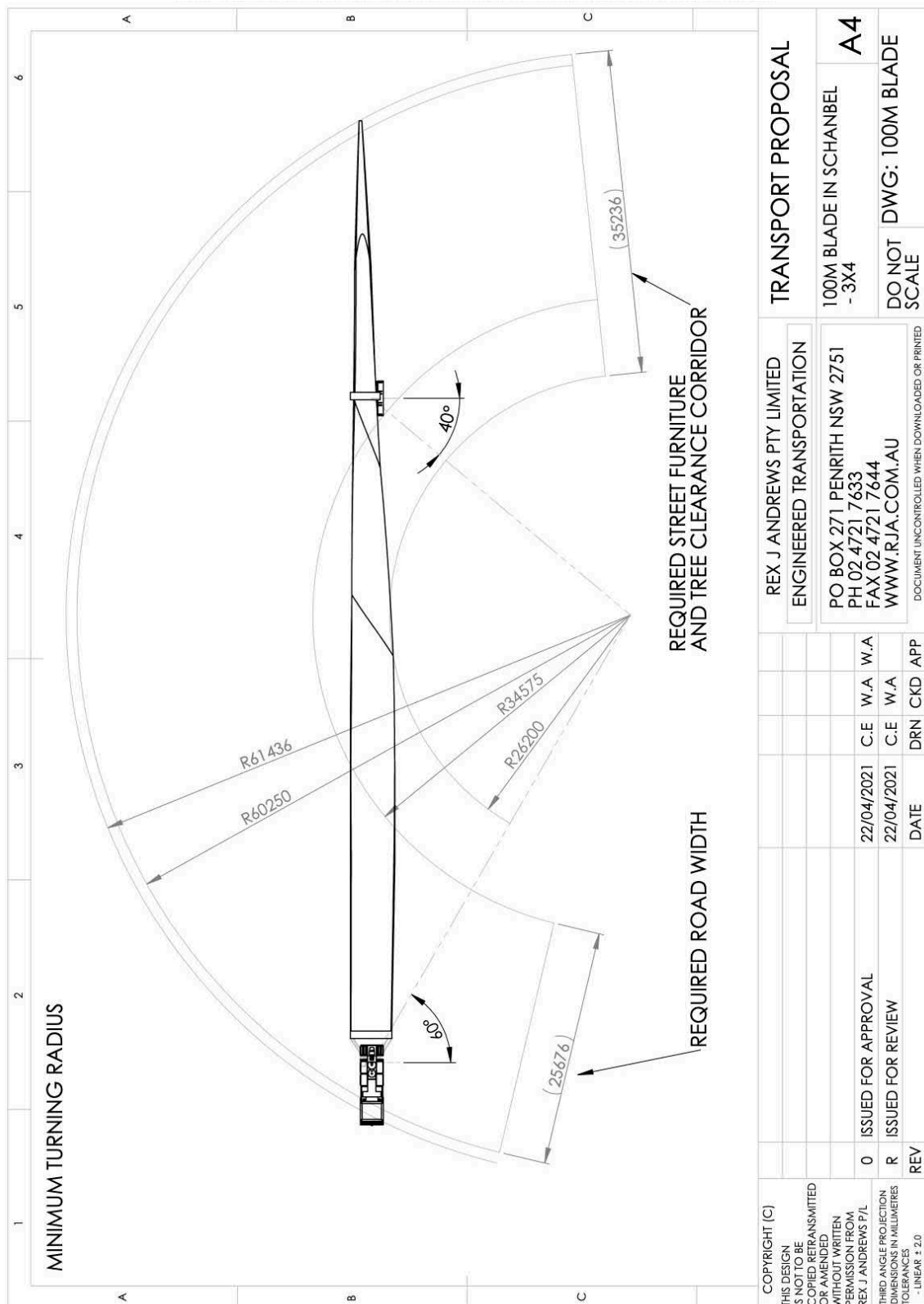


Figure 2 - Blade Diagram Swept Path (100 Metre blade case study)

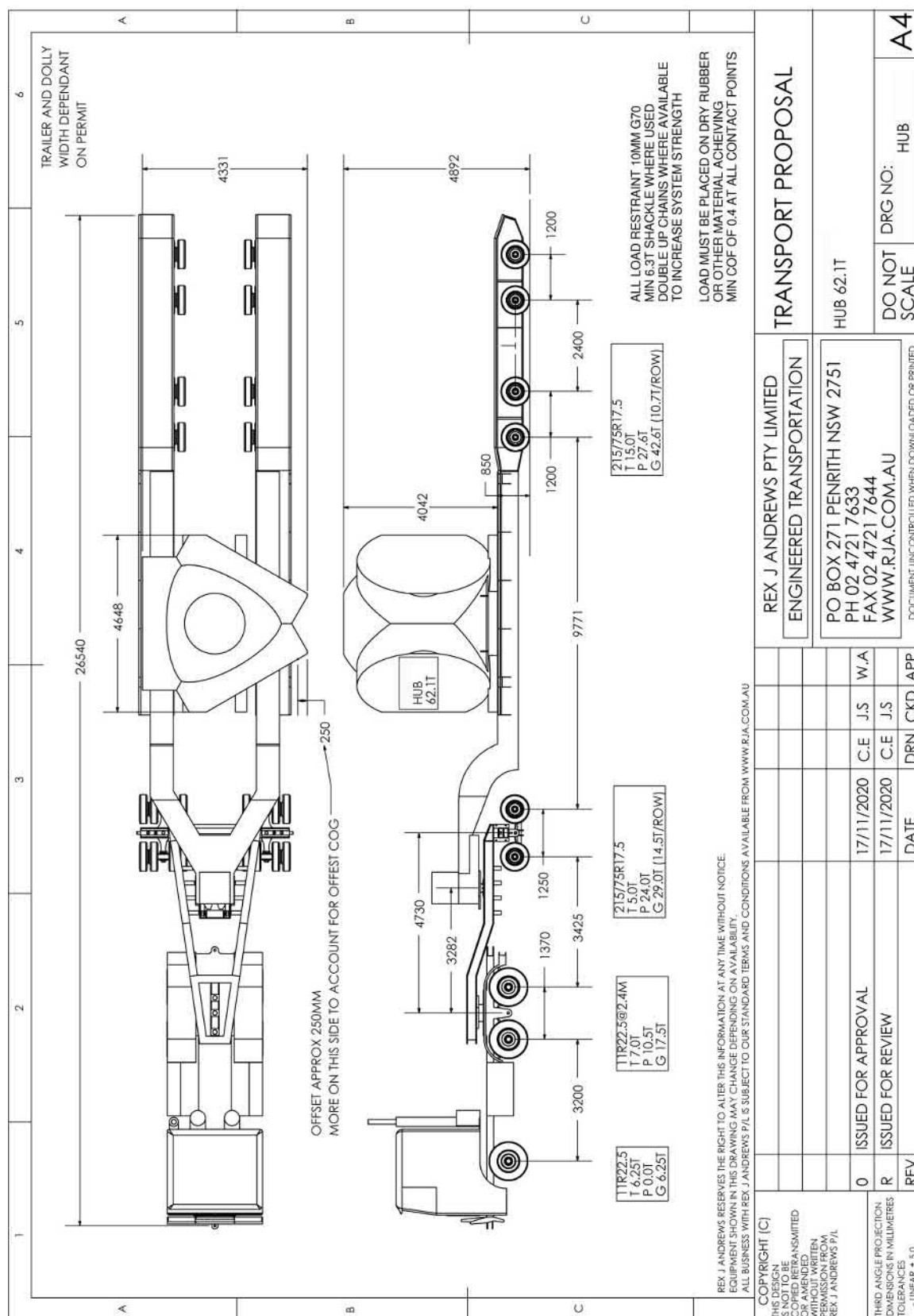


Figure 3 - Hub Combination Example

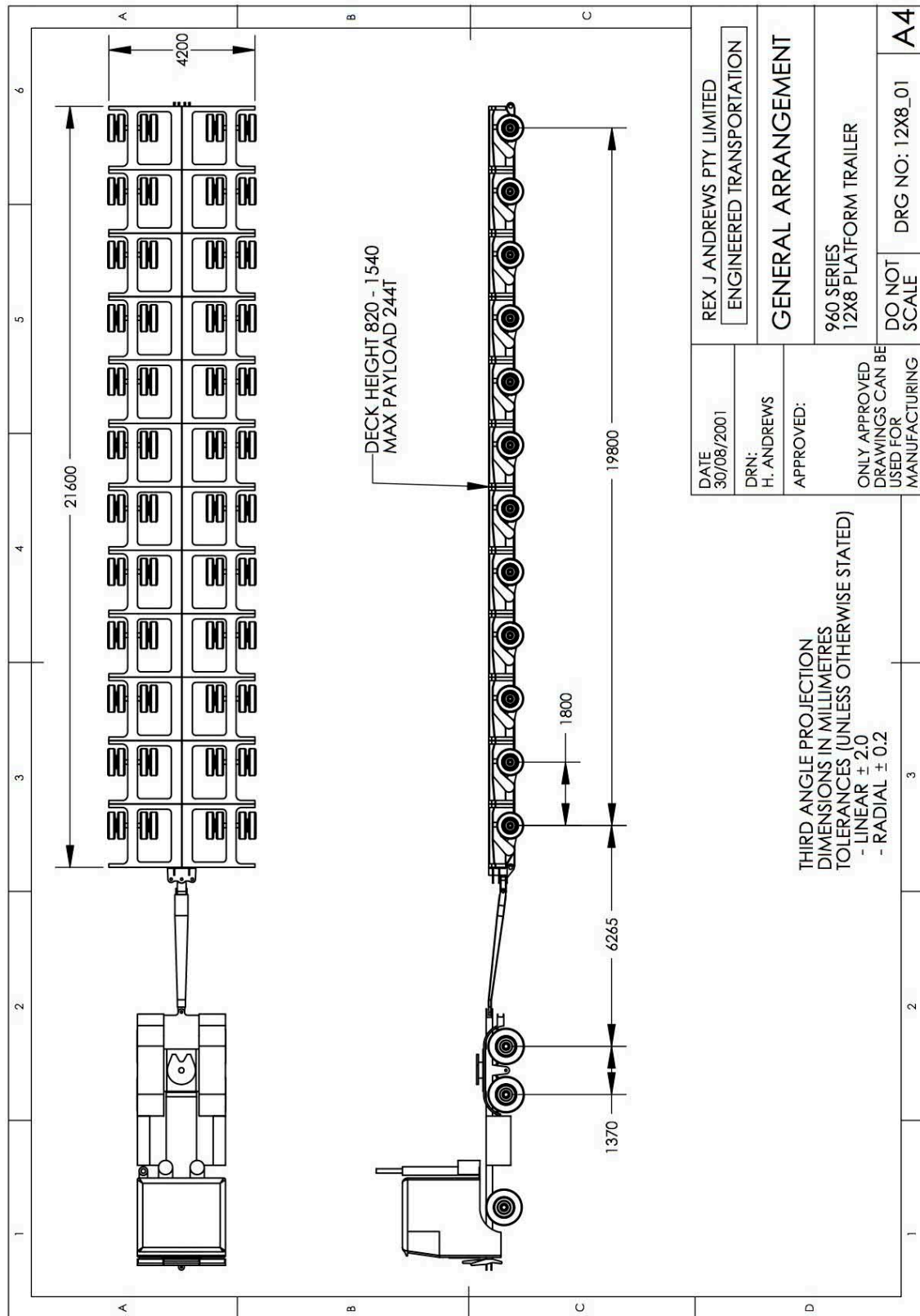


Figure 4 - Nacelle Combination Example

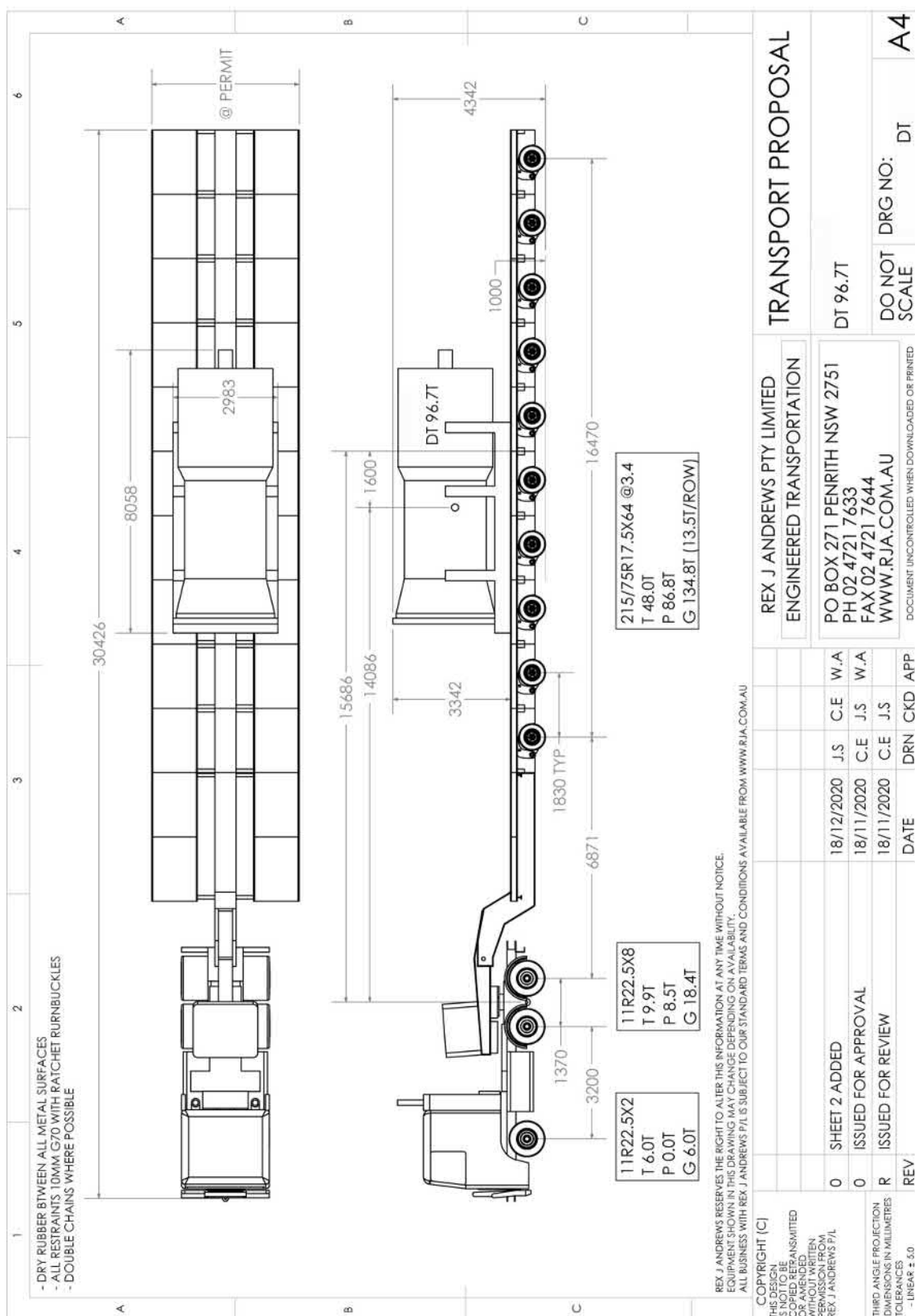


Figure 5 - Drivetrain Combination Example

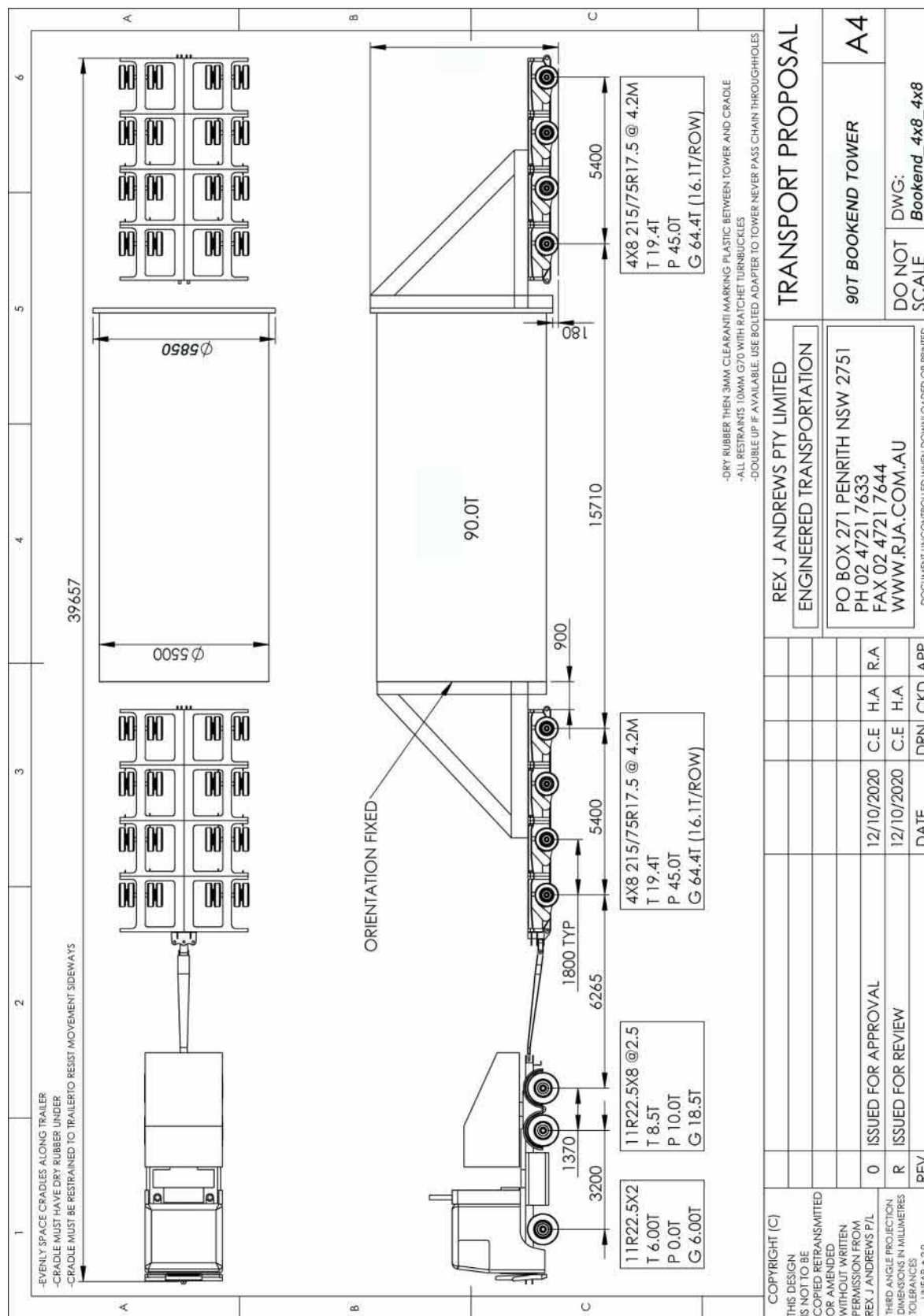


Figure 6 - Tower Trailer Bookend

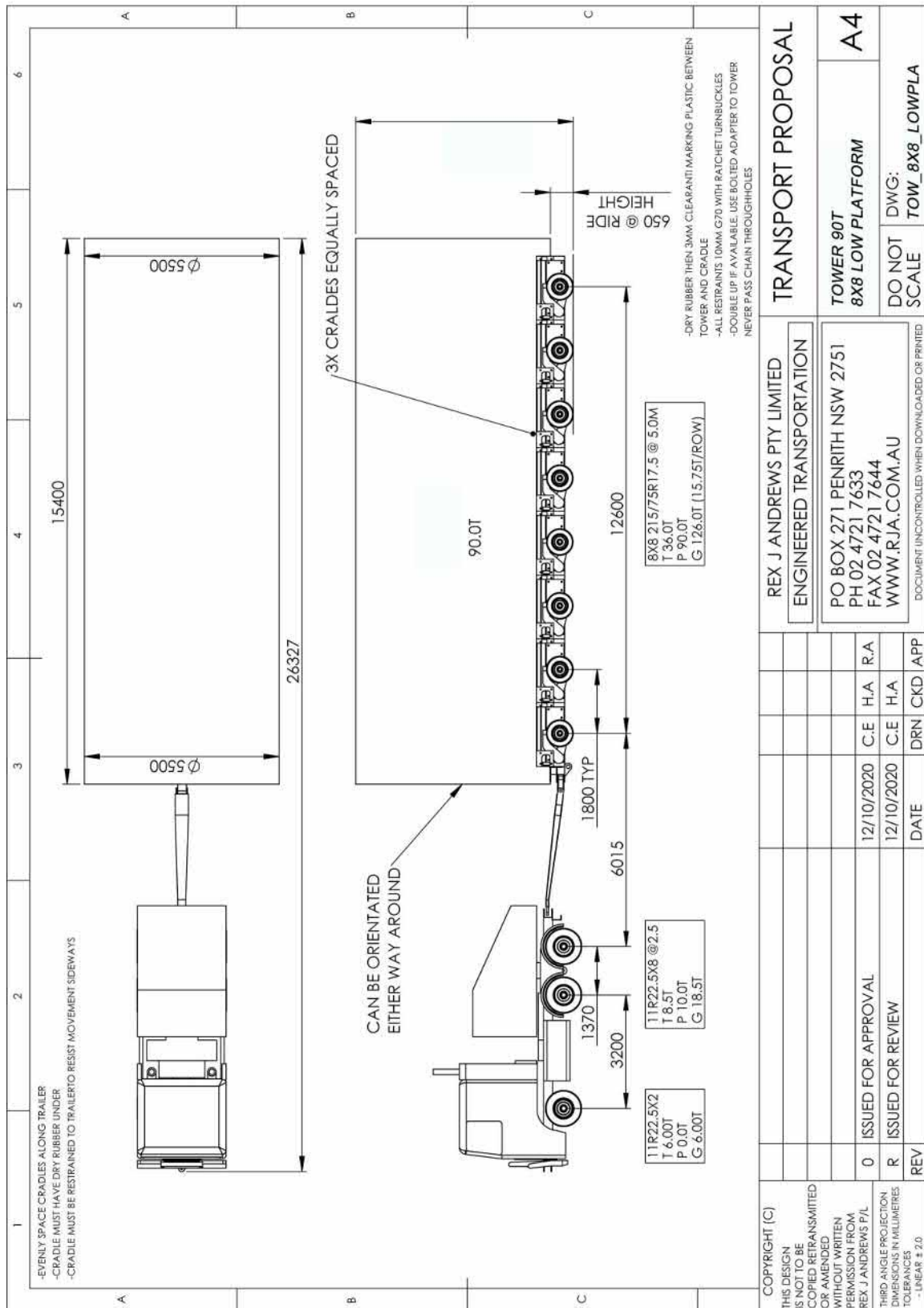


Figure 7 - Tower Trailer 8x8

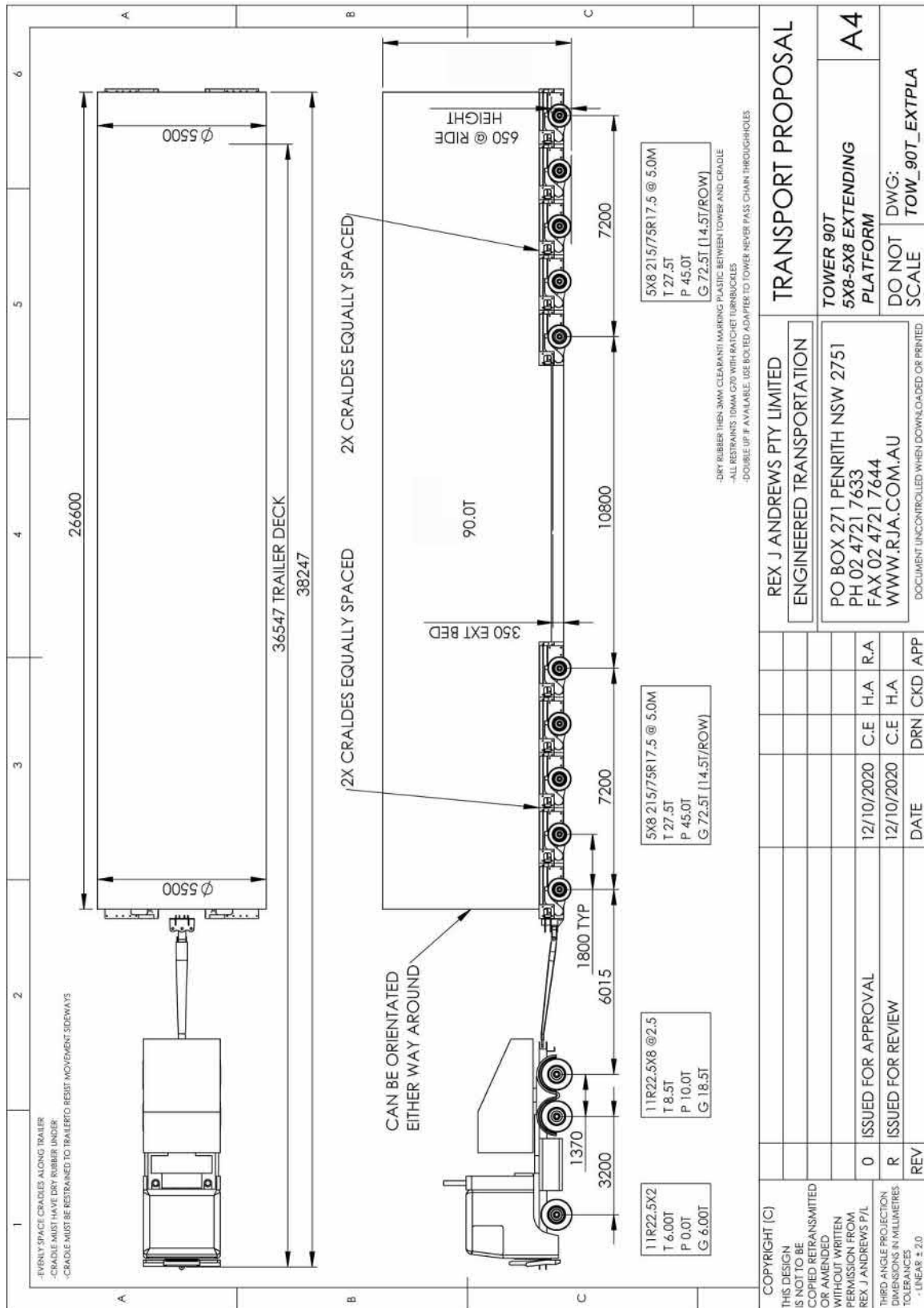


Figure 8 - Tower Trailer Extending 5x8_5x8

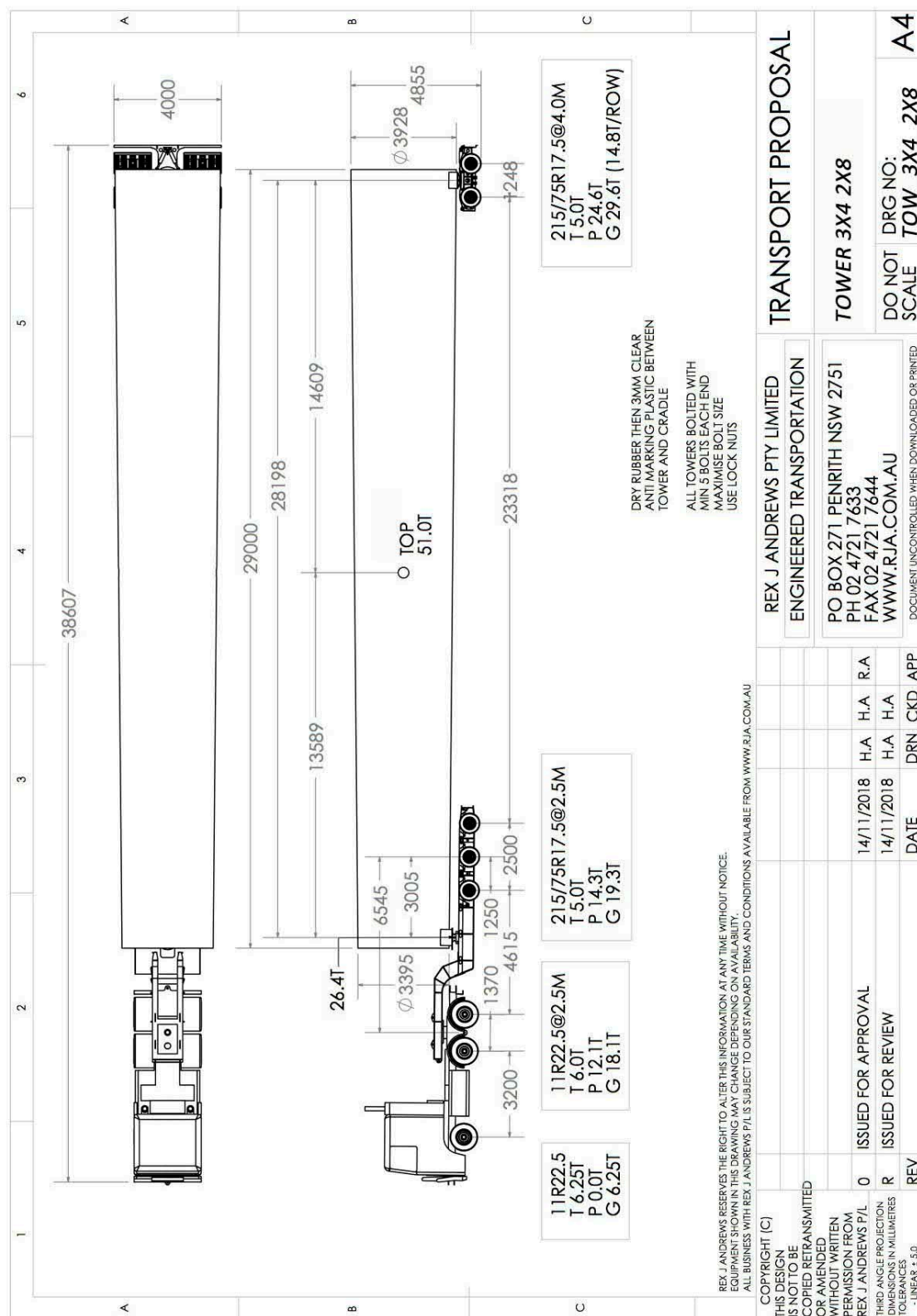
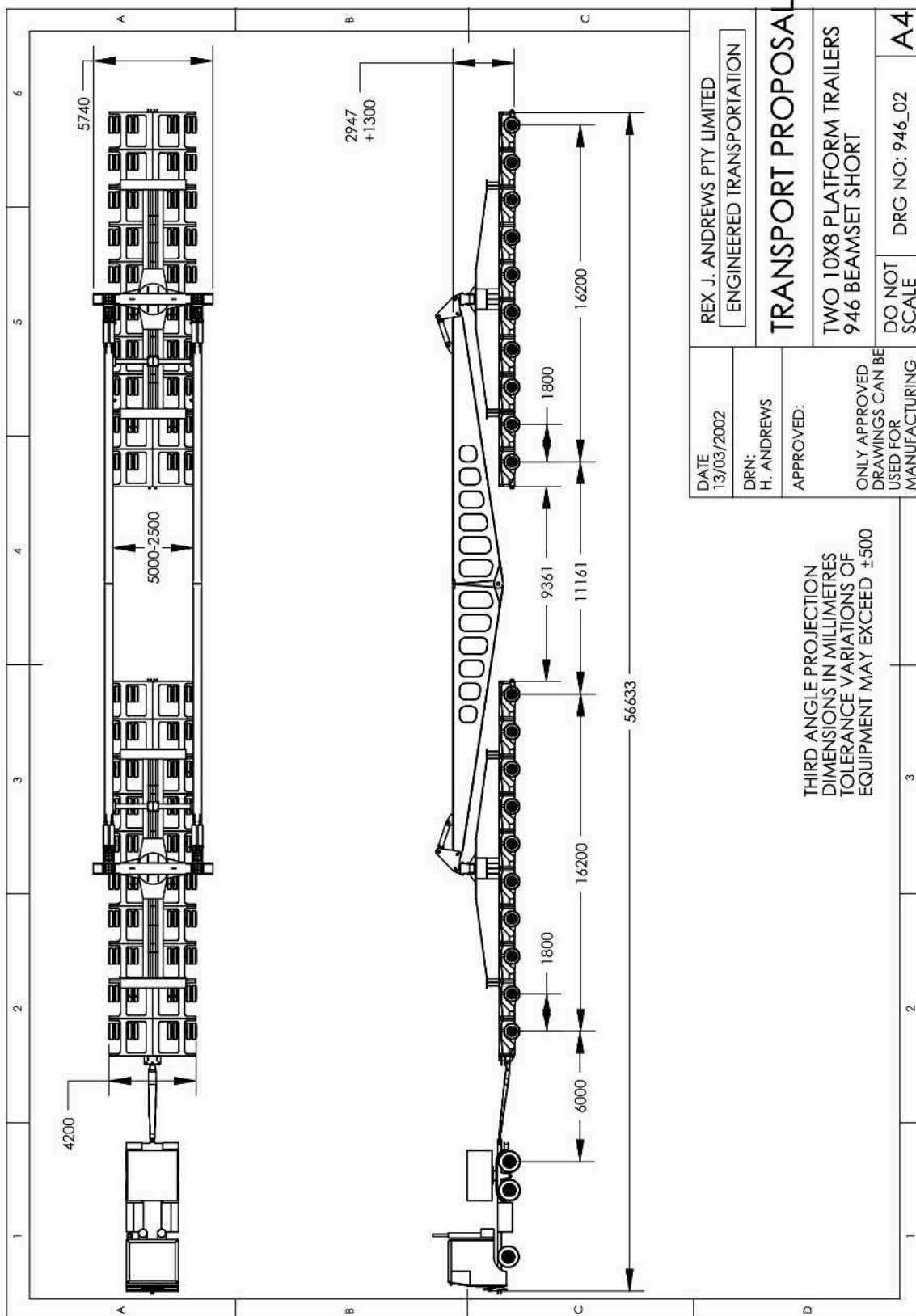


Figure 9 - Tower Trailer Dolly And Jinker



DATE 13/03/2002	REX J. ANDREWS PTY LIMITED ENGINEERED TRANSPORTATION
DRN: H. ANDREWS	TRANSPORT PROPOSAL
APPROVED:	TWO 10X8 PLATFORM TRAILERS 946 BEAMSET SHORT
ONLY APPROVED DRAWINGS CAN BE USED FOR MANUFACTURING	DO NOT SCALE
	DRG NO: 946_02
	A4

THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCE VARIATIONS OF
EQUIPMENT MAY EXCEED ± 500

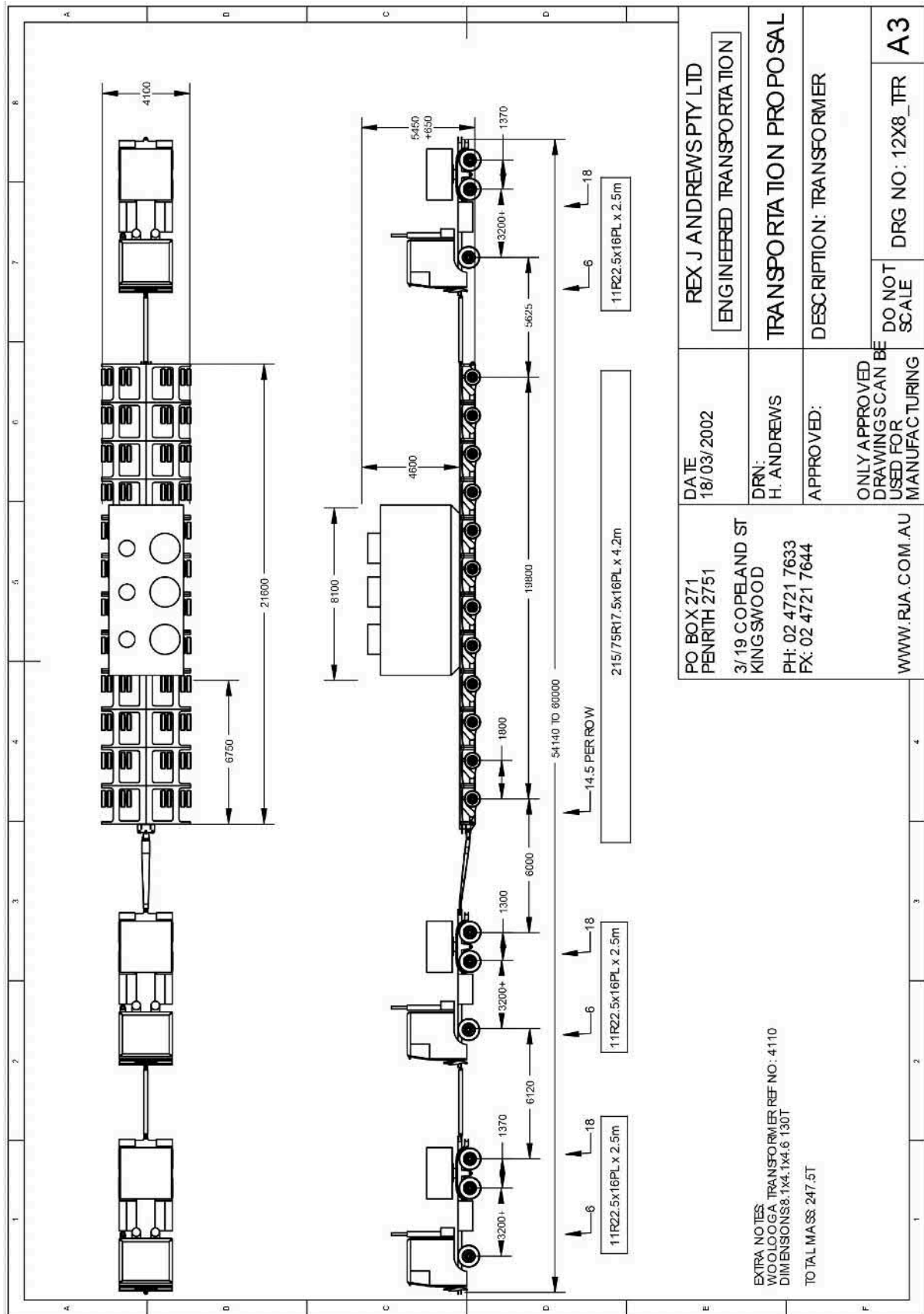


Figure 11 – 150MVA Transformer Trailer 12x8 Platform

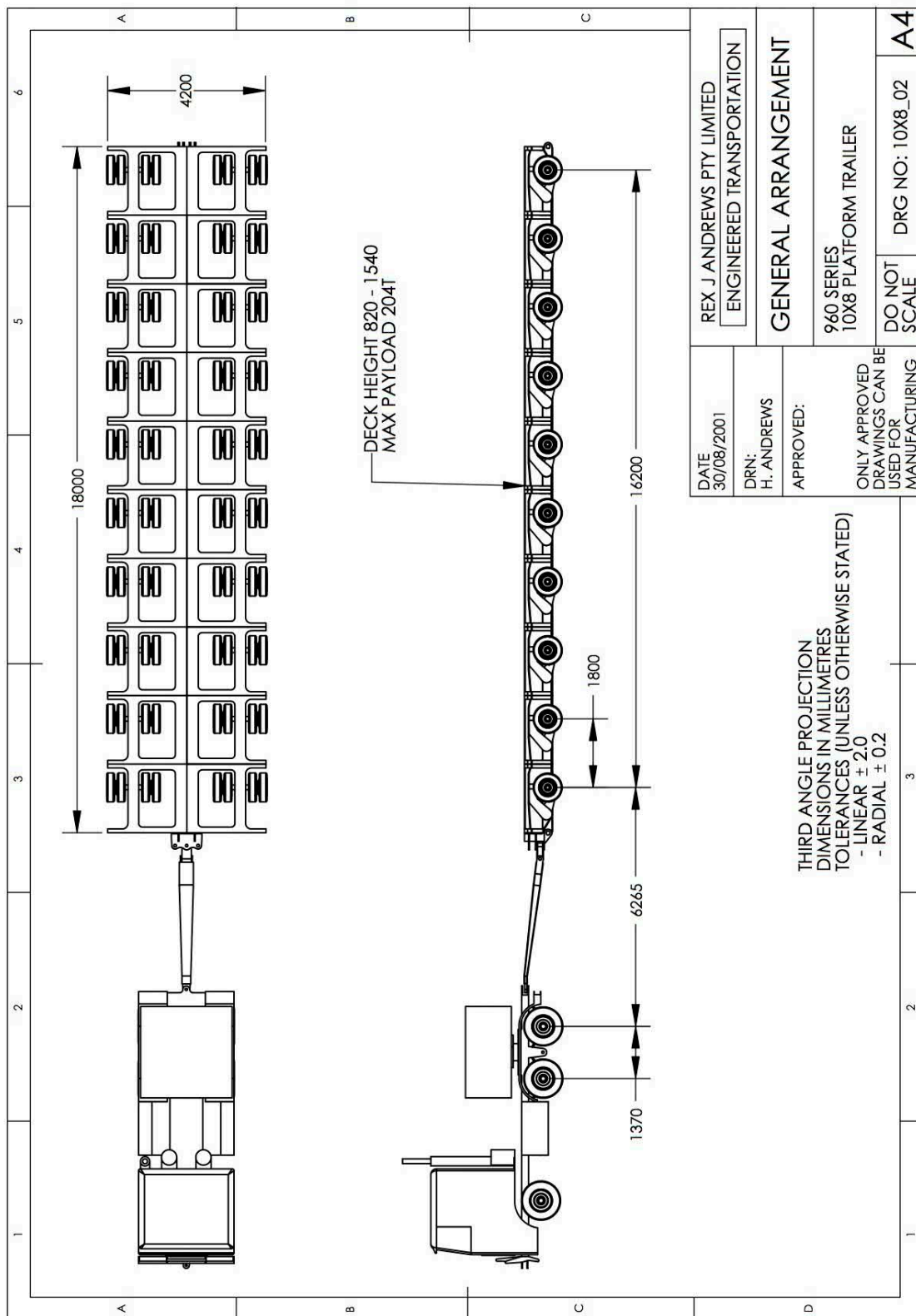


Figure 12 - Crane Trailer 10x8 Platform

6.0 Junction Rivers windfarm site location

This proposed Junction Rivers wind farm development is located approximately 20 kilometres (km) south of Balranald, in southwest New South Wales. Access is via Balranald Road. The Project Area is within the Murray Region of New South Wales (NSW)



Figure 13 – Junction Rivers Windfarm

7.0 Port of Import

The wind turbine equipment will be imported from various countries and will arrive on ships into the Port of Adelaide. The client may alternately source local towers. The ideal berth for these shipments is the Berth 18-20 Inner Harbor. This facility has a hardstand storage area of roughly 20,000 s/q meters, adjacent to the berth.

Access from the storage to the public roads, is via Ocean Steamers drive. This route will require some upgrades to accommodate a 100m blade.

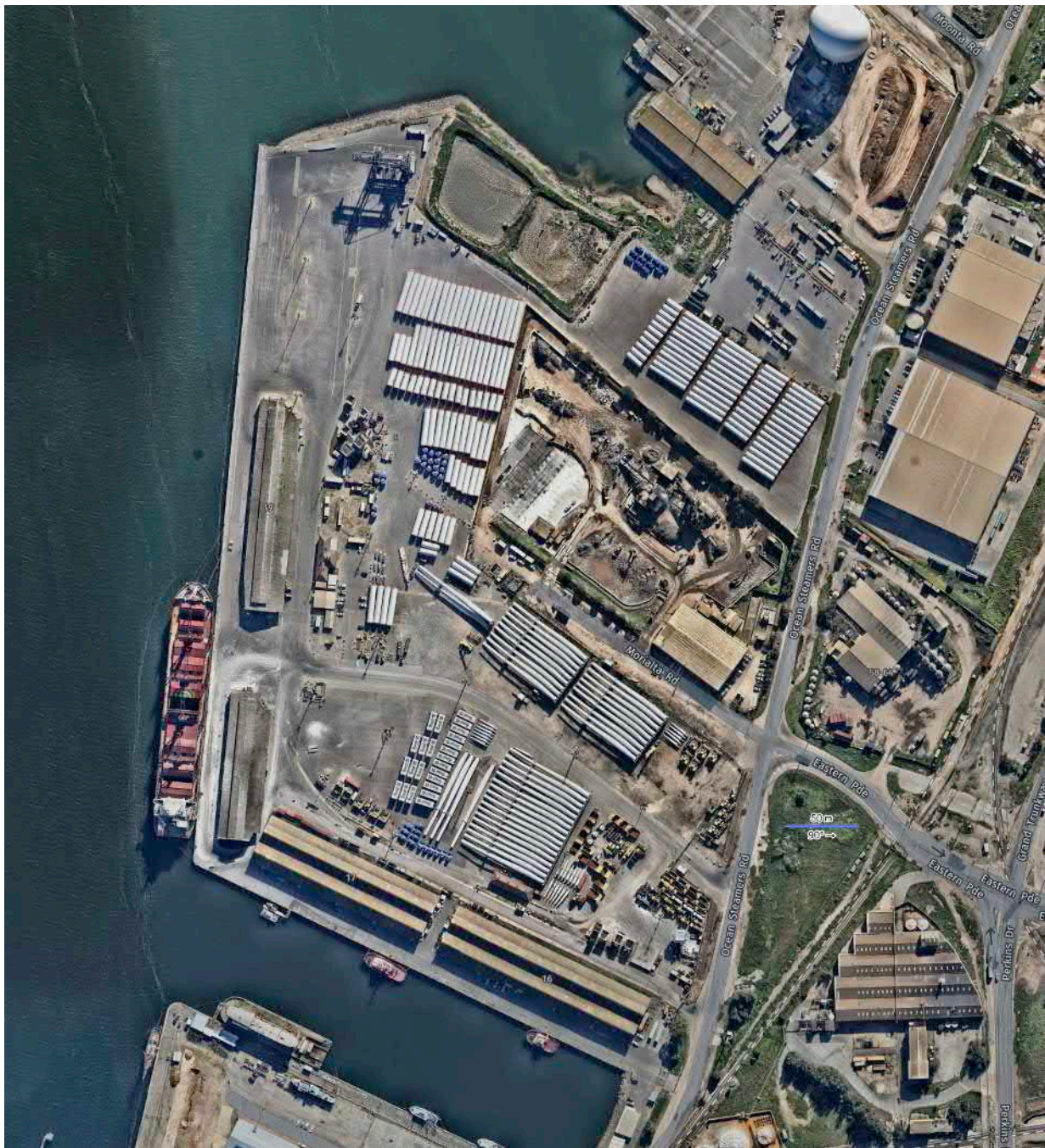


Figure 14 - Port of Adelaide and Storage Area

8.0 Transport Summary

The study is based on the turbine components and imported towers entering Australia via Port Adelaide. The study details the likely routes for these components, and the constraints that they may encounter on the proposed routes.

The study has chosen 4 routes based on the type of turbine component that needs to be delivered from the port of import through to the windfarm. Route 1 is specifically for the blades. Route 2 is for the components up to 5.2 metres in height. Routes 3 & 4 are the 2 options for the high tower sections.

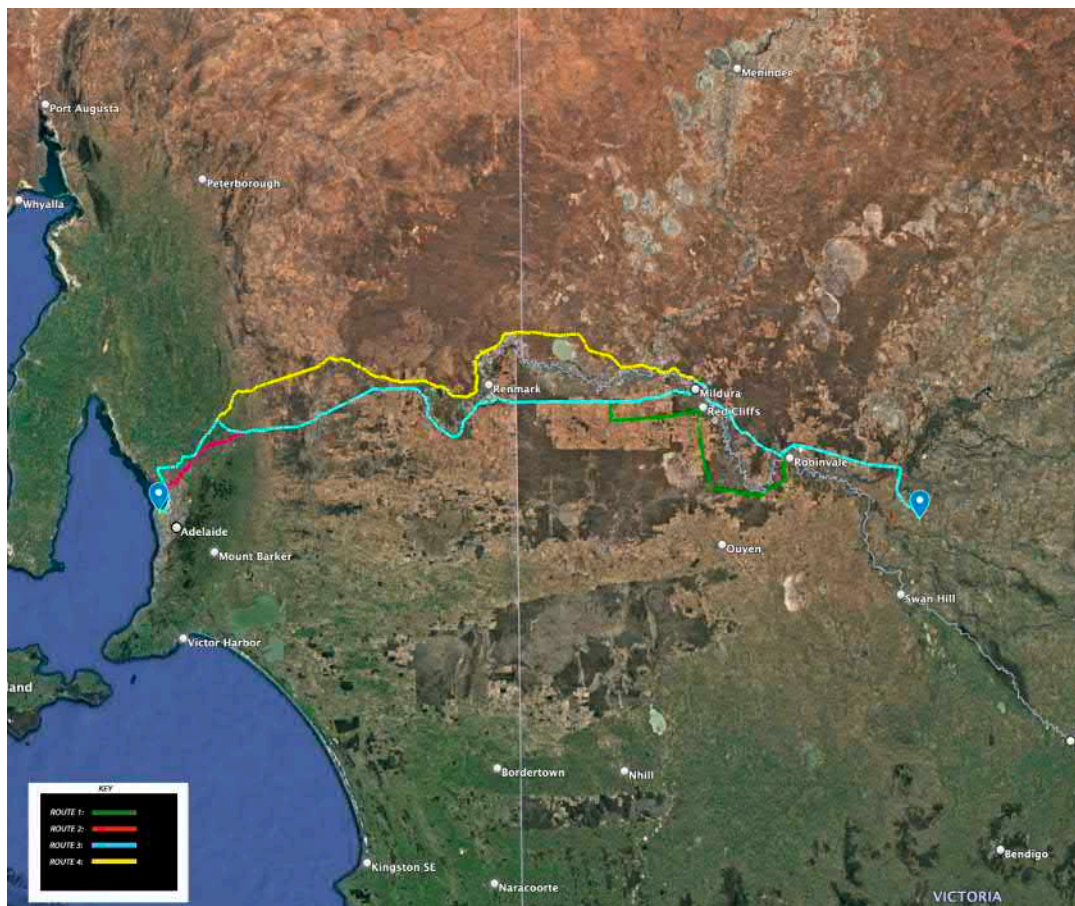


Figure 15: Routes from Pt Adelaide to Junction River WF

ROUTE SURVEY 1: Port Adelaide to Junction Rivers Windfarm via Robinvale.

COMPONENTS: Blades only

DISTANCE: 658 kilometres

GPS LINK: <https://maps.app.goo.gl/f8y6PMEPu939C75w9>

VIA: Ocean Steamers Rd, Eastern Parade, Port River Exy (A9), North South Motorway (M2), Northern Expy, Sturt Hwy (A20), Kingston Rd, Hwy (B55), Karoonda Hwy, Bookpurnong Rd, Stanitzki Rd, Sturt Hwy, Werrimull N Rd, Millewa Rd, Calder Hwy, Hattah Robinvale Rd, Robinvale-Sea lake Rd, Murray Valley Hwy, Sturt Hwy, Yanga Way, Balranald Road.

ROUTE SURVEY 2: Port Adelaide to Junction Rivers Windfarm via Mildura.

COMPONENTS: Components with a **Max loaded height 5.2 metres**

DISTANCE: 610 kilometres

GPS LINK: <https://maps.app.goo.gl/DDCP2zgjjieWsGkE8>

VIA: Ocean Steamers Rd, Eastern Parade, Port River Exy (A9), North South Motorway (M2), Northern Expy, Sturt Hwy (A20), Kingston Rd, Hwy (B55), Karoonda Hwy, Bookpurnong Rd, Stanitzki Rd, Sturt Hwy, Seventeenth St, Benetook Ave, Seventh St, Sturt Hwy, Yanga Way, Balranald Road.

ROUTE SURVEY 3: Port Adelaide to Junction Rivers Windfarm, High load option 1

COMPONENTS: Larger items with a **Max loaded height 6.4 metres**

DISTANCE: 638 kilometres

GPS LINK: <https://maps.app.goo.gl/VzYoLHnsqmknnXkb8>

VIA: Via Ocean Steamers Road, Eastern Parade, Port River Expressway, Northern Connector, Port Wakefield Highway "A1", Mallala Road, Old Port Wakefield Road, Gawler Rd, Two Wells Rd, Wilkinson Road, Hatcher Road, Oates Road, Redbanks Road, Mudla Wirra Road, College Road, Cliff Road, Gartrell Street, Roseworthy, Thiele Hwy, East Terrace, Truro Rd, Sturt Hwy, Kingston Rd, Karoonda Hwy, Bookpurnong Rd, Stanitzki Rd, Sturt Hwy, Seventeenth St, Benetook Ave, Seventh St, Sturt Hwy, Kidman Way, Yanga Way, Balranald Road.

ROUTE SURVEY 4: Port Adelaide to Junction Rivers Windfarm, High load option 2

COMPONENTS: Larger items with a **Max loaded height 6.4 metres**

DISTANCE: 659 kilometres

GPS LINK: <https://maps.app.goo.gl/n87wjSd8tn6y6pt18>

VIA: Via Ocean Steamers Road, Eastern Parade, Port River Expressway, Northern Connector, Port Wakefield Highway "A1", Mallala Road, Old Port Wakefield Road, Gawler Road, Two Wells Rd, Wilkinson Road, Hatcher Road, Oates Road, Redbanks Road, Mudla Wirra Road, College Road, Cliff Road, Gartrell Street, Roseworthy Road, Thiele Hwy, East Terrace, Thiele Hwy, Goyder Hwy, Sturt Hwy, Airport Rd, Government Rd, Ral Ral Ave, Wentworth-Renmark Rd, Renmark Rd, Silver City Hwy, Armstrong Ave, Silver City Hwy, Sturt Hwy, Yanga Way, Balranald Road.

9.0 Route Survey 1: Port Adelaide to Junction Rivers Windfarm via Robinvale

COMPONENTS: Blades

DISTANCE: 658 kilometres

GPS LINK: <https://maps.app.goo.gl/f8y6PMEPu939C75w9>

VIA: Ocean Steamers Rd, Eastern Parade, Port River Exy (A9), North South Motorway (M2), Northern Expy, Sturt Hwy (A20), Kingston Rd, Hwy (B55), Karoonda Hwy, Bookpurnong Rd, Stanitzki Rd, Sturt Hwy, Werrimull N Rd, Millewa Rd, Calder Hwy, Hattah Robinvale Rd, Robinvale-Sea lake Rd, Murray Valley Hwy, Sturt Hwy, Yanga Way, Balranald Road.

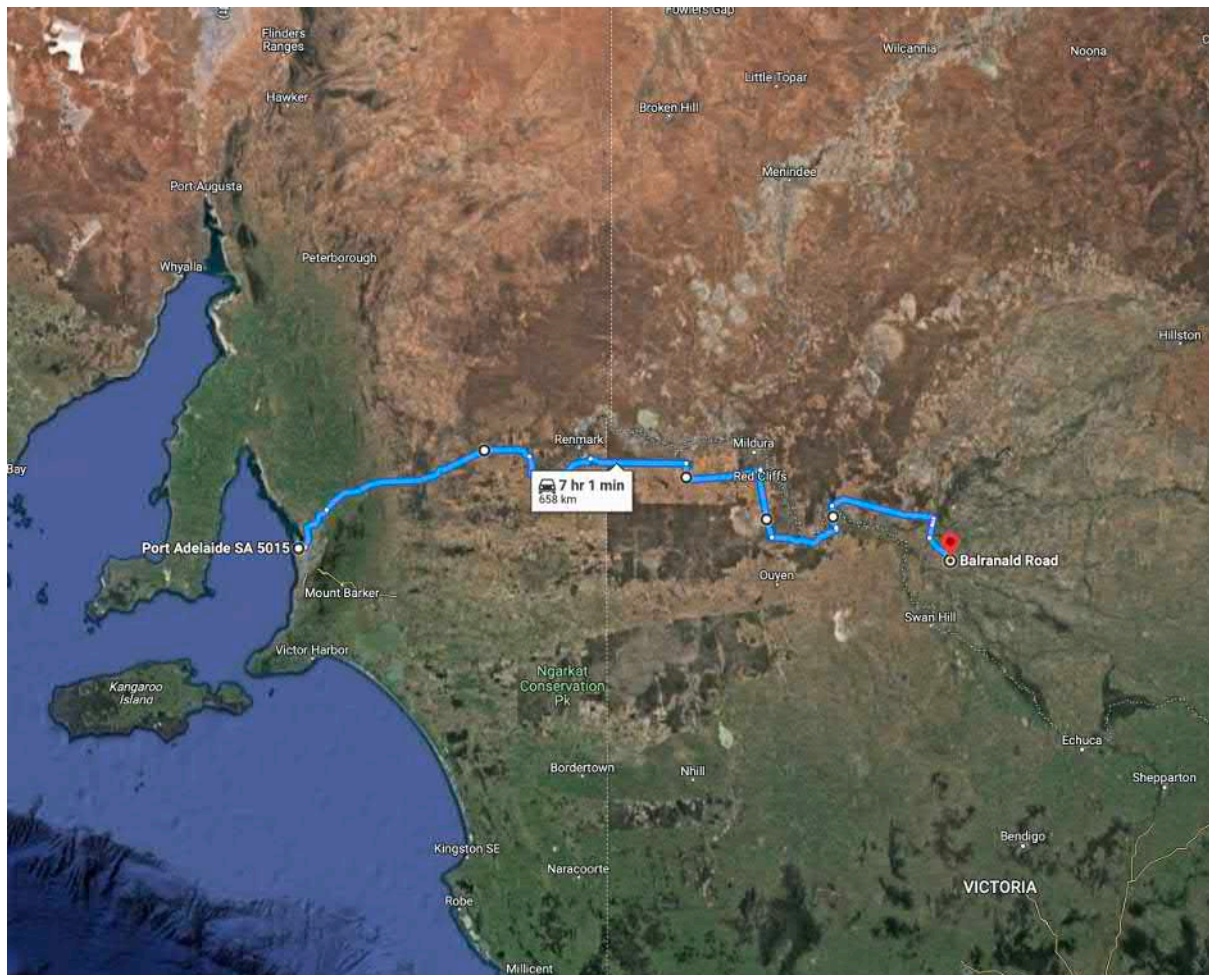


Figure 16 - Route 1

KEY	
PINCH POINT	
CAUTION	
EMERGENCY PARKING	

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
0.0	Port Adelaide	Intersection of Ocean Steamers Rd and Eastern Pde GPS Link: https://goo.gl/maps/RM0Gd61BrvczTUECR8	9.9 metres wide at gate	Slight right hand turn	The perimeter fence will need to be modified to allow transit. Sign to be made removable and overhead conductor clearances confirmed.
0.75	Port Adelaide	Eastern Parade onto Port River Expressway GPS Link: https://goo.gl/maps/ons7XGaZqv1xLh3v6	80 metres	Left Hand Merge	To enable the blade to make this corner 1 x light poles and 1x street sign need to be removed. An area of hardstand is also required on the outside of the corner on the Port River on ramp. The blade tip will hang over the drain on the outside of the corner and traffic light on centre island. Blade must be able to lift over traffic signals (4m) The area must be clear of obstacles.
5.65	Dry Creek	Port River Expressway onto North-South Motorway GPS Link: https://goo.gl/maps/tnXSxEvv2zhyWHnLA	120 metres	Left Hand merge	Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
21.05	Burton	North-South Mwy onto Northern Expy, Sturt Hwy GPS Link: https://goo.gl/maps/23zth7ZxmiDCFoY7	120 metres	Left hand bend	Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
21.05 to 42.6	Burton to Gawler	Northern Expressway GPS Link: https://goo.gl/maps/GbEiYZ81FUAdJh4Q7	Bridge heights: 5.2 metres clearance	Travel directly ahead	Loads are not to exceed 5.2 metres in height on this section of road.
42.6	Gawler	Northern Expressway onto Sturt Highway GPS Link: https://goo.gl/maps/cG4vPULRZKy4V73h9	120 metres	Travel directly ahead	No problems with this section of road.
45.0	Gawler	Sturt Highway under Redbanks Road GPS Link: https://goo.gl/maps/n2aHh6MiwHyCeMRH9	Bridge height: 5.2 metres clearance	Travel directly ahead	Loads to slow for this bridge if over 5.0 metres in height. Loads exceeding 5.2 will need to stop and lower to 5.2 metres to travel under this structure.
45.0	Nuriootpa	Sturt Highway under Sir Condor Laucke Way GPS Link: https://goo.gl/maps/J2DaymuDAmZK2PYs8	Bridge height: LHS: 6.15 Centre: 5.8m RHS: 5.6	Travel directly ahead	Loads to slow for this bridge if over 5.5 metres in height. Loads exceeding 6.0m will need to stop and lower to 6.0 metres to travel under this structure.

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
132.05	Blanchetown	Sturt Highway GPS Link: https://goo.gl/maps/fQvt31Kceog	10.0 metres wide	Left hand merge	Overnight parking at BP service centre
208.75	Kingston on Murray	Sturt Highway onto Kingston Road GPS Link: https://goo.gl/maps/cvafMBJpgVNRudqp8	110 metres	Right Hand Turn	Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
244.3	Loxton	Kingston Road onto Karoonda Hwy GPS Link: https://goo.gl/maps/QVqncMAha8ew7Gq9	120 metres	Travel directly ahead	No problems with this section of road.
246.45	Loxton	Karoonda Hwy onto Bookpurnong Road GPS Link: https://goo.gl/maps/o2XFU8r5acZwGaoPA	80 metres	Second exit on Roundabout	Hardstand is required on the edge of the roundabout so the blade can cut straight across. 2x signs need to be made removable. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
251.25	Loxton North	Bookpurnong Road GPS Link: https://goo.gl/maps/whYi2TCsTw7U5cDH9	90.0 metres long 10.0 metres wide	Left hand merge	Fatigue parking
256.35	Bookpurnong	Bookpurnong Road onto Stanitzki Road GPS Link: https://goo.gl/maps/4D9S2wy8wpSkWqCG8	120 metres	Right Hand Turn	Vegetation on the outside of the corner will need to be checked before deliveries commence. Some trimming may be required. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
284.45	Pike River	Stanitzki Road onto Sturt Hwy GPS Link: https://goo.gl/maps/QyNooMy3b8zotMAUA	60 metres	Right Hand Turn	A large amount of hardstand is required on the inside of the corner. Existing shoulder on entry to be made trafficable. Vegetation on the outside of the corner to be trimmed or removed. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
287.40	Yamba	Sturt Hwy GPS Link: https://goo.gl/maps/TAPWrNAcrsWGjXJJ7	90.0 metres long 10.0 metres wide	Left Hand Merge	Possible parking on correct side of the road. Fuel on incorrect side of Road- Ampol
321.80	Meringur	Sturt Hwy GPS Link: https://goo.gl/maps/Tm7PCDeqxcSf6pt5A	90.0 metres long 10.0 metres wide	Left Hand Merge	Possible parking on correct side of the road.
355.5	Cullulleraine	Sturt Hwy onto Werrimull N Rd GPS Link: https://goo.gl/maps/mEXbpEwPCDvMMUCh8	60 metres	Right Hand Turn	Hardstand is required on the outside of the corner. Numerous trees will need to be removed to allow the tail swing to pass. 2x signs need to be made removable. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
368.1	Werrimull	Werrimull N Rd onto Millewa Rd GPS Link: https://goo.gl/maps/vho9s9R8b6h5uN9	80 metres	Left Hand Turn	Hardstand is required on the entry and inside of the corner. 1x sign needs to be made removable. Vegetation to be removed or trimmed. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
422.6	Red Cliffs	Bend on Millewa Rd GPS Link: https://goo.gl/maps/4V6MQGQvY3arG786	50 metres	Right Hand Turn	Hardstand to be installed on inside and outside of corner. Signs removed and vegetation trimmed as required. Overhead conductor clearance to be confirmed.
422.7	Red Cliffs	Millewa Rd onto Calder Hwy GPS Link: https://goo.gl/maps/Rm6Z7EukQVW5Nm6k9	50 metres	Right Hand Turn	The sharp right hand turn on to the Calder highway will need a significant amount of work, including a new bypass road and a new rail crossing. Signs and obstacles to be removed. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
474.2	Hattah	Calder Hwy GPS Link: https://goo.gl/maps/R26CpZxRfJYpJ6TB9	90.0 metres long 10.0 metres wide	Left Hand Merge	Possible parking on correct side of the road. Roadhouse
474.5	Hattah	Calder Hwy onto Hattah-Robinvale Rd GPS Link: https://goo.gl/maps/Z6cEDLCo71fpZU27	50 metres	Left Hand Turn Via new bypass road	New bypass road to be installed, vegetation removed and trimmed as required. Overhead conductor clearance to be confirmed. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
527.7	Bannerton	Hattah-Robinvale Rd onto Robinvale-Sea Lake Rd GPS Link: https://goo.gl/maps/4FwG4Ln1Qr65TX19	80 metre	Left Hand Turn	Hardstand is required on the centre island and 6x signs will need to be made removable. Delineators made removable, Vegetation trimmed as required. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
540.9	Robinvale	Robinvale-Sea Lake Rd turns into Murray Valley Hwy GPS Link: https://goo.gl/maps/55pknuwKNHsoA1vdA	120 metres	Continue Straight	No issues with this section
543.6	Robinvale	Murray Valley Highway over the Euston-Robinvale Bridge https://goo.gl/maps/uKnaiBJZG5yVWVJQ9	Width: 8.0 metres	Continue straight	TfNSW have advised that the structure is suitable for OSOM loads. However, a bridge assessment will be required to cross this structure.

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
546.0	Euston	Murray Valley Hwy onto Sturt Hwy GPS Link: https://goo.gl/maps/rnhtenjnMRVKAIX3eA	50 metres	Right Hand Turn	This is a very tight corner that cuts back on itself. A large amount of hardstand is required. The new alignment will need a lot of fill to bring it level with the highway. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
623.7	Balranald	Sturt Hwy (market st) onto Sturt Hwy GPS Link: https://goo.gl/maps/xve4ZgtuRkngPvVr7	50 metres	Right Hand Turn	This section is very tight. A large area of hardstand will be required along with the removal of 5 x trees, 2x light poles and numerous signs. Median strip to be made trafficable. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
636.8	Yanga	Sturt Hwy (market st) onto Sturt Hwy GPS Link: https://goo.gl/maps/LvsnG077xMjgQMAA	70 metres	Left Hand Turn	An area of hardstand is required on the inside of the corner. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
645.8	Kyalite	Balranald Rd onto Arundel Rd GPS Link: https://goo.gl/maps/bmfVKnM2PIJhJLgJ8		Site Entrances	Some vegetation may need to be trimmed/removed on the inside and outside of this corner. The first site entrances are proposed in this location. The land is very flat with limited vegetation. Client to provide adequate swept path for the blade to enter site.
659.0	Moolpa	Balranald Rd into western site entrances GPS Link: https://goo.gl/maps/4G3chRQMEgnkXD4y6B		Site Entrances	The western site entrances are proposed in this location. As with the eastern entrances the land is very flat with limited vegetation. Client to provide adequate swept path for the blade to enter site.

0.0 Km's: Exiting the port storage area onto Eastern Parade.

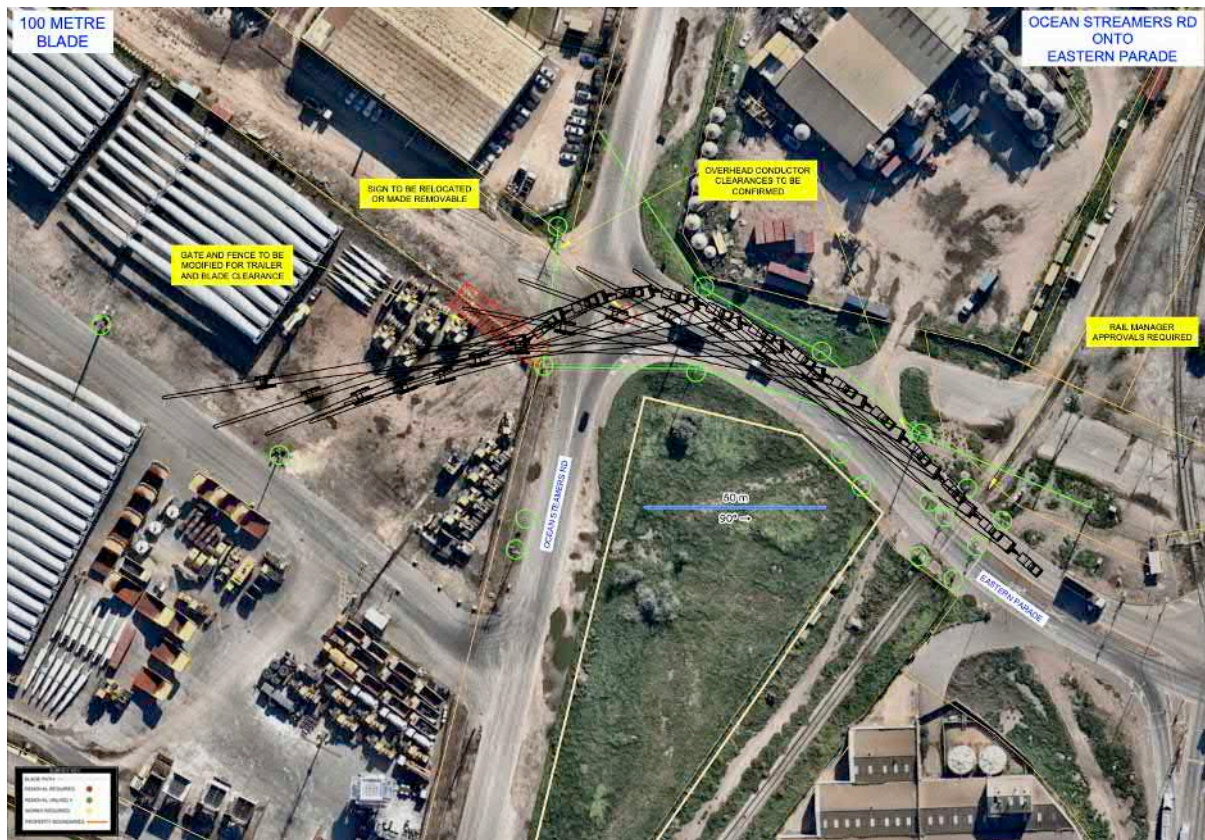


Figure 17 - Exiting the port storage area onto Eastern Parade.

GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/RMGe61BrvczTbEQR8>

PROCEDURE: Slight right hand turn.

COMMENTS: Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: Yes, the perimeter fence will need to be modified to allow transit. Sign to be made removable and overhead conductor clearances confirmed.

0.75 Km's: Eastern Parade onto Port River Expressway.



Figure 18 - Eastern Parade onto Port River Expressway.

GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/ora7XGzZgv1zLN3v6>

PROCEDURE: Left hand merge onto Port River Expressway.

COMMENTS: Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: Yes. To enable the blade to make this corner 1 x light poles and 1x street sign need to be removed. An area of hardstand is also required on the outside of the corner on the Port River on ramp. The blade tip will hang over the drain on the outside of the corner and traffic light on centre island. Blade must be able to lift over traffic signals (4m) The area must be clear of obstacles.

208.75 Km's: Sturt Highway onto Kingston Road at Kingston on Murray.



Figure 19 - Sturt Highway onto Kingston Road at Kingston

GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/cvafMBJpqWNRudqp8>

PROCEDURE: Right hand turn

COMMENTS: No issues with this corner.

Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: No work is required.

246.45 Km's: Karoonda Hwy Roundabout in Loxton.

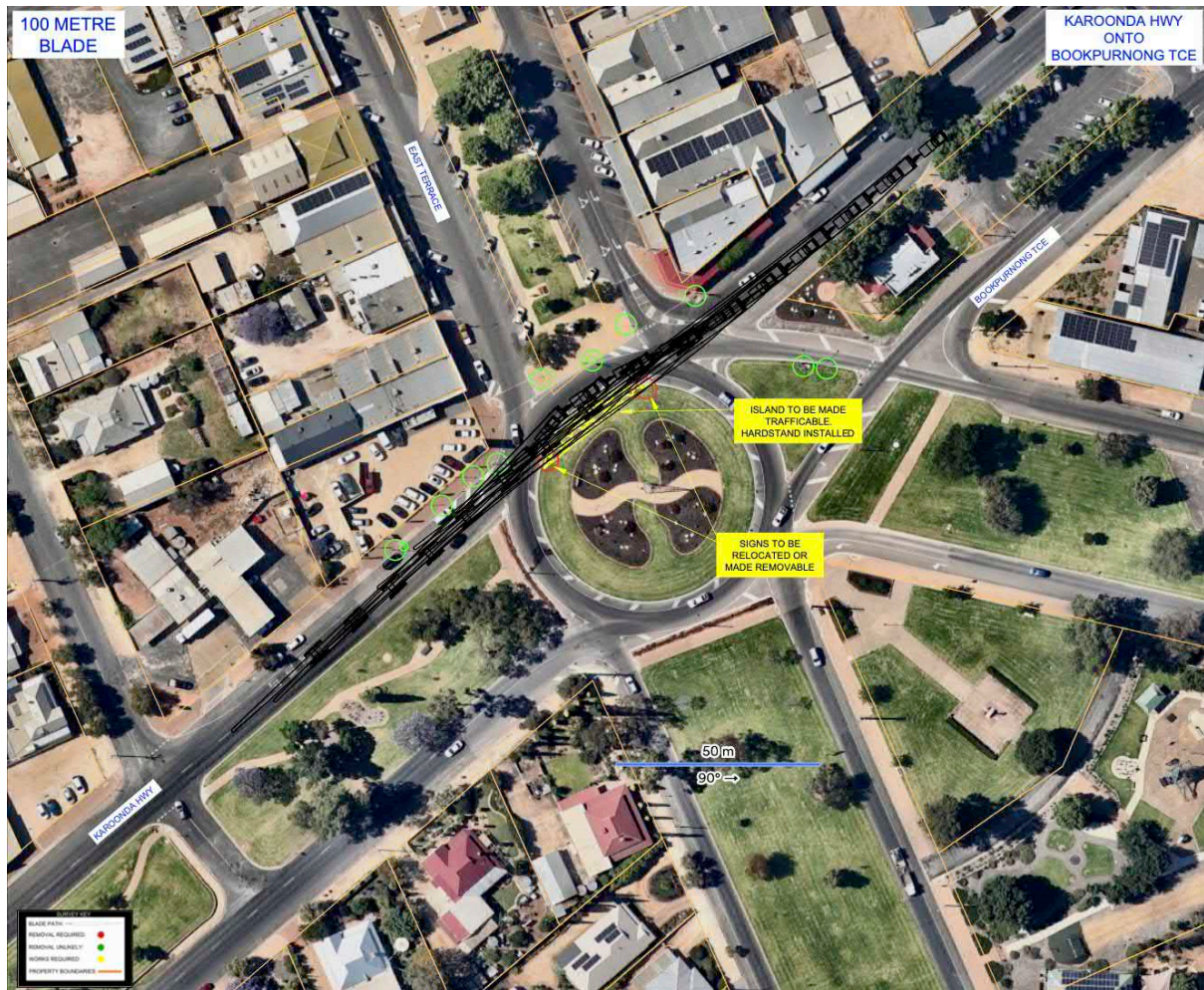


Figure 20 - Karoonda Hwy Roundabout in Loxton.

GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/qZXFU8r5scZwGxqPA>

PROCEDURE: Travel straight ahead using the hardstand installed on the roundabout and continue on Karoonda Hwy

COMMENTS: Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: Yes. Hardstand is required on the edge of the roundabout so the blade can cut straight across. 2x signs need to be made removable.

256.35 Km's: Bookpurnong Road onto Stanitzki Road at Loxton North

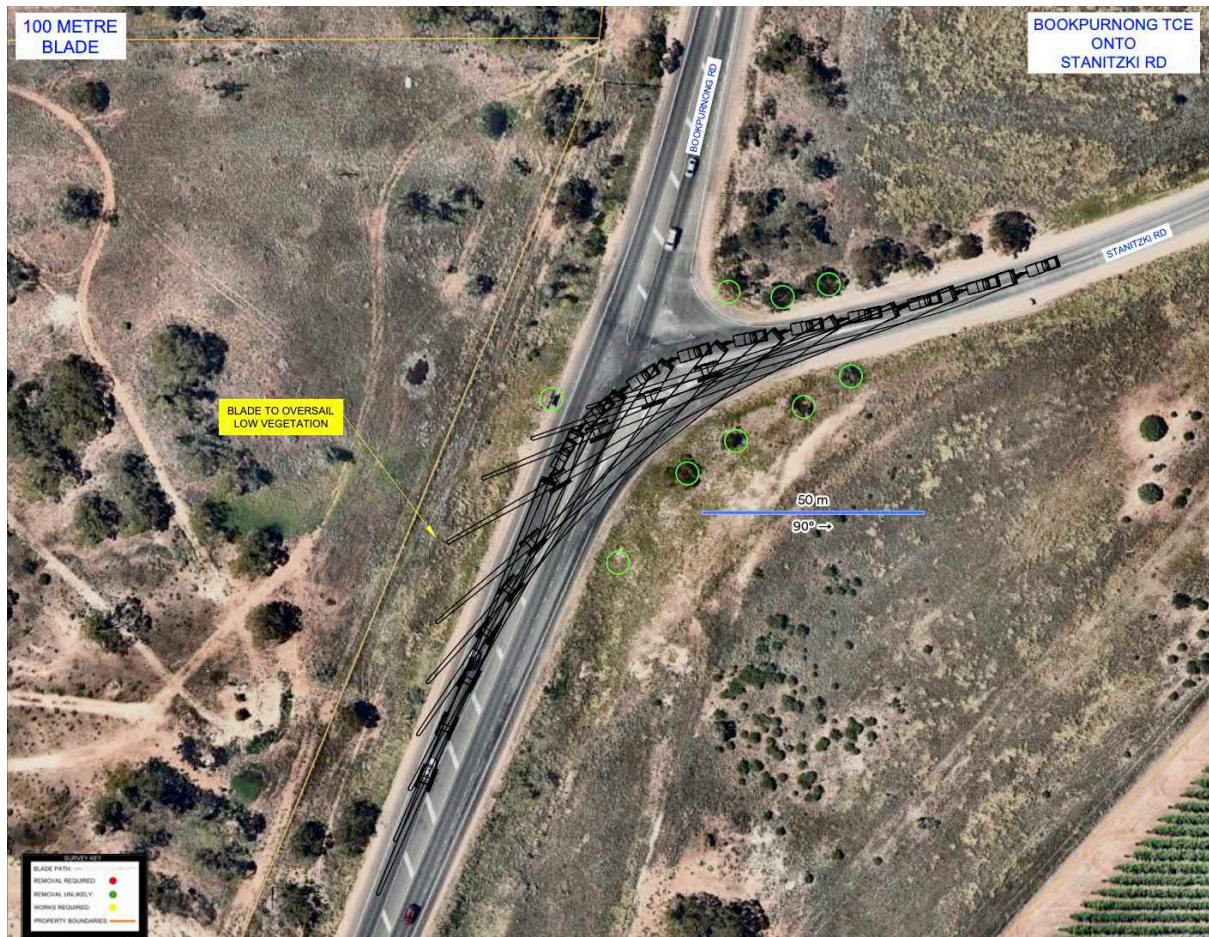


Figure 21 - Bookpurnong Road onto Stanitzki Road

GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/4D9S2wy8wpSkWqCG8>

PROCEDURE: Right hand turn

COMMENTS: Vegetation on the outside of the corner will need to be checked before deliveries commence. Some trimming may be required.

Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: No work is required.

284.45 Km's: Stanitzki Road onto Sturt Highway at Pike River

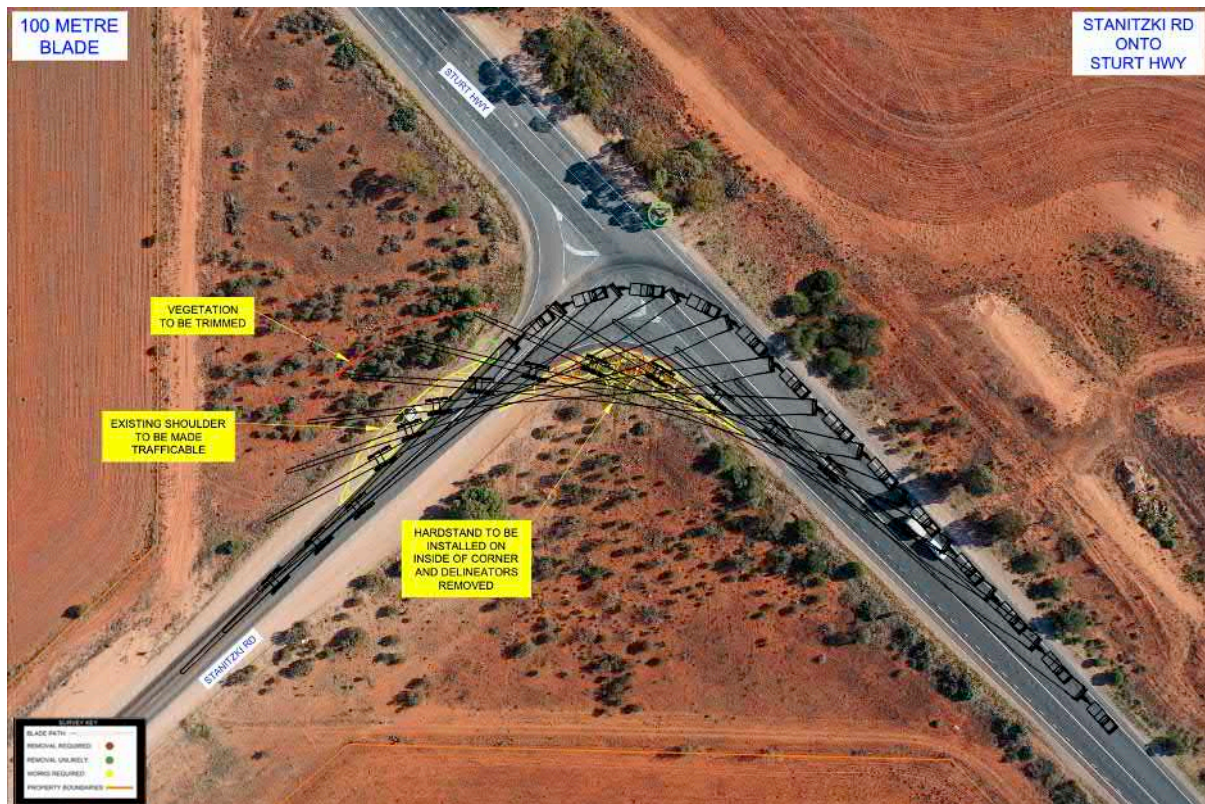


Figure 22 - Stanitzki Road onto Sturt Highway

GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/QtyNogMy3b9zg8MAUA>

PROCEDURE: Right hand turn

COMMENTS: Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: Yes. A large amount of hardstand is required on the inside of the corner. Existing shoulder on entry to be made trafficable. Vegetation on the outside of the corner to be trimmed or removed.

355.50 Km's: Sturt Highway onto Werrimull N Road at Cullulleraine

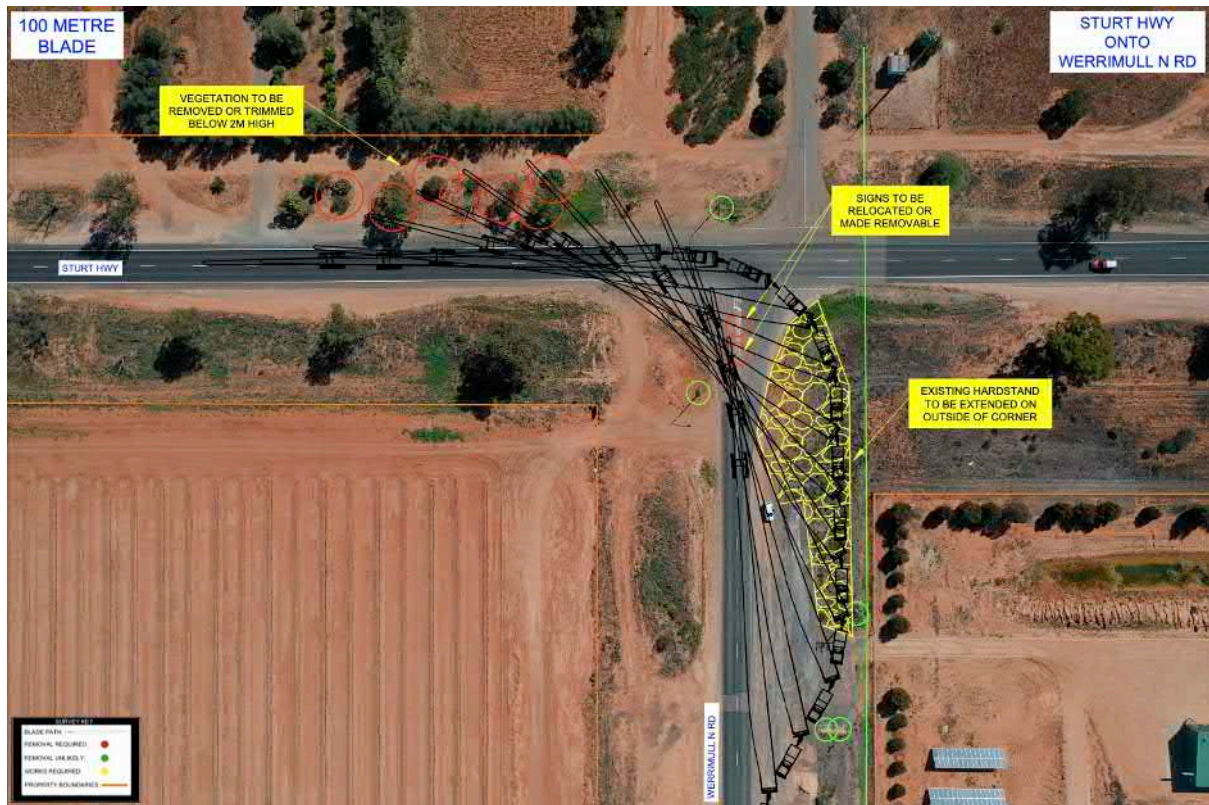


Figure 23 - Sturt Highway onto Werrimull N Road

GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/mEXbnEwPCDYMM4Fh8>

PROCEDURE: Right hand turn

COMMENTS: Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: Yes. Hardstand is required on the outside of the corner. Numerous trees will need to be removed to allow the tail swing to pass. 2 x signs need to be made removable.

368.10 Km's: Werrimull N Road onto Millewa Road at Werrimull



Figure 24 - Werrimull N Road onto Millewa Road

GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/ohs9s9RSbbfqi5uN9>

PROCEDURE: Left hand turn

COMMENTS: Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: Yes. Hardstand is required on the entry and inside of the corner. 1x sign needs to be made removable. Vegetation to be removed or trimmed.

422.60 Km's: Right hand bend on Millewa Road before rail crossing



Figure 25 - Right hand bend on Millewa Road

GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/4VgMQjQQvY3arG786>

PROCEDURE: Right hand bend then sharp right hand turn over the rail crossing.

COMMENTS: Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: Yes. Hardstand to be installed on inside and outside of corner. Signs removed and vegetation trimmed as required. Overhead conductor clearance to be confirmed.

422.70 Km's: Millewa Road onto Calder Hwy

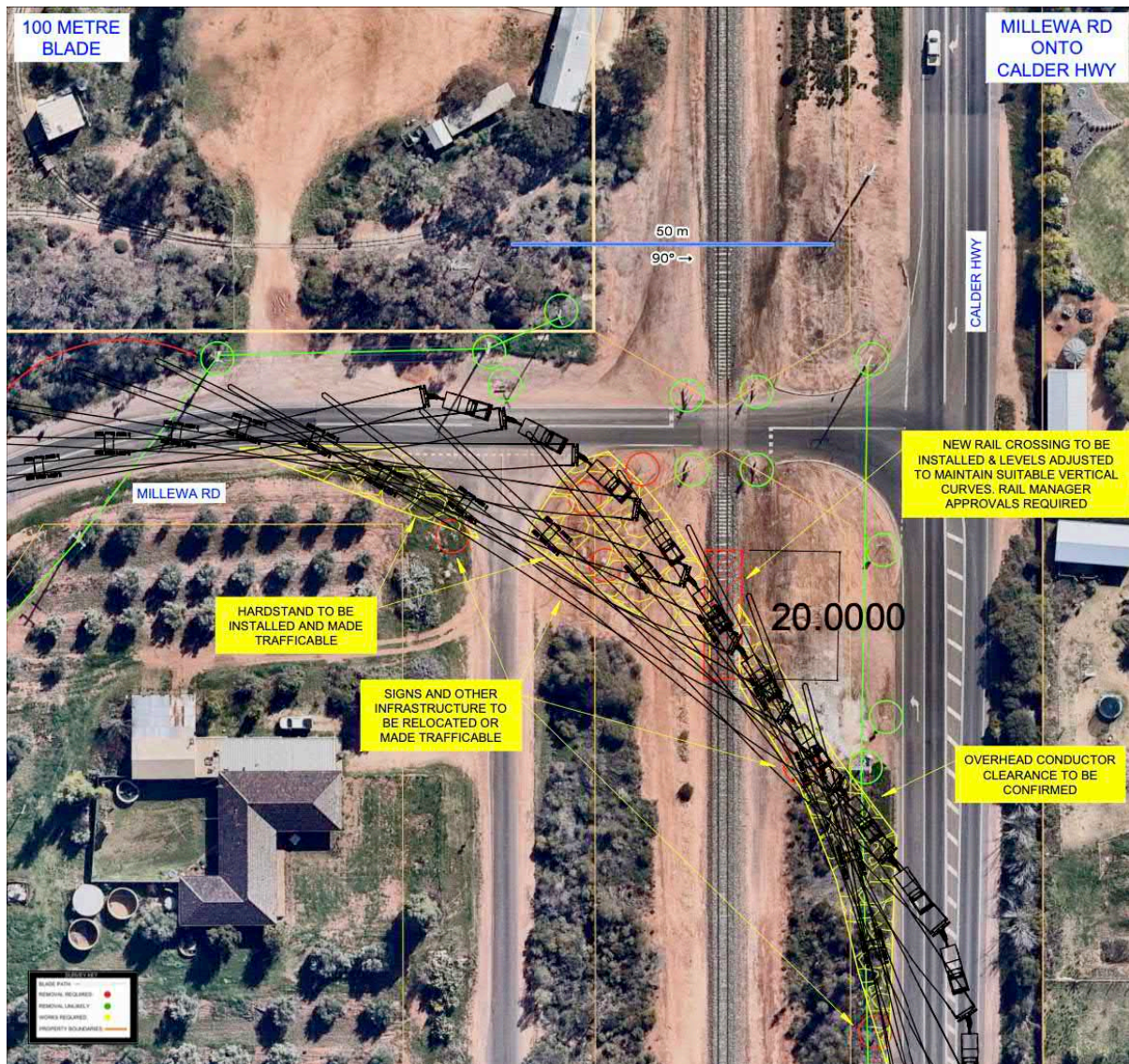


Figure 26 - Millewa Road onto Calder Hwy

GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/Rm6ZZEukQW5Nmbkc8>

PROCEDURE: Right hand bend then sharp right hand turn over new rail crossing.

COMMENTS: Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: Yes. The sharp right hand turn on to the Calder highway will need a significant amount of work, including a new bypass road and a new rail crossing. Signs and obstacles to be removed.

474.5 Km's: Calder Highway onto Hattah-Robinvale Road at Hattah



Figure 27 - Calder Highway onto Hattah-Robinvale Road

GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/Z6zEDLCq71fpPZU27>

PROCEDURE: Left hand turn at the roundabout

COMMENTS: Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: Yes. New bypass road to be installed, vegetation removed and trimmed as required. Overhead conductor clearance to be confirmed.

527.7 Km's: Hattah-Robinvale Road onto Robinvale-Sea Lake Road at Bannerton



Figure 28 - Hattah-Robinvale Road onto Robinvale-Sea Lake Road

GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/4FwG4Lh1Qr95TX1t9>

PROCEDURE: Left hand turn

COMMENTS: Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: Yes. Hardstand is required on the centre island and 6x signs will need to be made removable. Delineators made removable, Vegetation trimmed as required.

546.00 Km's: Murray Valley Highway onto Sturt Highway at Euston



Figure 29 - Murray Valley Highway onto Sturt Highway

GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/rnhvnjnN6VkAWX3eA>

PROCEDURE: Right hand turn

COMMENTS: Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: Yes. This is a very tight corner that cuts back on itself. A large amount of hardstand is required. The new alignment will need a lot of fill to bring it level with the highway.

623.70 Km's: Right hand bend on Sturt Highway at Balranald



Figure 30 - Sturt Highway at Balranald

GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/xve4ZgbuRkqgPvVr7>

PROCEDURE: Right hand turn

COMMENTS: Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: Yes. This section is very tight. A large area of handstand will be required along with the removal of 5 x trees, 2x light poles and numerous signs. Median strip to be made trafficable.

625.00 Km's: Sturt Highway onto Mallee Highway at Balranald

Image 1: Swept path



GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/sUqgHV9PKpztyi5g9>

PROCEDURE: Right hand turn onto the Mallee Highway

COMMENTS: 1x sign will need to be made removable. No issues with this corner otherwise.

Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: Yes, a minor amount of work is required.

636.80 Km's: Mallee Highway onto Balranald Road at Yanga

Image 1: Swept path



Image 2: Low angle shot



GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/LvawNfJ77rM3pQdAA>

PROCEDURE: Left hand turn

COMMENTS: An area of hardstand is required on the inside of the corner.

Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: Yes, a moderate amount of work is required.

645.80 Km's: Balranald Road onto Arundel Road and eastern site entrances at Kayalite

Image 1: Swept path



Image 2: Low angle shot



Image 3: Aerial shot of surrounding landscape



Image 4: Typical section of road along Balranald Road



GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/bwFVKmM2PLJrJLoJ8>

PROCEDURE: Right hand turn

COMMENTS: Some vegetation may need to be trimmed/removed on the inside and outside of this corner. The eastern site entrances are proposed in this location. The land is very flat with limited vegetation. Client to provide adequate swept path for the blade to enter site.

Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.

ROAD MODIFICATIONS: Yes, a minor amount of work is required.

659.00 Km's: Balranald Road into western site entrances at Moolpa

Image 1: Proposed western site entrance



Image 2: Proposed western site entrance



GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/H89zRQMFgqkXDHvE9>

PROCEDURE: Left hand bend to continue on the Newell Highway

COMMENTS: The western site entrances are proposed in this location. As with the eastern entrances the land is very flat with limited vegetation. Client to provide adequate swept path for the blade to enter site.

ROAD MODIFICATIONS: Yes, a minor amount of work is required.

10.0 Conclusion Route 1:

After studying all options and undertaking a route survey, this route in its current condition will require a major number of upgrades before it could be deemed suitable for transporting the proposed components.

The following are the key points that need to be taken into consideration, if the project moves forward with this route.

SWEPT PATH:

- ☐ There are numerous sections along the route that need major work to allow a blade of this size through.
- ☐ The corners that we consider will need significant work and should be investigated early in the planning stages to avoid delays or rejections are:
 - The right hand turn from Millewa Road onto the Calder Highway at Red Cliffs
 - The right hand turn from Murray Valley Highway onto the Sturt Highway at Euston
 - The right-hand bend on the Sturt Highway at Balranald

OVERHEAD STRUCTURES: (5.2 metres maximum loaded height)

- ☐ The lowest structures are the overpasses along the Northern Expressway. The lowest of these has a clearance of 5.2 metres.
- ☐ Loads higher than 5.2 metres cannot use this route and will need to travel along route 3 (high load route)

OVERHEAD UTILITIES:

- ☐ This route will need to be checked by an authorised scoping company. It is likely that a route of at least 5.6 metres is required for this project.

BRIDGES:

- ☐ Majority of the bridges have been used previously for similar loads so it is expected they will be ok. A bridge assessment will still be required.

RAIL ASSETS:

- ☐ There are a number of rail overbridges and crossings on route that will require approval from authorities before loads can access the routes.
- ☐ The corner onto the Calder Highway at Red Cliffs requires a new level rail crossing for the blade trailer. This will need to be discussed with the authorities to determine if it's achievable.

VEGETATION:

- ☐ The route requires a moderate amount of vegetation clearing at various locations.

PAVEMENT:

- ☐ The Pavement on all roads have adequate highway pavement up until Balranald Road.
- ☐ Balranald Road is a gravel road of varying quality. The road will need to be graded before deliveries commence and regular grading will be required over the project delivery period. The road may become unusable in wet conditions which will impact delivery schedules. The average width is 8m so not a concern.

ROADWORKS:

- ☐ The project will need to start discussions with government authorities at least 18 months prior to turbine transport to understand if the project would conflict with any upcoming roadworks. Once a Transport Management Plan “TMP” has been approved for the transport of the turbines, then the exact movement dates need to be communicated with all relevant authorities to make all road stakeholders are aware of the scheduled movements for each day.
- ☐ The project will need to regularly check on any new upgrades not listed in the report. If upgrades have taken place on a section of route after this report has been completed, then a swept path study would need to be undertaken on that section of road to confirm that it can still be used.

COMPONENTS THAT WOULD USE ROUTE 1:

- ☐ Blades.

11.0 Route Survey 2: Port Adelaide to Junction Rivers Windfarm Via Mildura

COMPONENTS: Smaller components with a **Max loaded height 5.2 metres**

DISTANCE: 610 kilometres

GPS LINK: <https://maps.app.goo.gl/DDCP2zgijieWsGkE8>

VIA: Ocean Steamers Rd, Eastern Parade, Port River Exy (A9), North South Motorway (M2), Northern Expy, Sturt Hwy (A20), Kingston Rd, Hwy (B55), Karoonda Hwy, Bookpurnong Rd, Stanitzki Rd, Sturt Hwy, Seventeenth St, Benetook Ave, Seventh St, Sturt Hwy, Yanga Way, Balranald Road.

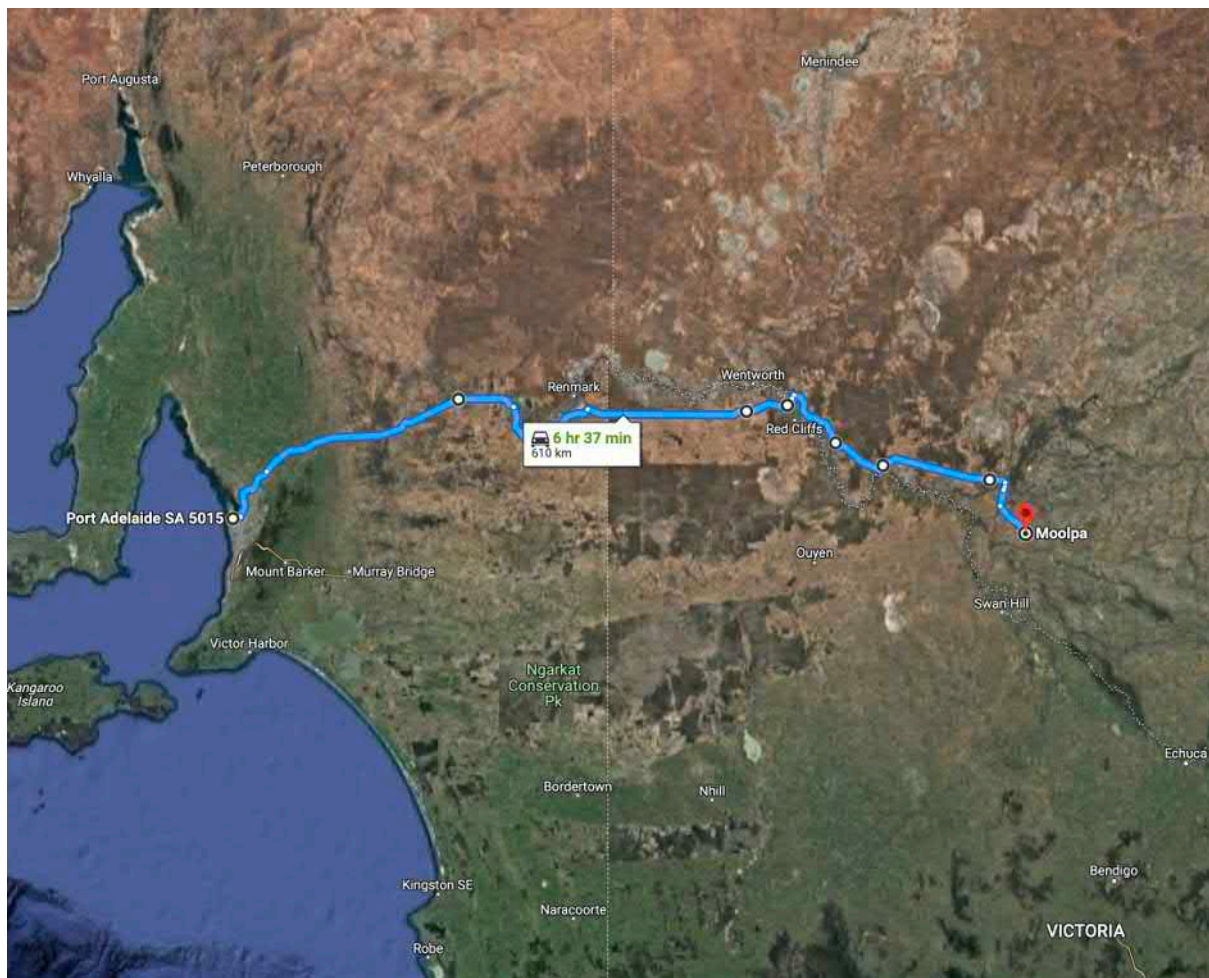


Figure 31 - Route 2

KEY	
PINCH POINT	
CAUTION	
EMERGENCY PARKING	

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
0.0	Port Adelaide	Intersection of Ocean Steamers Rd and Eastern Pde GPS Link: https://goo.gl/maps/RMGe61BryczTbEQR8	9.9 metres wide at gate	Slight right hand turn	No problems with this section of road.
0.75	Port Adelaide	Eastern Parade onto Port River Expressway GPS Link: https://goo.gl/maps/ora7XGzZqv1zLN3v6	80 metres	Left Hand Merge	No problems with this section of road.
5.65	Dry Creek	Port River Expressway onto North-South Motorway GPS Link: https://goo.gl/maps/tnXSxEvv2zhyWHnLA	120 metres	Left Hand merge	No problems with this section of road.
21.05	Burton	North-South Mwy onto Northern Expy, Sturt Hwy GPS Link: https://goo.gl/maps/23zth7ZxmiDCFotY7	120 metres	Left hand bend	No problems with this section of road.
21.05 to 42.6	Burton to Gawler	Northern Expressway GPS Link: https://goo.gl/maps/GbEiYZ81FUAdJh4Q7	Bridge heights: 5.2 metres clearance	Travel directly ahead	Loads are not to exceed 5.2 metres in height on this section of road. NOTE: Vehicles that exceed a loaded height of 5.2 metres are to detour via Two Wells as per the following link. See route survey 3 for details. https://goo.gl/maps/mS6AuxPmuEHyHzca9
42.6	Gawler	Northern Expressway onto Sturt Highway GPS Link: https://goo.gl/maps/cG4yPULRZKy4V73h9	120 metres	Travel directly ahead	No problems with this section of road.
45.0	Gawler	Sturt Highway under Redbanks Road GPS Link: https://goo.gl/maps/n2aHh6MlwhyCeMRH9	Bridge height: 5.2 metres clearance	Travel directly ahead	Loads are not to exceed 5.2 metres in height on this section of road. NOTE: Vehicles that exceed a loaded height of 5.2 metres are to detour via Two Wells as per the following link. See route survey 3 for details. https://goo.gl/maps/mS6AuxPmuEHyHzca9
45.0	Nuriootpa	Sturt Highway under Sir Condor Laucke Way GPS Link: https://goo.gl/maps/U2DaymuDAmZK2PYs8	Bridge height: LHS: 6.15 Centre: 5.8m RHS: 5.6	Travel directly ahead	Loads over 5.6m must stay as far left as possible under this structure. Loads exceeding 6.0m will need to stop and lower to 6.0 metres to travel under this structure. This is the lowest structure on the route without a bypass option.

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
132.05	Blanchetown	Sturt Highway GPS Link: https://goo.gl/maps/fQvt31Kceog	10.0 metres wide	Left hand merge	Overnight parking at BP service centre
208.75	Kingston on Murray	Sturt Highway onto Kingston Road GPS Link: https://goo.gl/maps/cvafMBJpgWNRudqp8	110 metres	Right Hand Turn	No problems with this section of road.
244.3	Loxton	Kingston Road onto Karoonda Hwy GPS Link: https://goo.gl/maps/QVqcneMAha8ew7Gg9	120 metres	Travel directly ahead	No problems with this section of road.
246.45	Loxton	Karoonda Hwy onto Bookpurnong Road GPS Link: https://goo.gl/maps/qZXFU8r5scZwGxqPA	80 metres	Second exit on Roundabout	No problems with this section of road.
251.25	Loxton North	Bookpurnong Road GPS Link: https://goo.gl/maps/whYi2TCsTw7U5cDH9	90.0 metres long 10.0 metres wide	Left hand merge	Fatigue parking
256.35	Bookpurnong	Bookpurnong Road onto Stanitzki Road GPS Link: https://goo.gl/maps/4D9S2wy8wpSkWqCG8	120 metres	Right Hand Turn	No problems with this section of road.
284.45	Pike River	Stanitzki Road onto Sturt Hwy GPS Link: https://goo.gl/maps/QyNogMy3b9zq8MAUA	60 metres	Right Hand Turn	No problems with this section of road.
287.40	Yamba	Sturt Hwy GPS Link: https://goo.gl/maps/TAPWrNAcrsWGjXJJ7	90.0 metres long 10.0 metres wide	Left Hand Merge	Possible parking on correct side of the road. Fuel on incorrect side of Road- Ampol
287.50	Yamba	Sturt Hwy under the Big Dunlop Tyre GPS Link: https://goo.gl/maps/Y1KNB6KuDvZeZqQS6	Structure height: LHS: 8.5 Centre: 10.0 RHS: 8.5	Travel under the Big Dunlop Tyre	Loads move to the centre of the road under this structure.
321.80	Meringur	Sturt Hwy GPS Link: https://goo.gl/maps/Tm7PCDeqxcSf6pt5A	90.0 metres long 10.0 metres wide	Left Hand Merge	Possible parking on correct side of the road.
373	Wargan	Sturt Hwy GPS Link: https://goo.gl/maps/pvNeBreE9nzEY47E8	6 metres wide	Travel Directly Ahead	Road curves to the left, stay on Sturt Hwy No Issues with this section
387.10	Merrinee	Sturt Hwy GPS Link: https://goo.gl/maps/2dtXF7FivE8VTwd66	90.0 metres long 10.0 metres wide	Left Hand Merge	Possible parking on correct side of the road.
405.9	Mildura	Sturt Hwy onto Seventeenth St GPS Link: https://goo.gl/maps/RLd39iU6czs9mWiZA	6 metres wide	Right Hand Turn	No problems with this section of road.
407.9	Mildura	Seventeenth St onto Benetook Ave GPS Link: https://goo.gl/maps/zQWVB95NUiss9sdJ8	6 metres wide	First Exit on Round-about	Left turn at Round-about
409.3	Mildura	Benetook Ave GPS Link: https://goo.gl/maps/mCqLEb19oYnkdgX6	6 metres wide	Second Exit on Round-about	Travel Straight through round-about
410.6	Mildura	Benetook Ave GPS Link: https://goo.gl/maps/FazFiKo4eUykUoDf9	6 metres wide	Second Exit on Round-about	Travel Straight through round-about

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
411.9	Mildura	Benetook Ave GPS Link: https://goo.gl/maps/GskD21Q6SSqZM6y99	6 metres wide	Second Exit on Round-about	Travel Straight through round-about
413.3	Mildura	Benetook Ave GPS Link: https://goo.gl/maps/QXvR9ZDk57M9zeba8	6 metres wide	Second Exit on Round-about	Travel Straight through round-about
414.2	Mildura	Benetook Ave onto Seventh St E GPS Link: https://goo.gl/maps/BnvS1sBNeMyLJFTz7	6 metres wide	Left Hand Turn	Left Hand Sweeping Bend
415.5	Mildura	Seventh st E onto Sturt Hwy GPS Link: https://goo.gl/maps/DCWU9cDTpnWQFpudA	6 metres wide	Third Exit on Round-about	Right Hand Turn at round-about
417.7	Buronga	Sturt Hwy GPS Link: https://goo.gl/maps/eSH3JMoHGAK221YVA	6 metres wide	Second Exit on Round-about	Travel right at round-about
441.4	Paringi	Sturt Hwy GPS Link: https://goo.gl/maps/aF7DrHsfBEBnzMBZ8	90.0 metres long 10.0 metres wide	Left Hand Merge	Possible parking on correct side of the road.
493.6	Euston	Sturt Hwy GPS Link: https://goo.gl/maps/4WoDVv7TwnbDad6z5	6 metres wide	First Exit on Round-about	Travel left at round-about
573.9	Balranald	Sturt Hwy (market st) onto Sturt Hwy GPS Link: https://goo.gl/maps/xve4ZgbuRkqgPvVr7	6 metres wide	Right Hand Turn	No problems with this section of road.
575.2	Balranald	Sturt Hwy onto Mallee Hwy (Yanga Way) GPS Link: https://goo.gl/maps/sUqgHV9PKpztvi5g9	8 metres wide	Right Hand Turn	No problems with this section of road.
587.0	Yanga	Yanga Way onto Balranald Rd GPS Link: https://goo.gl/maps/LvawNfJ77rM3pQdAA	8 metres wide	Left Hand Turn	No problems with this section of road.
596.0	Kyalite	Balranald Rd onto Arundel Rd GPS Link: https://goo.gl/maps/3wFVKnM3PjJLcJ8	8 metres wide	Site Entrances	Client to provide adequate swept path for the blade to enter site.
610.0	Moolpa	Balranald Rd into western site entrances GPS Link: https://goo.gl/maps/4H99zRCNEqakXDHvE9	8 metres wide	Site Entrances	Client to provide adequate swept path for the blade to enter site.

12.0 Conclusion Route 2:

After studying all options and undertaking a route survey, this route is suitable in its current condition for transporting the proposed components.

The following are the key points that need to be taken into consideration, if the project moves forward with this route.

LENGTH

- ☐ The longest combination that can travel along this route without upgrades is **40 metres overall length**.
- ☐ There are numerous roundabouts in Mildura that will be tight but achievable for a load of this length.

OVERHEAD STRUCTURES: (5.2 metres maximum loaded height)

- ☐ The lowest structures are the overpasses along the Northern Expressway. The lowest of these has a clearance of 5.2 metres.
- ☐ Loads higher than 5.2 metres cannot use this route and will need to travel along route 3 (high load route)

OVERHEAD UTILITIES:

- ☐ This route will need to be checked by an authorised scoping company. It is likely that a route of at least 6.5 metres is required for this project.

BRIDGES:

- ☐ Majority of the bridges have been used previously for similar loads so it is expected they will be ok. A bridge assessment will still be required.

RAIL ASSETS:

- ☐ There are a number of rail overbridges and crossings on route that will require approval from authorities before loads can access the routes.
- ☐ The corner onto the Calder Highway at Red Cliffs requires a new level rail crossing for the blade trailer. This will need to be discussed with the authorities to determine if it's achievable.

PAVEMENT:

- ☐ The Pavement on all roads have adequate highway pavement up until Balranald Road.
- ☐ Balranald Road is a gravel road of varying quality. The road will need to be graded before deliveries commence and regular grading will be required over the project delivery period. The road may become unusable in wet conditions which will impact delivery schedules. The average width is 8m so not a concern.

COMPONENTS THAT WOULD USE ROUTE 2:

- ☐ Loads under 5.2 metres in height which are usually the Hubs, Nacelles, Generators.
- ☐ Transformers and switchrooms if they don't exceed 5.2 metres in height. Bridge capacity would still need to be checked for the weight of the transformers.
- ☐ Standard loads and containers

13.0 Route Survey 3: Port Adelaide to Junction Rivers, High Load Route, Option 1

COMPONENTS: Larger items with a **Max loaded height 6.4 metres**

DISTANCE: 638 kilometres

GPS LINK: <https://maps.app.goo.gl/VzYoLHnsqmknnXkb8>

VIA: Via Ocean Steamers Road, Eastern Parade, Port River Expressway, Northern Connector, Port Wakefield Highway "A1", Mallala Road, Old Port Wakefield Road, Gawler Rd, Two Wells Rd, Wilkinson Road, Hatcher Road, Oates Road, Redbanks Road, Mudla Wirra Road, College Road, Cliff Road, Gartrell Street, Roseworthy, Thiele Hwy, East Terrace, Truro Rd, Sturt Hwy, Kingston Rd, Karoonda Hwy, Bookpurnong Rd, Stanitzki Rd, Sturt Hwy, Seventeenth St, Benetook Ave, Seventh St, Sturt Hwy, Kidman Way, Yanga Way, Balranald Road.

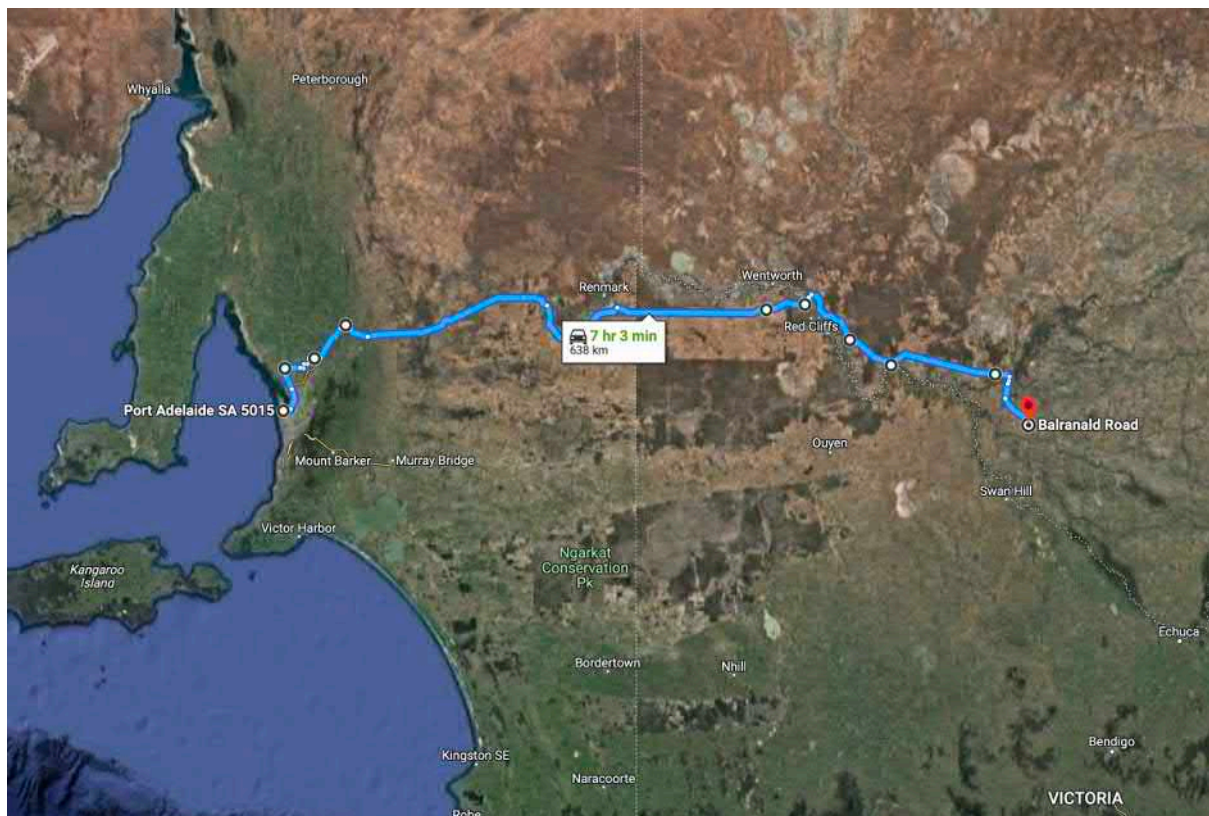


Figure 32 - Route 3

ROUTE INDEX

KEY	
ROAD MODIFICATION	
CAUTION	
EMERGENCY PARKING	

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
0.0	Port Adelaide	Port storage area across Ocean Steamers Rd and onto eastern Parade GPS Link: https://goo.gl/maps/tK6JgG1AjdMDqgSs5	Length: 75.0 metres Width: 8.0 metres Height: N/A	Drive out of storage area and cross to the incorrect side of Eastern Parade	No problems with this section of road.to be modified.
0.2	Port Adelaide	Eastern Parade over rail crossing GPS Link: https://goo.gl/maps/UfZfLvNDkKxRvTed9	Length: 80.5 metres Width: 10.0 metres Height: N/A	Travel directly ahead	Approval required from Rail network provider before crossing this structure. Spotter to Guide load through this pinchpoint.
0.9	Gilman	The Eastern Parade onto the Port River Expressway GPS Link: https://goo.gl/maps/mPFZDKYzewGxvm8S8	Length: 70.0 metres Width: 10.9 metres Height: N/A	Left hand turn	No problems with this section of road.
0.9 to 4.3	Gilman to Wingfield	Port River Expressway GPS Link: https://goo.gl/maps/rpFDwXM41ACYr2Vv6	Length: 100.0 metres Width: 10.0 metres Height: 6.2 metres	Travel directly ahead.	Loads over 6.2 metres will need to travel over the top of Hansen Road.
4.3	Wingfield	Port River Expressway onto Northern Connector GPS Link:	Length: 100.0 metres Width: 8.0 metres Height: 6.5 metres	Left hand bend	No problems with this section of road.
4.3 To 19.2 Km's	Wingfield to Waterloo Corner	Northern Connector GPS Link: https://goo.gl/maps/onzFMbVb3PpaJq52A	Length: 100.0 metres Width: 10.5 metres Height: 6.5 metres	Travel directly ahead	No problems with this section of road.
19.8	Waterloo Corner	Northern Connector onto Port Wakefield Highway "A1" GPS Link: https://goo.gl/maps/yclGFDgzQ8idciv47	Length: 100.0 metres Width: 8.0 metres Height: N/A	Right hand merge onto A1	No problems with this section of road.
33.4	Two wells	Port Wakefield Highway "A1" onto Mallala Road GPS Link: https://goo.gl/maps/U78MZSBL43D2	Length: 50 metres Width: 8.0 metres Height N/A	Right hand turn	No problems with this section of road
33.7	Two wells	Mallala Road onto Old Port Wakefield Road GPS Link: https://goo.gl/maps/CzpYPwc9cBM2	Length: 50 metres Width: 8.0 metres Height N/A	Right hand turn	No problems with this section of road
33.9	Two wells	Old Port Wakefield Road onto Gawler Road GPS Link: https://goo.gl/maps/TfEJNdGpFP12	Length: 50 metres Width: 8.0 metres Height N/A	Left hand turn	No problems with this section of road

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
44.6	Gawler River	Gawler Road onto Two Wells Road GPS Link: https://goo.gl/maps/ijQJCjKW6uH2	8.0 metres wide	Travel directly ahead	No problems with this section of road
46.8	Gawler River	Two Wells Road onto Wilkinson Road GPS Link: https://goo.gl/maps/6DeWPk5rKF32	Length: 35 metres Width: 8.0 metres Height N/A	Left hand turn	If loads exceed an overall length of 35 metres, there will need to be some hardstand added to this intersection.
49.3	Kangaroo Flat	Wilkinson Road onto Hatcher Road GPS Link: https://goo.gl/maps/XQ8cNtgzQUG2	Length: 35 metres Width: 8.0 metres Height N/A	Left hand turn	If loads exceed an overall length of 35 metres, there will need to be some hardstand added to this intersection.
51.3	Kangaroo Flat	Hatcher Road onto Oates Road GPS Link: https://goo.gl/maps/qXcidwDzNxCDwL8AA	Length: 60 metres Width: 8.0 metres Height N/A	Left hand bend	No problems with this section of road
54.5	Kangaroo Flat	Oates Road onto Redbanks Road GPS Link: https://goo.gl/maps/tVCv2BFmnZ72	Length: 40 metres Width: 8.0 metres Height N/A	Right hand turn	If loads exceed an overall length of 40 metres, there will need to be some hardstand added to this intersection.
55.1	Kangaroo Flat	Redbanks Road onto Mudla Wirra Road GPS Link: https://goo.gl/maps/2yC31AASRxM2	Length: 35 metres Width: 8.0 metres Height N/A	Left hand turn	If loads exceed an overall length of 35 metres, there will need to be some hardstand added to this intersection.
56.5	Roseworthy	Mudla Wirra Road onto College Road GPS Link: https://goo.gl/maps/bu28YmqsfDP2	Length: 40 metres Width: 8.0 metres Height N/A	Right hand turn	If loads exceed an overall length of 40 metres, there will need to be some hardstand added to this intersection.
60.8	Roseworthy	College Road onto Cliff Road GPS Link: https://goo.gl/maps/n6BLSSACgHT2	Length: 40 metres Width: 8.0 metres Height N/A	Left hand turn	If loads exceed an overall length of 40 metres, there will need to be some hardstand added to this intersection.
61.4	Roseworthy	Cliff Road onto Gartrell Street GPS Link: https://goo.gl/maps/UGN6vnZ8DDG2	9.0 Metres into 9.0 metres	Right hand turn	No problems with this section of road
62.5	Roseworthy	Gartrell Street onto Roseworthy Road GPS Link: https://goo.gl/maps/Pv6YuP9aWvH2	Length: 80 metres Width: 9.0 metres Height N/A	Left hand bend	No problems with this section of road
64.8	Kingsford	Roseworthy Road onto Thiele Hwy GPS Link: https://goo.gl/maps/GpH6AaL4yS4exER47	Length: 80 metres Width: 9.0 metres Height N/A	Left hand turn	No problems with this section of road
88.3	Kapunda	Thiele Hwy onto East Terrace GPS Link: https://goo.gl/maps/vqgkXWMZMhpcgAK9	Width: 6.5 metres	Right hand turn	No problems with this section of road
88.3 to 91.8	Kapunda	East Terrace GPS Link: https://maps.app.goo.gl/XEWTBkgA7g6i7FLx9	Width: 6.5 metres	Travel directly ahead on a gravel road	This section of road may need to be maintained during deliveries.

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
91.8	Kapunda	East Terrace onto Thiele Hwy GPS Link: https://goo.gl/maps/wVeWZTnSnDTAaxEs6	Length: 60 metres Width: 6.0 metres	Right hand turn	No problems with this section of road
92.0	Kapunda	Thiele Hwy onto Truro Rd GPS Link: https://goo.gl/maps/rupYTUbWTiDqQbLq9	Length: 55 metres Width: 6.0 metres	Right hand turn	No problems with this section of road
111	Truro	Truro Rd onto Sturt Hwy GPS Link: https://goo.gl/maps/VsQYKAe4MpcqjYd7	Length: 55 metres Width: 10.0 metres	Left hand turn	No problems with this section of road
235	Kingston on Murray	Sturt Hwy onto Kingston Rd GPS Link: https://goo.gl/maps/8PBn53cVsMongKP7A	Length: 100 metres Width: 10.0 metres	Right hand turn	No problems with this section of road
269	Loxton	Kingston Rd onto Karoonda Hwy GPS Link: https://goo.gl/maps/pFS9uJw6ivxmETP8	Length: 100 metres Width: 6.5 metres	Travel directly ahead	No problems with this section of road.
272	Loxton	Karoonda Hwy onto Bookpurnong Road GPS Link: https://goo.gl/maps/qZXFU8r5scZwGxqPA	Length: 80 metres Width: 7.0 metres	Second exit on Roundabout	No problems with this section of road
282	Bookpurnong	Bookpurnong Road onto Stanitzki Rd GPS Link: https://goo.gl/maps/qPivFcCbL8mXfecF6	Length: 80 metres Width: 8.0 metres	Right Hand Turn	No problems with this section of road
310	Pike River	Stanitzki Rd onto Sturt Hwy GPS Link: https://goo.gl/maps/Kwv9FkoF8hAPpoBh7	Length: 55 metres Width: 8.0 metres	Right Hand Turn	No problems with this section of road
313	Yamba	Sturt Hwy GPS Link: https://goo.gl/maps/TAPWrNAcrsWGIXJJ7	90.0 metres long 10.0 metres wide	Left Hand Merge	Possible parking on correct side of the road. Fuel on incorrect side of Road- Ampol
313	Yamba	Sturt Hwy under the Big Dunlop Tyre GPS Link: https://goo.gl/maps/YLKNB6KuDYzezoQS6	Structure height: LHS: 8.5 Centre: 10.0 RHS: 8.5	Travel under the Big Dunlop Tyre	Loads move to the centre of the road under this structure.
347	Meringur	Sturt Hwy GPS Link: https://goo.gl/maps/Tm7PCDeqxcSf6pt5A	90.0 metres long 10.0 metres wide	Left Hand Merge	Possible parking on correct side of the road.
398	Wargan	Sturt Hwy GPS Link: https://goo.gl/maps/pvNeBreE9nzEY47E8	6 metres wide	Travel Directly Ahead	Road curves to the left, stay on Sturt Hwy No Issues with this section
412	Merrinee	Sturt Hwy GPS Link: https://goo.gl/maps/2dtXF7FjyE8VTwd66	90.0 metres long 10.0 metres wide	Left Hand Merge	Possible parking on correct side of the road.
431	Mildura	Sturt Hwy onto Seventeenth St GPS Link: https://goo.gl/maps/Ri_d3BtUf6cs3mWjZA	6 metres wide	Right Hand Turn	Loads to cross to the incorrect side. Median strips will need to be made trafficable and signs relocated or made removable.

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
433	Mildura	Seventeenth St onto Benetook Ave GPS Link: https://goo.gl/maps/zQWVB95NUiss9sdJ8	6 metres wide	Left hand turn	No problems with this section of road
434	Mildura	Benetook Ave GPS Link: https://maps.ave.goo.gl/fbJICuQ4hc3WnCUA	5.5 metres wide and 5.5 metres in height	Travel directly ahead through 4 roundabouts and over a rail crossing.	A roundabout will need the centre filled with hardstand and temporary Bollards installed. Vegetation will need to be trimmed on sections of this road.
434	Mildura	Benetook Ave at Sixteenth Ave GPS Link: https://goo.gl/maps/mCqLEb19oYNkdqrX6	6 metres wide	Travel directly ahead	No problems with this section of road
436	Mildura	Benetook Ave at the Calder Highway GPS Link: https://goo.gl/maps/FazFiKo4eUykUgDf9	6 metres wide	Travel directly ahead	No problems with this section of road
437	Mildura	Benetook Ave at Fourteenth Ave GPS Link: https://goo.gl/maps/GskD21Q6SSqZM6y99	6 metres wide	Travel directly ahead	No problems with this section of road
439	Mildura	Benetook Ave at Eleventh Street GPS Link: https://goo.gl/maps/QXvR9ZDk5TM9xobbf	5.5 metres wide	Travel directly ahead through the centre of the roundabout.	A temporary hardstand will need to be added to the centre of the roundabout. This will allow the loads a direct path across the railway crossing. Temporary bollards would need to be installed over this hardstand.
440	Mildura	Benetook Ave onto Seventh St E GPS Link: https://goo.gl/maps/BnvS1sBNeMyLJFTz7	6 metres wide	Left Hand Turn	Left Hand Sweeping Bend
441	Mildura	Seventh St E onto Sturt Hwy GPS Link: https://goo.gl/maps/DCW1JBu3TmWOFnu0A	6 metres wide	Right hand turn	Load to cross the incorrect side of the roundabout. 2 Median strips will need to be made trafficable, and signs made removable.
443	Buronga	Sturt Hwy roundabout at Silver City Hwy GPS Link: https://goo.gl/maps/eSH3JMoHGAK221YVA	6 metres wide	Right hand turn	Load to cross the incorrect side of the roundabout.
467	Paringi	Sturt Hwy GPS Link: https://goo.gl/maps/aF7DrHsfBEBnzMBZ8	90.0 metres long 10.0 metres wide	Left Hand Merge	Possible parking on correct side of the road. Stockpile site/ check condition.
519	Euston	Sturt Hwy GPS Link: https://goo.gl/maps/4Vv5Vv7Tnm0n0845	6 metres wide	Left Hand Turn	Travel left at round-about. Median strips will need to be made trafficable, and signs made removable.
599	Balranald	Sturt Hwy (market st) onto Sturt Hwy GPS Link: https://goo.gl/maps/xve\$ZnjbRkncPvVv7	6 metres wide	Right Hand Turn	Load to cross the incorrect side of the corner. Median strips will need to be made trafficable, and signs made removable.

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
600.0	Balranald	Sturt Hwy onto Mallee Hwy (Yanga Way) GPS Link: https://goo.gl/maps/sUqgHV9PKpztvi5q9	8 metres wide	Right Hand Turn	No problems with this section of road.
612.0	Yanga	Yanga Way onto Balranald Rd GPS Link: https://goo.gl/maps/LvawNfJ77rM3pQdAA	8 metres wide	Left Hand Turn	No problems with this section of road.
623.0	Kyalite	Balranald Rd onto Arundel Rd GPS Link: https://goo.gl/maps/9wFYKcmM2PLJrJLoJ8	8 metres wide	Site Entrances	Client to provide adequate swept path for the blade to enter site.
638.0	Moolpa	Balranald Rd into western site entrances GPS Link: https://goo.gl/maps/H89z9CMFvnxYDhHyE9	8 metres wide	Site Entrances	Client to provide adequate swept path for the blade to enter site.

313.0 Km's: Sturt Hwy under the Big Dunlop Tyre at Yamba

Image 1: Approaching the structure.



GPS LINK FOR THIS LOCATION: <https://goo.gl/maps/YLKNB6KuDyZezoQS6>

PROCEDURE: Continue on the Sturt Highway

COMMENTS: Loads move to the centre of the road under this structure.

14.0 Conclusion Route 3:

After studying all options and undertaking a route survey, this route is suitable in its current condition for transporting the proposed components.

The following are the key points that need to be taken into consideration if the project moves forward with this route.

LENGTH

- ☐ The longest combination that can travel along this route without upgrades is **35 metres overall length**.
- ☐ If loads exceed 35 metres in overall length, then several corners will need to have hardstand added. They are listed in the index.

OVERHEAD STRUCTURES: (6.5 metres maximum loaded height)

BRIDGES:

- ☐ Majority of the bridges have been used previously for similar loads; however every load will need to be checked/assessed for capacity to be sure that they could transit this route.

OVERHEAD UTILITIES:

- ☐ This route will need to be checked by an authorised scoping company. It is likely that a route of at least 6.5 metres is required for this project.

VEGETATION:

- ☐ The route requires a moderate amount of vegetation clearing at various locations.

PAVEMENT:

- ☐ The Pavement on all roads have adequate highway pavement up until midway along Balranald Road.
- ☐ Balranald Road becomes gravel and would need to be maintained throughout the delivery of the turbines.

RAIL ASSETS:

- ☐ There are a number of rail overbridges and crossings on route that will require approval from authorities before loads can access the routes.

COMPONENTS THAT WOULD USE ROUTE 3:

- ☐ Loads over 5.2 metres in height which are usually the towers.
- ☐ Transformers and switchrooms if they exceed 5.2 metres in height. Bridge capacity would still need to be checked for the weight of the transformers.

15.0 Route Survey 4: Port Adelaide to Junction Rivers windfarm, High Load Route, Option 2

COMPONENTS: Larger items with a **Max loaded height 6.4 metres**

DISTANCE: 659 kilometres

GPS LINK: <https://maps.app.goo.gl/n87wjSd8tn6y6pt18>

VIA: Via Ocean Steamers Road, Eastern Parade, Port River Expressway, Northern Connector, Port Wakefield Highway "A1", Mallala Road, Old Port Wakefield Road, Gawler Road, Two Wells Rd, Wilkinson Road, Hatcher Road, Oates Road, Redbanks Road, Mudla Wirra Road, College Road, Cliff Road, Gartrell Street, Roseworthy Road, Thiele Hwy, East Terrace, Thiele Hwy, Goyder Hwy, Sturt Hwy, Airport Rd, Government Rd, Ral Ral Ave, Wentworth-Renmark Rd, Renmark Rd, Silver City Hwy, Armstrong Ave, Silver City Hwy, Sturt Hwy, Yanga Way, Balranald Road.

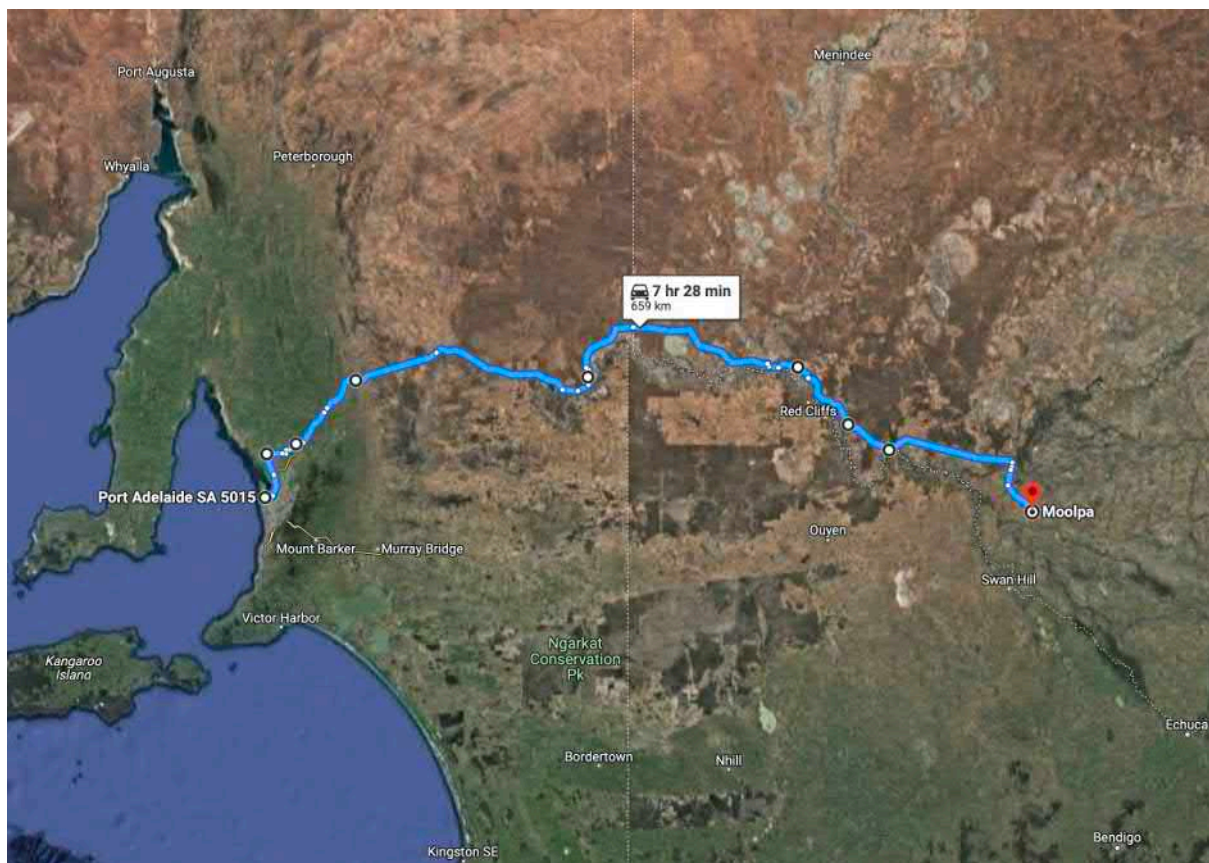


Figure 33 - Route 4

KEY	
ROAD MODIFICATION	
CAUTION	
EMERGENCY PARKING	

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
0.0	Port Adelaide	Port storage area across Ocean Steamers Rd and onto eastern Parade GPS Link: https://goo.gl/maps/tK6JgG1AidMDqgSs5	Length: 75.0 metres Width: 8.0 metres Height: N/A	Drive out of storage area and cross to the incorrect side of Eastern Parade	No problems with this section of road.to be modified.
0.2	Port Adelaide	Eastern Parade over rail crossing GPS Link: https://goo.gl/maps/UfZfLvNDkKxRvTed9	Length: 80.5 metres Width: 10.0 metres Height: N/A	Travel directly ahead	Approval required from Rail network provider before crossing this structure. Spotter to Guide load through this pinchpoint.
0.9	Gilman	The Eastern Parade onto the Port River Expressway GPS Link: https://goo.gl/maps/mPFZDKYzewGxvm8S8	Length: 70.0 metres Width: 10.9 metres Height: N/A	Left hand turn	No problems with this section of road.
0.9 to 4.3	Gilman to Wingfield	Port River Expressway GPS Link: https://goo.gl/maps/rpFDwXM41ACYr2Vv6	Length: 100.0 metres Width: 10.0 metres Height: 6.2 metres	Travel directly ahead.	Loads over 6.2 metres will need to travel over the top of Hansen Road.
4.3	Wingfield	Port River Expressway onto Northern Connector GPS Link: https://goo.gl/maps/BtCb3VPgG3yqpCt57	Length: 100.0 metres Width: 8.0 metres Height: 6.5 metres	Left hand bend	No problems with this section of road.
4.3 To 19.2 Km's	Wingfield to Waterloo Corner	Northern Connector GPS Link: https://goo.gl/maps/onZFmbVb3PpaJg52A	Length: 100.0 metres Width: 10.5 metres Height: 6.5 metres	Travel directly ahead	No problems with this section of road.
19.8	Waterloo Corner	Northern Connector onto Port Wakefield Highway "A1" GPS Link: https://goo.gl/maps/yclGFDgzQ8idciv47	Length: 100.0 metres Width: 8.0 metres Height: N/A	Right hand merge onto A1	No problems with this section of road.
33.4	Two wells	Port Wakefield Highway "A1" onto Mallala Road GPS Link: https://goo.gl/maps/U78MZSBL43D2	Length: 50 metres Width: 8.0 metres Height N/A	Right hand turn	No problems with this section of road
33.7	Two wells	Mallala Road onto Old Port Wakefield Road GPS Link: https://goo.gl/maps/CzpYPwc9cBM2	Length: 50 metres Width: 8.0 metres Height N/A	Right hand turn	No problems with this section of road
33.9	Two wells	Old Port Wakefield Road onto Gawler Road GPS Link: https://goo.gl/maps/TfEJNdGpFP12	Length: 50 metres Width: 8.0 metres Height N/A	Left hand turn	No problems with this section of road

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
44.6	Gawler River	Gawler Road onto Two Wells Road GPS Link: https://goo.gl/maps/ijQJCjKW6uH2	8.0 metres wide	Travel directly ahead	No problems with this section of road
46.8	Gawler River	Two Wells Road onto Wilkinson Road GPS Link: https://goo.gl/maps/6DeWPk5rKF32	Length: 35 metres Width: 8.0 metres Height N/A	Left hand turn	If loads exceed an overall length of 35 metres, there will need to be some hardstand added to this intersection.
49.3	Kangaroo Flat	Wilkinson Road onto Hatcher Road GPS Link: https://goo.gl/maps/XQ8cNtgzQUG2	Length: 35 metres Width: 8.0 metres Height N/A	Left hand turn	If loads exceed an overall length of 35 metres, there will need to be some hardstand added to this intersection.
51.3	Kangaroo Flat	Hatcher Road onto Oates Road GPS Link: https://goo.gl/maps/qXcjdWdZnxCdWl8AA	Length: 60 metres Width: 8.0 metres Height N/A	Left hand bend	No problems with this section of road
54.5	Kangaroo Flat	Oates Road onto Redbanks Road GPS Link: https://goo.gl/maps/tVCv2BFmnZ72	Length: 40 metres Width: 8.0 metres Height N/A	Right hand turn	If loads exceed an overall length of 40 metres, there will need to be some hardstand added to this intersection.
55.1	Kangaroo Flat	Redbanks Road onto Mudla Wirra Road GPS Link: https://goo.gl/maps/2yC31AASRxM2	Length: 35 metres Width: 8.0 metres Height N/A	Left hand turn	If loads exceed an overall length of 35 metres, there will need to be some hardstand added to this intersection.
56.5	Roseworthy	Mudla Wirra Road onto College Road GPS Link: https://goo.gl/maps/bu28YmqsfDP2	Length: 40 metres Width: 8.0 metres Height N/A	Right hand turn	If loads exceed an overall length of 40 metres, there will need to be some hardstand added to this intersection.
60.8	Roseworthy	College Road onto Cliff Road GPS Link: https://goo.gl/maps/n6BLSSACgHT2	Length: 40 metres Width: 8.0 metres Height N/A	Left hand turn	If loads exceed an overall length of 40 metres, there will need to be some hardstand added to this intersection.
61.4	Roseworthy	Cliff Road onto Gartrell Street GPS Link: https://goo.gl/maps/UGN6vnZ8DDG2	9.0 Metres into 9.0 metres	Right hand turn	No problems with this section of road
62.5	Roseworthy	Gartrell Street onto Roseworthy Road GPS Link: https://goo.gl/maps/Pv6YuP9aWvH2	Length: 80 metres Width: 9.0 metres Height N/A	Left hand bend	No problems with this section of road
64.8	Kingsford	Roseworthy Road onto Thiele Hwy GPS Link: https://goo.gl/maps/GpH6AaL4yS4exER47	Length: 80 metres Width: 9.0 metres Height N/A	Left hand turn	No problems with this section of road
88.3	Kapunda	Thiele Hwy onto East Terrace GPS Link: https://goo.gl/maps/vqdXWMZMhhuCoAK3	Width: 6.5 metres	Right hand turn	Sign to be made removable
91.8	Kapunda	East Terrace onto Thiele Hwy GPS Link: https://goo.gl/maps/wVeWZTnSnDTAaxEs6	Length: 60 metres Width: 6.0 metres	Right hand turn	Overhead conductor clearance to be confirmed

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
174	Morgan	Thiele Hwy corner at Morgan GPS Link: https://goo.gl/maps/i8dyAS2ding9ix6U6	Length: 45 metres Width: 6.0 metres	Left hand turn	Overhead conductor and streetlight clearance to be confirmed
175	Morgan	Thiele Hwy onto Goyder Hwy GPS Link: https://goo.gl/maps/itxK3tVH3dQw1FqcA	Width: 7.0 metres	Travel directly ahead	No problems with this section of road
264	Monash	Goyder Hwy onto Sturt Hwy GPS Link: https://goo.gl/maps/WiNggF14DYrwsHGh8	Length: 75 metres Width: 9.0 metres	Left hand turn	No problems with this section of road
273	Monash	Sturt Hwy Roundabout GPS Link: https://goo.gl/maps/ri4hoYgDyaATRDtU9	Width: 6.0 metres	Left hand turn	Use slip lane to continue on Sturt Hwy
281	Renmark South	Sturt Hwy onto Airport Rd GPS Link: https://goo.gl/maps/Mxs4f678Vpz62Jyw7	Width: 7.5 metres Length: 50 metres	Left hand turn	Delineators to be made removable
281.4	Renmark South	Airport Rd onto Government Rd GPS Link: https://goo.gl/maps/VWATw9Qei8owVvP9	Width: 7.0 metres Length: 45 metres	Right hand turn	Hardstand to be installed on outside of corner. Overhead conductor clearance to be confirmed.
291	Renmark North	Government Rd onto Ral Ral Ave GPS Link: https://goo.gl/maps/BwhFYX9pHpiifAMw7	Width: 6.5 metres Length: 40 metres	Left hand turn	No problems with this section of road
293	Cooltong	Ral Ral Ave onto Wentworth-Renmark Rd GPS Link: https://goo.gl/maps/TA1wuHwQG7ArPdFy8	Width: 7.0 metres Length: 60 metres	Right hand turn	No problems with this section of road
298-431	Cooltong	Wentworth-Renmark Rd GPS Link: https://maps.app.goo.gl/bmrVkuTTozAtaxVm6	Width: 4.5 metres	Travel directly ahead	Gravel road with multiple stock crossings. Road to be graded prior to commencement and maintained for project duration. May become unusable in wet conditions.
338	Donggall	Wentworth-Renmark Rd becomes Renmark Rd GPS Link: https://goo.gl/maps/ZuFAU4EdRT1KAf6m9	Width: 4.5 metres	Travel directly ahead	SA-NSW border
432	Wentworth	Renmark Rd onto Silver City Hwy GPS Link: https://goo.gl/maps/Wv3auw9tcb4ahhDy6	Width: 6.0 metres Length: 60 metres	Right hand turn	No problems with this section of road
434	Wentworth	Silver City Hwy onto Armstrong Ave GPS Link: https://goo.gl/maps/nWFRenVeg8Lc1Gc7	Width: 9.0 metres Length: 50 metres	Left hand turn	Signs to be made removable as required and island made trafficable
434.5	Wentworth	Armstrong Ave onto Silver City Hwy GPS Link: https://goo.gl/maps/TCQ4L3c37NcUCRJa6	Width: 5.0 metres Length: 50 metres	Right hand turn	Load to use slip lane on incorrect side of road.
441	Curlwaa	Corner on Silver City Hwy at Calder Hwy GPS Link: https://goo.gl/maps/AJES9yEb5Vv9uUUA	Width: 10.0 metres Length: 45 metres	Left hand turn	Signs to be removed and median made trafficable. Load to cross over median strip.

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
464	Buronga	Silver City Hwy onto Sturt Hwy GPS Link: https://goo.gl/maps/yccENVHNe8NSAUT86	Width: 6.0 metres Length: 50 metres	Left hand turn first exit on roundabout	Signs to be removed on island and island made trafficable.
488	Paringi	Sturt Hwy GPS Link: https://goo.gl/maps/aF7DrHsfBEBnzMBZ8	90.0 metres long 10.0 metres wide	Left Hand Merge	Possible parking on correct side of the road. Stockpile site/ check condition.
540	Euston	Sturt Hwy roundabout at Carey St GPS Link: https://goo.gl/maps/4WicQVv7TwnbQad6x5	6 metres wide	Left hand turn first exit on roundabout	Signs on entry and exit island to be relocated or made removable and islands made trafficable.
620	Balranald	Sturt Hwy (market st) onto Sturt Hwy GPS Link: https://goo.gl/maps/xve5ZgblRtkqPvV7	6 metres wide	Right Hand Turn	Load to cross the incorrect side of the roundabout. Median strips will need to be made trafficable, and signs made removable.
621.0	Balranald	Sturt Hwy onto Mallee Hwy (Yanga Way) GPS Link: https://goo.gl/maps/sUqgHV9PKpztvi5g9	8 metres wide	Right Hand Turn	No problems with this section of road.
633.0	Yanga	Yanga Way onto Balranald Rd GPS Link: https://goo.gl/maps/LvawNfJ77rM3pQdAA	8 metres wide	Left Hand Turn	No problems with this section of road.
644.0	Kyalite	Balranald Rd onto Arundel Rd GPS Link: https://goo.gl/maps/bwFVKmM2PlJbJLcJ8	8 metres wide	Site Entrances	Client to provide adequate swept path for the blade to enter site.
659.0	Moolpa	Balranald Rd into western site entrances GPS Link: https://goo.gl/maps/H80zBQMFnkXDIvE9	8 metres wide	Site Entrances	Client to provide adequate swept path for the blade to enter site.

16.0 Conclusion Route 4:

After studying all options and undertaking a route survey, this route can be made suitable for transporting the proposed components provided the modifications outlined in the report are completed as a minimum.

The following are the key points that need to be taken into consideration if the project moves forward with this route.

LENGTH

- ☐ The longest combination that can travel along this route without upgrades is **35 metres overall length**
- ☐ If loads exceed 35 metres in overall length, then several corners will need to have hardstand added. They are listed in the index.

OVERHEAD STRUCTURES: (6.5 metres maximum loaded height)

BRIDGES:

- ☐ This route will need to have all bridge structures checked for capacity before the route could be deemed suitable for use.

OVERHEAD UTILITIES:

- ☐ This route will need to be checked by an authorised scoping company. It is likely that a route of at least 6.5 metres is required for this project.

VEGETATION:

- ☐ The route requires a moderate amount of vegetation clearing at various locations.

PAVEMENT:

- ☐ The Pavement on the majority of the roads have adequate highway pavement.
- ☐ Wentworth-Renmark Road is gravel and will require grading prior to commencement and to be maintained for the duration of the project. The road may become unusable in wet conditions which will impact delivery schedules.
- ☐ Balranald Road becomes gravel and would need to be maintained throughout the delivery of the turbines.

RAIL ASSETS:

- ☐ There are a number of rail overbridges and crossings on route that will require approval from authorities before loads can access the routes.

COMPONENTS THAT WOULD USE ROUTE 3:

- ☐ Loads over 5.2 metres in height which are usually the towers.
- ☐ Transformers and switchrooms if they exceed 5.2 metres in height. Bridge capacity would still need to be checked for the weight of the transformers.

17.0 Route 3 & Route 4 Comparison:

We have given 2 different options for the large diameter towers which will allow the project some flexibility if either Route 3 or 4 becomes a problem. Below are the pros and cons of each of the routes.

ROUTE 3:

Pros

- ☐ Route is currently used for similar weight loads.
- ☐ Sealed for the entirety.
- ☐ Shorter out of the 2 routes.

Cons

- ☐ Travels through 3 states.
- ☐ Travels through a major town centre of Mildura.
- ☐ Far larger number of overhead services would need to be relocated.
- ☐ Busier route that would likely affect more motorists.

ROUTE 4:

Pros

- ☐ Travels through 2 states only.
- ☐ Route is remote for long distances and wouldn't affect as many motorists.
- ☐ Fewer overhead services to relocate.
- ☐ Shorter out of the 2 routes.

Cons

- ☐ Route would need to be assessed for capacity.
- ☐ Route has 133 km's of unsealed road.
- ☐ Slightly longer route.

CONCLUSION:

Both routes should be kept as options for the project. This takes away some risk to the project in case one of the routes becomes unusable for any reason.

While route 3 is likely the easiest option and the least complicated, route 4 does have merit. If the SW REZ had support from the states if all projects are looked at, as a whole.

Route 4 could be upgraded along the gravel section to accommodate all of the towers, which would take a significant volume of large OSOM loads off the busiest section of the Sturt Highway for over 300 kilometres.

Additionally, there are likely to be far fewer overhead assets to relocate on route 4.

18.0 References:

Rex J Andrews P/L
Rex J Andrews P/L Route survey # 348 REV01
Windlab Developments Pty Ltd
Google Earth/Maps
Nearmaps
NHVR (OSOM)
Australian Load Restraint Guide

Disclaimer: This route study is provided on the basis of information only purposes and is to be used strictly as a guide only; Government approvals would be required before these routes could be deemed suitable for transporting the components over the listed routes.

Any, and all parties using information contained this submission do so at own risk.

RJA accept no responsibility for the use of all information contained within this report.

Actual approved routes may differ from those surveyed.

Proposed routes may change subject to approvals from authorities.

The blade listed in this report is a prototype only. More information on this blade is required before confirmation that the route can accommodate this size load.

This study was undertaken using data supplied by Rex J Andrews P/L. Equipment and swept paths might vary if using transport methodology other than the data supplied by Rex J Andrews.



Appendix B – Intersection Count Data

Summary of Turning Movement Counts - from Traffic Count on iOS

Study Name Sturt Highway / Yanga Way (Mallee Highway)

Date 6/12/2022

Observer Andrew Barrie

Streets NB Yanga Way SB Nil EB Sturt Highway WB Sturt Highway

Cars																						
Start Time	End Time	Northbound					Southbound					Eastbound					Westbound					
		Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Total All
6:00am	6:15am	0	0	1	0	1	0	0	0	0	0	0	4	3	0	7	2	5	0	0	7	15
6:15am	6:30am	1	0	0	0	1	0	0	0	0	0	0	3	4	0	7	3	4	0	0	7	15
6:30am	6:45am	3	0	3	0	6	0	0	0	0	0	0	7	5	0	12	0	3	0	0	3	21
6:45am	7:00am	4	0	1	0	5	0	0	0	0	0	0	6	2	0	8	0	2	0	0	2	15
Total		8	0	5	0	13	0	0	0	0	0	0	20	14	0	34	5	14	0	0	19	66

Bicycles																						
Start Time	End Time	Northbound					Southbound					Eastbound					Westbound					
		Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Total All
6:00am	6:15am	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15am	6:30am	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30am	6:45am	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45am	7:00am	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Heavy Vehicles																						
Start Time	End Time	Northbound					Southbound					Eastbound					Westbound					
		Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Total All
6:00am	6:15am	0	0	0	0	0	0	0	0	0	0	0	4	1	0	5	0	6	0	0	6	0
6:15am	6:30am	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3	0	2	0	0	2	2
6:30am	6:45am	1	0	0	0	1	0	0	0	0	0	0	1	3	0	4	2	6	0	0	8	4
6:45am	7:00am	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	1	3	0	0	4	3
Total		1	0	0	0	1	0	0	0	0	0	0	9	6	0	15	3	17	0	0	20	9

Summary of Turning Movement Counts - from Traffic Count on iOS

Study Name Sturt Highway / Yanga Way (Mallee Highway)

Date 6/12/2022

Observer Andrew Barrie

Streets NB Yanga Way SB Nil EB Sturt Highway WB Sturt Highway

Cars																						
Start Time	End Time	Northbound					Southbound					Eastbound					Westbound					
		Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Total All
5:30pm	5:45pm	7	0	0	0	7	0	0	0	0	0	0	5	5	0	10	2	7	0	0	9	26
5:45pm	6:00pm	2	0	1	0	3	0	0	0	0	0	0	5	2	0	7	1	2	0	0	3	13
6:00pm	6:15pm	3	0	3	0	6	0	0	0	0	0	0	2	7	0	9	1	6	0	0	7	22
6:15pm	6:30pm	2	0	1	0	3	0	0	0	0	0	0	5	2	0	7	0	6	0	0	6	16
Total		14	0	5	0	19	0	0	0	0	0	0	17	16	0	33	4	21	0	0	25	77

Bicycles																						
Start Time	End Time	Northbound					Southbound					Eastbound					Westbound					
		Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Total All
5:30pm	5:45pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45pm	6:00pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00pm	6:15pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15pm	6:30pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Heavy Vehicles																						
Start Time	End Time	Northbound					Southbound					Eastbound					Westbound					
		Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Total All
5:30pm	5:45pm	0	0	0	0	0	0	0	0	0	0	0	7	1	0	8	0	7	0	0	7	0
5:45pm	6:00pm	0	0	0	0	0	0	0	0	0	0	0	5	1	0	6	0	5	0	0	5	2
6:00pm	6:15pm	1	0	1	0	2	0	0	0	0	0	0	5	0	0	5	0	4	0	0	4	4
6:15pm	6:30pm	2	0	1	0	3	0	0	0	0	0	0	9	1	0	10	0	4	0	0	4	3
Total		3	0	2	0	5	0	0	0	0	0	0	26	3	0	29	0	20	0	0	20	9

Summary of Turning Movement Counts - from Traffic Count on iOS

Study Name Yanga Way (Mallee Highway) / Balranald-Moulamein Rd

Date 7/12/2022

Observer Andrew Barrie

Streets NB Yanga Way SB Yanga Way EB Nil WB Balranald Rd

Cars																						
Start Time	End Time	Northbound					Southbound					Eastbound					Westbound					
		Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Total All
6:00am	6:15am	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	4
6:15am	6:30am	0	1	1	0	2	0	8	0	0	8	0	0	0	0	0	0	0	1	0	1	11
6:30am	6:45am	0	4	0	0	4	0	3	0	0	3	0	0	0	0	0	1	0	0	0	1	8
6:45am	7:00am	0	7	0	0	7	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	10
Total		0	14	1	0	15	1	15	0	0	16	0	0	0	0	0	1	0	1	0	2	33

Bicycles																						
Start Time	End Time	Northbound					Southbound					Eastbound					Westbound					
		Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Total All
6:00am	6:15am	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15am	6:30am	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30am	6:45am	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45am	7:00am	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Heavy Vehicles																						
Start Time	End Time	Northbound					Southbound					Eastbound					Westbound					
		Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Total All
6:00am	6:15am	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15am	6:30am	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	2
6:30am	6:45am	0	2	0	0	2	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	4
6:45am	7:00am	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total		0	7	0	0	7	1	3	0	0	4	0	0	0	0	0	0	0	1	0	1	9

Summary of Turning Movement Counts - from Traffic Count on iOS

Study Name Yanga Way (Mallee Highway) / Balranald-Moulamein Rd

Date 7/12/2022

Observer Andrew Barrie

Streets NB Yanga Way SB Yanga Way EB Nil WB Balranald Rd

Cars																						
Start Time	End Time	Northbound					Southbound					Eastbound					Westbound					
		Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Total All
5:30pm	5:45pm	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	5
5:45pm	6:00pm	0	7	0	0	7	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	15
6:00pm	6:15pm	0	2	0	0	2	1	7	0	0	8	0	0	0	0	0	0	0	1	0	1	11
6:15pm	6:30pm	0	5	0	0	5	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	9
Total		0	17	0	0	17	1	21	0	0	22	0	0	0	0	0	0	0	1	0	1	40

Bicycles																						
Start Time	End Time	Northbound					Southbound					Eastbound					Westbound					
		Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Total All
5:30pm	5:45pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45pm	6:00pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00pm	6:15pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15pm	6:30pm	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Heavy Vehicles																						
Start Time	End Time	Northbound					Southbound					Eastbound					Westbound					
		Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Left	Thru	Right	UTurn	Total	Total All
5:30pm	5:45pm	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
5:45pm	6:00pm	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
6:00pm	6:15pm	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
6:15pm	6:30pm	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	3
Total		0	3	1	0	4	0	3	0	0	3	0	0	0	0	0	2	0	0	0	2	9



Appendix C – SIDRA Results Sturt Highway / Yanga Way

MOVEMENT SUMMARY

▼ Site: 1 [EXIST 2024 AM Peak (Site Folder: Sturt Highway / Yanga Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Sturt Highway / Yanga Way
Existing Intersection Configuration
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Sturt Highway															
21	L2	All MCs	8	37.5	8	37.5	0.012	6.0	LOS A	0.0	0.0	0.00	0.28	0.00	53.1
5	T1	All MCs	35	54.5	35	54.5	0.018	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	59.2
Approach			43	51.2	43	51.2	0.018	1.2	NA	0.0	0.0	0.00	0.11	0.00	57.9
NorthWest: Sturt Highway															
11	T1	All MCs	32	30.0	32	30.0	0.019	0.0	LOS A	0.1	0.7	0.00	0.01	0.00	59.9
29	R2	All MCs	22	28.6	22	28.6	0.019	6.1	LOS A	0.1	0.7	0.15	0.51	0.15	51.5
Approach			54	29.4	54	29.4	0.019	2.5	NA	0.1	0.7	0.06	0.22	0.06	56.1
SouthWest: Yanga Way															
30	L2	All MCs	9	11.1	9	11.1	0.013	5.8	LOS A	0.0	0.4	0.07	0.55	0.07	52.2
32	R2	All MCs	5	0.0	5	0.0	0.013	6.1	LOS A	0.0	0.4	0.07	0.55	0.07	52.7
Approach			15	7.1	15	7.1	0.013	5.9	LOS A	0.0	0.4	0.07	0.55	0.07	52.4
All Vehicles			112	34.9	112	34.9	0.019	2.5	NA	0.1	0.7	0.04	0.22	0.04	56.2

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: 1 [EXIST 2024 PM Peak (Site Folder: Sturt Highway / Yanga Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Sturt Highway / Yanga Way
Existing Intersection Configuration
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				km/h
SouthEast: Sturt Highway															
21	L2	All MCs	4	0.0	4	0.0	0.013	5.5	LOS A	0.0	0.0	0.00	0.12	0.00	55.8
5	T1	All MCs	45	48.8	45	48.8	0.020	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.3
Approach			49	44.7	49	44.7	0.020	0.5	NA	0.0	0.0	0.00	0.05	0.00	59.0
NorthWest: Sturt Highway															
11	T1	All MCs	47	60.0	47	60.0	0.025	0.1	LOS A	0.1	0.9	0.04	0.09	0.04	58.7
29	R2	All MCs	21	15.0	21	15.0	0.025	6.0	LOS A	0.1	0.9	0.15	0.36	0.15	52.8
Approach			68	46.2	68	46.2	0.025	1.9	NA	0.1	0.9	0.07	0.17	0.07	56.8
SouthWest: Yanga Way															
30	L2	All MCs	19	16.7	19	16.7	0.025	5.9	LOS A	0.1	0.7	0.10	0.54	0.10	51.9
32	R2	All MCs	7	28.6	7	28.6	0.025	7.1	LOS A	0.1	0.7	0.10	0.54	0.10	51.5
Approach			26	20.0	26	20.0	0.025	6.2	LOS A	0.1	0.7	0.10	0.54	0.10	51.8
All Vehicles			144	40.9	144	40.9	0.025	2.2	NA	0.1	0.9	0.05	0.20	0.05	56.5

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.

MOVEMENT SUMMARY

▼ Site: 1 [STG1 CONS 2026 AM Peak (Site Folder: Sturt Highway / Yanga Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sturt Highway / Yanga Way
Updated CHRs/AUL Intersection Configuration
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]						[Veh. veh	Dist] m				km/h
			veh/h	%	veh/h	%	v/c	sec							
SouthEast: Sturt Highway															
21	L2	All MCs	8	37.5	8	37.5	0.012	6.0	LOS A	0.0	0.0	0.00	0.28	0.00	53.1
5	T1	All MCs	35	54.5	35	54.5	0.018	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	59.2
Approach			43	51.2	43	51.2	0.018	1.2	NA	0.0	0.0	0.00	0.11	0.00	57.9
NorthWest: Sturt Highway															
11	T1	All MCs	34	31.3	34	31.3	0.062	0.1	LOS A	0.3	2.1	0.06	0.18	0.06	57.9
29	R2	All MCs	71	11.9	71	11.9	0.062	5.9	LOS A	0.3	2.1	0.15	0.46	0.15	52.5
Approach			104	18.2	104	18.2	0.062	4.0	NA	0.3	2.1	0.12	0.37	0.12	54.2
SouthWest: Yanga Way															
30	L2	All MCs	13	25.0	13	25.0	0.017	5.9	LOS A	0.1	0.5	0.07	0.54	0.07	51.6
32	R2	All MCs	5	0.0	5	0.0	0.017	6.4	LOS A	0.1	0.5	0.07	0.54	0.07	52.9
Approach			18	17.6	18	17.6	0.017	6.1	LOS A	0.1	0.5	0.07	0.54	0.07	52.0
All Vehicles			165	26.8	165	26.8	0.062	3.5	NA	0.3	2.1	0.08	0.32	0.08	54.8

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.

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MOVEMENT SUMMARY

▼ Site: 1 [STG1 CONS 2026 PM Peak (Site Folder: Sturt Highway / Yanga Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sturt Highway / Yanga Way
Updated CHRs/AUL Intersection Configuration
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				km/h
SouthEast: Sturt Highway															
21	L2	All MCs	4	0.0	4	0.0	0.013	5.5	LOS A	0.0	0.0	0.00	0.12	0.00	55.9
5	T1	All MCs	47	48.9	47	48.9	0.020	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.4
Approach			52	44.9	52	44.9	0.020	0.5	NA	0.0	0.0	0.00	0.05	0.00	59.1
NorthWest: Sturt Highway															
11	T1	All MCs	48	60.9	48	60.9	0.043	0.1	LOS A	0.1	1.4	0.09	0.18	0.09	57.4
29	R2	All MCs	23	22.7	23	22.7	0.043	6.1	LOS A	0.1	1.4	0.12	0.24	0.12	53.5
Approach			72	48.5	72	48.5	0.043	2.1	NA	0.1	1.4	0.10	0.20	0.10	56.1
SouthWest: Yanga Way															
30	L2	All MCs	67	7.8	67	7.8	0.063	5.8	LOS A	0.2	1.8	0.09	0.54	0.09	52.3
32	R2	All MCs	7	28.6	7	28.6	0.063	7.3	LOS A	0.2	1.8	0.09	0.54	0.09	51.7
Approach			75	9.9	75	9.9	0.063	5.9	LOS A	0.2	1.8	0.09	0.54	0.09	52.2
All Vehicles			198	33.0	198	33.0	0.063	3.1	NA	0.2	1.8	0.07	0.29	0.07	55.3

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.

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MOVEMENT SUMMARY

▼ Site: 1 [STG1 CONS CUMUL 2026 AM Peak (Site Folder: Sturt Highway / Yanga Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sturt Highway / Yanga Way
Updated CHRs/AUL Intersection Configuration
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				km/h
SouthEast: Sturt Highway															
21	L2	All MCs	8	37.5	8	37.5	0.014	6.0	LOS A	0.0	0.0	0.00	0.25	0.00	53.2
5	T1	All MCs	41	61.5	41	61.5	0.021	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	59.2
Approach			49	57.4	49	57.4	0.021	1.0	NA	0.0	0.0	0.00	0.10	0.00	58.1
NorthWest: Sturt Highway															
11	T1	All MCs	158	10.0	158	10.0	0.129	0.2	LOS A	0.5	4.3	0.11	0.18	0.11	58.1
29	R2	All MCs	80	22.4	80	22.4	0.129	6.1	LOS A	0.5	4.3	0.15	0.26	0.15	54.2
Approach			238	14.2	238	14.2	0.129	2.2	NA	0.5	4.3	0.12	0.21	0.12	56.7
SouthWest: Yanga Way															
30	L2	All MCs	22	57.1	22	57.1	0.029	6.4	LOS A	0.1	1.0	0.09	0.54	0.09	50.3
32	R2	All MCs	5	0.0	5	0.0	0.029	7.8	LOS A	0.1	1.0	0.09	0.54	0.09	52.7
Approach			27	46.2	27	46.2	0.029	6.7	LOS A	0.1	1.0	0.09	0.54	0.09	50.7
All Vehicles			315	23.7	315	23.7	0.129	2.4	NA	0.5	4.3	0.10	0.22	0.10	56.4

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.

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MOVEMENT SUMMARY

▼ Site: 1 [STG1 CONS CUMUL 2026 PM Peak (Site Folder: Sturt Highway / Yanga Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sturt Highway / Yanga Way
Updated CHRs/AUL Intersection Configuration
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	[Dist]				
			veh/h		veh/h		v/c	sec		veh	m				km/h
SouthEast: Sturt Highway															
21	L2	All MCs	4	0.0	4	0.0	0.039	5.5	LOS A	0.0	0.0	0.00	0.04	0.00	57.1
5	T1	All MCs	172	16.6	172	16.6	0.060	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			176	16.2	176	16.2	0.060	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.8
NorthWest: Sturt Highway															
11	T1	All MCs	55	65.4	55	65.4	0.062	0.6	LOS A	0.3	2.6	0.20	0.24	0.20	57.1
29	R2	All MCs	33	45.2	33	45.2	0.062	7.3	LOS A	0.3	2.6	0.29	0.35	0.29	52.0
Approach			87	57.8	87	57.8	0.062	3.1	NA	0.3	2.6	0.23	0.28	0.23	55.1
SouthWest: Yanga Way															
30	L2	All MCs	77	19.2	77	19.2	0.080	6.3	LOS A	0.3	2.4	0.19	0.54	0.19	51.5
32	R2	All MCs	7	28.6	7	28.6	0.080	9.0	LOS A	0.3	2.4	0.19	0.54	0.19	51.4
Approach			84	20.0	84	20.0	0.080	6.6	LOS A	0.3	2.4	0.19	0.54	0.19	51.5
All Vehicles			347	27.6	347	27.6	0.080	2.5	NA	0.3	2.6	0.10	0.21	0.10	56.4

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: 1 [STG2 CONS 2028 AM Peak (Site Folder: Sturt Highway / Yanga Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sturt Highway / Yanga Way
Updated CHRs/AUL Intersection Configuration
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				km/h
SouthEast: Sturt Highway															
21	L2	All MCs	9	33.3	9	33.3	0.012	5.9	LOS A	0.0	0.0	0.00	0.30	0.00	53.2
5	T1	All MCs	37	54.3	37	54.3	0.019	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	59.2
Approach			46	50.0	46	50.0	0.019	1.2	NA	0.0	0.0	0.00	0.12	0.00	57.8
NorthWest: Sturt Highway															
11	T1	All MCs	35	30.3	35	30.3	0.095	0.0	LOS A	0.4	3.0	0.02	0.05	0.02	59.4
29	R2	All MCs	123	7.7	123	7.7	0.095	5.9	LOS A	0.4	3.0	0.16	0.52	0.16	52.2
Approach			158	12.7	158	12.7	0.095	4.6	NA	0.4	3.0	0.13	0.42	0.13	53.7
SouthWest: Yanga Way															
30	L2	All MCs	13	25.0	13	25.0	0.018	6.0	LOS A	0.1	0.5	0.08	0.54	0.08	51.5
32	R2	All MCs	6	0.0	6	0.0	0.018	6.9	LOS A	0.1	0.5	0.08	0.54	0.08	52.7
Approach			19	16.7	19	16.7	0.018	6.3	LOS A	0.1	0.5	0.08	0.54	0.08	51.9
All Vehicles			223	20.8	223	20.8	0.095	4.0	NA	0.4	3.0	0.10	0.37	0.10	54.3

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.

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MOVEMENT SUMMARY

▼ Site: 1 [STG2 CONS 2028 PM Peak (Site Folder: Sturt Highway / Yanga Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sturt Highway / Yanga Way
Updated CHRs/AUL Intersection Configuration
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				km/h
SouthEast: Sturt Highway															
21	L2	All MCs	5	0.0	5	0.0	0.014	5.5	LOS A	0.0	0.0	0.00	0.14	0.00	55.7
5	T1	All MCs	49	48.9	49	48.9	0.022	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	59.3
Approach			55	44.2	55	44.2	0.022	0.6	NA	0.0	0.0	0.00	0.06	0.00	58.9
NorthWest: Sturt Highway															
11	T1	All MCs	51	60.4	51	60.4	0.045	0.1	LOS A	0.1	1.4	0.09	0.18	0.09	57.4
29	R2	All MCs	24	21.7	24	21.7	0.045	6.1	LOS A	0.1	1.4	0.13	0.24	0.13	53.5
Approach			75	47.9	75	47.9	0.045	2.1	NA	0.1	1.4	0.11	0.20	0.11	56.1
SouthWest: Yanga Way															
30	L2	All MCs	119	4.4	119	4.4	0.104	5.8	LOS A	0.4	2.9	0.09	0.55	0.09	52.4
32	R2	All MCs	8	25.0	8	25.0	0.104	7.3	LOS A	0.4	2.9	0.09	0.55	0.09	51.9
Approach			127	5.8	127	5.8	0.104	5.9	LOS A	0.4	2.9	0.09	0.55	0.09	52.4
All Vehicles			257	26.2	257	26.2	0.104	3.6	NA	0.4	2.9	0.07	0.34	0.07	54.7

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: 1 [STG2 CONS CUMUL 2028 AM Peak (Site Folder: Sturt Highway / Yanga Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sturt Highway / Yanga Way
Updated CHRs/AUL Intersection Configuration
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				km/h
SouthEast: Sturt Highway															
21	L2	All MCs	9	33.3	9	33.3	0.015	5.9	LOS A	0.0	0.0	0.00	0.26	0.00	53.3
5	T1	All MCs	43	61.0	43	61.0	0.022	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	59.1
Approach			53	56.0	53	56.0	0.022	1.1	NA	0.0	0.0	0.00	0.10	0.00	58.0
NorthWest: Sturt Highway															
11	T1	All MCs	160	10.5	160	10.5	0.161	0.2	LOS A	0.8	5.9	0.11	0.21	0.11	57.7
29	R2	All MCs	132	13.6	132	13.6	0.161	6.0	LOS A	0.8	5.9	0.18	0.34	0.18	53.7
Approach			292	11.9	292	11.9	0.161	2.8	NA	0.8	5.9	0.14	0.27	0.14	55.8
SouthWest: Yanga Way															
30	L2	All MCs	22	57.1	22	57.1	0.031	6.4	LOS A	0.1	1.1	0.09	0.53	0.09	50.1
32	R2	All MCs	6	0.0	6	0.0	0.031	8.4	LOS A	0.1	1.1	0.09	0.53	0.09	52.6
Approach			28	44.4	28	44.4	0.031	6.8	LOS A	0.1	1.1	0.09	0.53	0.09	50.7
All Vehicles			373	20.6	373	20.6	0.161	2.9	NA	0.8	5.9	0.12	0.27	0.12	55.7

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.

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MOVEMENT SUMMARY

▼ Site: 1 [STG2 CONS CUMUL 2028 PM Peak (Site Folder: Sturt Highway / Yanga Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sturt Highway / Yanga Way
Updated CHRs/AUL Intersection Configuration
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
			veh/h		veh/h		v/c	sec		veh	m				km/h
SouthEast: Sturt Highway															
21	L2	All MCs	5	0.0	5	0.0	0.040	5.6	LOS A	0.0	0.0	0.00	0.04	0.00	57.0
5	T1	All MCs	174	17.0	174	17.0	0.061	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.8
Approach			179	16.5	179	16.5	0.061	0.3	NA	0.0	0.0	0.00	0.02	0.00	59.7
NorthWest: Sturt Highway															
11	T1	All MCs	57	64.8	57	64.8	0.064	0.6	LOS A	0.3	2.7	0.20	0.24	0.20	57.1
29	R2	All MCs	34	43.8	34	43.8	0.064	7.3	LOS A	0.3	2.7	0.29	0.35	0.29	52.0
Approach			91	57.0	91	57.0	0.064	3.1	NA	0.3	2.7	0.23	0.29	0.23	55.1
SouthWest: Yanga Way															
30	L2	All MCs	128	11.5	128	11.5	0.123	6.2	LOS A	0.5	3.7	0.19	0.55	0.19	51.9
32	R2	All MCs	8	25.0	8	25.0	0.123	9.2	LOS A	0.5	3.7	0.19	0.55	0.19	51.6
Approach			137	12.3	137	12.3	0.123	6.4	LOS A	0.5	3.7	0.19	0.55	0.19	51.8
All Vehicles			406	24.1	406	24.1	0.123	3.0	NA	0.5	3.7	0.11	0.26	0.11	55.8

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: 1 [OPERATIONS 2038 AM Peak (Site Folder: Sturt Highway / Yanga Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sturt Highway / Yanga Way
Updated CHRs/AUL Intersection Configuration
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Sturt Highway															
21	L2	All MCs	12	36.4	12	36.4	0.015	6.0	LOS A	0.0	0.0	0.00	0.30	0.00	53.0
5	T1	All MCs	44	54.8	44	54.8	0.023	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	59.2
Approach			56	50.9	56	50.9	0.023	1.3	NA	0.0	0.0	0.00	0.12	0.00	57.8
NorthWest: Sturt Highway															
11	T1	All MCs	41	30.8	41	30.8	0.062	0.1	LOS A	0.3	2.2	0.09	0.21	0.09	57.6
29	R2	All MCs	62	16.9	62	16.9	0.062	6.1	LOS A	0.3	2.2	0.18	0.42	0.18	52.6
Approach			103	22.4	103	22.4	0.062	3.7	NA	0.3	2.2	0.14	0.34	0.14	54.5
SouthWest: Yanga Way															
30	L2	All MCs	15	21.4	15	21.4	0.021	5.9	LOS A	0.1	0.6	0.08	0.54	0.08	51.7
32	R2	All MCs	7	0.0	7	0.0	0.021	6.7	LOS A	0.1	0.6	0.08	0.54	0.08	52.8
Approach			22	14.3	22	14.3	0.021	6.2	LOS A	0.1	0.6	0.08	0.54	0.08	52.1
All Vehicles			181	30.2	181	30.2	0.062	3.3	NA	0.3	2.2	0.09	0.30	0.09	55.1

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: 1 [OPERATIONS 2038 PM Peak (Site Folder: Sturt Highway / Yanga Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sturt Highway / Yanga Way
Updated CHRs/AUL Intersection Configuration
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							km/h
SouthEast: Sturt Highway															
21	L2	All MCs	5	0.0	5	0.0	0.017	5.5	LOS A	0.0	0.0	0.00	0.12	0.00	55.9
5	T1	All MCs	59	48.2	59	48.2	0.025	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.4
Approach			64	44.3	64	44.3	0.025	0.5	NA	0.0	0.0	0.00	0.05	0.00	59.1
NorthWest: Sturt Highway															
11	T1	All MCs	62	61.0	62	61.0	0.056	0.2	LOS A	0.2	1.8	0.10	0.19	0.10	57.4
29	R2	All MCs	29	21.4	29	21.4	0.056	6.2	LOS A	0.2	1.8	0.14	0.25	0.14	53.5
Approach			92	48.3	92	48.3	0.056	2.1	NA	0.2	1.8	0.12	0.21	0.12	56.1
SouthWest: Yanga Way															
30	L2	All MCs	58	10.9	58	10.9	0.062	5.9	LOS A	0.2	1.8	0.11	0.54	0.11	52.1
32	R2	All MCs	11	30.0	11	30.0	0.062	7.7	LOS A	0.2	1.8	0.11	0.54	0.11	51.6
Approach			68	13.8	68	13.8	0.062	6.1	LOS A	0.2	1.8	0.11	0.54	0.11	52.0
All Vehicles			224	36.6	224	36.6	0.062	2.9	NA	0.2	1.8	0.08	0.26	0.08	55.6

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.

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MOVEMENT SUMMARY

Site: 1 [DECOM 2058 AM Peak (Site Folder: Sturt Highway / Yanga Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sturt Highway / Yanga Way
Updated CHRs/AUL Intersection Configuration
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Sturt Highway															
21	L2	All MCs	17	37.5	17	37.5	0.023	6.0	LOS A	0.0	0.0	0.00	0.29	0.00	53.1
5	T1	All MCs	67	54.7	67	54.7	0.035	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	59.2
Approach			84	51.3	84	51.3	0.035	1.2	NA	0.0	0.0	0.00	0.12	0.00	57.9
NorthWest: Sturt Highway															
11	T1	All MCs	62	30.5	62	30.5	0.101	0.2	LOS A	0.4	3.6	0.11	0.21	0.11	57.6
29	R2	All MCs	102	14.4	102	14.4	0.101	6.2	LOS A	0.4	3.6	0.23	0.45	0.23	52.4
Approach			164	20.5	164	20.5	0.101	4.0	NA	0.4	3.6	0.18	0.36	0.18	54.3
SouthWest: Yanga Way															
30	L2	All MCs	21	20.0	21	20.0	0.031	6.0	LOS A	0.1	0.9	0.12	0.53	0.12	51.6
32	R2	All MCs	11	0.0	11	0.0	0.031	7.5	LOS A	0.1	0.9	0.12	0.53	0.12	52.6
Approach			32	13.3	32	13.3	0.031	6.5	LOS A	0.1	0.9	0.12	0.53	0.12	51.9
All Vehicles			280	28.9	280	28.9	0.101	3.4	NA	0.4	3.6	0.12	0.31	0.12	55.0

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: 1 [DECOM 2058 PM Peak (Site Folder: Sturt Highway / Yanga Way)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sturt Highway / Yanga Way
Updated CHRs/AUL Intersection Configuration
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				km/h
SouthEast: Sturt Highway															
21	L2	All MCs	8	0.0	8	0.0	0.025	5.5	LOS A	0.0	0.0	0.00	0.13	0.00	55.8
5	T1	All MCs	88	48.8	88	48.8	0.038	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	59.3
Approach			97	44.6	97	44.6	0.038	0.5	NA	0.0	0.0	0.00	0.05	0.00	59.0
NorthWest: Sturt Highway															
11	T1	All MCs	93	60.2	93	60.2	0.083	0.2	LOS A	0.3	2.8	0.13	0.20	0.13	57.3
29	R2	All MCs	43	19.5	43	19.5	0.083	6.4	LOS A	0.3	2.8	0.18	0.27	0.18	53.4
Approach			136	47.3	136	47.3	0.083	2.2	NA	0.3	2.8	0.15	0.22	0.15	56.0
SouthWest: Yanga Way															
30	L2	All MCs	96	8.8	96	8.8	0.101	6.0	LOS A	0.4	3.0	0.14	0.54	0.14	52.1
32	R2	All MCs	15	28.6	15	28.6	0.101	8.9	LOS A	0.4	3.0	0.14	0.54	0.14	51.6
Approach			111	11.4	111	11.4	0.101	6.3	LOS A	0.4	3.0	0.14	0.54	0.14	52.0
All Vehicles			343	35.0	343	35.0	0.101	3.1	NA	0.4	3.0	0.10	0.28	0.10	55.4

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 D – SIDRA Results Yanga Way / Balranald- Moulamein Road

MOVEMENT SUMMARY

▼ Site: 101 [EXIST 2024 AM Peak (Site Folder: Yanga Way / Balranald Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Yanga Way / Balranald Road
Existing Intersection Configuration

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh]	[Dist] m				
SouthEast: Balranald Road															
4	L2	All MCs	1	0.0	1	0.0	0.003	5.6	LOS A	0.0	0.1	0.10	0.55	0.10	52.6
6	R2	All MCs	2	50.0	2	50.0	0.003	6.3	LOS A	0.0	0.1	0.10	0.55	0.10	50.3
Approach			3	33.3	3	33.3	0.003	6.1	LOS A	0.0	0.1	0.10	0.55	0.10	51.1
NorthEast: Yanga Way															
7	L2	All MCs	2	50.0	2	50.0	0.012	6.1	LOS A	0.0	0.0	0.00	0.06	0.00	54.8
8	T1	All MCs	19	16.7	19	16.7	0.012	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	59.7
Approach			21	20.0	21	20.0	0.012	0.6	NA	0.0	0.0	0.00	0.06	0.00	59.1
SouthWest: Yanga Way															
2	T1	All MCs	22	33.3	22	33.3	0.014	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	59.6
3	R2	All MCs	1	0.0	1	0.0	0.014	5.5	LOS A	0.0	0.1	0.01	0.03	0.01	56.9
Approach			23	31.8	23	31.8	0.014	0.2	NA	0.0	0.1	0.01	0.03	0.01	59.5
All Vehicles			47	26.7	47	26.7	0.014	0.8	NA	0.0	0.1	0.01	0.08	0.01	58.7

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.

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MOVEMENT SUMMARY

▼ Site: 101 [EXIST 2024 PM Peak (Site Folder: Yanga Way / Balranald Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Yanga Way / Balranald Road
Existing Intersection Configuration

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
SouthEast: Balranald Road															
4	L2	All MCs	1	0.0	1	0.0	0.004	5.6	LOS A	0.0	0.1	0.11	0.55	0.11	52.6
6	R2	All MCs	3	33.3	3	33.3	0.004	6.1	LOS A	0.0	0.1	0.11	0.55	0.11	51.0
Approach			4	25.0	4	25.0	0.004	6.0	LOS A	0.0	0.1	0.11	0.55	0.11	51.4
NorthEast: Yanga Way															
7	L2	All MCs	1	0.0	1	0.0	0.014	5.5	LOS A	0.0	0.0	0.00	0.02	0.00	57.3
8	T1	All MCs	25	12.5	25	12.5	0.014	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.7
Approach			26	12.0	26	12.0	0.014	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.6
SouthWest: Yanga Way															
2	T1	All MCs	21	15.0	21	15.0	0.013	0.0	LOS A	0.0	0.1	0.02	0.03	0.02	59.6
3	R2	All MCs	1	100.0	1	100.0	0.013	6.7	LOS A	0.0	0.1	0.02	0.03	0.02	52.2
Approach			22	19.0	22	19.0	0.013	0.3	NA	0.0	0.1	0.02	0.03	0.02	59.2
All Vehicles			53	16.0	53	16.0	0.014	0.7	NA	0.0	0.1	0.02	0.07	0.02	58.7

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.

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MOVEMENT SUMMARY

Site: 101 [STG1 CONS 2026 AM Peak (Site Folder: Yanga Way / Balranald Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Yanga Way / Balranald Road
Existing Intersection Configuration

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
SouthEast: Balranald Road															
4	L2	All MCs	8	87.5	8	87.5	0.013	6.7	LOS A	0.0	0.6	0.11	0.54	0.11	49.2
6	R2	All MCs	4	75.0	4	75.0	0.013	7.0	LOS A	0.0	0.6	0.11	0.54	0.11	49.3
Approach			13	83.3	13	83.3	0.013	6.8	LOS A	0.0	0.6	0.11	0.54	0.11	49.2
NorthEast: Yanga Way															
7	L2	All MCs	51	6.3	51	6.3	0.039	5.6	LOS A	0.0	0.0	0.00	0.42	0.00	53.7
8	T1	All MCs	20	15.8	20	15.8	0.039	0.0	LOS A	0.0	0.0	0.00	0.42	0.00	56.2
Approach			71	9.0	71	9.0	0.039	4.0	NA	0.0	0.0	0.00	0.42	0.00	54.4
SouthWest: Yanga Way															
2	T1	All MCs	24	34.8	24	34.8	0.033	0.2	LOS A	0.1	1.2	0.16	0.31	0.16	56.7
3	R2	All MCs	25	29.2	25	29.2	0.033	6.1	LOS A	0.1	1.2	0.16	0.31	0.16	52.9
Approach			49	31.9	49	31.9	0.033	3.2	NA	0.1	1.2	0.16	0.31	0.16	54.7
All Vehicles			133	24.6	133	24.6	0.039	4.0	NA	0.1	1.2	0.07	0.39	0.07	54.0

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.

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Project: C:\ACCESS TRAFFIC\Projects\2022\UMW0122-006\4. Technical\3. SIDRA\UMW0122-006_Junction Rivers WF.sip9

MOVEMENT SUMMARY

▼ Site: 101 [STG1 CONS 2026 PM Peak (Site Folder: Yanga Way / Balranald Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Yanga Way / Balranald Road
Existing Intersection Configuration

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
SouthEast: Balranald Road															
4	L2	All MCs	26	36.0	26	36.0	0.061	6.1	LOS A	0.2	1.7	0.12	0.55	0.12	51.1
6	R2	All MCs	49	4.3	49	4.3	0.061	5.8	LOS A	0.2	1.7	0.12	0.55	0.12	52.2
Approach			76	15.3	76	15.3	0.061	5.9	LOS A	0.2	1.7	0.12	0.55	0.12	51.8
NorthEast: Yanga Way															
7	L2	All MCs	3	66.7	3	66.7	0.017	6.3	LOS A	0.0	0.0	0.00	0.06	0.00	54.2
8	T1	All MCs	27	11.5	27	11.5	0.017	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	59.8
Approach			31	17.2	31	17.2	0.017	0.7	NA	0.0	0.0	0.00	0.06	0.00	59.1
SouthWest: Yanga Way															
2	T1	All MCs	22	14.3	22	14.3	0.022	0.1	LOS A	0.1	0.7	0.09	0.17	0.09	57.7
3	R2	All MCs	8	100.0	8	100.0	0.022	6.9	LOS A	0.1	0.7	0.09	0.17	0.09	50.7
Approach			31	37.9	31	37.9	0.022	2.0	NA	0.1	0.7	0.09	0.17	0.09	55.6
All Vehicles			137	20.8	137	20.8	0.061	3.8	NA	0.2	1.7	0.09	0.36	0.09	54.1

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 [STG1 CONS CUMUL 2026 AM Peak (Site Folder: Yanga Way / Balranald Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Yanga Way / Balranald Road
Existing Intersection Configuration

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]	[Veh. veh	Dist]									
			veh/h	%	veh/h	%	v/c	sec			m				km/h
SouthEast: Balranald Road															
4	L2	All MCs	8	87.5	8	87.5	0.013	6.7	LOS A	0.0	0.6	0.14	0.54	0.14	49.1
6	R2	All MCs	4	75.0	4	75.0	0.013	7.2	LOS A	0.0	0.6	0.14	0.54	0.14	49.2
Approach			13	83.3	13	83.3	0.013	6.9	LOS A	0.0	0.6	0.14	0.54	0.14	49.1
NorthEast: Yanga Way															
7	L2	All MCs	51	6.3	51	6.3	0.047	5.6	LOS A	0.0	0.0	0.00	0.37	0.00	53.7
8	T1	All MCs	29	42.9	29	42.9	0.047	0.0	LOS A	0.0	0.0	0.00	0.37	0.00	56.2
Approach			80	19.7	80	19.7	0.047	3.6	NA	0.0	0.0	0.00	0.37	0.00	54.6
SouthWest: Yanga Way															
2	T1	All MCs	34	53.1	34	53.1	0.040	0.2	LOS A	0.1	1.4	0.16	0.28	0.16	56.7
3	R2	All MCs	25	29.2	25	29.2	0.040	6.2	LOS A	0.1	1.4	0.16	0.28	0.16	52.9
Approach			59	42.9	59	42.9	0.040	2.8	NA	0.1	1.4	0.16	0.28	0.16	55.0
All Vehicles			152	34.0	152	34.0	0.047	3.5	NA	0.1	1.4	0.07	0.35	0.07	54.3

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.

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Project: C:\ACCESS TRAFFIC\Projects\2022\UMW0122-006\4. Technical\3. SIDRA\UMW0122-006_Junction Rivers WF.sip9

MOVEMENT SUMMARY

Site: 101 [STG1 CONS CUMUL 2026 PM Peak (Site Folder: Yanga Way / Balranald Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Yanga Way / Balranald Road
Existing Intersection Configuration

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
veh/h % veh/h % v/c sec															
SouthEast: Balranald Road															
4	L2	All MCs	26	36.0	26	36.0	0.062	6.1	LOS A	0.2	1.8	0.15	0.55	0.15	51.0
6	R2	All MCs	49	4.3	49	4.3	0.062	5.9	LOS A	0.2	1.8	0.15	0.55	0.15	52.1
Approach			76	15.3	76	15.3	0.062	6.0	LOS A	0.2	1.8	0.15	0.55	0.15	51.7
NorthEast: Yanga Way															
7	L2	All MCs	3	66.7	3	66.7	0.025	6.3	LOS A	0.0	0.0	0.00	0.05	0.00	54.2
8	T1	All MCs	37	34.3	37	34.3	0.025	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	59.8
Approach			40	36.8	40	36.8	0.025	0.5	NA	0.0	0.0	0.00	0.05	0.00	59.3
SouthWest: Yanga Way															
2	T1	All MCs	32	40.0	32	40.0	0.029	0.1	LOS A	0.1	0.8	0.08	0.14	0.08	57.7
3	R2	All MCs	8	100.0	8	100.0	0.029	7.0	LOS A	0.1	0.8	0.08	0.14	0.08	50.7
Approach			40	52.6	40	52.6	0.029	1.5	NA	0.1	0.8	0.08	0.14	0.08	56.1
All Vehicles			156	30.4	156	30.4	0.062	3.4	NA	0.2	1.8	0.09	0.32	0.09	54.6

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 [STG2 CONS 2028 AM Peak (Site Folder: Yanga Way / Balranald Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Yanga Way / Balranald Road
Existing Intersection Configuration

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]	[Veh. veh	Dist]									
			veh/h	%	veh/h	%	v/c	sec			m				km/h
SouthEast: Balranald Road															
4	L2	All MCs	6	83.3	6	83.3	0.011	6.6	LOS A	0.0	0.5	0.12	0.54	0.12	49.3
6	R2	All MCs	4	75.0	4	75.0	0.011	7.3	LOS A	0.0	0.5	0.12	0.54	0.12	49.3
Approach			11	80.0	11	80.0	0.011	6.9	LOS A	0.0	0.5	0.12	0.54	0.12	49.3
NorthEast: Yanga Way															
7	L2	All MCs	101	3.1	101	3.1	0.067	5.6	LOS A	0.0	0.0	0.00	0.48	0.00	53.4
8	T1	All MCs	21	15.0	21	15.0	0.067	0.0	LOS A	0.0	0.0	0.00	0.48	0.00	55.7
Approach			122	5.2	122	5.2	0.067	4.6	NA	0.0	0.0	0.00	0.48	0.00	53.8
SouthWest: Yanga Way															
2	T1	All MCs	25	33.3	25	33.3	0.039	0.4	LOS A	0.2	1.4	0.22	0.37	0.22	55.9
3	R2	All MCs	36	14.7	36	14.7	0.039	6.1	LOS A	0.2	1.4	0.22	0.37	0.22	52.9
Approach			61	22.4	61	22.4	0.039	3.7	NA	0.2	1.4	0.22	0.37	0.22	54.1
All Vehicles			194	14.7	194	14.7	0.067	4.5	NA	0.2	1.4	0.08	0.45	0.08	53.6

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.

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Project: C:\ACCESS TRAFFIC\Projects\2022\UMW0122-006\4. Technical\3. SIDRA\UMW0122-006_Junction Rivers WF.sip9

MOVEMENT SUMMARY

Site: 101 [STG2 CONS 2028 PM Peak (Site Folder: Yanga Way / Balranald Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Yanga Way / Balranald Road
Existing Intersection Configuration

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
			veh/h		veh/h	%	v/c	sec		veh	m				km/h
SouthEast: Balranald Road															
4	L2	All MCs	37	20.0	37	20.0	0.109	5.9	LOS A	0.4	2.9	0.13	0.56	0.13	51.7
6	R2	All MCs	100	2.1	100	2.1	0.109	5.7	LOS A	0.4	2.9	0.13	0.56	0.13	52.3
Approach			137	6.9	137	6.9	0.109	5.8	LOS A	0.4	2.9	0.13	0.56	0.13	52.1
NorthEast: Yanga Way															
7	L2	All MCs	3	66.7	3	66.7	0.018	6.3	LOS A	0.0	0.0	0.00	0.06	0.00	54.2
8	T1	All MCs	28	11.1	28	11.1	0.018	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	59.8
Approach			32	16.7	32	16.7	0.018	0.6	NA	0.0	0.0	0.00	0.06	0.00	59.2
SouthWest: Yanga Way															
2	T1	All MCs	23	13.6	23	13.6	0.020	0.1	LOS A	0.1	0.5	0.07	0.14	0.07	58.1
3	R2	All MCs	6	100.0	6	100.0	0.020	6.9	LOS A	0.1	0.5	0.07	0.14	0.07	51.1
Approach			29	32.1	29	32.1	0.020	1.5	NA	0.1	0.5	0.07	0.14	0.07	56.5
All Vehicles			198	12.2	198	12.2	0.109	4.3	NA	0.4	2.9	0.10	0.42	0.10	53.8

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 (Akcelik 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 [STG2 CONS CUMUL 2028 AM Peak (Site Folder: Yanga Way / Balranald Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Yanga Way / Balranald Road
Existing Intersection Configuration

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh]	Dist]				
			veh/h		veh/h	%	v/c	sec			m				km/h
SouthEast: Balranald Road															
4	L2	All MCs	6	83.3	6	83.3	0.011	6.7	LOS A	0.0	0.5	0.16	0.54	0.16	49.2
6	R2	All MCs	4	75.0	4	75.0	0.011	7.5	LOS A	0.0	0.5	0.16	0.54	0.16	49.2
Approach			11	80.0	11	80.0	0.011	7.0	LOS A	0.0	0.5	0.16	0.54	0.16	49.2
NorthEast: Yanga Way															
7	L2	All MCs	101	3.1	101	3.1	0.075	5.6	LOS A	0.0	0.0	0.00	0.45	0.00	53.4
8	T1	All MCs	31	41.4	31	41.4	0.075	0.0	LOS A	0.0	0.0	0.00	0.45	0.00	55.7
Approach			132	12.0	132	12.0	0.075	4.3	NA	0.0	0.0	0.00	0.45	0.00	53.9
SouthWest: Yanga Way															
2	T1	All MCs	35	51.5	35	51.5	0.046	0.4	LOS A	0.2	1.7	0.22	0.34	0.22	56.0
3	R2	All MCs	36	14.7	36	14.7	0.046	6.1	LOS A	0.2	1.7	0.22	0.34	0.22	52.9
Approach			71	32.8	71	32.8	0.046	3.3	NA	0.2	1.7	0.22	0.34	0.22	54.4
All Vehicles			213	22.3	213	22.3	0.075	4.1	NA	0.2	1.7	0.08	0.42	0.08	53.8

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.

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Project: C:\ACCESS TRAFFIC\Projects\2022\UMW0122-006\4. Technical\3. SIDRA\UMW0122-006_Junction Rivers WF.sip9

MOVEMENT SUMMARY

▼ Site: 101 [STG2 CONS CUMUL 2028 PM Peak (Site Folder: Yanga Way / Balranald Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Yanga Way / Balranald Road
Existing Intersection Configuration

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
SouthEast: Balranald Road															
4	L2	All MCs	37	20.0	37	20.0	0.111	5.9	LOS A	0.4	3.0	0.16	0.56	0.16	51.6
6	R2	All MCs	100	2.1	100	2.1	0.111	5.9	LOS A	0.4	3.0	0.16	0.56	0.16	52.2
Approach			137	6.9	137	6.9	0.111	5.9	LOS A	0.4	3.0	0.16	0.56	0.16	52.0
NorthEast: Yanga Way															
7	L2	All MCs	3	66.7	3	66.7	0.026	6.3	LOS A	0.0	0.0	0.00	0.04	0.00	54.2
8	T1	All MCs	38	33.3	38	33.3	0.026	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.8
Approach			41	35.9	41	35.9	0.026	0.5	NA	0.0	0.0	0.00	0.04	0.00	59.3
SouthWest: Yanga Way															
2	T1	All MCs	33	38.7	33	38.7	0.028	0.1	LOS A	0.1	0.6	0.07	0.11	0.07	58.2
3	R2	All MCs	6	100.0	6	100.0	0.028	7.0	LOS A	0.1	0.6	0.07	0.11	0.07	51.1
Approach			39	48.6	39	48.6	0.028	1.2	NA	0.1	0.6	0.07	0.11	0.07	56.9
All Vehicles			217	19.9	217	19.9	0.111	4.0	NA	0.4	3.0	0.11	0.38	0.11	54.1

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 [OPERATIONS 2038 AM Peak (Site Folder: Yanga Way / Balranald Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Yanga Way / Balranald Road
Existing Intersection Configuration

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
SouthEast: Balranald Road															
4	L2	All MCs	1	0.0	1	0.0	0.006	5.6	LOS A	0.0	0.2	0.15	0.55	0.15	52.5
6	R2	All MCs	4	75.0	4	75.0	0.006	6.9	LOS A	0.0	0.2	0.15	0.55	0.15	49.2
Approach			5	60.0	5	60.0	0.006	6.6	LOS A	0.0	0.2	0.15	0.55	0.15	49.8
NorthEast: Yanga Way															
7	L2	All MCs	36	8.8	36	8.8	0.035	5.7	LOS A	0.0	0.0	0.00	0.34	0.00	54.3
8	T1	All MCs	26	16.0	26	16.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.34	0.00	56.9
Approach			62	11.9	62	11.9	0.035	3.3	NA	0.0	0.0	0.00	0.34	0.00	55.3
SouthWest: Yanga Way															
2	T1	All MCs	31	34.5	31	34.5	0.019	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	59.7
3	R2	All MCs	1	0.0	1	0.0	0.019	5.5	LOS A	0.0	0.1	0.01	0.02	0.01	57.0
Approach			32	33.3	32	33.3	0.019	0.2	NA	0.0	0.1	0.01	0.02	0.01	59.6
All Vehicles			99	21.3	99	21.3	0.035	2.5	NA	0.0	0.2	0.01	0.25	0.01	56.3

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 [OPERATIONS 2038 PM Peak (Site Folder: Yanga Way / Balranald Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Yanga Way / Balranald Road
Existing Intersection Configuration

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							km/h
SouthEast: Balranald Road															
4	L2	All MCs	3	100.0	3	100.0	0.033	6.9	LOS A	0.1	0.8	0.14	0.56	0.14	48.6
6	R2	All MCs	35	6.1	35	6.1	0.033	5.8	LOS A	0.1	0.8	0.14	0.56	0.14	52.0
Approach			38	13.9	38	13.9	0.033	5.9	LOS A	0.1	0.8	0.14	0.56	0.14	51.7
NorthEast: Yanga Way															
7	L2	All MCs	3	66.7	3	66.7	0.022	6.3	LOS A	0.0	0.0	0.00	0.05	0.00	54.2
8	T1	All MCs	35	12.1	35	12.1	0.022	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	59.8
Approach			38	16.7	38	16.7	0.022	0.5	NA	0.0	0.0	0.00	0.05	0.00	59.3
SouthWest: Yanga Way															
2	T1	All MCs	28	14.8	28	14.8	0.017	0.0	LOS A	0.0	0.1	0.02	0.02	0.02	59.7
3	R2	All MCs	1	100.0	1	100.0	0.017	6.7	LOS A	0.0	0.1	0.02	0.02	0.02	52.2
Approach			29	17.9	29	17.9	0.017	0.2	NA	0.0	0.1	0.02	0.02	0.02	59.4
All Vehicles			105	16.0	105	16.0	0.033	2.4	NA	0.1	0.8	0.06	0.22	0.06	56.3

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 [DECOM 2058 AM Peak (Site Folder: Yanga Way / Balranald Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Yanga Way / Balranald Road
Existing Intersection Configuration

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							km/h
SouthEast: Balranald Road															
4	L2	All MCs	6	66.7	6	66.7	0.013	6.5	LOS A	0.0	0.5	0.17	0.54	0.17	49.8
6	R2	All MCs	6	66.7	6	66.7	0.013	7.2	LOS A	0.0	0.5	0.17	0.54	0.17	49.5
Approach			13	66.7	13	66.7	0.013	6.9	LOS A	0.0	0.5	0.17	0.54	0.17	49.6
NorthEast: Yanga Way															
7	L2	All MCs	63	6.7	63	6.7	0.057	5.6	LOS A	0.0	0.0	0.00	0.36	0.00	54.1
8	T1	All MCs	39	16.2	39	16.2	0.057	0.0	LOS A	0.0	0.0	0.00	0.36	0.00	56.7
Approach			102	10.3	102	10.3	0.057	3.5	NA	0.0	0.0	0.00	0.36	0.00	55.1
SouthWest: Yanga Way															
2	T1	All MCs	45	32.6	45	32.6	0.046	0.2	LOS A	0.2	1.3	0.16	0.25	0.16	57.2
3	R2	All MCs	27	15.4	27	15.4	0.046	6.0	LOS A	0.2	1.3	0.16	0.25	0.16	54.0
Approach			73	26.1	73	26.1	0.046	2.4	NA	0.2	1.3	0.16	0.25	0.16	55.9
All Vehicles			187	20.2	187	20.2	0.057	3.3	NA	0.2	1.3	0.07	0.33	0.07	55.0

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.

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MOVEMENT SUMMARY

▼ Site: 101 [DECOM 2058 PM Peak (Site Folder: Yanga Way / Balranald Road)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Yanga Way / Balranald Road
Existing Intersection Configuration

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

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh]	[Dist] m				
			veh/h		veh/h		v/c	sec							km/h
SouthEast: Balranald Road															
4	L2	All MCs	8	100.0	8	100.0	0.061	7.0	LOS A	0.2	1.6	0.19	0.56	0.19	48.4
6	R2	All MCs	61	3.4	61	3.4	0.061	5.9	LOS A	0.2	1.6	0.19	0.56	0.19	51.9
Approach			69	15.2	69	15.2	0.061	6.1	LOS A	0.2	1.6	0.19	0.56	0.19	51.5
NorthEast: Yanga Way															
7	L2	All MCs	4	50.0	4	50.0	0.031	6.1	LOS A	0.0	0.0	0.00	0.04	0.00	54.9
8	T1	All MCs	52	12.2	52	12.2	0.031	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	59.7
Approach			56	15.1	56	15.1	0.031	0.5	NA	0.0	0.0	0.00	0.04	0.00	59.3
SouthWest: Yanga Way															
2	T1	All MCs	43	14.6	43	14.6	0.032	0.1	LOS A	0.1	0.6	0.07	0.09	0.07	58.8
3	R2	All MCs	6	100.0	6	100.0	0.032	7.0	LOS A	0.1	0.6	0.07	0.09	0.07	51.5
Approach			49	25.5	49	25.5	0.032	1.0	NA	0.1	0.6	0.07	0.09	0.07	57.7
All Vehicles			175	18.1	175	18.1	0.061	2.8	NA	0.2	1.6	0.09	0.26	0.09	55.5

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.

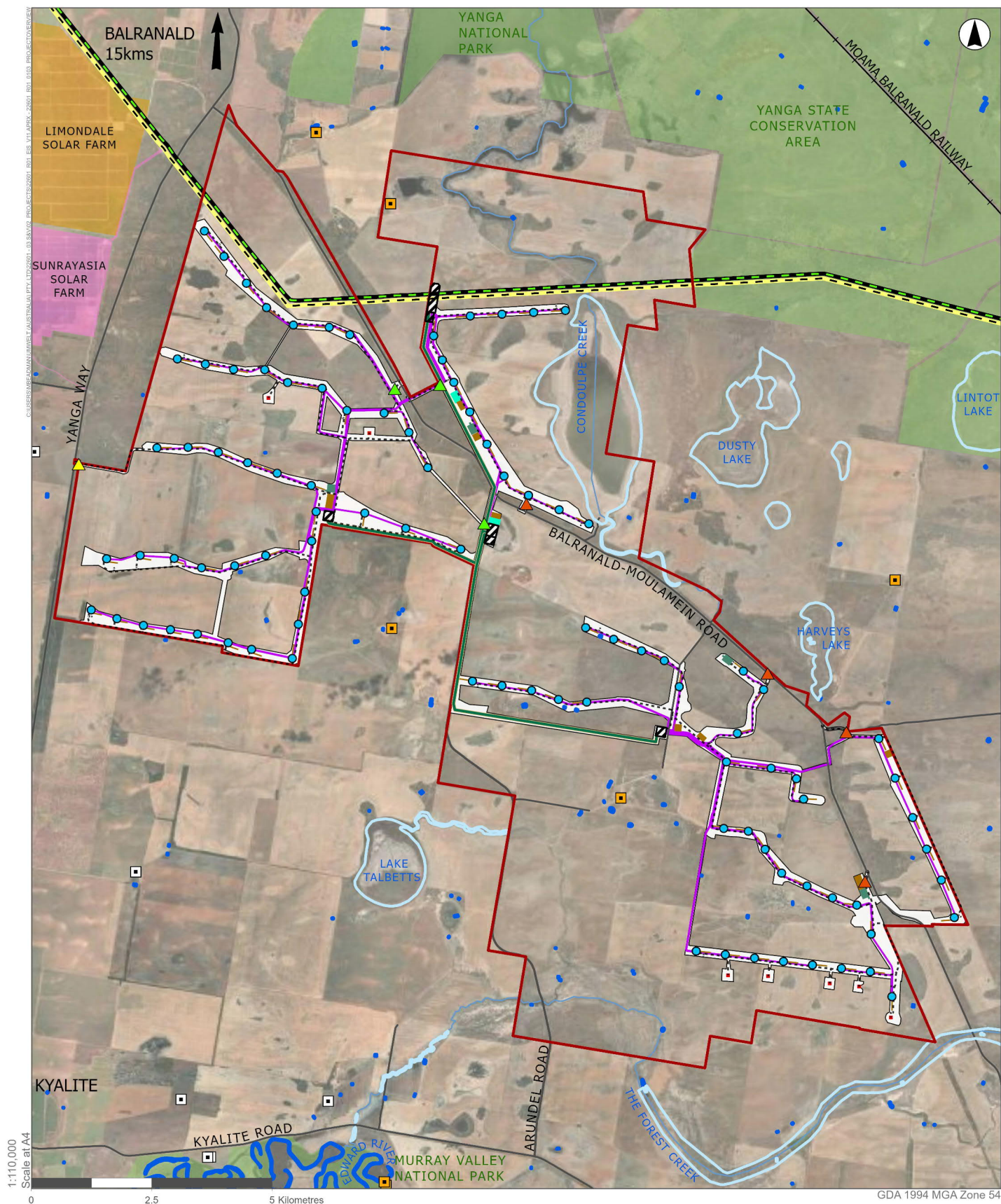
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

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 E – Plan of Development



Legend

- Project Area
- Development Corridor
- Limondale Solar Farm
- Sunrayasia Solar Farm
- Wind Turbine Generator
- ▲ Emergency Only Access Point
- ▲ Primary Access Point
- ▲ Secondary Access Point
- Access Tracks
- BESS/STATcom/Substation/Switching Station
- Associated Dwelling
- Non-Associated Dwelling
- Permanent Power Performance Mast (Potential Location)
- 33 kV Internal Reticulation (underground)
- 330 kV Internal Reticulation (overhead)
- Operations and Maintenance Compound
- Concrete Batching Plant
- Temporary Construction Facilities
- 220 kV TransGrid Transmission Line
- Project Energy Connect Transmission Line
- Mainly Dry/Non-Perennial Waterbody
- Perennial Waterbody
- Watercourse
- Road
- Railway
- NPWS Reserve



Appendix F – Project Traffic Calculations – Stage 1

UMW0122-006 | Junction Rivers Wind Farm
Site Access Summary

Access Details	Stage 1				Stage 2						Overall Total
	SA2	SA3	SA5	Stg 1 Total	SA1	SA4	SA6	SA7	SA8	Stg 2 Total	
Access Details											
Approx. Latitude	34°49'5.16"S	34°49'16.56"S	34°50'29.00"S		34°50'4.53"S	34°50'38.84"S	34°52'14.97"S	34°52'50.18"S	34°54'27.76"S		
Approx. Longitude	143°34'47.41"E	143°34'55.78"E	143°36'28.26"E		143°30'24.31"E	143°35'59.89"E	143°39'54.64"E	143°40'41.11"E	143°41'20.51"E		
Source Road	Balranald Road	Balranald Road	Balranald Road		Yanga Way	Arundel Road	Balranald Road	Balranald Road	Balranald Road		
Location / Chainage "	6.930	7.750	11.095		19.800	0.710	17.340	18.955	22.140		
% Road Upgrade	62.5%	7.4%	30.1%			100%	56.5%	14.6%	28.8%		
LHS / RHS (along chainage)	RHS	LHS	LHS		LHS	LHS	RHS	LHS	RHS		
Site Infrastructure Elements											Totals
Number of Turbines	17	10	3	30	27	0	17	6	16	66	96
Number of PPMs	2	0	0	2	0	0	0	0	1	1	3
Length of Access Tracks - HV	15,600	10,928	2,820	29,348	27,169	103	17,262	6,745	12,631	63,910	93,258
Length of Access Tracks - LV	518	0	0	518	0	0	0	0	389	389	907
Number of Substations / Switching Stations	0	1	0	1	1	1	1	0	0	3	4
Number of BESS	0	1	0	1	0	1	0	0	0	1	2
Number of Turbine Hardstand & Crane Assembly Areas	17	10	3	30	27	0	17	6	16	66	96
Number of Site Batch Plant Areas	0	1	0	1	1	0	1	0	1	3	4
Number of Site Construction Compound Areas	0	1	0	1	1	1	1	0	1	4	5
Number of Site Operational & Maintenance Facility Areas	0	1	0	1	0	1	0	0	0	1	2
Number of Site Laydown Areas	0	1	0	1	1	0	1	1	1	4	5
Length of Underground Electrical Reticulation	17,451	19,686	14,033	51,170	57,293	2,844	39,507	7,307	19,606	126,557	163,694

UMW0122-006 | Junction Rivers Wind Farm

Stage 1 Site Properties

Site Components

Element	Qty	Unit	
Number of Turbines (via SA2)	17	ea	
Number of Turbines (via SA3)	10	ea	
Number of Turbines (via SA5)	3	ea	
Number of PPM (via SA2)	2	ea	
Number of PPM (via SA3)	0	ea	
Number of PPM (via SA5)	0	ea	
Length of Internal Access Tracks - HV (via SA2)	15,600	m	
Length of Internal Access Tracks - HV (via SA3)	10,928	m	
Length of Internal Access Tracks - HV (via SA5)	2,820	m	
Length of Internal Access Tracks - LV (via SA2)	518	m	
Length of Internal Access Tracks - LV (via SA3)	0	m	
Length of Internal Access Tracks - LV (via SA5)	0	m	
Length of Balranald Road Upgrade - Stage 1 (Yanga Way to SA3)	10,688	m	
Average Width of Existing Balranald Road	8	m	
Number of Substations / Switching Stations (via SA2)	0	ea	
Number of Battery Energy Storage System (BESS) Areas (via SA2)	0	ea	
Number of Turbine Hardstands / Crane Assembly Areas (via SA2)	17	ea	
Number of Batch Plants (via SA2)	0	ea	
Number of Site Construction Compound Areas (via SA2)	0	ea	
Number of Operations & Maintenance Facilities (via SA2)	0	ea	
Number of Site Laydown Areas (via SA2)	0	ea	
Number of Substations / Switching Stations (via SA3)	1	ea	
Number of Battery Energy Storage System (BESS) Areas (via SA3)	1	ea	
Number of Turbine Hardstands / Crane Assembly Areas (via SA3)	10	ea	
Number of Batch Plants (via SA3)	1	ea	
Number of Construction Compound Areas (via SA3)	1	ea	
Number of Operations & Maintenance Facilities (via SA3)	1	ea	
Number of Site Laydown Areas (via SA3)	1	ea	
Number of Substations / Switching Stations (via SA5)	0	ea	
Number of Battery Energy Storage System (BESS) Areas (via SA5)	0	ea	
Number of Turbine Hardstands / Crane Assembly Areas (via SA5)	3	ea	
Number of Batch Plants (via SA5)	0	ea	
Number of Construction Compound Areas (via SA5)	0	ea	
Number of Operations & Maintenance Facilities (via SA5)	0	ea	
Number of Site Laydown Areas (via SA5)	0	ea	
Length of Underground Powerline Cable (via SA2)	17,451	m	
Length of Underground Powerline Cable (via SA3)	19,686	m	
Length of Underground Powerline Cable (via SA5)	14,033	m	
Site Water (via SA2)	27	ML	Approx 1.6ML/turbine
Site Water (via SA3)	16	ML	Approx 1.6ML/turbine
Site Water (via SA3)	5	ML	Approx 1.6ML/turbine
% of Gravel Materials Sourced Onsite	0%	%	
% of Gravel Materials Imported	100%	%	
% of Aggregate Materials Sourced Onsite	0%	%	
% of Aggregate Materials Imported	100%	%	
% of Water Sourced Onsite	0%	%	
% of Water Imported	100%	%	
% of Bedding Sand (Electrical) Sourced Onsite	0%	%	
% of Bedding Sand (Electrical) Imported	100%	%	

Site Areas

Element	Number	Hardstand Area	Unit	% Concrete	Concrete Area	Unit	Gravel Area	Unit
Turbine Hardstand / Crane Assembly Area (via SA2)	17	17,500	m2	0%	0	m2	297,500	m2
Substation / Switching Station Area (via SA3)	1	105,500	m2	10%	10,550	m2	94,950	m2
Battery Energy Storage System (BESS) Area (via SA3)	1	29,500	m2	20%	5,900	m2	23,600	m2
Turbine Hardstand / Crane Assembly Area (via SA3)	10	17,500	m2	0%	0	m2	175,000	m2
Batch Plant Area (via SA3)	1	33,200	m2	10%	3,320	m2	29,880	m2
Construction Compound Area (via SA3)	1	22,500	m2	10%	2,250	m2	20,250	m2
Operations & Maintenance Facility Area (via SA3)	1	25,000	m2	10%	2,500	m2	25,000	m2
Site Laydown Area (via SA3)	1	22,500	m2	0%	0	m2	22,500	m2
Turbine Hardstand / Crane Assembly Area (via SA5)	3	17,500	m2	0%	0	m2	52,500	m2

Concrete Composition

Element	Composition	Unit
Aggregates & Sand	75%	%
Cement	15%	%
Steel	5%	%
Water	5%	%
Total	100%	%

Material Assumptions

Element	Qty	Unit
Internal Access Track HV Width	7.5	m
Internal Access Track HV Pavement Depth	0.4	m
Internal Access Track LV Width	5.5	m
Internal Access Track LV Pavement Depth	0.25	m
Balranald Road Stage 1 Upgrade Width	8	m
Balranald Road Stage 1 Upgrade Depth	0.15	m
Balranald Road Stage 1 Upgrade Depth (Widening)	0.4	m
Substation / Switching Station Area Slab Concrete Depth	0.25	m
BESS Area Slab Concrete Depth	0.25	m
Batch Plant Area Slab Concrete Depth	0.2	m
Construction Compound Area Slab Concrete Depth	0.2	m
Operations and Maintenance Facility Slab Concrete Depth	0.2	m
Substation / Switching Station Area Gravel Depth	0.2	m
BESS Area Gravel Depth	0.2	m
Turbine Hardstand / Crane Assembly Area Gravel Depth	0.25	m
Batch Plant Area Gravel Depth	0.2	m
Construction Compound Area Gravel Depth	0.2	m
Operations and Maintenance Facility Gravel Depth	0.2	m
Site Laydown Area Gravel Depth	0.2	m
Concrete Sand/Aggregates Mass	1.8	t/m3
Concrete Cement Mass	1.51	t/m3
Concrete Steel Mass	7.8	t/m3
Concrete Water Mass	1	t/m3
Wet Concrete Mass	2.5	t/m3
Power Line Length per Roll / Drum	250	m
Power Line Mass per Roll / Drum	2,925	tonnes
Underground Powerline Trench Width	0.4	m
Underground Powerline Bedding Sand Depth	0.3	m

Movements

Components & Equipment

Element	Task	Qty per Turbine	Unit	Stage 1 Qty	Stg 1 Transp. Qty	Vehicle Type	Vehicle Capacity	Movements
Concrete volume in turbine footings	1D	800	m3	24,000				
Concrete aggregates for turbine footings	1D	600	m3	18,000	18,000	Truck Trailer	20	900
Reinforcing steel for turbine footings	1D	40	m3	1,200	1,200	Semi	3.4	353
Other concrete supplies for turbine footings	1D	120	m3	3,600	3,600	Semi	17.5	205
Water for turbine footings concrete	1D	40	m3	1,200	1,200	Semi Water Truck	26.5	45
Wet concrete for turbine footings	1D	1,920	tonnes	57,600	57,600	Concrete Truck	14.4	4,000
Turbine Blades	2A	3	each	90	90	Special	1	90
Turbine Nacelles	2A	1	each	30	30	Special	1	30
Turbine Drive Trains	2A	1	each	30	30	Special	1	30
Turbine Hub & Nose Cone	2A	1	each	30	30	Special	1	30
Tower Sections	2A	7	each	210	210	Special	1	210
Tower Base Rings	2A	0.35	each	11	11	Semi	1	11
Tower Assembly Components	2A	1	each	30	30	Semi	1	30
Escorting LV	2A	26	each	780	780	LV	1	780
Transformer (via SA3)	2B	-	each	1	1	Special	1	1
Switchroom (via SA3)	2B	-	each	1	1	Special	1	1
Site Crane (Turbines)	2B	-	each	2	2	Special / Crane	1	2
Secondary Crane	2B	-	each	1	1	Crane / Semi	1	1
Performance Monitoring Masts (via SA2)	2A	-	each	2	2	Semi	0.4	5
Electrical Components (via SA3 - Substation & BESS)	2B	-	each	200	200	Semi	1	200
						Total		6,924

Mobilisation / Site Establishment

Element	Task	Qty per Area	Unit	Site Qty	Site Transport Qty	Vehicle Type	Vehicle Capacity	Movements
Construction Mobilisation - Ancillary Equipment (via SA2)	1A	25	each	25	25	Semi / Low Loader	1	25
Construction Mobilisation - Ancillary Equipment (via SA3)	1A	25	each	25	25	Semi / Low Loader	1	25
Construction Mobilisation - Ancillary Equipment (via SA5)	1A	25	each	25	25	Semi / Low Loader	1	25
Construction Mobilisation - EW Plant (via SA2)	1A	20	each	20	20	Semi / Low Loader	1	20
Construction Mobilisation - EW Plant (via SA3)	1A	20	each	20	20	Semi / Low Loader	1	20
Construction Mobilisation - EW Plant (via SA5)	1A	20	each	20	20	Semi / Low Loader	1	20
Construction Compound Establishment & Buildings (via SA3)	1A	25	each	25	25	Semi / Low Loader	1	25
Batch Plant Area Establishment (via SA3)	1A	25	each	25	25	Semi / Low Loader	1	25
Substation / Switching Station Area Establishment & Buildings (via SA3)	2B	40	each	40	40	Semi	1	40
Battery Storage Establishment (via SA3)	2B	40	each	40	40	Semi	1	40
Operational and Maintenance Facility Establishment (via SA3)	2B	25	each	25	25	Semi	1	25
						Total		290

Demobilisation / Commissioning

Element	Task	Qty per Area	Unit	Site Qty	Site Transport Qty	Vehicle Type	Vehicle Capacity	Movements
Construction Demobilisation - Ancillary Equipment (via SA2)	4	25	each	25	25	Semi / Low Loader	1	25
Construction Demobilisation - Ancillary Equipment (via SA3)	4	25	each	25	25	Semi / Low Loader	1	25
Construction Demobilisation - Ancillary Equipment (via SA5)	4	25	each	25	25	Semi / Low Loader	1	25
Construction Demobilisation - EW Plant (via SA2)	4	20	each	20	20	Semi / Low Loader	1	20
Construction Demobilisation - EW Plant (via SA3)	4	20	each	20	20	Semi / Low Loader	1	20
Construction Demobilisation - EW Plant (via SA5)	4	20	each	20	20	Semi / Low Loader	1	20
Construction Compound Decommissioning (via SA3)	4	25	each	25	25	Semi / Low Loader	1	25
Batch Plant Area Decommissioning (via SA3)	4	25	each	25	25	Semi / Low Loader	1	25
						Total		185

Construction Materials

Element	Task	Qty per Unit	Unit	Volume (m3)	Site Qty (tonnes)	Site Transport Qty (tonnes)	Vehicle Type	Vehicle Capacity (tonnes)	Movements
Substation (SA3) Slab Wet Concrete	1C	2.5	t/m3	2,638	6,594	6,594	Concrete Truck	14.4	458
Substation (SA3) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	1,978	3,561	3,561	Truck Trailer	36	99
Substation (SA3) Slab Cement	1C	1.51	t/m3	396	597	597	Semi	26.5	23
Substation (SA3) Slab Reinforcing Steel	1C	7.8	t/m3	132	1,029	1,029	Semi	26.5	39
Substation (SA3) Slab Water	1C	1	t/m3	132	132	132	Semi Water Truck	26.5	5
BESS (SA3) Slab Wet Concrete	1C	2.5	t/m3	1,475	3,688	3,688	Concrete Truck	14.4	257
BESS (SA3) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	1,106	1,991	1,991	Truck Trailer	36	56
BESS (SA3) Slab Cement	1C	1.51	t/m3	221	334	334	Semi	26.5	13
BESS (SA3) Slab Reinforcing Steel	1C	7.8	t/m3	74	575	575	Semi	26.5	22
BESS (SA3) Slab Water	1C	1	t/m3	74	74	74	Semi Water Truck	26.5	3
Batch Plant (SA3) Slab Wet Concrete	1C	2.5	t/m3	664	1,660	1,660	Concrete Truck	14.4	116
Batch Plant (SA3) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	498	896	896	Truck Trailer	36	25
Batch Plant (SA3) Slab Cement	1C	1.51	t/m3	100	150	150	Semi	26.5	6
Batch Plant (SA3) Slab Reinforcing Steel	1C	7.8	t/m3	33	259	259	Semi	26.5	10
Batch Plant (SA3) Slab Water	1C	1	t/m3	33	33	33	Semi Water Truck	26.5	2
Construction Compound (SA3) Slab Wet Concrete	1C	2.5	t/m3	450	1,125	1,125	Concrete Truck	14.4	79
Construction Compound (SA3) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	338	608	608	Truck Trailer	36	17
Construction Compound (SA3) Slab Cement	1C	1.51	t/m3	68	102	102	Semi	26.5	4
Construction Compound (SA3) Slab Reinforcing Steel	1C	7.8	t/m3	23	176	176	Semi	26.5	7
Construction Compound (SA3) Slab Water	1C	1	t/m3	23	23	23	Semi Water Truck	26.5	1
Operational and Maintenance Facility (SA3) Slab Wet Concrete	1C	2.5	t/m3	500	1,250	1,250	Concrete Truck	14.4	87
Operational and Maintenance Facility (SA3) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	375	675	675	Truck Trailer	36	19
Operational and Maintenance Facility (SA3) Slab Cement	1C	1.51	t/m3	75	113	113	Semi	26.5	5
Operational and Maintenance Facility (SA3) Slab Reinforcing Steel	1C	7.8	t/m3	25	195	195	Semi	26.5	8
Operational and Maintenance Facility (SA3) Slab Water	1C	1	t/m3	25	25	25	Semi Water Truck	26.5	1
Internal Access Track (HV) Gravel Pavement Materials (via SA2)	1B	1.8	t/m3	46,800	84,240	84,240	Truck Trailer	36	2,340
Internal Access Track (HV) Gravel Pavement Materials (via SA3)	1B	1.8	t/m3	32,784	59,011	59,011	Truck Trailer	36	1,640
Internal Access Track (HV) Gravel Pavement Materials (via SA5)	1B	1.8	t/m3	8,460	15,228	15,228	Truck Trailer	36	423
Internal Access Track (LV) Gravel Pavement Materials (via SA2)	1B	1.8	t/m3	712	1,282	1,282	Truck Trailer	36	36
External Access Intersection Upgrade Pavement Materials (Stage 1)	1B	1.8	t/m3	750	1,350	1,350	Truck Trailer	36	38
Site Access SA2 Upgrade Pavement Materials (Stage 1)	1B	1.8	t/m3	500	900	900	Truck Trailer	36	25
Site Access SA3 Upgrade Pavement Materials (Stage 1)	1B	1.8	t/m3	500	900	900	Truck Trailer	36	25
Site Access SA5 Upgrade Pavement Materials (Stage 1)	1B	1.8	t/m3	500	900	900	Truck Trailer	36	25
Bairnald Road Upgrade Gravel Pavement (Stage 1)	1B	1.8	t/m3	12,826	23,086	23,086	Truck Trailer	36	642
Turbine Hardstand Area Gravel (via SA2)	1B	1.8	t/m3	74,375	133,875	133,875	Truck Trailer	36	3,719
Turbine Hardstand Area Gravel (via SA3)	1B	1.8	t/m3	43,750	78,750	78,750	Truck Trailer	36	2,188
Turbine Hardstand Area Gravel (via SA5)	1B	1.8	t/m4	13,125	23,625	23,625	Truck Trailer	36	657
Culverts/Pipes (via SA2)	1B				16	16	Semi	1	16
Culverts/Pipes (via SA3)	1B				11	11	Semi	1	11
Culverts/Pipes (via SA5)	1B				3	3	Semi	1	3
Substation / Switching Station Area Gravel (via SA3)	1C	1.8	t/m3	18,990	34,182	34,182	Truck Trailer	36	950
Battery Storage Area Gravel (via SA3)	1C	1.8	t/m3	4,720	8,496	8,496	Truck Trailer	36	236
Batch Plant Area Gravel (via SA3)	1C	1.8	t/m3	5,976	10,757	10,757	Truck Trailer	36	299
Site Construction Compound Gravel (via SA3)	1C	1.8	t/m3	4,050	7,290	7,290	Truck Trailer	36	203
Operational and Maintenance Facility Area Gravel (via SA3)	1C	1.8	t/m3	5,000	9,000	9,000	Truck Trailer	36	250
Site Laydown Area Gravel (via SA3)	1C	1.8	t/m3	4,500	8,100	8,100	Truck Trailer	36	225
Formwork (via SA2)	1D	1	turbine		17	17	Semi	1	17
Formwork (via SA3)	1D	1	turbine		10	10	Semi	1	10
Formwork (via SA5)	1D	1	turbine		3	3	Semi	1	3
Geomembrane (via SA2)	1D	2	turbine		34	34	Semi	1	34
Geomembrane (via SA3)	1D	2	turbine		20	20	Semi	1	20
Geomembrane (via SA5)	1D	2	turbine		6	6	Semi	1	6
Underground Powerline Cable (via SA2)	2A				204	204	Semi	26.5	8
Underground Powerline Bedding Sand (via SA2)	2A	1.8	t/m3	2,094	3,769	3,769	Truck Trailer	36	105
Underground Powerline Cable (via SA3)	2A				230	230	Semi	26.5	9
Underground Powerline Bedding Sand (via SA3)	2A	1.8	t/m3	2,362	4,252	4,252	Truck Trailer	36	119
Underground Powerline Cable (via SA5)	2A				164	164	Semi	26.5	7
Underground Powerline Bedding Sand (via SA5)	2A	1.8	t/m3	1,684	3,031	3,031	Truck Trailer	36	85
Site Water (via SA2)	W	1	t/m3	27,200	27,200	27,200	Semi Water Truck	26.5	1,027
Site Water (via SA3)	W	1	t/m3	16,000	16,000	16,000	Semi Water Truck	26.5	604
Site Water (via SA5)	W	1	t/m3	4,800	4,800	4,800	Semi Water Truck	27.5	175
Fuel (via SA2)	F				1,700	1,700	Semi Tanker	26.5	65
Fuel (via SA3)	F				1,000	1,000	Semi Tanker	26.5	38
Fuel (via SA5)	F				300	300	Semi Tanker	26.5	12
							Total		17,657

UMW0122-006 | Junction Rivers Wind Farm

Stage 1 Site Vehicle Movement Summary

Assumed Work Days per Month24days

TASK 1A - MOBILISATION AND ESTABLISHMENT

Task Transport Duration1monthA

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route	
Construction Mobilisation - Ancilliary Equipment (via SA2)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA2	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2	A
Construction Mobilisation - Ancilliary Equipment (via SA3)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
Construction Mobilisation - Ancilliary Equipment (via SA5)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA5	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA5	A
Construction Mobilisation - EW Plant (via SA2)	20	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA2	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2	A
Construction Mobilisation - EW Plant (via SA3)	20	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
Construction Mobilisation - EW Plant (via SA5)	20	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA5	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA5	A
Construction Compound Establishment & Buildings (via SA3)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
Batch Plant Area Establishment (via SA3)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	93	93	4
Sturt Highway (Balranald to Yanga Way)	93	93	4
Yanga Way (Sturt Highway to Balranald Road)	93	93	4
Balranald Road (Yanga Way to SA2)	185	185	8
Balranald Road (SA2 to SA3)	140	140	6
Balranald Road (SA3 to SA5)	45	45	2
Yanga Way (Balranald Road to Stony Crossing Road)	93	93	4
Stony Crossing Road (Yanga Way to Swan Hill Road)	93	93	4
Swan Hill Road (Stony Crossing Road to Swan Hill)	93	93	4

TASK 18 - ACCESS ROADS, HARDSTANDS & SITE ENTRANCES

Task Transport Duration (Internal Tracks / Hardstands)	10	months	A
Task Transport Duration (Intersection Upgrades)	2	months	B
Task Transport Duration (Road Upgrades)	3	months	C

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route	
Internal Access Track (HV) Gravel Pavement Materials (via SA2)	2,340	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2	A
Internal Access Track (HV) Gravel Pavement Materials (via SA3)	1,640	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
Internal Access Track (HV) Gravel Pavement Materials (via SA5)	423	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA5	A
Internal Access Track (LV) Gravel Pavement Materials (via SA2)	36	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2	A
External Access Intersection Upgrade Pavement Materials (Stage 1)	38	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road I/S	B
Site Access SA2 Upgrade Pavement Materials (Stage 1)	25	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2	B
Site Access SA3 Upgrade Pavement Materials (Stage 1)	25	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	B
Site Access SA5 Upgrade Pavement Materials (Stage 1)	25	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA5	B
Balranald Road Upgrade Gravel Pavement (Stage 1)	642	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road	C
Turbine Hardstand Area Gravel (via SA2)	3,719	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2	A
Turbine Hardstand Area Gravel (via SA3)	2,188	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
Turbine Hardstand Area Gravel (via SA5)	657	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA5	A
Culverts/Pipes (via SA2)	16	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
Culverts/Pipes (via SA3)	11	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
Culverts/Pipes (via SA5)	3	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA5	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA5	A

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	15	2	1
Sturt Highway (Balranald to Yanga Way)	15	2	1
Yanga Way (Sturt Highway to Balranald Road)	15	2	1
Balranald Road (Yanga Way to SA2)	11,750	1,374	58
Balranald Road (SA2 to SA3)	5,213	598	25
Balranald Road (SA3 to SA5)	1,302	185	8
Yanga Way (Balranald Road to Stony Crossing Road)	11,773	1,372	58
Stony Crossing Road (Yanga Way to Swan Hill Road)	11,773	1,372	58
Swan Hill Road (Stony Crossing Road to Swan Hill)	11,773	1,372	58
Murray River Highway (Swan Hill to Lake Boga)	11,758	1,371	58

TASK 1C - SITE COMPOUND AREAS (CIVIL WORKS)

Task Transport Duration (Site Compound Areas Civil Works)

4 months

A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Substation (SA3) Slab Wet Concrete	458	Concrete Truck	100%	SA3 Batch Plant	Internal
Substation (SA3) Slab Concrete Sand/Aggregates	99	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Substation (SA3) Slab Cement	23	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Substation (SA3) Slab Reinforcing Steel	39	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Substation (SA3) Slab Water	5	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA3
BESS (SA3) Slab Wet Concrete	257	Concrete Truck	100%	SA3 Batch Plant	Internal
BESS (SA3) Slab Concrete Sand/Aggregates	56	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
BESS (SA3) Slab Cement	13	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
BESS (SA3) Slab Reinforcing Steel	22	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
BESS (SA3) Slab Water	3	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA3
Batch Plant (SA3) Slab Wet Concrete	116	Concrete Truck	100%	SA3 Batch Plant	Internal
Batch Plant (SA3) Slab Concrete Sand/Aggregates	25	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Batch Plant (SA3) Slab Cement	6	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Batch Plant (SA3) Slab Reinforcing Steel	10	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Batch Plant (SA3) Slab Water	2	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA3
Construction Compound (SA3) Slab Wet Concrete	79	Concrete Truck	100%	SA3 Batch Plant	Internal
Construction Compound (SA3) Slab Concrete Sand/Aggregates	17	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Construction Compound (SA3) Slab Cement	4	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Construction Compound (SA3) Slab Reinforcing Steel	7	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Construction Compound (SA3) Slab Water	1	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA3
Operational and Maintenance Facility (SA3) Slab Wet Concrete	87	Concrete Truck	100%	SA3 Batch Plant	Internal
Operational and Maintenance Facility (SA3) Slab Concrete Sand/Aggregates	19	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Operational and Maintenance Facility (SA3) Slab Cement	5	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Operational and Maintenance Facility (SA3) Slab Reinforcing Steel	8	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Operational and Maintenance Facility (SA3) Slab Water	1	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA3
Substation / Switching Station Area Gravel (via SA3)	950	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Battery Storage Area Gravel (via SA3)	236	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Batch Plant Area Gravel (via SA3)	299	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Site Construction Compound Gravel (via SA3)	203	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Operational and Maintenance Facility Area Gravel (via SA3)	250	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Site Laydown Area Gravel (via SA3)	225	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	69	18	1
Sturt Highway (Balranald to Yanga Way)	81	21	1
Yanga Way (Sturt Highway to Balranald Road)	81	21	1
Balranald Road (Yanga Way to SA2)	2,528	632	27
Balranald Road (SA2 to SA3)	2,528	632	27
Balranald Road (SA3 to SA5)	0	0	0
Yanga Way (Balranald Road to Stony Crossing Road)	2,448	612	26
Stony Crossing Road (Yanga Way to Swan Hill Road)	2,448	612	26
Swan Hill Road (Stony Crossing Road to Swan Hill)	2,448	612	26
Murray River Highway (Swan Hill to Lake Boga)	2,379	595	25

TASK 1D - TURBINE FOUNDATIONS

Task Transport Duration (Turbine Foundations)

8

months

A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route	
Concrete aggregates for turbine footings (SA2)	510	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA2	A
Reinforcing steel for turbine footings (SA2)	200	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
Other concrete supplies for turbine footings (SA2)	116	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
Water for turbine footings concrete (SA2)	26	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA3	A
Wet concrete for turbine footings (SA2)	2,267	Concrete Truck	100%	SA3 Batch Plant	SA3 - Balranald Road - SA2	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA2	A
Formwork (via SA2)	17	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA2	A
Geomembrane (via SA2)	34	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2	A
Concrete aggregates for turbine footings (SA3)	300	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
Reinforcing steel for turbine footings (SA3)	118	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
Other concrete supplies for turbine footings (SA3)	68	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
Water for turbine footings concrete (SA3)	15	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA3	A
Wet concrete for turbine footings (SA3)	1,333	Concrete Truck	100%	SA3 Batch Plant	Internal	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
Formwork (via SA3)	10	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
Geomembrane (via SA3)	20	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
Concrete aggregates for turbine footings (SA5)	90	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA5	A
Reinforcing steel for turbine footings (SA5)	35	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA5	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
Other concrete supplies for turbine footings (SA5)	21	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
Water for turbine footings concrete (SA5)	5	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA3	A
Wet concrete for turbine footings (SA5)	400	Concrete Truck	100%	SA3 Batch Plant	Internal	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA5	A
Formwork (via SA5)	3	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA5	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA5	A
Geomembrane (via SA5)	6	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA5	A

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	324	41	2
Sturt Highway (Balranald to Yanga Way)	369	47	2
Yanga Way (Sturt Highway to Balranald Road)	369	47	2
Balranald Road (Yanga Way to SA2)	1,594	200	9
Balranald Road (SA2 to SA3)	3,609	452	19
Balranald Road (SA3 to SA5)	44	6	1
Yanga Way (Balranald Road to Stony Crossing Road)	1,224	154	7
Stony Crossing Road (Yanga Way to Swan Hill Road)	1,224	154	7
Swan Hill Road (Stony Crossing Road to Swan Hill)	1,224	154	7
Murray River Highway (Swan Hill to Lake Boga)	900	113	5

TASK 2A - CABLING

Task Transport Duration (Cabling)

8 months A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route	
Underground Powerline Cable (via SA2)	8	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA2	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2	
Underground Powerline Bedding Sand (via SA2)	105	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2	A
Underground Powerline Cable (via SA3)	9	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	
Underground Powerline Bedding Sand (via SA3)	119	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA5	
Underground Powerline Cable (via SA5)	7	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA5	
			100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA5	
Underground Powerline Bedding Sand (via SA5)	85	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA5	

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	12	2	1
Sturt Highway (Balranald to Yanga Way)	12	2	1
Yanga Way (Sturt Highway to Balranald Road)	12	2	1
Balranald Road (Yanga Way to SA2)	333	42	2
Balranald Road (SA2 to SA3)	220	28	2
Balranald Road (SA3 to SA5)	92	12	1
Yanga Way (Balranald Road to Stony Crossing Road)	321	41	2
Stony Crossing Road (Yanga Way to Swan Hill Road)	321	41	2
Swan Hill Road (Stony Crossing Road to Swan Hill)	321	41	2
Murray River Highway (Swan Hill to Lake Boga)	309	39	2

TASK 2B - SITE COMPOUND AREAS (ELECTRICAL WORKS)

Task Transport Duration (Electrical Area Establishment)

3 months A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route	
Transformer (via SA3)	1	Special	100%	Port Adelaide	Port Adelaide - M2 - A1 - Gawler Rd - Wilkinson Rd - Hatcher Rd - Oates Rd - Mudla Wirra Rd - College Rd - Roseworthy Rd - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA2	A
Switchroom (via SA3)	1	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA3	
Electrical Components (via SA3)	200	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
Substation / Switching Station Area Establishment & Buildings (via SA3)	40	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
Battery Storage Establishment (via SA3)	40	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3	A
Operational and Maintenance Facility Establishment (via SA3)	25	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3	A

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	155	52	3
Sturt Highway (Balranald to Yanga Way)	155	52	3
Yanga Way (Sturt Highway to Balranald Road)	155	52	3
Balranald Road (Yanga Way to SA2)	307	103	5
Balranald Road (SA2 to SA3)	307	103	5
Balranald Road (SA3 to SA5)	0	0	0
Yanga Way (Balranald Road to Stony Crossing Road)	153	51	3
Stony Crossing Road (Yanga Way to Swan Hill Road)	153	51	3
Swan Hill Road (Stony Crossing Road to Swan Hill)	153	51	3
Murray River Highway (Swan Hill to Lake Boga)	0	0	0

TASK 3A - TURBINE TRANSPORTATION

Proposed Turbine Transport Rate
No. Days per Week Haulage

2 turbines / week
6 days A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route	
Turbine Blades (SA2)	51	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Werrimull N Road - C254 - A79 - C252 - C251 - A20 (Sturt Hwy) - Yanga Way - Balranald Road - SA2	A
Turbine Blades (SA3)	30	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Werrimull N Road - C254 - A79 - C252 - C251 - A20 (Sturt Hwy) - Yanga Way - Balranald Road - SA3	A
Turbine Blades (SA5)	9	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Werrimull N Road - C254 - A79 - C252 - C251 - A20 (Sturt Hwy) - Yanga Way - Balranald Road - SA5	A
Turbine Nacelles (SA2)	17	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA2	A
Turbine Nacelles (SA3)	10	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA3	A
Turbine Nacelles (SA5)	3	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA5	A
Turbine Drive Trains (SA2)	17	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA2	A
Turbine Drive Trains (SA3)	10	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA3	A
Turbine Drive Trains (SA5)	3	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA5	A
Turbine Hub & Nose Cone (SA2)	17	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA2	A
Turbine Hub & Nose Cone (SA3)	10	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA3	A
Turbine Hub & Nose Cone (SA5)	3	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA5	A
Tower Sections 1-2 (SA2)	34	Special	100%	Port Adelaide	Port Adelaide - M2 - A1 - Gawler Rd - Wilkinson Rd - Hatcher Rd - Oates Rd - Mudla Wirra Rd - College Rd - Roseworthy Rd - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA2	A
Tower Sections 1-2 (SA3)	20	Special	100%	Port Adelaide	Port Adelaide - M2 - A1 - Gawler Rd - Wilkinson Rd - Hatcher Rd - Oates Rd - Mudla Wirra Rd - College Rd - Roseworthy Rd - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA3	A
Tower Sections 1-2 (SA5)	6	Special	100%	Port Adelaide	Port Adelaide - M2 - A1 - Gawler Rd - Wilkinson Rd - Hatcher Rd - Oates Rd - Mudla Wirra Rd - College Rd - Roseworthy Rd - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA5	A
Tower Sections 3-7 (SA2)	85	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA2	A
Tower Sections 3-7 (SA3)	50	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA3	A
Tower Sections 3-7 (SA5)	15	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA5	A
Tower Base Rings (SA2)	6	Semi	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA2	A
Tower Base Rings (SA3)	4	Semi	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA3	A
Tower Base Rings (SA5)	1	Semi	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA5	A
Tower Assembly Components (SA2)	17	Semi	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA2	A
Tower Assembly Components (SA3)	10	Semi	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA3	A
Tower Assembly Components (SA5)	3	Semi	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA5	A
Escorting LV (SA2)	442	LV	100%	Port Adelaide	-	A
Escorting LV (SA3)	260	LV	100%	Port Adelaide	-	A
Escorting LV (SA5)	78	LV	100%	Port Adelaide	-	A
Performance Monitoring Masts (SA2)	5	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA2	A
Performance Monitoring Masts (SA3)	0	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA3	A
Performance Monitoring Masts (SA5)	0	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA5	A

Road Section	Total Trips	HV Trips / Week**	Max. HV Trips / Day
Sturt Highway (Euston to Balranald)	1,216	30	7
Sturt Highway (Balranald to Yanga Way)	1,216	30	7
Yanga Way (Sturt Highway to Balranald Road)	1,216	30	7
Balranald Road (Yanga Way to SA2)	1,216	30	7
Balranald Road (SA2 to SA3)	525	30	7
Balranald Road (SA3 to SA5)	121	30	7
Yanga Way (Balranald Road to Stony Crossing Road)	0	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0	0

390

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TASK 3B - TURBINE ERECTION

Task Transport Duration (Turbine Erection - Crane Transport)

1 month A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Site Crane (Turbines)	8	Special / Crane	100%	Port Adelaide	Port Adelaide - Wz - XL - Gawler Rd - Wilkinson Rd - Hatcher Rd - Oates Rd - Modra Wirra Rd - College Rd - Roseworthy Rd - A20 - Kingston Road - B93 - Sturtzki Road - 1302 Sturtzki Road - 1302 Sturtzki Road - 1302 Sturtzki Road - SA2
Secondary Crane	1	Crane / Semi	100%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA2

A

A

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Euston to Balranald)	9	9	2
Sturt Highway (Balranald to Yanga Way)	9	9	2
Yanga Way (Sturt Highway to Balranald Road)	9	9	2
Balranald Road (Yanga Way to SA2)	9	9	2
Balranald Road (SA2 to SA3)	9	9	2
Balranald Road (SA3 to SA5)	9	9	2
Yanga Way (Balranald Road to Stony Crossing Road)	0	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0	0

TASK 4 - FINALISATION / COMMISSIONING / DEMOBILISATION

Task Transport Duration (Demobilisation)

2 month A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Construction Demobilisation - Ancilliary Equipment (via SA2)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA2
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2
Construction Demobilisation - Ancilliary Equipment (via SA3)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Construction Demobilisation - Ancilliary Equipment (via SA5)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA5
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA5
Construction Demobilisation - EW Plant (via SA2)	20	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA2
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2
Construction Demobilisation - EW Plant (via SA3)	20	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
Construction Demobilisation - EW Plant (via SA5)	20	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA5
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA5
Construction Compound Decommissioning (via SA3)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA2
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2
Batch Plant Area Decommissioning (via SA3)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3

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Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	93	47	2
Sturt Highway (Balranald to Yanga Way)	93	47	2
Yanga Way (Sturt Highway to Balranald Road)	93	47	2
Balranald Road (Yanga Way to SA2)	185	93	4
Balranald Road (SA2 to SA3)	140	70	3
Balranald Road (SA3 to SA5)	45	23	1
Yanga Way (Balranald Road to Stony Crossing Road)	93	47	2
Stony Crossing Road (Yanga Way to Swan Hill Road)	93	47	2
Swan Hill Road (Stony Crossing Road to Swan Hill)	93	47	2

TASK W - SITE WATER

Task Duration (Site Water SA2 & SA3)

18 months

A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Site Water (via SA2)	1,027	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA2
Site Water (via SA3)	604	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA3
Site Water (via SA5)	175	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA5

A

A

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	0	0	0
Sturt Highway (Balranald to Yanga Way)	1,806	101	5
Yanga Way (Sturt Highway to Balranald Road)	1,806	101	5
Balranald Road (Yanga Way to SA2)	1,806	101	5
Balranald Road (SA2 to SA3)	779	44	2
Balranald Road (SA3 to SA5)	175	10	1
Yanga Way (Balranald Road to Stony Crossing Road)	0	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0	0

TASK F - SITE FUEL

Task Duration (Site Fuel SA2 & SA3)

18 months

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Fuel (via SA2)	65	Semi Tanker	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA2
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
Fuel (via SA3)	38	Semi Tanker	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA3
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA5
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA5
Fuel (via SA5)	12	Semi Tanker			

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	58	4	1
Sturt Highway (Balranald to Yanga Way)	58	4	1
Yanga Way (Sturt Highway to Balranald Road)	58	4	1
Balranald Road (Yanga Way to SA2)	115	7	1
Balranald Road (SA2 to SA3)	50	3	1
Balranald Road (SA3 to SA5)	12	1	1
Yanga Way (Balranald Road to Stony Crossing Road)	58	4	1
Stony Crossing Road (Yanga Way to Swan Hill Road)	58	4	1
Swan Hill Road (Stony Crossing Road to Swan Hill)	58	4	1
Murray River Highway (Swan Hill to Lake Boga)	0	0	0

TASK WC - WASTE COLLECTION

Task Duration (Waste Collection SA2 & SA3)

18 months

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Waste Collection (via SA2)	78	Semi	100%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA2
Waste Collection (via SA3)	78	Semi	100%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
Waste Collection (via SA5)	78	Semi	100%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA5

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	235	14	1
Sturt Highway (Balranald to Yanga Way)	235	14	1
Yanga Way (Sturt Highway to Balranald Road)	235	14	1
Balranald Road (Yanga Way to SA2)	235	14	1
Balranald Road (SA2 to SA3)	156	9	1
Balranald Road (SA3 to SA5)	78	5	1
Yanga Way (Balranald Road to Stony Crossing Road)	0	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0	0

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Stage 1 Project Staff Movements

Project Timeframe

Element	Qty	Unit
Hours per day	12	hrs
Working days per week	6	days
Working days per month	24	days
Expected project length	18	months
Totals days	432	days

Construction Workforce

Element	Qty	Unit
Peak Workforce	200	staff
Local Workforce	80%	%
Fly In Fly Out	20%	%

Construction Workforce Distribution

Location	Distribution	Unit	Qty	Vehicle Type	% Vehicle	Staff No. per Vehicle Type	Average Vehicle Capacity	Movements Round Trip (per day)
Local Workforce								
Balranald	80%	%	128	LV	50%	64	2	32
				Bus	50%	64	15	5
Tooleybuc	5%	%	8	LV	100%	8	2	4
				Bus	0%	0	15	0
Swan Hill	15%	%	24	LV	100%	24	2	12
				Bus	0%	0	15	0
FIFO Workforce								
Balranald	100%	%	40	LV	25%	10	2	5
				Bus	75%	30	15	2
							Total	44
							Total	60

Peak @ Sturt Highway / Yanga Way
Peak @ Yanga Way / Balranald-Moulamein Road

Operations (to Stage 1 O&M Facility - SA3)

Element	Qty	Unit
Hours per day	12	hrs
Working days per week	7	days
Peak Workforce	15	each

Location	Distribution	Unit	Qty	Vehicle Type	Vehicle Capacity	Movements 2-way (per day)
Balranald	100%	%	15	LV	1	15
					Total	15

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Stage 1 Project Traffic Impact % Calculations

Road ID	Road Description	AADT Segment	AADT Segment		Base Data Year	Base Year AADT			Base Year HV%		Base Year HV		10 Yr GR%	2025		AADT		2025 HV	
			Start (km)	End (km)		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Gaz	A-Gaz		Gaz	A-Gaz	Gaz	A-Gaz	Gaz	A-Gaz
A20	Sturt Highway (Mildura to Euston)	98064	0.000	82.400	2007	1,023	1,047	2,070	26.7%	26.9%	273	282	2.0%	1,461	1,495	2,956	390	403	
A20	Sturt Highway (Euston to Balranald)	98064	82.400	162.100	2007	1,023	1,047	2,070	26.7%	26.9%	273	282	2.0%	1,461	1,495	2,956	390	403	
A20	Sturt Highway (Balranald to Yanga Way)	T0234	162.100	165.500	2021	483	494	977	59.0%	60.1%	285	297	2.0%	523	535	1,058	308	321	
-	Yanga Way (Sturt Highway to Balranald Road)	97488	0.000	11.800	2010	272	376	648	26.9%	27.7%	73	104	2.0%	366	506	872	98	140	
-	Yanga Way (Balranald Road to Stony Crossing Road)	97494	11.800	36.200	2012	283	285	568	26.9%	27.7%	76	79	2.0%	366	369	735	98	102	
-	Yanga Way (Stony Crossing Road to Tooleybuc)	97207	36.200	49.100	2006	221	220	441	34.8%	34.1%	77	75	2.0%	322	320	642	112	109	
MRC	Balranald Road (Yanga Way to SA2)	-	0.000	6.930	2022	25	30	55	40.0%	50.0%	10	15	2.0%	27	32	58	11	16	
MRC	Balranald Road (SA2 to SA3)	-	6.930	7.750	2022	25	30	55	40.0%	50.0%	10	15	2.0%	27	32	58	11	16	
MRC	Balranald Road (SA3 to SA5)	-	7.750	11.095	2022	25	30	55	40.0%	50.0%	10	15	2.0%	27	32	58	11	16	
-	Stony Crossing Road (Yanga Way to Swan Hill Road)	97206	0.000	40.900	2006	122	123	245	18.9%	26.8%	23	33	2.0%	178	179	357	34	48	
-	Swan Hill Road (Swan Hill to Stony Crossing Road)	97200	0.000	11.100	2010	342	362	704	17.0%	16.9%	58	61	2.0%	460	487	947	78	82	
B400	Murray River Highway (Swan Hill to Lake Boga)	-	0.000	16.000	2020	2,900	2,900	5,800	14.9%	17.7%	431	512	2.0%	3,202	3,202	6,404	476	565	

Road ID	Road Description	AADT Segment	AADT Segment		Project Traffic (Daily) - Construction																															
			Start (km)	End (km)	Gazettal													A-Gazettal													Bi-Dir					
					1A	1B	1C	1D	2A	2B	3A	3B	4	Water	Fuel	Waste	Staff	Max	1A	1B	1C	1D	2A	2B	3A	3B	4	Water	Fuel	Waste	Staff	Max	Total	LV	HV	
A20	Sturt Highway (Mildura to Euston)	98064	0.000	82.400	4	1	1	2	1	3	7	2	2	0	1	1	0	11	4	1	1	2	1	3	7	2	2	0	1	1	0	11	22	0	22	
A20	Sturt Highway (Euston to Balranald)	T0234	82.400	162.100	4	1	1	2	1	3	7	2	2	0	1	1	0	11	4	1	1	2	1	3	7	2	2	0	1	1	0	11	22	0	22	
A20	Sturt Highway (Balranald to Yanga Way)	T0234	162.100	165.500	4	1	1	2	1	3	7	2	2	5	1	1	44	60	4	1	1	2	1	3	7	2	2	5	1	1	44	60	120	88	32	
-	Yanga Way (Sturt Highway to Balranald Road)	97488	0.000	11.800	4	1	1	2	1	3	7	2	2	5	1	1	44	60	4	1	1	2	1	3	7	2	2	5	1	1	44	60	120	88	32	
-	Yanga Way (Balranald Road to Stony Crossing Road)	97494	11.800	36.200	4	58	26	7	2	3	0	0	2	0	1	0	16	87	4	58	26	7	2	3	0	0	2	0	1	0	16	87	174	32	142	
-	Yanga Way (Stony Crossing Road to Tooleybuc)	97207	36.200	49.100	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	4	4	8	8	0		
MRC	Balranald Road (Yanga Way to SA2)	-	0.000	6.930	8	58	27	9	2	5	7	2	4	5	1	1	60	143	8	58	27	9	2	5	7	2	4	5	1	1	60	143	286	120	166	
MRC	Balranald Road (SA2 to SA3)	-	6.930	7.750	6	25	27	19	2	5	7	2	3	2	1	1	60	117	6	25	27	19	2	5	7	2	3	2	1	1	60	117	234	120	114	
MRC	Balranald Road (SA3 to SA5)	-	7.750	11.095	2	8	0	1	1	0	7	2	1	1	1	1	0	15	2	8	0	1	1	0	7	2	1	1	1	1	0	15	30	0	30	
-	Stony Crossing Road (Yanga Way to Swan Hill Road)	97206	0.000	40.900	4	58	26	7	2	3	0	0	2	0	1	0	12	83	4	58	26	7	2	3	0	0	2	0	1	0	12	83	166	24	142	
-	Swan Hill Road (Swan Hill to Stony Crossing Road)	97200	0.000	11.100	4	58	26	7	2	3	0	0	2	0	1	0	12	83	4	58	26	7	2	3	0	0	2	0	1	0	12	83	166	24	142	
B400	Murray River Highway (Swan Hill to Lake Boga)	-	0.000	16.000	0	58	25	5	2	0	0	0	0	0	0	0	0	65	0	58	25	5	2	0	0	0	0	0	0	0	0	65	130	0	130	

Dev Traffic % Impact - Construction		
Gaz %	A-Gaz %	Bi-Dir %
0.75%	0.74%	0.74%
0.75%	0.74%	0.74%
11.48%	11.22%	11.35%
16.39%	11.86%	13.76%
23.76%	23.60%	23.68%
1.24%	1.25%	1.25%
539.01%	449.17%	490.01%
441.01%	367.51%	400.92%
56.54%	47.12%	51.40%
46.70%	46.32%	46.51%
18.03%	17.04%	17.52%
2.03%	2.03%	2.03%

IN CONS		
Gaz	A-Gaz	Bi-Dir
1,472	1,506	2,978
1,472	1,506	2,978
583	595	1,178
426	566	992
453	456	909
326	324	650
170	175	344
144	149	292
42	47	88
261	262	523
543	570	1,113
3,267	3,267	6,534



Appendix G – Project Traffic Calculations – Stage 2

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Site Access Summary

Access Details	Stage 1				Stage 2						Overall Total
	SA2	SA3	SA5	Stg 1 Total	SA1	SA4	SA6	SA7	SA8	Stg 2 Total	
Access Details											
Approx. Latitude	34°49'5.16"S	34°49'16.56"S	34°50'29.00"S		34°50'4.53"S	34°50'38.84"S	34°52'14.97"S	34°52'50.18"S	34°54'27.76"S		
Approx. Longitude	143°34'47.41"E	143°34'55.78"E	143°36'28.26"E		143°30'24.31"E	143°35'59.89"E	143°39'54.64"E	143°40'41.11"E	143°41'20.51"E		
Source Road	Balranald Road	Balranald Road	Balranald Road		Yanga Way	Arundel Road	Balranald Road	Balranald Road	Balranald Road		
Location / Chainage "	6.930	7.750	11.095		19.800	0.710	17.340	18.955	22.140		
% Road Upgrade	62.5%	7.4%	30.1%			100%	56.5%	14.6%	28.8%		
LHS / RHS (along chainage)	RHS	LHS	LHS		LHS	LHS	RHS	LHS	RHS		
Site Infrastructure Elements											Totals
Number of Turbines	17	10	3	30	27	0	17	6	16	66	96
Number of PPMs	2	0	0	2	0	0	0	0	1	1	3
Length of Access Tracks - HV	15,600	10,928	2,820	29,348	27,169	103	17,262	6,745	12,631	63,910	93,258
Length of Access Tracks - LV	518	0	0	518	0	0	0	0	389	389	907
Number of Substations / Switching Stations	0	1	0	1	1	1	1	0	0	3	4
Number of BESS	0	1	0	1	0	1	0	0	0	1	2
Number of Turbine Hardstand & Crane Assembly Areas	17	10	3	30	27	0	17	6	16	66	96
Number of Site Batch Plant Areas	0	1	0	1	1	0	1	0	1	3	4
Number of Site Construction Compound Areas	0	1	0	1	1	1	1	0	1	4	5
Number of Site Operational & Maintenance Facility Areas	0	1	0	1	0	1	0	0	0	1	2
Number of Site Laydown Areas	0	1	0	1	1	0	1	1	1	4	5
Length of Underground Electrical Reticulation	17,451	19,686	14,033	51,170	57,293	2,844	39,507	7,307	19,606	126,557	163,694

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Stage 2 Site Properties

Site Components

Element	Qty	Unit	
Number of Turbines (via SA1)	27	ea	
Number of Turbines (via SA4)	0	ea	
Number of Turbines (via SA6)	17	ea	
Number of Turbines (via SA7)	6	ea	
Number of Turbines (via SA8)	16	ea	
Number of PPM (via SA8)	1	ea	
Length of Internal Access Tracks - HV (via SA1)	27,169	m	
Length of Internal Access Tracks - HV (via SA4)	103	m	
Length of Internal Access Tracks - HV (via SA6)	17,262	m	
Length of Internal Access Tracks - HV (via SA7)	6,745	m	
Length of Internal Access Tracks - HV (via SA8)	12,631	m	
Length of Internal Access Tracks - LV (via SA8)	389	m	
Length of Balranald Road Upgrade - Stage 2 (SA5 to SA6)	6,246	m	
Length of Balranald Road Upgrade - Stage 2 (SA6 to SA7)	1,615	m	
Length of Balranald Road Upgrade - Stage 2 (SA7 to SA8)	3,185	m	
Average Width of Existing Balranald Road	8	m	
Length of Arundel Road Upgrade - Stage 2 (Balranald Road to SA4)	710	m	
Average Width of Existing Balranald Road	4	m	
Number of Substations / Switching Stations (via SA1)	1	ea	
Number of Battery Energy Storage System (BESS) Areas (via SA1)	0	ea	
Number of Turbine Hardstands / Crane Assembly Areas (via SA1)	27	ea	
Number of Batch Plants (via SA1)	1	ea	
Number of Site Construction Compound Areas (via SA1)	1	ea	
Number of Operations & Maintenance Facilities (via SA1)	0	ea	
Number of Site Laydown Areas (via SA1)	1	ea	
Number of Substations / Switching Stations (via SA4)	1	ea	
Number of Battery Energy Storage System (BESS) Areas (via SA4)	1	ea	
Number of Turbine Hardstands / Crane Assembly Areas (via SA4)	0	ea	
Number of Batch Plants (via SA4)	0	ea	
Number of Construction Compound Areas (via SA4)	1	ea	
Number of Operations & Maintenance Facilities (via SA4)	1	ea	
Number of Site Laydown Areas (via SA4)	0	ea	
Number of Substations / Switching Stations (via SA6)	1	ea	
Number of Battery Energy Storage System (BESS) Areas (via SA6)	0	ea	
Number of Turbine Hardstands / Crane Assembly Areas (via SA6)	17	ea	
Number of Batch Plants (via SA6)	1	ea	
Number of Site Construction Compound Areas (via SA6)	1	ea	
Number of Operations & Maintenance Facilities (via SA6)	0	ea	
Number of Site Laydown Areas (via SA6)	1	ea	
Number of Substations / Switching Stations (via SA7)	0	ea	
Number of Battery Energy Storage System (BESS) Areas (via SA7)	0	ea	
Number of Turbine Hardstands / Crane Assembly Areas (via SA7)	6	ea	
Number of Batch Plants (via SA7)	0	ea	
Number of Site Construction Compound Areas (via SA7)	0	ea	
Number of Operations & Maintenance Facilities (via SA7)	0	ea	
Number of Site Laydown Areas (via SA7)	1	ea	
Number of Substations / Switching Stations (via SA8)	0	ea	
Number of Battery Energy Storage System (BESS) Areas (via SA8)	0	ea	
Number of Turbine Hardstands / Crane Assembly Areas (via SA8)	16	ea	
Number of Batch Plants (via SA8)	1	ea	
Number of Site Construction Compound Areas (via SA8)	1	ea	
Number of Operations & Maintenance Facilities (via SA8)	0	ea	
Number of Site Laydown Areas (via SA8)	1	ea	
Length of Underground Powerline Cable (via SA1)	57,293	m	
Length of Overhead Transmission Line (via SA1)	4,021	m	
Length of Underground Powerline Cable (via SA4)	2,844	m	
Length of Overhead Transmission Line (via SA4)	800	m	
Length of Underground Powerline Cable (via SA6)	39,507	m	
Length of Overhead Transmission Line (via SA6)	8,137	m	
Length of Underground Powerline Cable (via SA7)	7,307	m	
Length of Underground Powerline Cable (via SA8)	19,606	m	
Site Water (via SA1)	43	ML	Approx 1.6ML/turbine
Site Water (via SA4)	5	ML	
Site Water (via SA6)	27	ML	Approx 1.6ML/turbine
Site Water (via SA7)	10	ML	Approx 1.6ML/turbine
Site Water (via SA8)	26	ML	Approx 1.6ML/turbine
% of Gravel Materials Sourced Onsite	0%	%	
% of Gravel Materials Imported	100%	%	
% of Aggregate Materials Sourced Onsite	0%	%	
% of Aggregate Materials Imported	100%	%	
% of Water Sourced Onsite	0%	%	
% of Water Imported	100%	%	
% of Bedding Sand (Electrical) Sourced Onsite	0%	%	
% of Bedding Sand (Electrical) Imported	100%	%	

Site Areas

Element	Number	Hardstand Area	Unit	% Concrete	Concrete Area	Unit	Gravel Area	Unit
Substation / Switching Station Area (via SA1)	1	39,750	m2	20%	7,950	m2	31,800	m2
Turbine Hardstand / Crane Assembly Area (via SA1)	27	17,500	m2	0%	0	m2	472,500	m2
Batch Plant Area (via SA1)	1	30,500	m2	10%	3,050	m2	27,450	m2
Construction Compound Area (via SA1)	1	22,500	m2	10%	2,250	m2	20,250	m2
Site Laydown Area (via SA1)	1	22,500	m2	0%	0	m2	22,500	m2
Substation / Switching Station Area (via SA4)	1	50,750	m2	20%	10,150	m2	40,600	m2
Battery Energy Storage System (BESS) Area (via SA4)	1	32,000	m2	20%	6,400	m2	25,600	m2
Construction Compound Area (via SA4)	1	22,500	m2	10%	2,250	m2	20,250	m2
Operations & Maintenance Facility Area (via SA4)	1	25,000	m2	10%	2,500	m2	22,500	m2
Substation / Switching Station Area (via SA6)	1	39,750	m2	20%	7,950	m2	31,800	m2
Turbine Hardstand / Crane Assembly Area (via SA6)	17	17,500	m2	0%	0	m2	297,500	m2
Batch Plant Area (via SA6)	1	31,800	m2	10%	3,180	m2	28,620	m2
Construction Compound Area (via SA6)	1	22,500	m2	10%	2,250	m2	20,250	m2
Site Laydown Area (via SA6)	1	22,500	m2	0%	0	m2	22,500	m2
Turbine Hardstand / Crane Assembly Area (via SA7)	6	17,500	m2	0%	0	m2	105,000	m2
Site Laydown Area (via SA7)	1	22,500	m2	0%	0	m2	22,500	m2
Turbine Hardstand / Crane Assembly Area (via SA8)	16	17,500	m2	0%	0	m2	280,000	m2
Batch Plant Area (via SA8)	1	31,500	m2	10%	3,150	m2	28,350	m2
Construction Compound Area (via SA8)	1	22,500	m2	10%	2,250	m2	20,250	m2
Site Laydown Area (via SA8)	1	22,500	m2	0%	0	m2	22,500	m2

Element	Composition	Unit
Aggregates & Sand	75%	%
Cement	15%	%
Steel	5%	%
Water	5%	%
Total	100%	%

Element	Qty	Unit
Internal Access Track HV Width	7.5	m
Internal Access Track HV Pavement Depth	0.4	m
Internal Access Track LV Width	5.5	m
Internal Access Track LV Pavement Depth	0.25	m
Balranald Road Stage 2 Upgrade Width	8	m
Balranald Road Stage 2 Upgrade Depth	0.15	m
Balranald Road Stage 2 Upgrade Depth (Widening)	0.4	m
Arundel Road Stage 2 Upgrade Width	8	m
Arundel Road Stage 2 Upgrade Depth	0.15	m
Arundel Road Stage 2 Upgrade Depth (Widening)	0.4	m
Substation / Switching Station Area Slab Concrete Depth	0.25	m
BESS Area Slab Concrete Depth	0.25	m
Batch Plant Area Slab Concrete Depth	0.2	m
Construction Compound Area Slab Concrete Depth	0.2	m
Operations and Maintenance Facility Slab Concrete Depth	0.2	m
Substation / Switching Station Area Gravel Depth	0.2	m
BESS Area Gravel Depth	0.2	m
Turbine Hardstand / Crane Assembly Area Gravel Depth	0.25	m
Batch Plant Area Gravel Depth	0.2	m
Construction Compound Area Gravel Depth	0.2	m
Operations and Maintenance Facility Gravel Depth	0.2	m
Site Laydown Area Gravel Depth	0.2	m
Concrete Sand/Aggregates Mass	1.8	t/m3
Concrete Cement Mass	1.51	t/m3
Concrete Steel Mass	7.8	t/m3
Concrete Water Mass	1	t/m3
Wet Concrete Mass	2.5	t/m3
Power Line Length per Roll / Drum	250	m
Power Line Mass per Roll / Drum	2.925	tonnes
Spacing Overhead Power Poles	100	m
Underground Powerline Trench Width	0.4	m
Underground Powerline Bedding Sand Depth	0.3	m

Element	Task	Qty per Turbine	Unit	Stage 1 Qty	Stg 1 Transp. Qty	Vehicle Type	Vehicle Capacity	Movements
Concrete volume in turbine footings	1D	800	m ³	52,800				
Concrete aggregates for turbine footings	1D	600	m ³	39,600	39,600	Truck Trailer	20	1,980
Reinforcing steel for turbine footings	1D	40	m ³	2,640	2,640	Semi	3.4	777
Other concrete supplies for turbine footings	1D	120	m ³	7,920	7,920	Semi	17.5	451
Water for turbine footings concrete	1D	40	m ³	2,640	2,640	Semi Water Truck	26.5	100
Wet concrete for turbine footings	1D	1,920	tonnes	126,720	126,720	Concrete Truck	14.4	8,800
Turbine Blades	3A	3	each	198	198	Special	1	198
Turbine Nacelles	3A	1	each	66	66	Special	1	66
Turbine Drive Trains	3A	1	each	66	66	Special	1	66
Turbine Hub & Nose Cone	3A	1	each	66	66	Special	1	66
Tower Sections	3A	7	each	462	462	Special	1	462
Tower Base Rings	3A	0.35	each	23	23	Semi	1	23
Tower Assembly Components	3A	1	each	66	66	Semi	1	66
Escorting LV	3B	26	each	1,716	1,716	LV	1	1,716
Transformer (via SA1)	2B	-	each	1	1	Special	1	1
Switchroom (via SA1)	2B	-	each	1	1	Special	1	1
Transformer (via SA4)	2B	-	each	1	1	Special	1	1
Switchroom (via SA4)	2B	-	each	1	1	Special	1	1
Transformer (via SA6)	2B	-	each	1	1	Special	1	1
Switchroom (via SA6)	2B	-	each	1	1	Special	1	1
Site Crane (Turbines)	3B	-	each	2	2	Special / Crane	1	2
Secondary Crane	3B	-	each	1	1	Crane / Semi	1	1
Performance Monitoring Masts (via SA8)	3A	-	each	1	1	Semi	0.4	3
Electrical Components (via SA1 - Switching Station)	2B	-	each	50	50	Semi	1	50
Electrical Components (via SA4 - Substation)	2B	-	each	100	100	Semi	1	100
Electrical Components (via SA4 - BESS)	2B	-	each	100	100	Semi	1	100
Electrical Components (via SA6 - Switching Station)	2B	-	each	50	50	Semi	1	50
						Total		15,083

[illegible]

Demobilisation / Commissioning

Element	Task	Qty per Area	Unit	Site Qty	Site Transport Qty	Vehicle Type	Vehicle Capacity	Movements
Construction Demobilisation - Ancillary Equipment (via SA1)	4	25	each	25	25	Semi / Low Loader	1	25
Construction Demobilisation - Ancillary Equipment (via SA4)	4	25	each	25	25	Semi / Low Loader	1	25
Construction Demobilisation - Ancillary Equipment (via SA6)	4	25	each	25	25	Semi / Low Loader	1	25
Construction Demobilisation - Ancillary Equipment (via SA7)	4	25	each	25	25	Semi / Low Loader	1	25
Construction Demobilisation - Ancillary Equipment (via SA8)	4	25	each	25	25	Semi / Low Loader	1	25
Construction Demobilisation - EW Plant (via SA1)	4	20	each	20	20	Semi / Low Loader	1	20
Construction Demobilisation - EW Plant (via SA4)	4	20	each	20	20	Semi / Low Loader	1	20
Construction Demobilisation - EW Plant (via SA6)	4	20	each	20	20	Semi / Low Loader	1	20
Construction Demobilisation - EW Plant (via SA7)	4	20	each	20	20	Semi / Low Loader	1	20
Construction Demobilisation - EW Plant (via SA8)	4	20	each	20	20	Semi / Low Loader	1	20
Construction Compound Decommissioning (via SA1)	4	25	each	25	25	Semi / Low Loader	1	25
Batch Plant Area Decommissioning (via SA1)	4	25	each	25	25	Semi / Low Loader	1	25
Construction Compound Decommissioning (via SA4)	4	25	each	25	25	Semi / Low Loader	1	25
Construction Compound Decommissioning (via SA6)	4	25	each	25	25	Semi / Low Loader	1	25
Batch Plant Area Decommissioning (via SA6)	4	25	each	25	25	Semi / Low Loader	1	25
Construction Compound Decommissioning (via SA8)	4	25	each	25	25	Semi / Low Loader	1	25
Batch Plant Area Decommissioning (via SA8)	4	25	each	25	25	Semi / Low Loader	1	25
							Total	400

Construction Materials

Element	Task	Qty per Unit	Unit	Volume (m3)	Site Qty (tonnes)	Site Transport Qty (tonnes)	Vehicle Type	Vehicle Capacity (tonnes)	Movements
Switching Station (SA1) Slab Wet Concrete	1C	2.5	t/m3	1,988	4,969	4,969	Concrete Truck	14.4	346
Switching Station (SA1) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	1,491	2,683	2,683	Truck Trailer	36	75
Switching Station (SA1) Slab Cement	1C	1.51	t/m3	298	450	450	Semi	26.5	17
Switching Station (SA1) Slab Reinforcing Steel	1C	7.8	t/m3	99	775	775	Semi	26.5	30
Switching Station (SA1) Slab Water	1C	1	t/m3	99	99	99	Semi Water Truck	26.5	4
Batch Plant (SA1) Slab Wet Concrete	1C	2.5	t/m3	610	1,525	1,525	Concrete Truck	14.4	106
Batch Plant (SA1) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	458	824	824	Truck Trailer	36	23
Batch Plant (SA1) Slab Cement	1C	1.51	t/m3	92	138	138	Semi	26.5	6
Batch Plant (SA1) Slab Reinforcing Steel	1C	7.8	t/m3	31	238	238	Semi	26.5	9
Batch Plant (SA1) Slab Water	1C	1	t/m3	31	31	31	Semi Water Truck	26.5	2
Construction Compound (SA1) Slab Wet Concrete	1C	2.5	t/m3	450	1,125	1,125	Concrete Truck	14.4	79
Construction Compound (SA1) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	338	608	608	Truck Trailer	36	17
Construction Compound (SA1) Slab Cement	1C	1.51	t/m3	68	102	102	Semi	26.5	4
Construction Compound (SA1) Slab Reinforcing Steel	1C	7.8	t/m3	23	176	176	Semi	26.5	7
Construction Compound (SA1) Slab Water	1C	1	t/m3	23	23	23	Semi Water Truck	26.5	1
Substation (SA4) Slab Wet Concrete	1C	2.5	t/m3	2,538	6,344	6,344	Concrete Truck	14.4	441
Substation (SA4) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	1,903	3,426	3,426	Truck Trailer	36	96
Substation (SA4) Slab Cement	1C	1.51	t/m3	381	575	575	Semi	26.5	22
Substation (SA4) Slab Reinforcing Steel	1C	7.8	t/m3	127	990	990	Semi	26.5	38
Substation (SA4) Slab Water	1C	1	t/m3	127	127	127	Semi Water Truck	26.5	5
BESS (SA4) Slab Wet Concrete	1C	2.5	t/m3	1,600	4,000	4,000	Concrete Truck	14.4	278
BESS (SA4) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	1,200	2,160	2,160	Truck Trailer	36	60
BESS (SA4) Slab Cement	1C	1.51	t/m3	240	362	362	Semi	26.5	14
BESS (SA4) Slab Reinforcing Steel	1C	7.8	t/m3	80	624	624	Semi	26.5	24
BESS (SA4) Slab Water	1C	1	t/m3	80	80	80	Semi Water Truck	26.5	4
Construction Compound (SA4) Slab Wet Concrete	1C	2.5	t/m3	450	1,125	1,125	Concrete Truck	14.4	79
Construction Compound (SA4) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	338	608	608	Truck Trailer	36	17
Construction Compound (SA4) Slab Cement	1C	1.51	t/m3	68	102	102	Semi	26.5	4
Construction Compound (SA4) Slab Reinforcing Steel	1C	7.8	t/m3	23	176	176	Semi	26.5	7
Construction Compound (SA4) Slab Water	1C	1	t/m3	23	23	23	Semi Water Truck	26.5	1
Operational and Maintenance Facility (SA4) Slab Wet Concrete	1C	2.5	t/m3	500	1,250	1,250	Concrete Truck	14.4	87
Operational and Maintenance Facility (SA4) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	375	675	675	Truck Trailer	36	19
Operational and Maintenance Facility (SA4) Slab Cement	1C	1.51	t/m3	75	113	113	Semi	26.5	5
Operational and Maintenance Facility (SA4) Slab Reinforcing Steel	1C	7.8	t/m3	25	195	195	Semi	26.5	8
Operational and Maintenance Facility (SA4) Slab Water	1C	1	t/m3	25	25	25	Semi Water Truck	26.5	1
Switching Station (SA6) Slab Wet Concrete	1C	2.5	t/m3	1,988	4,969	4,969	Concrete Truck	14.4	346
Switching Station (SA6) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	1,491	2,683	2,683	Truck Trailer	36	75
Switching Station (SA6) Slab Cement	1C	1.51	t/m3	298	450	450	Semi	26.5	17
Switching Station (SA6) Slab Reinforcing Steel	1C	7.8	t/m3	99	775	775	Semi	26.5	30
Switching Station (SA6) Slab Water	1C	1	t/m3	99	99	99	Semi Water Truck	26.5	4
Batch Plant (SA6) Slab Wet Concrete	1C	2.5	t/m3	636	1,590	1,590	Concrete Truck	14.4	111
Batch Plant (SA6) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	477	859	859	Truck Trailer	36	24
Batch Plant (SA6) Slab Cement	1C	1.51	t/m3	95	144	144	Semi	26.5	6
Batch Plant (SA6) Slab Reinforcing Steel	1C	7.8	t/m3	32	248	248	Semi	26.5	10
Batch Plant (SA6) Slab Water	1C	1	t/m3	32	32	32	Semi Water Truck	26.5	2
Construction Compound (SA6) Slab Wet Concrete	1C	2.5	t/m3	450	1,125	1,125	Concrete Truck	14.4	79
Construction Compound (SA6) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	338	608	608	Truck Trailer	36	17
Construction Compound (SA6) Slab Cement	1C	1.51	t/m3	68	102	102	Semi	26.5	4
Construction Compound (SA6) Slab Reinforcing Steel	1C	7.8	t/m3	23	176	176	Semi	26.5	7
Construction Compound (SA6) Slab Water	1C	1	t/m3	23	23	23	Semi Water Truck	26.5	1
Batch Plant (SA8) Slab Wet Concrete	1C	2.5	t/m3	630	1,575	1,575	Concrete Truck	14.4	110
Batch Plant (SA8) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	473	851	851	Truck Trailer	36	24
Batch Plant (SA8) Slab Cement	1C	1.51	t/m3	95	143	143	Semi	26.5	6
Batch Plant (SA8) Slab Reinforcing Steel	1C	7.8	t/m3	32	246	246	Semi	26.5	10
Batch Plant (SA8) Slab Water	1C	1	t/m3	32	32	32	Semi Water Truck	26.5	2
Construction Compound (SA8) Slab Wet Concrete	1C	2.5	t/m3	450	1,125	1,125	Concrete Truck	14.4	79
Construction Compound (SA8) Slab Concrete Sand/Aggregates	1C	1.8	t/m3	338	608	608	Truck Trailer	36	17
Construction Compound (SA8) Slab Cement	1C	1.51	t/m3	68	102	102	Semi	26.5	4
Construction Compound (SA8) Slab Reinforcing Steel	1C	7.8	t/m3	23	176	176	Semi	26.5	7
Construction Compound (SA8) Slab Water	1C	1	t/m3	23	23	23	Semi Water Truck	26.5	1
Internal Access Track (HV) Gravel Pavement Materials (via SA1)	1B	1.8	t/m3	81,507	146,713	146,713	Truck Trailer	36	4,076
Internal Access Track (HV) Gravel Pavement Materials (via SA4)	1B	1.8	t/m3	309	556	556	Truck Trailer	36	16
Internal Access Track (HV) Gravel Pavement Materials (via SA6)	1B	1.8	t/m3	51,786	93,215	93,215	Truck Trailer	36	2,590
Internal Access Track (HV) Gravel Pavement Materials (via SA7)	1B	1.8	t/m3	20,235	36,423	36,423	Truck Trailer	36	1,012
Internal Access Track (HV) Gravel Pavement Materials (via SA8)	1B	1.8	t/m3	37,893	68,207	68,207	Truck Trailer	36	1,895
Internal Access Track (LV) Gravel Pavement Materials (via SA8)	1B	1.8	t/m3	535	963	963	Truck Trailer	36	27
Balranald / Arundel Intersection Upgrade Pavement Materials (Stage 2)	1B	1.8	t/m3	750	1,350	1,350	Truck Trailer	36	38
Site Access SA1 Upgrade Pavement Materials (Stage 2)	1B	1.8	t/m3	500	900	900	Truck Trailer	36	25
Site Access SA4 Upgrade Pavement Materials (Stage 2)	1B	1.8	t/m3	500	900	900	Truck Trailer	36	25
Site Access SA6 Upgrade Pavement Materials (Stage 2)	1B	1.8	t/m3	500	900	900	Truck Trailer	36	25
Site Access SA7 Upgrade Pavement Materials (Stage 2)	1B	1.8	t/m3	500	900	900	Truck Trailer	36	25
Site Access SA8 Upgrade Pavement Materials (Stage 2)	1B	1.8	t/m3	500	900	900	Truck Trailer	36	25
Balranald Road Upgrade Gravel Pavement (Stage 2 - SA5 to SA6)	1B	1.8	t/m3	7,495	13,490	13,490	Truck Trailer	36	375
Balranald Road Upgrade Gravel Pavement (Stage 2 - SA6 to SA7)	1B	1.8	t/m3	1,938	3,488	3,488	Truck Trailer	36	97
Balranald Road Upgrade Gravel Pavement (Stage 2 - SA7 to SA8)	1B	1.8	t/m3	3,822	6,880	6,880	Truck Trailer	36	192
Arundel Road Upgrade Gravel Pavement (Stage 2 - Balranald Rd to SA4)	1B	1.8	t/m3	1,562	2,812	2,812	Truck Trailer	36	79
Turbine Hardstand Area Gravel (via SA1)	1B	1.8	t/m3	118,125	212,625	212,625	Truck Trailer	36	5,907
Turbine Hardstand Area Gravel (via SA6)	1B	1.8	t/m3	74,375	133,875	133,875	Truck Trailer	36	3,719
Turbine Hardstand Area Gravel (via SA7)	1B	1.8	t/m3	26,250	47,250	47,250	Truck Trailer	36	1,313
Turbine Hardstand Area Gravel (via SA8)	1B	1.8	t/m3	70,000	126,000	126,000	Truck Trailer	36	3,500
Culverts/Pipes (via SA1)	1B				27	27	Semi	1	28
Culverts/Pipes (via SA4)	1B				1	1	Semi	1	1
Culverts/Pipes (via SA6)	1B				17	17	Semi	1	17
Culverts/Pipes (via SA7)	1B				7	7	Semi	1	7
Culverts/Pipes (via SA8)	1B				13	13	Semi	1	13

Element	Task	Qty per Unit	Unit	Volume (m3)	Site Qty (tonnes)	Site Transpnt Qty (tonnes)	Vehicle Type	Vehicle Capacity (tonnes)	Movements
Switching Station Area Gravel (via SA1)	1C	1.8	t/m3	6,360	11,448	11,448	Truck Trailer	36	318
Batch Plant Area Gravel (via SA1)	1C	1.8	t/m3	5,490	9,882	9,882	Truck Trailer	36	275
Site Construction Compound Gravel (via SA1)	1C	1.8	t/m3	4,050	7,290	7,290	Truck Trailer	36	203
Site Laydown Area Gravel (via SA1)	1C	1.8	t/m3	4,500	8,100	8,100	Truck Trailer	36	225
Substation Area Gravel (via SA4)	1C	1.8	t/m3	8,120	14,616	14,616	Truck Trailer	36	406
Battery Storage Area Gravel (via SA4)	1C	1.8	t/m3	5,120	9,216	9,216	Truck Trailer	36	256
Site Construction Compound Gravel (via SA4)	1C	1.8	t/m3	4,050	7,290	7,290	Truck Trailer	36	203
Operational and Maintenance Facility Area Gravel (via SA4)	1C	1.8	t/m3	4,500	8,100	8,100	Truck Trailer	36	225
Switching Station Area Gravel (via SA6)	1C	1.8	t/m3	6,360	11,448	11,448	Truck Trailer	36	318
Batch Plant Area Gravel (via SA6)	1C	1.8	t/m3	5,724	10,303	10,303	Truck Trailer	36	287
Site Construction Compound Gravel (via SA6)	1C	1.8	t/m3	4,050	7,290	7,290	Truck Trailer	36	203
Site Laydown Area Gravel (via SA6)	1C	1.8	t/m3	4,500	8,100	8,100	Truck Trailer	36	225
Site Laydown Area Gravel (via SA7)	1C	1.8	t/m3	4,500	8,100	8,100	Truck Trailer	36	225
Batch Plant Area Gravel (via SA8)	1C	1.8	t/m3	5,670	10,206	10,206	Truck Trailer	36	284
Site Construction Compound Gravel (via SA8)	1C	1.8	t/m3	4,050	7,290	7,290	Truck Trailer	36	203
Site Laydown Area Gravel (via SA8)	1C	1.8	t/m3	4,500	8,100	8,100	Truck Trailer	36	225
Formwork (via SA1)	1D	1	turbine		27	27	Semi	1	27
Formwork (via SA6)	1D	1	turbine		17	17	Semi	1	17
Formwork (via SA7)	1D	1	turbine		6	6	Semi	1	6
Formwork (via SA8)	1D	1	turbine		16	16	Semi	1	16
Geomembrane (via SA1)	1D	2	turbine		54	54	Semi	1	54
Geomembrane (via SA6)	1D	2	turbine		34	34	Semi	1	34
Geomembrane (via SA7)	1D	2	turbine		12	12	Semi	1	12
Geomembrane (via SA8)	1D	2	turbine		32	32	Semi	1	32
Underground Powerline Cable (via SA1)	2A				670	670	Semi	26.5	26
Underground Powerline Bedding Sand (via SA1)	2A	1.8	t/m3	6,875	12,375	12,375	Truck Trailer	36	344
Overhead Powerline Cable (via SA1)	2A				188	188	Semi	26.5	8
Overhead Powerline Poles (via SA1)	2A				40	40	Semi	20	3
Underground Powerline Cable (via SA4)	2A				33	33	Semi	26.5	2
Underground Powerline Bedding Sand (via SA4)	2A	1.8	t/m3	341	614	614	Truck Trailer	36	18
Overhead Powerline Cable (via SA4)	2A				37	37	Semi	26.5	2
Overhead Powerline Poles (via SA4)	2A				8	8	Semi	20	1
Underground Powerline Cable (via SA6)	2A				462	462	Semi	26.5	18
Underground Powerline Bedding Sand (via SA6)	2A	1.8	t/m3	4,741	8,534	8,534	Truck Trailer	36	238
Overhead Powerline Cable (via SA6)	2A				381	381	Semi	26.5	15
Overhead Powerline Poles (via SA6)	2A				81	81	Semi	20	5
Underground Powerline Cable (via SA7)	2A				85	85	Semi	26.5	4
Underground Powerline Bedding Sand (via SA7)	2A	1.8	t/m3	877	1,578	1,578	Truck Trailer	36	44
Underground Powerline Cable (via SA8)	2A				229	229	Semi	26.5	9
Underground Powerline Bedding Sand (via SA8)	2A	1.8	t/m3	2,353	4,235	4,235	Truck Trailer	36	118
Site Water (via SA1)	W	1	t/m3	43,200	43,200	43,200	Semi Water Truck	26.5	1,631
Site Water (via SA4)	W	1	t/m3	5,000	5,000	5,000	Semi Water Truck	26.5	189
Site Water (via SA6)	W	1	t/m3	27,200	27,200	27,200	Semi Water Truck	26.5	1,027
Site Water (via SA7)	W	1	t/m3	9,600	9,600	9,600	Semi Water Truck	26.5	363
Site Water (via SA8)	W	1	t/m3	25,600	25,600	25,600	Semi Water Truck	26.5	967
Fuel (via SA1)	F				2,700	2,700	Semi Tanker	26.5	102
Fuel (via SA4)	F				300	300	Semi Tanker	26.5	12
Fuel (via SA6)	F				1,700	1,700	Semi Tanker	26.5	65
Fuel (via SA7)	F				600	600	Semi Tanker	26.5	23
Fuel (via SA8)	F				1,600	1,600	Semi Tanker	26.5	61
								Total	37,531

UMW0122-006 | Junction Rivers Wind Farm
Stage 2 Site Vehicle Movement Summary

Assumed Work Days per Month24days

TASK 1A - MOBILISATION AND ESTABLISHMENT

Task Transport Duration2monthA

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Construction Mobilisation - Ancilliary Equipment (via SA1)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Construction Mobilisation - Ancilliary Equipment (via SA4)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Construction Mobilisation - Ancilliary Equipment (via SA6)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Construction Mobilisation - Ancilliary Equipment (via SA7)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA7
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7
Construction Mobilisation - Ancilliary Equipment (via SA8)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8
Construction Mobilisation - EW Plant (via SA1)	20	Semi / Low Loader	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
Construction Mobilisation - EW Plant (via SA4)	20	Semi / Low Loader	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
Construction Mobilisation - EW Plant (via SA6)	20	Semi / Low Loader	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA7
Construction Mobilisation - EW Plant (via SA7)	20	Semi / Low Loader	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
Construction Mobilisation - EW Plant (via SA8)	20	Semi / Low Loader	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
Construction Compound Establishment & Buildings (via SA1)	25	Semi / Low Loader	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
Batch Plant Area Establishment (via SA1)	25	Semi / Low Loader	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
Construction Compound Establishment & Buildings (via SA4)	25	Semi / Low Loader	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
Batch Plant Area Establishment (via SA6)	25	Semi / Low Loader	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
Construction Compound Establishment & Buildings (via SA6)	25	Semi / Low Loader	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
Batch Plant Area Establishment (via SA8)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8
Construction Compound Establishment & Buildings (via SA8)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	200	100	5
Sturt Highway (Balranald to Yanga Way)	200	100	5
Yanga Way (Sturt Highway to Balranald Road)	200	100	5
Balranald Road (Yanga Way to Arundel Road)	305	152.5	7
Balranald Road (Arundel Road to SA5)	235	117.5	5
Balranald Road (SA5 to SA6)	235	117.5	5
Balranald Road (SA6 to SA7)	140	70	3
Balranald Road (SA7 to SA8)	95	47.5	2
Arundel Road (Balranald Road to SA4)	70	35	2
Yanga Way (Balranald Road to SA1)	200	100	5
Yanga Way (SA1 to Stony Crossing Road)	200	100	5
Stony Crossing Road (Yanga Way to Swan Hill Road)	200	100	5
Swan Hill Road (Stony Crossing Road to Swan Hill)	200	100	5
Murray River Highway (Swan Hill to Lake Boga)	0	0	0

TASK 1B - ACCESS ROADS, HARDSTANDS & SITE ENTRANCES

Task Transport Duration (Internal Tracks / Hardstands)	18	months	A
Task Transport Duration (Intersection Upgrades)	3	months	B
Task Transport Duration (Road Upgrades)	9	months	C

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route	
Internal Access Track (HV) Gravel Pavement Materials (via SA1)	4,076	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1	A
Internal Access Track (HV) Gravel Pavement Materials (via SA4)	16	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4	A
Internal Access Track (HV) Gravel Pavement Materials (via SA6)	2,590	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6	A
Internal Access Track (HV) Gravel Pavement Materials (via SA7)	1,012	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7	A
Internal Access Track (HV) Gravel Pavement Materials (via SA8)	1,895	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8	A
Internal Access Track (LV) Gravel Pavement Materials (via SA8)	27	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8	A
Balranald / Arundel Intersection Upgrade Pavement Materials (Stage 2)	38	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road	B
Site Access SA1 Upgrade Pavement Materials (Stage 2)	25	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1	B
Site Access SA4 Upgrade Pavement Materials (Stage 2)	25	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4	B
Site Access SA6 Upgrade Pavement Materials (Stage 2)	25	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6	B
Site Access SA7 Upgrade Pavement Materials (Stage 2)	25	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7	B
Site Access SA8 Upgrade Pavement Materials (Stage 2)	25	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8	B
Balranald Road Upgrade Gravel Pavement (Stage 2 - SA5 to SA6)	375	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6	C
Balranald Road Upgrade Gravel Pavement (Stage 2 - SA6 to SA7)	97	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7	C
Balranald Road Upgrade Gravel Pavement (Stage 2 - SA7 to SA8)	192	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8	C
Arundel Road Upgrade Gravel Pavement (Stage 2 - Balranald Rd to SA4)	79	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4	C
Turbine Hardstand Area Gravel (via SA1)	5,907	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1	A
Turbine Hardstand Area Gravel (via SA6)	3,719	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6	A
Turbine Hardstand Area Gravel (via SA7)	1,313	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7	A
Turbine Hardstand Area Gravel (via SA8)	3,500	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8	A
Culverts/Pipes (via SA1)	28	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1	A
Culverts/Pipes (via SA4)	1	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4	A
Culverts/Pipes (via SA6)	18	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6	A
Culverts/Pipes (via SA7)	7	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA7	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7	A
Culverts/Pipes (via SA8)	13	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8	A

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	34	2	1
Sturt Highway (Balranald to Yanga Way)	34	2	1
Yanga Way (Sturt Highway to Balranald Road)	34	2	1
Balranald Road (Yanga Way to Arundel Road)	14,992	913	39
Balranald Road (Arundel Road to SA5)	14,833	882	37
Balranald Road (SA5 to SA6)	14,458	840	36
Balranald Road (SA6 to SA7)	8,106	480	21
Balranald Road (SA7 to SA8)	5,652	332	14
Arundel Road (Balranald Road to SA4)	121	18	1
Yanga Way (Balranald Road to SA1)	14,987	912	39
Yanga Way (SA1 to Stony Crossing Road)	24,995	1,475	62
Stony Crossing Road (Yanga Way to Swan Hill Road)	24,995	1,475	62
Swan Hill Road (Stony Crossing Road to Swan Hill)	24,995	1,475	62
Murray River Highway (Swan Hill to Lake Boga)	24,961	1,473	62

TASK 1C - SITE COMPOUND AREAS (CIVIL WORKS)

Task Transport Duration (Site Compound Areas Civil Works)

A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Switching Station (SA1) Slab Wet Concrete	346	Concrete Truck	100%	SA1 Batch Plant	Internal
Switching Station (SA1) Slab Concrete Sand/Aggregates	75	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Switching Station (SA1) Slab Cement	17	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
Switching Station (SA1) Slab Reinforcing Steel	30	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Switching Station (SA1) Slab Water	4	Semi Water Truck	100%	Balranald	Balranald - Sturt Hwy - Yanga Way - Balranald Road - SA1
Batch Plant (SA1) Slab Wet Concrete	106	Concrete Truck	100%	SA1 Batch Plant	Internal
Batch Plant (SA1) Slab Concrete Sand/Aggregates	23	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Batch Plant (SA1) Slab Cement	6	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
Batch Plant (SA1) Slab Reinforcing Steel	9	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Batch Plant (SA1) Slab Water	2	Semi Water Truck	100%	Balranald	Balranald - Sturt Hwy - Yanga Way - Balranald Road - SA1
			100%	SA1 Batch Plant	Internal
Construction Compound (SA1) Slab Wet Concrete	79	Concrete Truck	100%	SA1 Batch Plant	Internal
Construction Compound (SA1) Slab Concrete Sand/Aggregates	17	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Construction Compound (SA1) Slab Cement	4	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
Construction Compound (SA1) Slab Reinforcing Steel	7	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Construction Compound (SA1) Slab Water	1	Semi Water Truck	100%	Balranald	Balranald - Sturt Hwy - Yanga Way - Balranald Road - SA1
Substation (SA4) Slab Wet Concrete	441	Concrete Truck	100%	SA6 Batch Plant	SA6 - Balranald Road - Arundel Road - SA4
Substation (SA4) Slab Concrete Sand/Aggregates	96	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Substation (SA4) Slab Cement	22	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Substation (SA4) Slab Reinforcing Steel	38	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Substation (SA4) Slab Water	5	Semi Water Truck	100%	Balranald	Balranald - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
BESS (SA4) Slab Wet Concrete	278	Concrete Truck	100%	SA6 Batch Plant	SA6 - Balranald Road - Arundel Road - SA4
BESS (SA4) Slab Concrete Sand/Aggregates	60	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
BESS (SA4) Slab Cement	14	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
BESS (SA4) Slab Reinforcing Steel	24	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
BESS (SA4) Slab Water	4	Semi Water Truck	100%	Balranald	Balranald - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
Construction Compound (SA4) Slab Wet Concrete	79	Concrete Truck	100%	SA6 Batch Plant	SA6 - Balranald Road - Arundel Road - SA4
Construction Compound (SA4) Slab Concrete Sand/Aggregates	17	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Construction Compound (SA4) Slab Cement	4	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
Construction Compound (SA4) Slab Reinforcing Steel	7	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Construction Compound (SA4) Slab Water	1	Semi Water Truck	100%	Balranald	Balranald - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
Operational and Maintenance Facility (SA4) Slab Wet Concrete	87	Concrete Truck	100%	SA6 Batch Plant	SA6 - Balranald Road - Arundel Road - SA4
Operational and Maintenance Facility (SA4) Slab Concrete Sand/Aggregates	19	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Operational and Maintenance Facility (SA4) Slab Cement	5	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Operational and Maintenance Facility (SA4) Slab Reinforcing Steel	8	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Operational and Maintenance Facility (SA4) Slab Water	1	Semi Water Truck	100%	Balranald	Balranald - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
Switching Station (SA6) Slab Wet Concrete	346	Concrete Truck	100%	SA6 Batch Plant	Internal
Switching Station (SA6) Slab Concrete Sand/Aggregates	75	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Switching Station (SA6) Slab Cement	17	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
Switching Station (SA6) Slab Reinforcing Steel	30	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Switching Station (SA6) Slab Water	4	Semi Water Truck	100%	Balranald	Balranald - Sturt Hwy - Yanga Way - Balranald Road - SA6
Batch Plant (SA6) Slab Wet Concrete	111	Concrete Truck	100%	SA6 Batch Plant	Internal
Batch Plant (SA6) Slab Concrete Sand/Aggregates	24	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Batch Plant (SA6) Slab Cement	6	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
Batch Plant (SA6) Slab Reinforcing Steel	10	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Batch Plant (SA6) Slab Water	2	Semi Water Truck	100%	Balranald	Balranald - Sturt Hwy - Yanga Way - Balranald Road - SA6
Construction Compound (SA6) Slab Wet Concrete	79	Concrete Truck	100%	SA6 Batch Plant	Internal
Construction Compound (SA6) Slab Concrete Sand/Aggregates	17	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Construction Compound (SA6) Slab Cement	4	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
Construction Compound (SA6) Slab Reinforcing Steel	7	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Construction Compound (SA6) Slab Water	1	Semi Water Truck	100%	Balranald	Balranald - Sturt Hwy - Yanga Way - Balranald Road - SA6
Batch Plant (SA8) Slab Wet Concrete	110	Concrete Truck	100%	SA8 Batch Plant	Internal
Batch Plant (SA8) Slab Concrete Sand/Aggregates	24	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8
Batch Plant (SA8) Slab Cement	6	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
Batch Plant (SA8) Slab Reinforcing Steel	10	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8
Batch Plant (SA8) Slab Water	2	Semi Water Truck	100%	Balranald	Balranald - Sturt Hwy - Yanga Way - Balranald Road - SA8

Construction Compound (SA8) Slab Wet Concrete	79	Concrete Truck	100%	SA8 Batch Plant	Internal	A
Construction Compound (SA8) Slab Concrete Sand/Aggregates	17	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8	A
Construction Compound (SA8) Slab Cement	4	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8	A
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8	A
			50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8	A
Construction Compound (SA8) Slab Reinforcing Steel	7	Semi	50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8	A
			50%	Balranald	Balranald - Sturt Hwy - Yanga Way - Balranald Road - SA8	A
			100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1	A
Switching Station Area Gravel (via SA1)	318	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1	A
Batch Plant Area Gravel (via SA1)	275	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1	A
Site Construction Compound Gravel (via SA1)	203	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1	A
Site Laydown Area Gravel (via SA1)	225	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1	A
Substation Area Gravel (via SA4)	406	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4	A
Battery Storage Area Gravel (via SA4)	256	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4	A
Site Construction Compound Gravel (via SA4)	203	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4	A
Operational and Maintenance Facility Area Gravel (via SA4)	225	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4	A
Switching Station Area Gravel (via SA6)	318	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6	A
Batch Plant Area Gravel (via SA6)	287	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6	A
Site Construction Compound Gravel (via SA6)	203	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6	A
Site Laydown Area Gravel (via SA6)	225	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6	A
Site Laydown Area Gravel (via SA7)	225	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7	A
Batch Plant Area Gravel (via SA8)	284	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8	A
Site Construction Compound Gravel (via SA8)	203	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8	A
Site Laydown Area Gravel (via SA8)	225	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8	A

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	148	17	1
Sturt Highway (Balranald to Yanga Way)	176	20	1
Yanga Way (Sturt Highway to Balranald Road)	176	20	1
Balranald Road (Yanga Way to Arundel Road)	4,260	474	20
Balranald Road (Arundel Road to SA5)	2,238	249	11
Balranald Road (SA5 to SA6)	2,238	249	11
Balranald Road (SA6 to SA7)	1,007	112	5
Balranald Road (SA7 to SA8)	782	87	4
Arundel Road (Balranald Road to SA4)	2,022	225	10
Yanga Way (Balranald Road to SA1)	3,521	392	17
Yanga Way (SA1 to Stony Crossing Road)	4,693	522	22
Stony Crossing Road (Yanga Way to Swan Hill Road)	4,693	522	22
Swan Hill Road (Stony Crossing Road to Swan Hill)	4,693	522	22
Murray River Highway (Swan Hill to Lake Boga)	4,545	505	22

TASK 1D - TURBINE FOUNDATIONS

Task Transport Duration (Turbine Foundations)

18

months

A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Concrete aggregates for turbine footings (SA1)	810	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA2
Reinforcing steel for turbine footings (SA1)	318	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Other concrete supplies for turbine footings (SA1)	185	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Water for turbine footings concrete (SA1)	41	Semi Water Truck	100%	Balranald	Balranald - Yanga Way -SA1
Wet concrete for turbine footings (SA1)	3,600	Concrete Truck	100%	SA1 Batch Plant	Internal
Formwork (via SA1)	27	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Geomembrane (via SA1)	54	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Concrete aggregates for turbine footings (SA6)	510	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Reinforcing steel for turbine footings (SA6)	200	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Other concrete supplies for turbine footings (SA6)	116	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Water for turbine footings concrete (SA6)	26	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA6
Wet concrete for turbine footings (SA6)	2,267	Concrete Truck	100%	SA6 Batch Plant	Internal
Formwork (via SA6)	17	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Geomembrane (via SA6)	34	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Concrete aggregates for turbine footings (SA7)	180	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7
Reinforcing steel for turbine footings (SA7)	71	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA7
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7
Other concrete supplies for turbine footings (SA7)	41	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA7
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7
Water for turbine footings concrete (SA7)	9	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA7
Wet concrete for turbine footings (SA7)	800	Concrete Truck	100%	SA8 Batch Plant	SA8 - Balranald Road - SA7
Formwork (via SA7)	6	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA7
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7
Geomembrane (via SA7)	12	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA7
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7
Concrete aggregates for turbine footings (SA8)	480	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8
Reinforcing steel for turbine footings (SA8)	188	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8
Other concrete supplies for turbine footings (SA8)	109	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8
Water for turbine footings concrete (SA8)	24	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA8
Wet concrete for turbine footings (SA8)	2,133	Concrete Truck	100%	SA8 Batch Plant	Internal
Formwork (via SA8)	16	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8
Geomembrane (via SA8)	32	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	713	40	2
Sturt Highway (Balranald to Yanga Way)	813	46	2
Yanga Way (Sturt Highway to Balranald Road)	813	46	2
Balranald Road (Yanga Way to Arundel Road)	2,072	116	5
Balranald Road (Arundel Road to SA5)	2,072	116	5
Balranald Road (SA5 to SA6)	2,072	116	5
Balranald Road (SA6 to SA7)	1,169	65	3
Balranald Road (SA7 to SA8)	850	48	2
Arundel Road (Balranald Road to SA4)	0	0	0
Yanga Way (Balranald Road to SA1)	1,924	107	5
Yanga Way (SA1 to Stony Crossing Road)	2,693	150	7
Stony Crossing Road (Yanga Way to Swan Hill Road)	2,693	150	7
Swan Hill Road (Stony Crossing Road to Swan Hill)	2,693	150	7
Murray River Highway (Swan Hill to Lake Boga)	1,980	110	5

TASK 2A - CABLING

Task Transport Duration (Cabling)

15

months

A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Underground Powerline Cable (via SA1)	26	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Underground Powerline Bedding Sand (via SA1)	344	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Overhead Powerline Cable (via SA1)	8	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Overhead Powerline Poles (via SA1)	3	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Underground Powerline Cable (via SA4)	2	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Underground Powerline Bedding Sand (via SA4)	18	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Overhead Powerline Cable (via SA4)	2	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Overhead Powerline Poles (via SA4)	1	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Underground Powerline Cable (via SA6)	18	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Underground Powerline Bedding Sand (via SA6)	238	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Overhead Powerline Cable (via SA6)	15	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Overhead Powerline Poles (via SA6)	5	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Underground Powerline Cable (via SA7)	4	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA7
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7
Underground Powerline Bedding Sand (via SA7)	44	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7
Underground Powerline Cable (via SA8)	9	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8
Underground Powerline Bedding Sand (via SA8)	118	Truck Trailer	100%	Mawsons Quarry Lake Boga	Quarry - Quarry Road - Cumnock Road - Lalbert Road - Murray Valley Highway - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	47	4	1
Sturt Highway (Balranald to Yanga Way)	47	4	1
Yanga Way (Sturt Highway to Balranald Road)	47	4	1
Balranald Road (Yanga Way to Arundel Road)	474	32	2
Balranald Road (Arundel Road to SA5)	451	31	2
Balranald Road (SA5 to SA6)	451	31	2
Balranald Road (SA6 to SA7)	175	12	1
Balranald Road (SA7 to SA8)	127	9	1
Arundel Road (Balranald Road to SA4)	31	3	1
Yanga Way (Balranald Road to SA1)	465	31	2
Yanga Way (SA1 to Stony Crossing Road)	809	54	3
Stony Crossing Road (Yanga Way to Swan Hill Road)	809	54	3
Swan Hill Road (Stony Crossing Road to Swan Hill)	809	54	3
Murray River Highway (Swan Hill to Lake Boga)	762	51	3

TASK 2B - SITE COMPOUND AREAS (ELECTRICAL WORKS)

Task Transport Duration (Electrical Area Establishment)

6

months

A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Transformer (via SA1)	1	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - SA1
Switchroom (via SA1)	1	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - SA2
Transformer (via SA4)	1	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - Arundel Road - SA4
Switchroom (via SA4)	1	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - Arundel Road - SA5
Transformer (via SA6)	1	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA6
Switchroom (via SA6)	1	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA6
Electrical Components (via SA1 - Switching Station)	50	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Electrical Components (via SA4 - Substation)	100	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Electrical Components (via SA4 - BESS)	100	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Electrical Components (via SA6 - Switching Station)	50	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Switching Station Area Establishment & Buildings (via SA1)	40	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Substation Area Establishment & Buildings (via SA4)	40	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Battery Storage Establishment (via SA4)	40	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Operations and Maintenance Facility Establishment (via SA4)	25	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Switching Station Area Establishment & Buildings (via SA6)	40	Semi	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	249	42	2
Sturt Highway (Balranald to Yanga Way)	249	42	2
Yanga Way (Sturt Highway to Balranald Road)	249	42	2
Balranald Road (Yanga Way to Arundel Road)	399	67	3
Balranald Road (Arundel Road to SA5)	92	16	1
Balranald Road (SA5 to SA6)	92	16	1
Balranald Road (SA6 to SA7)	0	0	0
Balranald Road (SA7 to SA8)	0	0	0
Arundel Road (Balranald Road to SA4)	307	52	3
Yanga Way (Balranald Road to SA1)	245	41	2
Yanga Way (SA1 to Stony Crossing Road)	243	41	2
Stony Crossing Road (Yanga Way to Swan Hill Road)	243	41	2
Swan Hill Road (Stony Crossing Road to Swan Hill)	243	41	2
Murray River Highway (Swan Hill to Lake Boga)	0	0	0

TASK 3A - TURBINE TRANSPORTATION

Proposed Turbine Transport Rate
No. Days per Week Haulage

2 turbines / week
6 days

A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Turbine Blades (SA1)	81	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Werrimul N Road - C254 - A79 - C252 - C251 - A20 (Sturt Hwy) - Yanga Way - SA1
Turbine Blades (SA6)	51	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Werrimul N Road - C254 - A79 - C252 - C251 - A20 (Sturt Hwy) - Yanga Way - Balranald Road - SA6
Turbine Blades (SA7)	18	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Werrimul N Road - C254 - A79 - C252 - C251 - A20 (Sturt Hwy) - Yanga Way - Balranald Road - SA7
Turbine Blades (SA8)	48	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Werrimul N Road - C254 - A79 - C252 - C251 - A20 (Sturt Hwy) - Yanga Way - Balranald Road - SA8
Turbine Nacelles (SA1)	27	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - SA1
Turbine Nacelles (SA6)	17	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA6
Turbine Nacelles (SA7)	6	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA7
Turbine Nacelles (SA8)	16	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA8
Turbine Drive Trains (SA1)	27	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA2
Turbine Drive Trains (SA6)	17	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA6
Turbine Drive Trains (SA7)	6	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA7
Turbine Drive Trains (SA8)	16	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA8
Turbine Hub & Nose Cone (SA1)	27	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - SA1
Turbine Hub & Nose Cone (SA6)	17	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA6
Turbine Hub & Nose Cone (SA7)	6	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA7
Turbine Hub & Nose Cone (SA8)	16	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA8
Tower Sections 1-2 (SA1)	54	Special	100%	Port Adelaide	Port Adelaide - M2 - A1 - Gawler Rd - Wilkinson Rd - Hatcher Rd - Oates Rd - Mudla Wirra Rd - College Rd - Roseworthy Rd - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - SA1
Tower Sections 1-2 (SA6)	34	Special	100%	Port Adelaide	Port Adelaide - M2 - A1 - Gawler Rd - Wilkinson Rd - Hatcher Rd - Oates Rd - Mudla Wirra Rd - College Rd - Roseworthy Rd - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA6
Tower Sections 1-2 (SA7)	12	Special	100%	Port Adelaide	Port Adelaide - M2 - A1 - Gawler Rd - Wilkinson Rd - Hatcher Rd - Oates Rd - Mudla Wirra Rd - College Rd - Roseworthy Rd - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA7
Tower Sections 1-2 (SA8)	32	Special	100%	Port Adelaide	Port Adelaide - M2 - A1 - Gawler Rd - Wilkinson Rd - Hatcher Rd - Oates Rd - Mudla Wirra Rd - College Rd - Roseworthy Rd - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA8
Tower Sections 3-7 (SA1)	135	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - SA1
Tower Sections 3-7 (SA6)	85	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA6
Tower Sections 3-7 (SA7)	30	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA7
Tower Sections 3-7 (SA8)	80	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 - Kingston Road - B55 - Stanitzki Road - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA8
Tower Base Rings (SA1)	9	Semi	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - SA1
Tower Base Rings (SA6)	6	Semi	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA6
Tower Base Rings (SA7)	2	Semi	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA7
Tower Base Rings (SA8)	6	Semi	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA8
Tower Assembly Components (SA1)	27	Semi	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA1
Tower Assembly Components (SA6)	17	Semi	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA6
Tower Assembly Components (SA7)	6	Semi	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA7
Tower Assembly Components (SA8)	16	Semi	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA8
Escorting LV (SA1)	702	LV	100%	Port Adelaide	-
Escorting LV (SA6)	442	LV	100%	Port Adelaide	-
Escorting LV (SA7)	156	LV	100%	Port Adelaide	-
Escorting LV (SA8)	416	LV	100%	Port Adelaide	-
Performance Monitoring Masts (SA8)	3	Special	100%	Port Adelaide	Port Adelaide - M2 - A20 (Sturt Highway) - Yanga Way - Balranald Road - SA8

Road Section	Total Trips	HV Trips / Week**	Max. HV Trips / Day
Sturt Highway (Euston to Balranald)	2,666	120	7
Sturt Highway (Balranald to Yanga Way)	2,666	120	7
Yanga Way (Sturt Highway to Balranald Road)	2,666	120	7
Balranald Road (Yanga Way to Arundel Road)	1,576	120	7
Balranald Road (Arundel Road to SA5)	1,576	120	7
Balranald Road (SA5 to SA6)	1,576	120	7
Balranald Road (SA6 to SA7)	890	120	7
Balranald Road (SA7 to SA8)	648	120	7
Arundel Road (Balranald Road to SA4)	0	0	7
Yanga Way (Balranald Road to SA1)	1,089	120	7
Yanga Way (SA1 to Stony Crossing Road)	0	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0	0

TASK 3B - TURBINE ERECTION

Task Transport Duration (Turbine Erection - Crane Transport)

1 month

A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Site Crane (Turbines)	8	Special / Crane	100%	Port Adelaide	Port Adelaide - WZ - A1 - Gawler Rd - Wilkinson Rd - Hatcher Rd - Oates Rd - Mudra Wina Rd - College Rd - Roseworthy Rd - A20 - Kingston Road - B55 - Stanitzki Road - A30 (Sturt Highway) - Yanga Way - SA1
Secondary Crane	1	Crane / Semi	100%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1

A

A

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Euston to Balranald)	9	9	2
Sturt Highway (Balranald to Yanga Way)	9	9	2
Yanga Way (Sturt Highway to Balranald Road)	9	9	2
Balranald Road (Yanga Way to Arundel Road)	9	9	2
Balranald Road (Arundel Road to SA5)	9	9	2
Balranald Road (SA5 to SA6)	9	9	2
Balranald Road (SA6 to SA7)	9	9	2
Balranald Road (SA7 to SA8)	9	9	2
Arundel Road (Balranald Road to SA4)	0	0	0
Yanga Way (Balranald Road to SA1)	9	9	2
Yanga Way (SA1 to Stony Crossing Road)	0	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0	0

TASK 4 - FINALISATION / COMMISSIONING / DEMOBILISATION

Task Transport Duration (Demobilisation)

5

months

A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Construction Demobilisation - Ancilliary Equipment (via SA1)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Construction Demobilisation - Ancilliary Equipment (via SA4)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Construction Demobilisation - Ancilliary Equipment (via SA6)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Construction Demobilisation - Ancilliary Equipment (via SA7)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA7
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7
Construction Demobilisation - Ancilliary Equipment (via SA8)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8
Construction Demobilisation - EW Plant (via SA1)	20	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Construction Demobilisation - EW Plant (via SA4)	20	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Construction Demobilisation - EW Plant (via SA6)	20	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Construction Demobilisation - EW Plant (via SA7)	20	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA7
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7
Construction Demobilisation - EW Plant (via SA8)	20	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8
Construction Compound Decommissioning (via SA1)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Batch Plant Area Decommissioning (via SA1)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Construction Compound Decommissioning (via SA4)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Construction Compound Decommissioning (via SA6)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Batch Plant Area Decommissioning (via SA6)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Construction Compound Decommissioning (via SA8)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8
Batch Plant Area Decommissioning (via SA8)	25	Semi / Low Loader	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	200	40	2
Sturt Highway (Balranald to Yanga Way)	200	40	2
Yanga Way (Sturt Highway to Balranald Road)	200	40	2
Balranald Road (Yanga Way to Arundel Road)	305	61	3
Balranald Road (Arundel Road to SA5)	235	47	2
Balranald Road (SA5 to SA6)	235	47	2
Balranald Road (SA6 to SA7)	140	28	2
Balranald Road (SA7 to SA8)	95	19	1
Arundel Road (Balranald Road to SA4)	70	14	1
Yanga Way (Balranald Road to SA1)	200	40	2
Yanga Way (SA1 to Stony Crossing Road)	200	40	2
Stony Crossing Road (Yanga Way to Swan Hill Road)	200	40	2
Swan Hill Road (Stony Crossing Road to Swan Hill)	200	40	2
Murray River Highway (Swan Hill to Lake Boga)	0	0	0

TASK W - SITE WATER

Task Duration (Site Water SA2 & SA3) 30 months A

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Site Water (via SA1)	1,631	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - SA1
Site Water (via SA4)	189	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - Arundel Road - SA4
Site Water (via SA6)	1,027	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA6
Site Water (via SA7)	363	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA7
Site Water (via SA8)	967	Semi Water Truck	100%	Balranald	Balranald - Yanga Way - Balranald Road - SA8

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Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	0	0	0
Sturt Highway (Balranald to Yanga Way)	4,177	140	6
Yanga Way (Sturt Highway to Balranald Road)	4,177	140	6
Balranald Road (Yanga Way to Arundel Road)	2,546	85	4
Balranald Road (Arundel Road to SA5)	2,357	79	4
Balranald Road (SA5 to SA6)	2,357	79	4
Balranald Road (SA6 to SA7)	1,330	45	2
Balranald Road (SA7 to SA8)	967	33	2
Arundel Road (Balranald Road to SA4)	189	7	1
Yanga Way (Balranald Road to SA1)	1,631	55	3
Yanga Way (SA1 to Stony Crossing Road)	0	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0	0

TASK F - SITE FUEL

Task Duration (Site Fuel SA2 & SA3) 30 months

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Fuel (via SA1)	102	Semi Tanker	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - SA1
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - SA1
Fuel (via SA4)	12	Semi Tanker	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - Arundel Road - SA4
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - Arundel Road - SA4
Fuel (via SA6)	65	Semi Tanker	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA6
Fuel (via SA7)	23	Semi Tanker	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA7
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA7
Fuel (via SA8)	61	Semi Tanker	50%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA8
			50%	Swan Hill	Swan Hill - Swan Hill Road - Stony Crossing Road - Yanga Way - Balranald Road - SA8

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	132	5	1
Sturt Highway (Balranald to Yanga Way)	132	5	1
Yanga Way (Sturt Highway to Balranald Road)	132	5	1
Balranald Road (Yanga Way to Arundel Road)	161	6	1
Balranald Road (Arundel Road to SA5)	149	5	1
Balranald Road (SA5 to SA6)	149	5	1
Balranald Road (SA6 to SA7)	84	3	1
Balranald Road (SA7 to SA8)	61	3	1
Arundel Road (Balranald Road to SA4)	12	1	1
Yanga Way (Balranald Road to SA1)	132	5	1
Yanga Way (SA1 to Stony Crossing Road)	132	5	1
Stony Crossing Road (Yanga Way to Swan Hill Road)	132	5	1
Swan Hill Road (Stony Crossing Road to Swan Hill)	132	5	1
Murray River Highway (Swan Hill to Lake Boga)	0	0	0

TASK WC - WASTE COLLECTION

Task Duration (Waste Collection SA2 & SA3) 30 months

Activity Description	Project Volume	Vehicle	Project Vol Distrib	Origin	Route
Waste Collection (via SA1)	130	Semi	100%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA2
Waste Collection (via SA4)	130	Semi	100%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA3
Waste Collection (via SA6)	130	Semi	100%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA5
Waste Collection (via SA7)	130	Semi	100%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA6
Waste Collection (via SA8)	130	Semi	100%	Mildura	Mildura - Sturt Hwy - Yanga Way - Balranald Road - SA7

Road Section	Total Trips	Trips / Month	Max. Trips / Day
Sturt Highway (Mildura to Balranald)	652	22	1
Sturt Highway (Balranald to Yanga Way)	652	22	1
Yanga Way (Sturt Highway to Balranald Road)	652	22	1
Balranald Road (Yanga Way to Arundel Road)	521	18	1
Balranald Road (Arundel Road to SA5)	391	14	1
Balranald Road (SA5 to SA6)	391	14	1
Balranald Road (SA6 to SA7)	261	9	1
Balranald Road (SA7 to SA8)	130	5	1
Arundel Road (Balranald Road to SA4)	130	5	1
Yanga Way (Balranald Road to SA1)	130	5	1
Yanga Way (SA1 to Stony Crossing Road)	0	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0	0

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Stage 2 Project Staff Movements

Project Timeframe

Element	Qty	Unit
Hours per day	12	hrs
Working days per week	6	days
Working days per month	24	days
Expected project length	30	months
Totals days	720	days

Construction Workforce

Element	Qty	Unit
Peak Workforce	350	staff
Local Workforce	80%	%
Fly In Fly Out	20%	%

Construction Workforce Distribution

Location	Distribution	Unit	Qty	Vehicle Type	% Vehicle	Staff No. per Vehicle Type	Average Vehicle Capacity	Movements Round Trip (per day)
Local Workforce								
Balranald	80%	%	224	LV	50%	112	2	56
				Bus	50%	112	15	8
Tooleybuc	5%	%	14	LV	100%	14	2	7
				Bus	0%	0	15	0
Swan Hill	15%	%	42	LV	100%	42	2	21
				Bus	0%	0	15	0
FIFO Workforce								
Balranald	100%	%	70	LV	25%	17.5	2	9
				Bus	75%	52.5	15	4
							Total	77
							Total	105

Peak @ Sturt Hwy / Yanga Way
Peak @ Yanga Way / Balranald-Moulamein Rd

Operations (to Stage 2 O&M Facility - SA4)

Element	Qty	Unit
Hours per day	12	hrs
Working days per week	7	days
Peak Workforce	15	each

Location	Distribution	Unit	Qty	Vehicle Type	Vehicle Capacity	Movements 2-way (per day)
Balranald	100%	%	15	LV	1	15
					Total	15

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Stage 2 Project Traffic Impact % Calculations

Road ID	Road Description	AADT Segment	AADT Segment		Base Data Year	Base Year AADT			Base Year HV%		Base Year HV		10 Yr GR%	2028		AADT			2028 HV	
			Start (km)	End (km)		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Gaz	A-Gaz		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz		
A20	Sturt Highway (Mildura to Euston)	98064	0.000	82.400	2007	1,023	1,047	2,070	26.7%	26.9%	273	282	2.0%	1,551	1,587	3,137	414	427		
A20	Sturt Highway (Euston to Balranald)	98064	82.400	162.100	2021	1,023	1,047	2,070	26.7%	26.9%	273	282	2.0%	1,175	1,203	2,378	314	324		
A20	Sturt Highway (Balranald to Yanga Way)	T0234	162.100	165.500	2021	483	494	977	59.0%	60.1%	285	297	2.0%	555	567	1,122	327	341		
-	Yanga Way (Sturt Highway to Balranald Road)	97488	0.000	11.800	2010	272	376	648	26.9%	27.7%	73	104	2.0%	388	537	926	104	149		
-	Yanga Way (Balranald Road to SA1)	97494	11.800	19.800	2012	283	285	568	26.9%	27.7%	76	79	2.0%	388	391	780	104	108		
-	Yanga Way (SA1 to Stony Crossing Road)	97494	19.800	36.200	2012	283	285	568	26.9%	27.7%	76	79	2.0%	388	391	780	104	108		
-	Yanga Way (Stony Crossing Road to Tooleybuc)	97207	36.200	49.100	2006	221	220	441	34.8%	34.1%	77	75	2.0%	342	340	682	119	116		
MRC	Balranald Road (Yanga Way to Arundel Road)	-	0.000	10.402	2022	25	30	55	40.0%	50.0%	10	15	2.0%	28	34	62	11	17		
MRC	Balranald Road (Arundel Road to SA5)	-	10.402	11.095	2022	25	30	55	40.0%	50.0%	10	15	2.0%	28	34	62	11	17		
MRC	Balranald Road (SA5 to SA6)	-	11.095	17.340	2022	25	30	55	40.0%	50.0%	10	15	2.0%	28	34	62	11	17		
MRC	Balranald Road (SA6 to SA7)	-	17.340	18.995	2022	25	30	55	40.0%	50.0%	10	15	2.0%	28	34	62	11	17		
MRC	Balranald Road (SA7 to SA8)	-	18.995	22.140	2022	25	30	55	40.0%	50.0%	10	15	2.0%	28	34	62	11	17		
MRC	Arundel Road (Balranald Road to SA4)	-	0.000	0.710	2022	10	10	20	40.0%	40.0%	4	4	2.0%	11	11	23	5	5		
-	Stony Crossing Road (Yanga Way to Swan Hill Road)	97206	0.000	40.900	2006	122	123	245	18.9%	26.8%	23	33	2.0%	189	190	379	36	51		
-	Swan Hill Road (Swan Hill to Stony Crossing Road)	97200	0.000	11.100	2010	342	362	704	17.0%	16.9%	58	61	2.0%	488	517	1,005	83	87		
B400	Murray River Highway (Swan Hill to Lake Boga)	-	0.000	16.000	2020	2,900	2,900	5,800	14.9%	17.7%	431	512	2.0%	3,398	3,398	6,796	505	600		

Road ID	Road Description	AADT Segment	AADT Segment		Project Traffic (Daily) - Construction																																
			Start (km)	End (km)	Gazettal													A-Gazettal													Bi-Dir						
					1A	1B	1C	1D	2A	2B	3A	3B	4	Water	Fuel	Waste	Staff	Stg 1 Op	Max	1A	1B	1C	1D	2A	2B	3A	3B	4	Water	Fuel	Waste	Staff	Stg 1 Op	Max	Total	LV	HV
A20	Sturt Highway (Mildura to Euston)	98064	0.000	82.400	5	1	1	2	1	2	7	2	2	0	1	1	0	0	10	5	1	1	2	1	2	7	2	2	0	1	1	0	0	10	20	0	20
A20	Sturt Highway (Euston to Balranald)	T0234	82.400	162.100	5	1	1	2	1	2	7	2	2	0	1	1	0	0	10	5	1	1	2	1	2	7	2	2	0	1	1	0	0	10	20	0	20
A20	Sturt Highway (Balranald to Yanga Way)	T0234	162.100	165.500	5	1	1	2	1	2	7	2	2	6	1	1	77	15	108	5	1	1	2	1	2	7	2	2	6	1	1	77	15	108	216	184	32
-	Yanga Way (Sturt Highway to Balranald Road)	97488	0.000	11.800	5	1	1	2	1	2	7	2	2	6	1	1	77	15	108	5	1	1	2	1	2	7	2	2	6	1	1	77	15	108	216	184	32
-	Yanga Way (Balranald Road to SA1)	97494	11.800	19.800	5	39	17	5	2	2	7	2	2	3	1	1	28	0	83	5	39	17	5	2	2	7	2	2	3	1	1	28	0	83	166	56	110
-	Yanga Way (SA1 to Stony Crossing Road)	97494	19.800	36.200	5	62	22	7	3	2	0	0	2	0	1	0	28	0	103	5	62	22	7	3	2	0	0	2	0	1	0	28	0	103	206	56	150
-	Yanga Way (Stony Crossing Road to Tooleybuc)	97207	36.200	49.100	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	14	14	0
MRC	Balranald Road (Yanga Way to Arundel Road)	-	0.000	10.402	7	39	20	5	2	3	7	2	3	4	1	1	105	15	177	7	39	20	5	2	3	7	2	3	4	1	1	105	15	177	354	240	114
MRC	Balranald Road (Arundel Road to SA5)	-	10.402	11.095	5	37	11	5	2	1	7	2	2	4	1	1	105	0	158	5	37	11	5	2	1	7	2	2	4	1	1	105	0	158	316	210	106
MRC	Balranald Road (SA5 to SA6)	-	11.095	17.340	5	36	11	5	2	1	7	2	2	4	1	1	105	0	157	5	36	11	5	2	1	7	2	2	4	1	1	105	0	157	314	210	104
MRC	Balranald Road (SA6 to SA7)	-	17.340	18.995	3	21	5	3	1	0	7	2	2	2	1	1	105	0	136	3	21	5	3	1	0	7	2	2	2	1	1	105	0	136	272	210	62
MRC	Balranald Road (SA7 to SA8)	-	18.995	22.140	2	14	4	2	1	0	7	2	1	2	1	1	105	0	128	2	14	4	2	1	0	7	2	1	2	1	1	105	0	128	256	210	46
MRC	Arundel Road (Balranald Road to SA4)	-	0.000	0.710	2	1	10	0	1	3	7	0	1	1	1	1	26	0	34	2	1	10	0	1	3	7	0	1	1	1	1	26	0	34	69	53	16
-	Stony Crossing Road (Yanga Way to Swan Hill Road)	97206	0.000	40.900	5	62	22	7	3	2	0	0	2	0	1	0	21	0	96	5	62	22	7	3	2	0	0	2	0	1	0	21	0	96	192	42	150
-	Swan Hill Road (Swan Hill to Stony Crossing Road)	97200	0.000	11.100	5	62	22	7	3	2	0	0	2	0	1	0	21	0	96	5	62	22	7	3	2	0	0	2	0	1	0	21	0	96	192	42	150
B400	Murray River Highway (Swan Hill to Lake Boga)	-	0.000	16.000	0	62	22	5	3	0	0	0	0	0	0	0	0	0	70	0	62	22	5	3	0	0	0	0	0	0	0	0	0	70	140	0	140

Dev Traffic % Impact - Construction		
Gaz %	A-Gaz %	Bi-Dir %
0.64%	0.63%	0.64%
0.85%	0.83%	0.84%
19.47%	19.03%	19.25%
27.80%	20.11%	23.34%
21.36%	21.21%	21.29%
26.51%	26.33%	26.42%
2.05%	2.06%	2.05%
628.68%	523.90%	571.53%
561.20%	467.66%	510.18%
557.65%	464.71%	506.95%
483.06%	402.55%	439.14%
454.64%	378.87%	413.31%
304.13%	304.13%	304.13%
50.90%	50.48%	50.69%
19.65%	18.57%	19.10%
2.06%	2.06%	2.06%

IN CONS		
Gaz	A-Gaz	Bi-Dir
1,561	1,597	3,157
1,185	1,213	2,398
663	675	1,338
496	645	1,142
471	474	946
491	494	986
349	347	696
205	211	416
186	192	378
185	191	376
164	170	334
156	162	318
46	46	91
285	286	571
584	613	1,197
3,468	3,468	6,936



Appendix H – Intersection Volume Forecast Calculations

UMW0122-006 | Junction Rivers Wind Farm

Sturt Highway / Yanga Way (Mallee Highway)

Peak Hour Intersection Volume Forecasts

AM PEAK (6-7am)

GR %	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
YEAR	Sturt Highway - NW				Yanga Way - S				Sturt Highway - SE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
2022	20	9	14	6	8	1	5	0	5	3	14	17
2023	20	9	14	6	8	1	5	0	5	3	14	17
2024	21	9	15	6	8	1	5	0	5	3	15	18
2025	21	10	15	6	8	1	5	0	5	3	15	18
2026	22	10	15	6	9	1	5	0	5	3	15	18
2027	22	10	15	7	9	1	6	0	6	3	15	19
2028	23	10	16	7	9	1	6	0	6	3	16	19
2029	23	10	16	7	9	1	6	0	6	3	16	20
2030	23	11	16	7	9	1	6	0	6	4	16	20
2031	24	11	17	7	10	1	6	0	6	4	17	20
2032	24	11	17	7	10	1	6	0	6	4	17	21
2033	25	11	17	7	10	1	6	0	6	4	17	21
2034	25	11	18	8	10	1	6	0	6	4	18	22
2035	26	12	18	8	10	1	6	0	6	4	18	22
2036	26	12	18	8	11	1	7	0	7	4	18	22
2037	27	12	19	8	11	1	7	0	7	4	19	23
2038	27	12	19	8	11	1	7	0	7	4	19	23
2039	28	13	20	8	11	1	7	0	7	4	20	24
2040	29	13	20	9	11	1	7	0	7	4	20	24
2041	29	13	20	9	12	1	7	0	7	4	20	25
2042	30	13	21	9	12	1	7	0	7	4	21	25
2043	30	14	21	9	12	2	8	0	8	5	21	26
2044	31	14	22	9	12	2	8	0	8	5	22	26
2045	32	14	22	9	13	2	8	0	8	5	22	27
2046	32	14	23	10	13	2	8	0	8	5	23	27
2047	33	15	23	10	13	2	8	0	8	5	23	28
2048	33	15	23	10	13	2	8	0	8	5	23	28
2049	34	15	24	10	14	2	9	0	9	5	24	29
2050	35	16	24	10	14	2	9	0	9	5	24	30
2051	36	16	25	11	14	2	9	0	9	5	25	30
2052	36	16	25	11	14	2	9	0	9	5	25	31
2053	37	17	26	11	15	2	9	0	9	6	26	31
2054	38	17	26	11	15	2	9	0	9	6	26	32
2055	38	17	27	12	15	2	10	0	10	6	27	33
2056	39	18	27	12	16	2	10	0	10	6	27	33
2057	40	18	28	12	16	2	10	0	10	6	28	34
2058	41	18	29	12	16	2	10	0	10	6	29	35
STG 1 PROJECT TRAFFIC	0	0	44	2	0	2	0	0	0	0	0	0
STG 1 IN CONSTRUCTION	22	10	59	8	9	3	5	0	5	3	15	18
STG 2 PROJECT TRAFFIC	0	0	92	2	0	2	0	0	0	0	0	0
STG 2 IN CONSTRUCTION	23	10	108	9	9	3	6	0	6	3	16	19
PEAK OPERATIONS TRAFFIC	0	0	30	2	0	2	0	0	0	0	0	0
PROJECT OPERATIONS	27	12	49	10	11	3	7	0	7	4	19	23
DECOMMISSIONING TRAFFIC	0	0	54	2	0	2	0	0	0	0	0	0
PROJECT DECOMMISSIONING	41	18	83	14	16	4	10	0	10	6	29	35
EXTERNAL PROJECTS	113	5	0	9	0	9	0	0	0	0	0	5
STAGE 1 CONST CUMULATIVE	135	15	59	17	9	12	5	0	5	3	15	24
STAGE 2 CONST CUMULATIVE	136	16	108	17	9	12	6	0	6	3	16	25

UMW0122-006 | Junction Rivers Wind Farm

Sturt Highway / Yanga Way (Mallee Highway)

Peak Hour Intersection Volume Forecasts

PM PEAK (5:30-6:30pm)

GR %	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
YEAR	Sturt Highway - NW				Yanga Way - S				Sturt Highway - SE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
2022	17	26	16	3	14	3	5	2	4	0	21	20
2023	17	27	16	3	14	3	5	2	4	0	21	20
2024	18	27	17	3	15	3	5	2	4	0	22	21
2025	18	28	17	3	15	3	5	2	4	0	22	21
2026	18	28	17	3	15	3	5	2	4	0	23	22
2027	19	29	18	3	15	3	6	2	4	0	23	22
2028	19	29	18	3	16	3	6	2	5	0	24	23
2029	20	30	18	3	16	3	6	2	5	0	24	23
2030	20	30	19	4	16	4	6	2	5	0	25	23
2031	20	31	19	4	17	4	6	2	5	0	25	24
2032	21	32	20	4	17	4	6	2	5	0	26	24
2033	21	32	20	4	17	4	6	2	5	0	26	25
2034	22	33	20	4	18	4	6	3	5	0	27	25
2035	22	34	21	4	18	4	6	3	5	0	27	26
2036	22	34	21	4	18	4	7	3	5	0	28	26
2037	23	35	22	4	19	4	7	3	5	0	28	27
2038	23	36	22	4	19	4	7	3	5	0	29	27
2039	24	36	22	4	20	4	7	3	6	0	29	28
2040	24	37	23	4	20	4	7	3	6	0	30	29
2041	25	38	23	4	20	4	7	3	6	0	31	29
2042	25	39	24	4	21	4	7	3	6	0	31	30
2043	26	39	24	5	21	5	8	3	6	0	32	30
2044	26	40	25	5	22	5	8	3	6	0	32	31
2045	27	41	25	5	22	5	8	3	6	0	33	32
2046	27	42	26	5	23	5	8	3	6	0	34	32
2047	28	43	26	5	23	5	8	3	7	0	34	33
2048	28	44	27	5	23	5	8	3	7	0	35	33
2049	29	44	27	5	24	5	9	3	7	0	36	34
2050	30	45	28	5	24	5	9	3	7	0	37	35
2051	30	46	28	5	25	5	9	4	7	0	37	36
2052	31	47	29	5	25	5	9	4	7	0	38	36
2053	31	48	30	6	26	6	9	4	7	0	39	37
2054	32	49	30	6	26	6	9	4	8	0	40	38
2055	33	50	31	6	27	6	10	4	8	0	40	38
2056	33	51	31	6	27	6	10	4	8	0	41	39
2057	34	52	32	6	28	6	10	4	8	0	42	40
2058	35	53	33	6	29	6	10	4	8	0	43	41
STG 1 PROJECT TRAFFIC	0	0	0	2	44	2	0	0	0	0	0	0
STG 1 IN CONSTRUCTION	18	28	17	5	59	5	5	2	4	0	23	22
STG 2 PROJECT TRAFFIC	0	0	0	2	92	2	0	0	0	0	0	0
STG 2 IN CONSTRUCTION	19	29	18	5	108	5	6	2	5	0	24	23
PEAK OPERATIONS TRAFFIC	0	0	0	2	30	2	0	0	0	0	0	0
PROJECT OPERATIONS	23	36	22	6	49	6	7	3	5	0	29	27
DECOMMISSIONING TRAFFIC	0	0	0	2	54	2	0	0	0	0	0	0
PROJECT DECOMMISSIONING	35	53	33	8	83	8	10	4	8	0	43	41
EXTERNAL PROJECTS	0	5	0	9	0	9	0	0	0	0	113	5
STAGE 1 CONST CUMULATIVE	18	34	17	14	59	14	5	2	4	0	136	27
STAGE 2 CONST CUMULATIVE	19	35	18	14	108	14	6	2	5	0	137	28

UMW0122-006 | Junction Rivers Wind Farm

Sturt Highway / Yanga Way (Mallee Highway)

Peak Hour Intersection Volume Forecasts

Development Scenario - Schedule Tasks 1B + 1D + 2A + 2B + 3A + 3B + Site Water + Site Fuel + Project Staff

Staff Movements - Stage 1 Construction

Task	Sturt Highway - NW				Yanga Way - S				Sturt Highway - SE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	0	0	44	0	0	0	0	0	0	0	0	0
PM Peak Staff	0	0	0	0	44	0	0	0	0	0	0	0

Staff Movements - Stage 2 Construction

Task	Sturt Highway - NW				Yanga Way - S				Sturt Highway - SE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff - Stage 2	0	0	77	0	0	0	0	0	0	0	0	0
AM Peak Staff - Stage 1 Ops	0	0	15	0	0	0	0	0	0	0	0	0
PM Peak Staff - Stage 2	0	0	0	0	77	0	0	0	0	0	0	0
PM Peak Staff - Stage 1 Ops	0	0	0	0	15	0	0	0	0	0	0	0

Staff Movements - Operations

Task	Sturt Highway - NW				Yanga Way - S				Sturt Highway - SE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	0	0	30	0	0	0	0	0	0	0	0	0
AM HV	0	0	0	2	0	2	0	0	0	0	0	0
PM Peak Staff	0	0	0	0	30	0	0	0	0	0	0	0
PM HV	0	0	0	2	0	2	0	0	0	0	0	0

Staff Movements - Decommissioning

Task	Sturt Highway - NW				Yanga Way - S				Sturt Highway - SE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	0	0	54	0	0	0	0	0	0	0	0	0
PM Peak Staff	0	0	0	0	54	0	0	0	0	0	0	0

Heavy Vehicle Movements - Stage 1 Construction

Task	Sturt Highway - NW				Yanga Way - S				Sturt Highway - SE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1B	0	0	0	1	0	1	0	0	0	0	0	0
1D	0	0	0	2	0	2	0	0	0	0	0	0
2A	0	0	0	1	0	1	0	0	0	0	0	0
2B	0	0	0	3	0	3	0	0	0	0	0	0
3B	0	0	0	2	0	2	0	0	0	0	0	0
Water	0	0	0	5	0	5	0	0	0	0	0	0
Fuel	0	0	0	1	0	1	0	0	0	0	0	0
Waste Management	0	0	0	1	0	1	0	0	0	0	0	0
Total (12 hrs)	0	0	0	16	0	16	0	0	0	0	0	0
Peak Hour	0	0	0	2	0	2	0	0	0	0	0	0

** Vehicle numbers for Task 3A (Turbine Transportation) not considered as these movements will be scheduled outside of peak hours under full escort.

Heavy Vehicle Movements - Stage 2 Construction

Task	Sturt Highway - NW				Yanga Way - S				Sturt Highway - SE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1B	0	0	0	1	0	1	0	0	0	0	0	0
1D	0	0	0	2	0	2	0	0	0	0	0	0
2A	0	0	0	1	0	1	0	0	0	0	0	0
2B	0	0	0	2	0	2	0	0	0	0	0	0
3B	0	0	0	2	0	2	0	0	0	0	0	0
Water	0	0	0	6	0	6	0	0	0	0	0	0
Fuel	0	0	0	1	0	1	0	0	0	0	0	0
Waste Management	0	0	0	1	0	1	0	0	0	0	0	0
Total (12 hrs)	0	0	0	16	0	16	0	0	0	0	0	0
Peak Hour	0	0	0	2	0	2	0	0	0	0	0	0

** Vehicle numbers for Task 3A (Turbine Transportation) not considered as these movements will be scheduled outside of peak hours under full escort.

Heavy Vehicle Movements - Decommissioning

Task	Sturt Highway - NW				Yanga Way - S				Sturt Highway - SE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Peak Hour	0	0	0	2	0	2	0	0	0	0	0	0

UMW0122-006 | Junction Rivers Wind Farm

Yanga Way / Balranald-Moulamein Road

Peak Hour Intersection Volume Forecasts

AM PEAK (6-7am)

GR %	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
YEAR	Yanga Way - SW				Balranald-Moulamein Road - E				Yanga Way - NE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
2022	14	7	1	0	1	0	1	1	1	1	15	3
2023	14	7	1	0	1	0	1	1	1	1	15	3
2024	15	7	1	0	1	0	1	1	1	1	16	3
2025	15	7	1	0	1	0	1	1	1	1	16	3
2026	15	8	1	0	1	0	1	1	1	1	16	3
2027	15	8	1	0	1	0	1	1	1	1	17	3
2028	16	8	1	0	1	0	1	1	1	1	17	3
2029	16	8	1	0	1	0	1	1	1	1	17	3
2030	16	8	1	0	1	0	1	1	1	1	18	4
2031	17	8	1	0	1	0	1	1	1	1	18	4
2032	17	9	1	0	1	0	1	1	1	1	18	4
2033	17	9	1	0	1	0	1	1	1	1	19	4
2034	18	9	1	0	1	0	1	1	1	1	19	4
2035	18	9	1	0	1	0	1	1	1	1	19	4
2036	18	9	1	0	1	0	1	1	1	1	20	4
2037	19	9	1	0	1	0	1	1	1	1	20	4
2038	19	10	1	0	1	0	1	1	1	1	21	4
2039	20	10	1	0	1	0	1	1	1	1	21	4
2040	20	10	1	0	1	0	1	1	1	1	21	4
2041	20	10	1	0	1	0	1	1	1	1	22	4
2042	21	10	1	0	1	0	1	1	1	1	22	4
2043	21	11	2	0	2	0	2	2	2	2	23	5
2044	22	11	2	0	2	0	2	2	2	2	23	5
2045	22	11	2	0	2	0	2	2	2	2	24	5
2046	23	11	2	0	2	0	2	2	2	2	24	5
2047	23	11	2	0	2	0	2	2	2	2	25	5
2048	23	12	2	0	2	0	2	2	2	2	25	5
2049	24	12	2	0	2	0	2	2	2	2	26	5
2050	24	12	2	0	2	0	2	2	2	2	26	5
2051	25	12	2	0	2	0	2	2	2	2	27	5
2052	25	13	2	0	2	0	2	2	2	2	27	5
2053	26	13	2	0	2	0	2	2	2	2	28	6
2054	26	13	2	0	2	0	2	2	2	2	28	6
2055	27	13	2	0	2	0	2	2	2	2	29	6
2056	27	14	2	0	2	0	2	2	2	2	29	6
2057	28	14	2	0	2	0	2	2	2	2	30	6
2058	29	14	2	0	2	0	2	2	2	2	31	6
STG 1 PROJECT TRAFFIC	0	0	16	7	0	7	0	2	44	2	0	0
STG 1 IN CONSTRUCTION	15	8	17	7	1	7	1	3	45	3	16	3
STG 2 PROJECT TRAFFIC	0	0	28	5	0	5	0	2	92	2	0	0
STG 2 IN CONSTRUCTION	16	8	29	5	1	5	1	3	93	3	17	3
PEAK OPERATIONS TRAFFIC	0	0	0	0	0	0	0	2	30	2	0	0
PROJECT OPERATIONS	19	10	1	0	1	0	1	3	31	3	21	4
DECOMMISSIONING TRAFFIC	0	0	20	4	0	4	0	2	54	2	0	0
PROJECT DECOMMISSIONING	29	14	22	4	2	4	2	4	56	4	31	6
EXTERNAL PROJECTS	0	9	0	0	0	0	0	0	0	0	0	9
STAGE 1 CONST CUMULATIVE	15	17	17	7	1	7	1	3	45	3	16	12
STAGE 2 CONST CUMULATIVE	16	17	29	5	1	5	1	3	93	3	17	12

UMW0122-006 | Junction Rivers Wind Farm

Yanga Way / Balranald-Moulamein Road

Peak Hour Intersection Volume Forecasts

PM PEAK (5:30-6:30pm)

GR %	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
YEAR	Yanga Way - SW				Balranald-Moulamein Road - E				Yanga Way - NE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
2022	17	3	0	1	0	2	1	0	1	0	21	3
2023	17	3	0	1	0	2	1	0	1	0	21	3
2024	18	3	0	1	0	2	1	0	1	0	22	3
2025	18	3	0	1	0	2	1	0	1	0	22	3
2026	18	3	0	1	0	2	1	0	1	0	23	3
2027	19	3	0	1	0	2	1	0	1	0	23	3
2028	19	3	0	1	0	2	1	0	1	0	24	3
2029	20	3	0	1	0	2	1	0	1	0	24	3
2030	20	4	0	1	0	2	1	0	1	0	25	4
2031	20	4	0	1	0	2	1	0	1	0	25	4
2032	21	4	0	1	0	2	1	0	1	0	26	4
2033	21	4	0	1	0	2	1	0	1	0	26	4
2034	22	4	0	1	0	3	1	0	1	0	27	4
2035	22	4	0	1	0	3	1	0	1	0	27	4
2036	22	4	0	1	0	3	1	0	1	0	28	4
2037	23	4	0	1	0	3	1	0	1	0	28	4
2038	23	4	0	1	0	3	1	0	1	0	29	4
2039	24	4	0	1	0	3	1	0	1	0	29	4
2040	24	4	0	1	0	3	1	0	1	0	30	4
2041	25	4	0	1	0	3	1	0	1	0	31	4
2042	25	4	0	1	0	3	1	0	1	0	31	4
2043	26	5	0	2	0	3	2	0	2	0	32	5
2044	26	5	0	2	0	3	2	0	2	0	32	5
2045	27	5	0	2	0	3	2	0	2	0	33	5
2046	27	5	0	2	0	3	2	0	2	0	34	5
2047	28	5	0	2	0	3	2	0	2	0	34	5
2048	28	5	0	2	0	3	2	0	2	0	35	5
2049	29	5	0	2	0	3	2	0	2	0	36	5
2050	30	5	0	2	0	3	2	0	2	0	37	5
2051	30	5	0	2	0	4	2	0	2	0	37	5
2052	31	5	0	2	0	4	2	0	2	0	38	5
2053	31	6	0	2	0	4	2	0	2	0	39	6
2054	32	6	0	2	0	4	2	0	2	0	40	6
2055	33	6	0	2	0	4	2	0	2	0	40	6
2056	33	6	0	2	0	4	2	0	2	0	41	6
2057	34	6	0	2	0	4	2	0	2	0	42	6
2058	35	6	0	2	0	4	2	0	2	0	43	6
STG 1 PROJECT TRAFFIC	0	0	0	7	16	7	44	2	0	2	0	0
STG 1 IN CONSTRUCTION	18	3	0	8	16	9	45	2	1	2	23	3
STG 2 PROJECT TRAFFIC	0	0	0	5	28	5	92	2	0	2	0	0
STG 2 IN CONSTRUCTION	19	3	0	6	28	7	93	2	1	2	24	3
PEAK OPERATIONS TRAFFIC	0	0	0	0	0	0	30	2	0	2	0	0
PROJECT OPERATIONS	23	4	0	1	0	3	31	2	1	2	29	4
DECOMMISSIONING TRAFFIC	0	0	0	4	0	4	54	2	0	2	0	0
PROJECT DECOMMISSIONING	35	6	0	6	0	8	56	2	2	2	43	6
EXTERNAL PROJECTS	0	9	0	0	0	0	0	0	0	0	0	9
STAGE 1 CONST CUMULATIVE	18	12	0	8	16	9	45	2	1	2	23	12
STAGE 2 CONST CUMULATIVE	19	12	0	6	28	7	93	2	1	2	24	12

UMW0122-006 | Junction Rivers Wind Farm

Yanga Way / Balranald Road

Peak Hour Intersection Volume Forecasts

Development Scenario - Schedule Tasks 1B + 1D + 2A + 2B + 3A + 3B + Site Water + Site Fuel + Project Staff

Staff Movements - Stage 1 Construction

Task	Yanga Way - SW				Balranald Road - E				Yanga Way - NE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	0	0	16	0	0	0	0	0	44	0	0	0
PM Peak Staff	0	0	0	0	16	0	44	0	0	0	0	0

Staff Movements - Stage 2 Construction

Task	Yanga Way - SW				Balranald-Moulamein Road - E				Yanga Way - NE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff - Stage 2	0	0	28	0	0	0	0	0	77	0	0	0
AM Peak Staff - Stage 1 Ops	0	0	0	0	0	0	0	0	15	0	0	0
PM Peak Staff - Stage 2	0	0	0	0	28	0	77	0	0	0	0	0
PM Peak Staff - Stage 1 Ops	0	0	0	0	0	0	15	0	0	0	0	0

Staff Movements - Operations

Task	Yanga Way - SW				Balranald-Moulamein Road - E				Yanga Way - NE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	0	0	0	0	0	0	0	0	30	0	0	0
AM HV	0	0	0	0	0	0	0	2	0	2	0	0
PM Peak Staff	0	0	0	0	0	0	30	0	0	0	0	0
PM HV	0	0	0	0	0	0	0	2	0	2	0	0

Staff Movements - Decommissioning

Task	Yanga Way - SW				Balranald-Moulamein Road - E				Yanga Way - NE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
AM Peak Staff	0	0	20	0	0	0	0	0	54	0	0	0
PM Peak Staff	0	0	0	0	0	0	54	0	0	0	0	0

Heavy Vehicle Movements - Stage 1 Construction

Task	Yanga Way - SW				Balranald-Moulamein Road - E				Yanga Way - NE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1B	0	0	0	58	0	58	0	1	0	1	0	0
1D	0	0	0	7	0	7	0	2	0	2	0	0
2A	0	0	0	2	0	2	0	1	0	1	0	0
2B	0	0	0	3	0	3	0	3	0	3	0	0
3B	0	0	0	0	0	0	0	2	0	2	0	0
Water	0	0	0	0	0	0	0	5	0	5	0	0
Fuel	0	0	0	1	0	1	0	1	0	1	0	0
Waste Management	0	0	0	0	0	0	0	1	0	1	0	0
Total (11 hrs)	0	0	0	71	0	71	0	16	0	16	0	0
Peak Hour	0	0	0	7	0	7	0	2	0	2	0	0

** Vehicle numbers for Task 3A (Turbine Transportation) not considered as these movements will be scheduled outside of peak hours under full escort.

Heavy Vehicle Movements - Stage 2 Construction

Task	Yanga Way - SW				Balranald-Moulamein Road - E				Yanga Way - NE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
1B	0	0	0	39	0	39	0	1	0	1	0	0
1D	0	0	0	5	0	5	0	2	0	2	0	0
2A	0	0	0	2	0	2	0	1	0	1	0	0
2B	0	0	0	2	0	2	0	2	0	2	0	0
3B	0	0	0	2	0	2	0	2	0	2	0	0
Water	0	0	0	0	0	0	0	6	0	6	0	0
Fuel	0	0	0	1	0	1	0	1	0	1	0	0
Waste Management	0	0	0	0	0	0	0	1	0	1	0	0
Total (11 hrs)	0	0	0	51	0	51	0	15	0	15	0	0
Peak Hour	0	0	0	5	0	5	0	2	0	2	0	0

** Vehicle numbers for Task 3A (Turbine Transportation) not considered as these movements will be scheduled outside of peak hours under full escort.

Heavy Vehicle Movements - Decommissioning

Task	Yanga Way - SW				Balranald-Moulamein Road - E				Yanga Way - NE			
	T		R		L		R		L		T	
	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Peak Hour	0	0	0	4	0	4	0	2	0	2	0	0



Appendix I – Turn Warrant Assessment - Sturt Highway / Yanga Way

Turn Warrant Assessment

Intersection: **Sturt Highway / Yanga Way**

Year / Peak: **2026 AM & PM Peak**

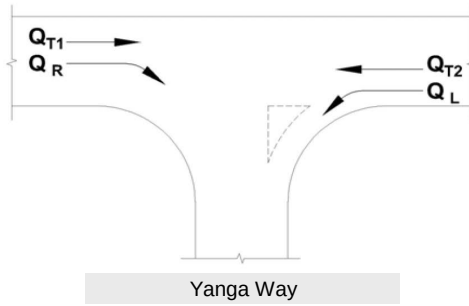
Scenario: **Stage 1 Construction**

Assessment based on Austroads Guide to Traffic Management Part 6. This warrant assessment applies only to turning movements from the major road only.

	AM Peak	PM Peak
Q_{T1}	31	47
Q_R	68	23

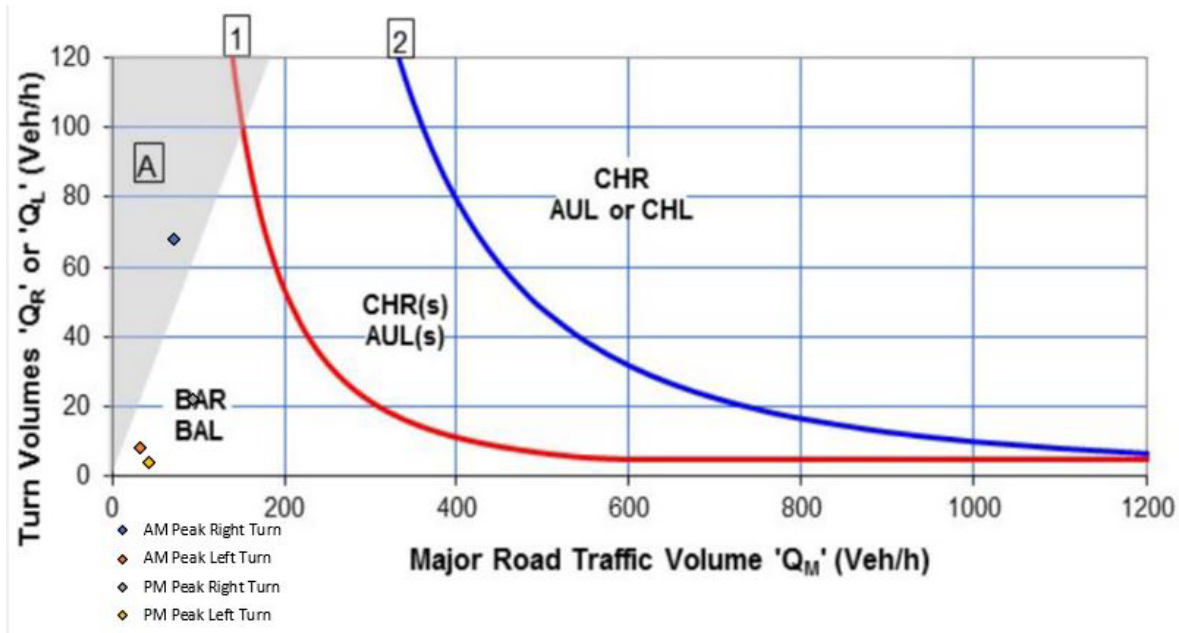
Splitter Island?

Design speed (km/h)



	AM Peak	PM Peak
Q_{T2}	34	44
Q_L	9	4

Graph	Q_M	Q_R/Q_L
AM Peak		
Right	74	68
Left	34	9
PM Peak		
Right	95	23
Left	44	4



Recommended treatments:

Right Turn	BAR
Left Turn	BAL

Legend

BAR	Basic Right Turn	BAL	Basic Left Turn
CHR(S)	Channelised Right Turn (short)	AUL(S)	Auxiliary Left Turn (short)
CHR	Channelised Right Turn	AUL	Auxiliary Left Turn
		CHL	Channelised Left Turn

Comments:

Prepared by:	A.Barrie
Reviewed by:	A.Barrie
Date:	6/05/2024

Turn Warrant Assessment

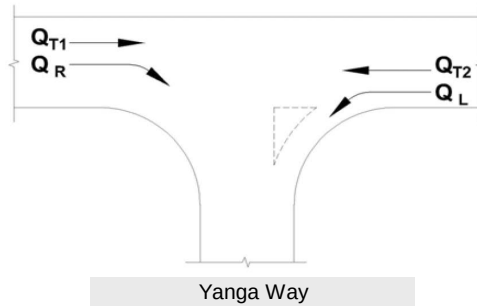
Intersection: **Sturt Highway / Yanga Way**

Year / Peak: **2026 AM & PM Peak**

Scenario: **Stage 1 Construction Cumulative**

Assessment based on Austroads Guide to Traffic Management Part 6. This warrant assessment applies only to turning movements from the major road only.

	AM Peak	PM Peak
Q_{T1}	150	52
Q_R	76	31

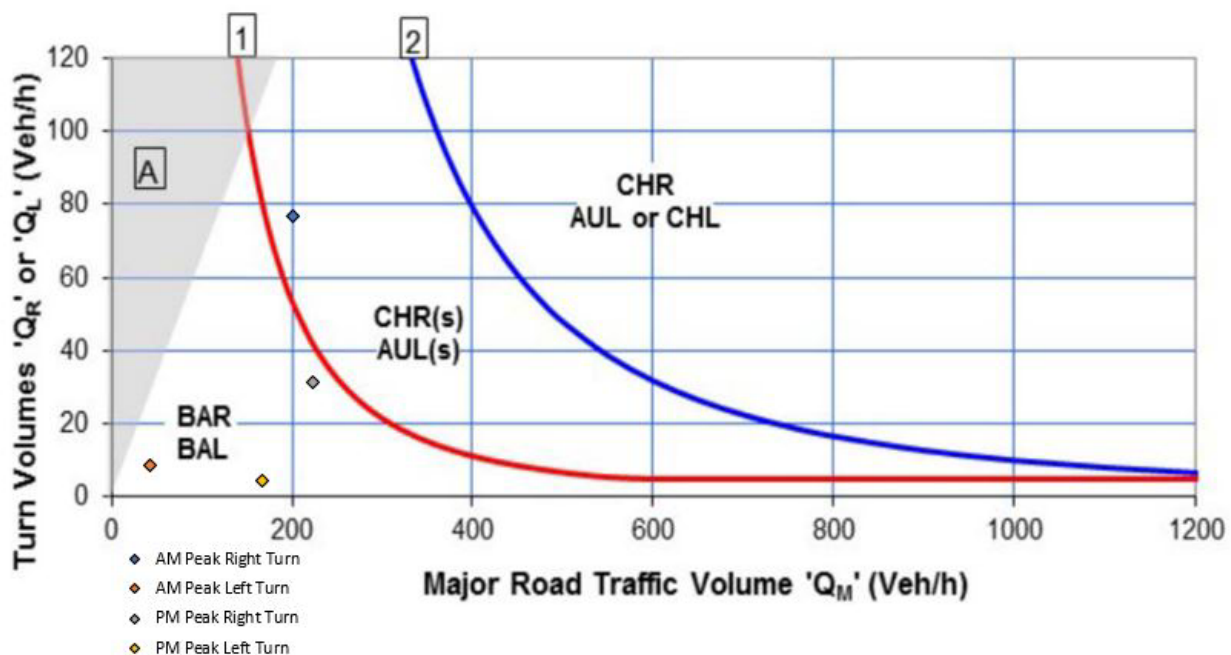


	AM Peak	PM Peak
Q_{T2}	39	163
Q_L	9	4

Splitter Island?

Design speed (km/h)

Graph	Q_M	Q_R/Q_L
AM Peak		
Right	197	76
Left	39	9
PM Peak		
Right	219	31
Left	163	4



Recommended treatments:

Right Turn	CHRs
Left Turn	BAL

Legend

BAR	Basic Right Turn	BAL	Basic Left Turn
CHR(S)	Channelised Right Turn (short)	AUL(S)	Auxiliary Left Turn (short)
CHR	Channelised Right Turn	AUL	Auxiliary Left Turn
		CHL	Channelised Left Turn

Comments:

Prepared by:	A.Barrie
Reviewed by:	A.Barrie
Date:	6/05/2024

Turn Warrant Assessment

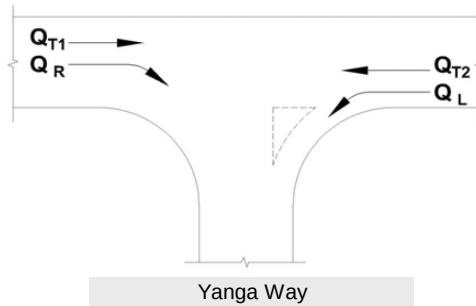
Intersection: **Sturt Highway / Yanga Way**

Year / Peak: **2028 AM & PM Peak**

Scenario: **Stage 2 Construction**

Assessment based on Austroads Guide to Traffic Management Part 6. This warrant assessment applies only to turning movements from the major road only.

	AM Peak	PM Peak
Q_{T1}	33	48
Q_R	117	23

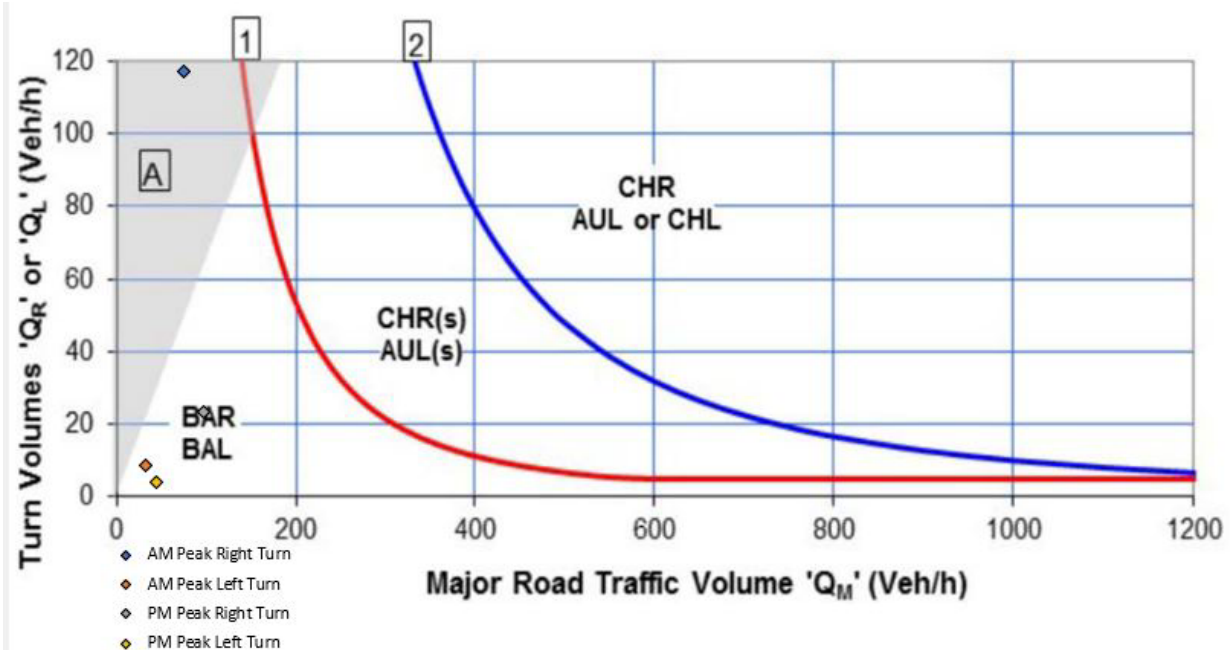


	AM Peak	PM Peak
Q_{T2}	35	46
Q_L	9	5

Splitter Island?

Design speed (km/h)

Graph	Q_M	Q_R/Q_L
AM Peak		
Right	77	117
Left	35	9
PM Peak		
Right	99	23
Left	46	5



Recommended treatments:

Right Turn	BAR
Left Turn	BAL

Legend

BAR	Basic Right Turn	BAL	Basic Left Turn
CHR(S)	Channelised Right Turn (short)	AUL(S)	Auxiliary Left Turn (short)
CHR	Channelised Right Turn	AUL	Auxiliary Left Turn
		CHL	Channelised Left Turn

Comments:

Prepared by:	A.Barrie
Reviewed by:	A.Barrie
Date:	6/05/2024

Turn Warrant Assessment

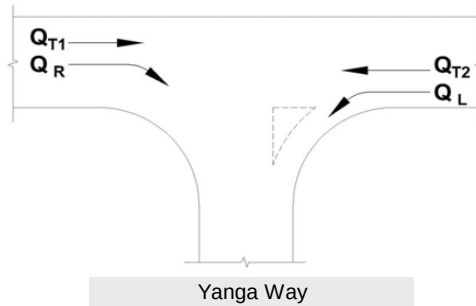
Intersection: **Sturt Highway / Yanga Way**

Year / Peak: **2028 AM & PM Peak**

Scenario: **Stage 2 Construction Cumulative**

Assessment based on Austroads Guide to Traffic Management Part 6. This warrant assessment applies only to turning movements from the major road only.

	AM Peak	PM Peak
Q_{T1}	151	54
Q_R	125	32

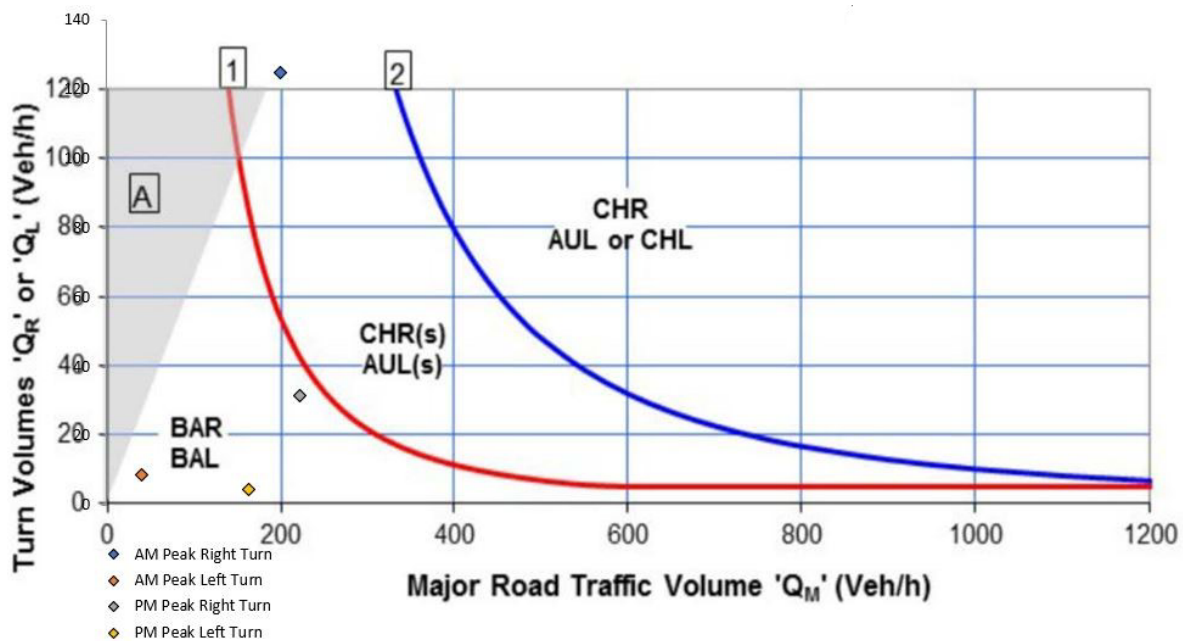


	AM Peak	PM Peak
Q_{T2}	40	165
Q_L	9	5

Splitter Island?

Design speed (km/h)

Graph	Q_M	Q_R/Q_L
AM Peak		
Right	200	125
Left	40	9
PM Peak		
Right	223	32
Left	165	5



Recommended treatments:

Right Turn	CHRs
Left Turn	BAL

Legend

BAR	Basic Right Turn	BAL	Basic Left Turn
CHR(S)	Channelised Right Turn (short)	AUL(S)	Auxiliary Left Turn (short)
CHR	Channelised Right Turn	AUL	Auxiliary Left Turn
		CHL	Channelised Left Turn

Comments:

Prepared by:	A.Barrie
Reviewed by:	A.Barrie
Date:	6/05/2024

Turn Warrant Assessment

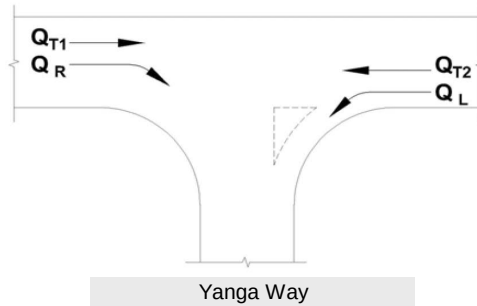
Intersection: **Sturt Highway / Yanga Way**

Year / Peak: **2038 AM & PM Peak**

Scenario: **Operations**

Assessment based on Austroads Guide to Traffic Management Part 6. This warrant assessment applies only to turning movements from the major road only.

	AM Peak	PM Peak
Q_{T1}	40	59
Q_R	59	28

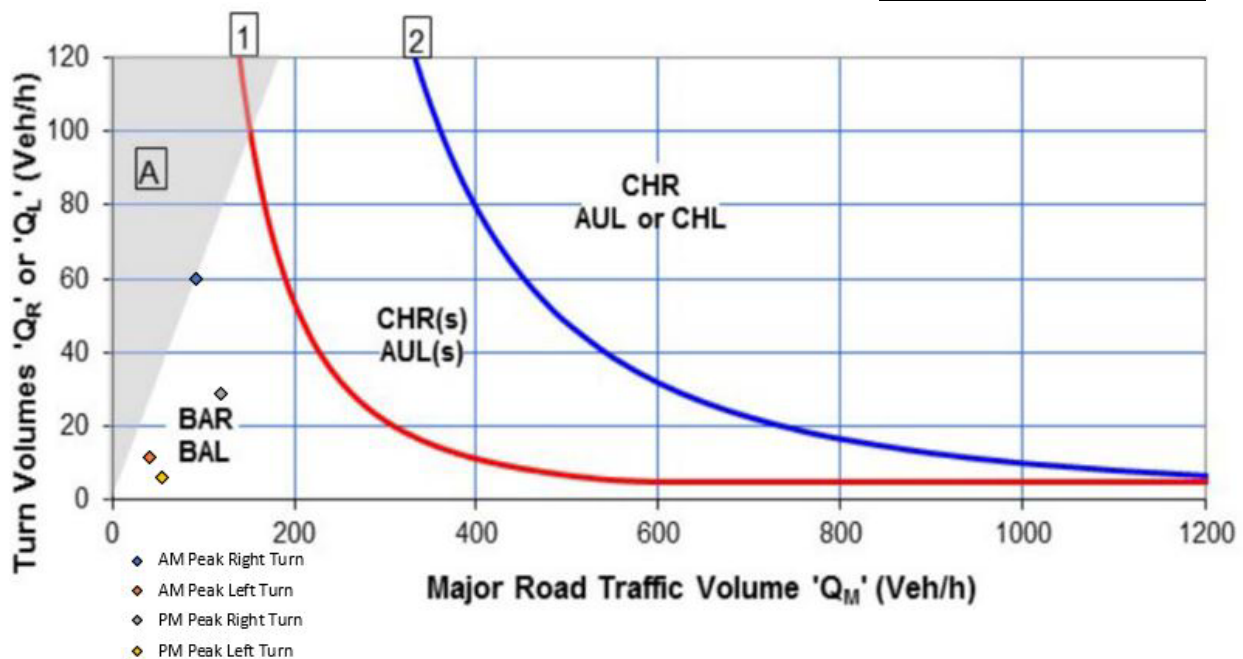


	AM Peak	PM Peak
Q_{T2}	43	56
Q_L	11	5

Splitter Island?

Design speed (km/h)

Graph	Q_M	Q_R/Q_L
AM Peak		
Right	93	59
Left	43	11
PM Peak		
Right	121	28
Left	56	5



Recommended treatments:

Right Turn	BAR
Left Turn	BAL

Legend

BAR	Basic Right Turn	BAL	Basic Left Turn
CHR(S)	Channelised Right Turn (short)	AUL(S)	Auxiliary Left Turn (short)
CHR	Channelised Right Turn	AUL	Auxiliary Left Turn
		CHL	Channelised Left Turn

Comments:

Prepared by:	A.Barrie
Reviewed by:	A.Barrie
Date:	6/05/2024

Turn Warrant Assessment

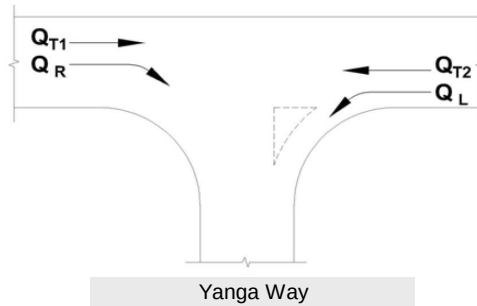
Intersection: **Sturt Highway / Yanga Way**

Year / Peak: **2058 AM & PM Peak**

Scenario: **Decommissioning**

Assessment based on Austroads Guide to Traffic Management Part 6. This warrant assessment applies only to turning movements from the major road only.

	AM Peak	PM Peak
Q_{T1}	59	88
Q_R	97	41

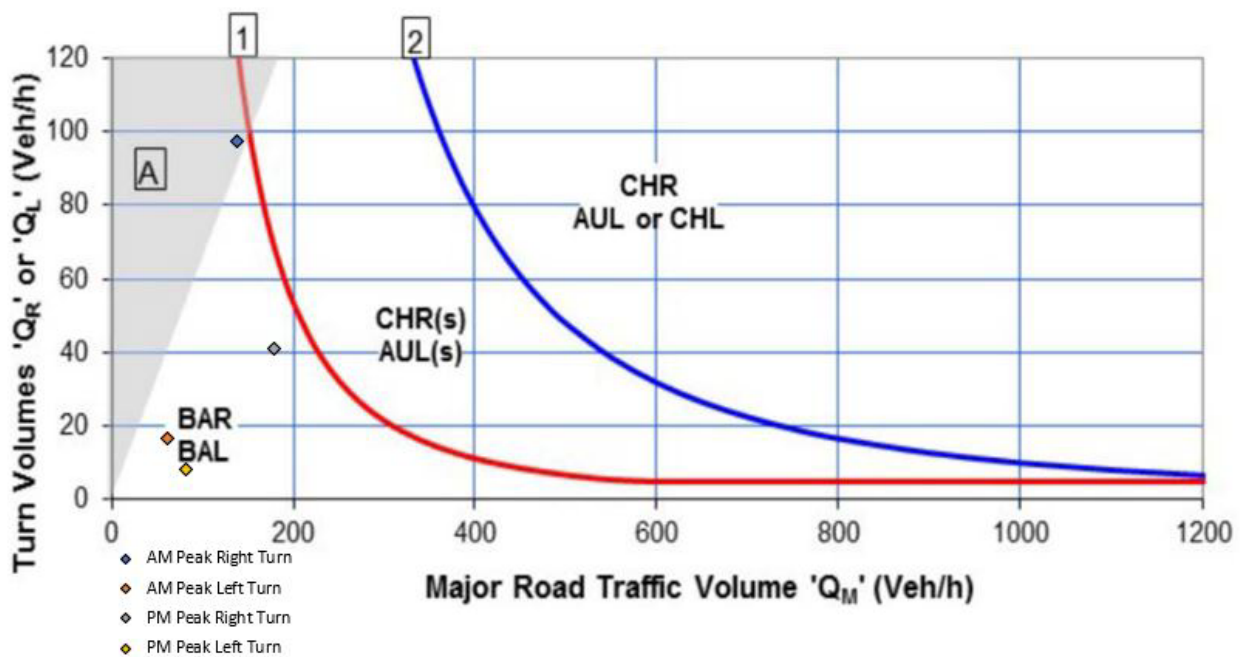


	AM Peak	PM Peak
Q_{T2}	63	84
Q_L	16	8

Splitter Island? **No**

Design speed (km/h) **90**

Graph	Q_M	Q_R/Q_L
AM Peak		
Right	139	97
Left	63	16
PM Peak		
Right	180	41
Left	84	8



Recommended treatments:

Right Turn	BAR
Left Turn	BAL

Legend

BAR	Basic Right Turn	BAL	Basic Left Turn
CHR(S)	Channelised Right Turn (short)	AUL(S)	Auxiliary Left Turn (short)
CHR	Channelised Right Turn	AUL	Auxiliary Left Turn
		CHL	Channelised Left Turn

Comments:

Prepared by:	A.Barrie
Reviewed by:	A.Barrie
Date:	6/05/2024



Appendix J – Turn Warrant Assessment – Yanga Way / Balranald-Moulamein Road

Turn Warrant Assessment

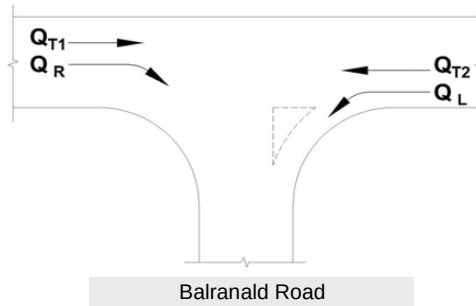
Intersection: **Yanga Way / Balranald Road**

Year / Peak: **2026 AM & PM**

Scenario: **Stage 1 Construction**

Assessment based on Austroads Guide to Traffic Management Part 6. This warrant assessment applies only to turning movements from the major road only.

	AM Peak	PM Peak
Q_{T1}	23	22
Q_R	24	8

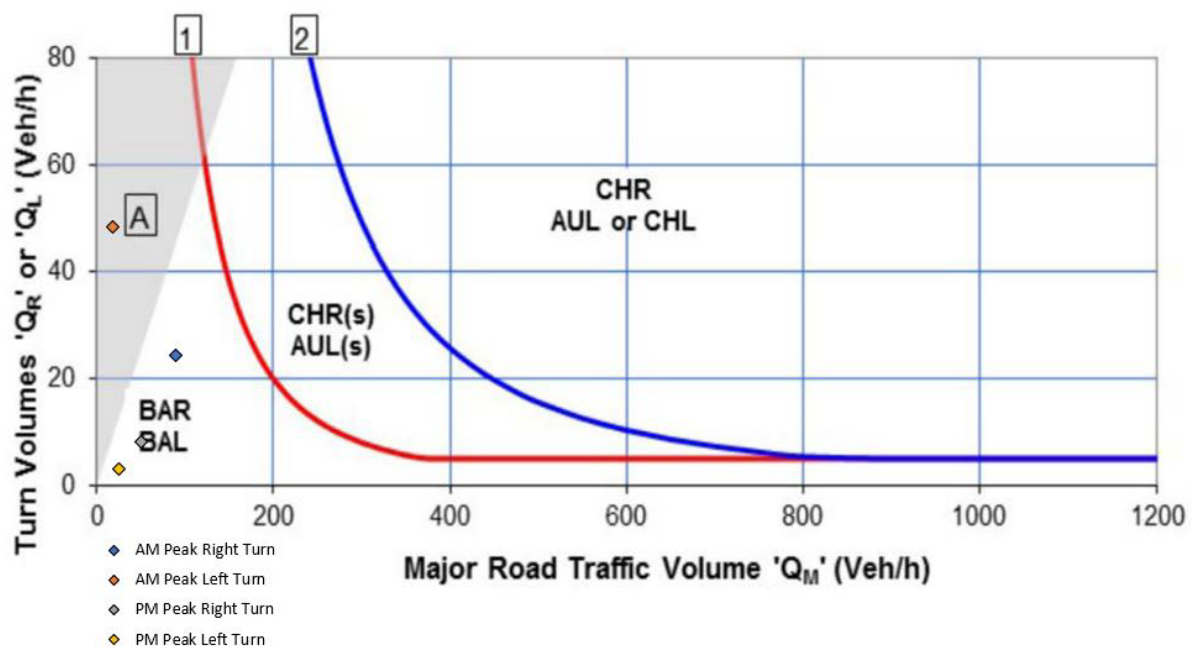


	AM Peak	PM Peak
Q_{T2}	19	26
Q_L	48	3

Splitter Island? **No**

Design speed (km/h) **110**

Graph	Q_M	Q_R/Q_L
AM Peak		
Right	90	24
Left	19	48
PM Peak		
Right	51	8
Left	26	3



Recommended treatments:

Right Turn	BAR
Left Turn	BAL

Legend

BAR	Basic Right Turn	BAL	Basic Left Turn
CHR(S)	Channelised Right Turn (short)	AUL(S)	Auxiliary Left Turn (short)
CHR	Channelised Right Turn	AUL	Auxiliary Left Turn
		CHL	Channelised Left Turn

Comments:

Prepared by:	A.Barrie
Reviewed by:	A.Barrie
Date:	6/05/2024

Turn Warrant Assessment

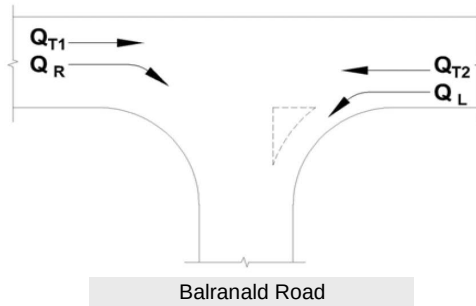
Intersection: **Yanga Way / Balranald Road**

Year / Peak: **2026 AM & PM**

Scenario: **Stage 1 Const (Cumulative)**

Assessment based on Austroads Guide to Traffic Management Part 6. This warrant assessment applies only to turning movements from the major road only.

	AM Peak	PM Peak
Q_{T1}	32	31
Q_R	24	8

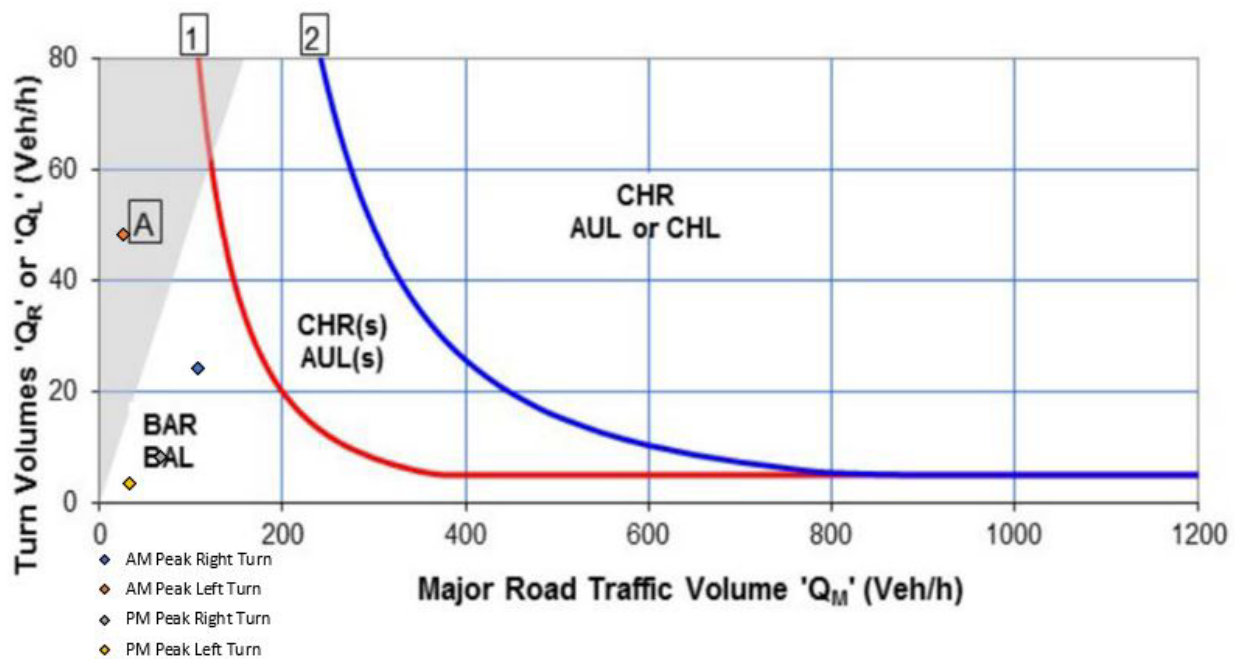


	AM Peak	PM Peak
Q_{T2}	28	35
Q_L	48	3

Splitter Island? **No**

Design speed (km/h) **110**

Graph	Q_M	Q_R/Q_L
AM Peak		
Right	108	24
Left	28	48
PM Peak		
Right	69	8
Left	35	3



Recommended treatments:

Right Turn	BAR
Left Turn	BAL

Legend

BAR	Basic Right Turn	BAL	Basic Left Turn
CHR(S)	Channelised Right Turn (short)	AUL(S)	Auxiliary Left Turn (short)
CHR	Channelised Right Turn	AUL	Auxiliary Left Turn
		CHL	Channelised Left Turn

Comments:

Prepared by:	A.Barrie
Reviewed by:	A.Barrie
Date:	6/05/2024

Turn Warrant Assessment

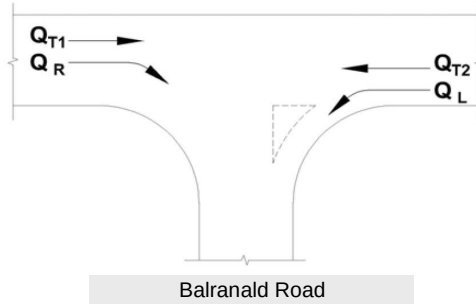
Intersection: **Yanga Way / Balranald Road**

Year / Peak: **2028 AM & PM**

Scenario: **Stage 2 Construction**

Assessment based on Austroads Guide to Traffic Management Part 6. This warrant assessment applies only to turning movements from the major road only.

	AM Peak	PM Peak
Q_{T1}	24	23
Q_R	34	6

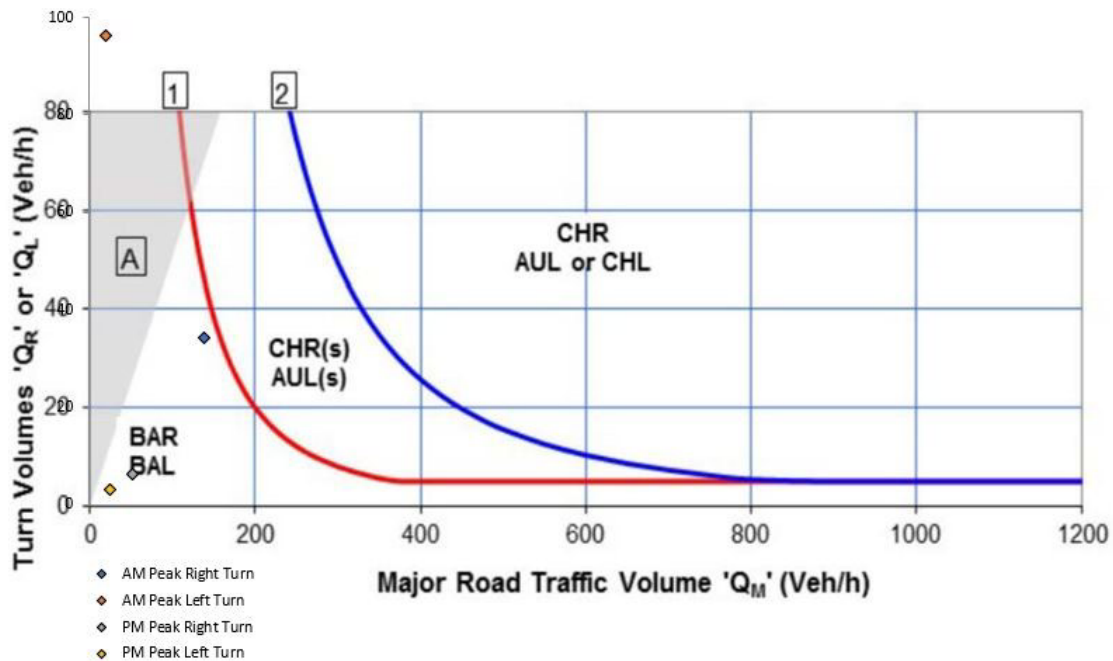


	AM Peak	PM Peak
Q_{T2}	20	27
Q_L	96	3

Splitter Island? **No**

Design speed (km/h) **110**

Graph	Q_M	Q_R/Q_L
AM Peak		
Right	140	34
Left	20	96
PM Peak		
Right	53	6
Left	27	3



Recommended treatments:

Right Turn	BAR
Left Turn	BAL

Legend

BAR	Basic Right Turn	BAL	Basic Left Turn
CHR(S)	Channelised Right Turn (short)	AUL(S)	Auxiliary Left Turn (short)
CHR	Channelised Right Turn	AUL	Auxiliary Left Turn
		CHL	Channelised Left Turn

Comments:

Prepared by:	A.Barrie
Reviewed by:	A.Barrie
Date:	6/05/2024

Turn Warrant Assessment

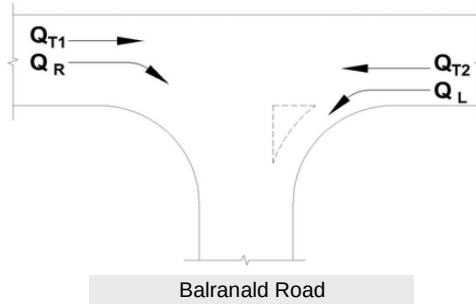
Intersection: **Yanga Way / Balranald Road**

Year / Peak: **2028 AM & PM**

Scenario: **Stage 2 Construction (Cumulative)**

Assessment based on Austroads Guide to Traffic Management Part 6. This warrant assessment applies only to turning movements from the major road only.

	AM Peak	PM Peak
Q_{T1}	33	32
Q_R	34	6

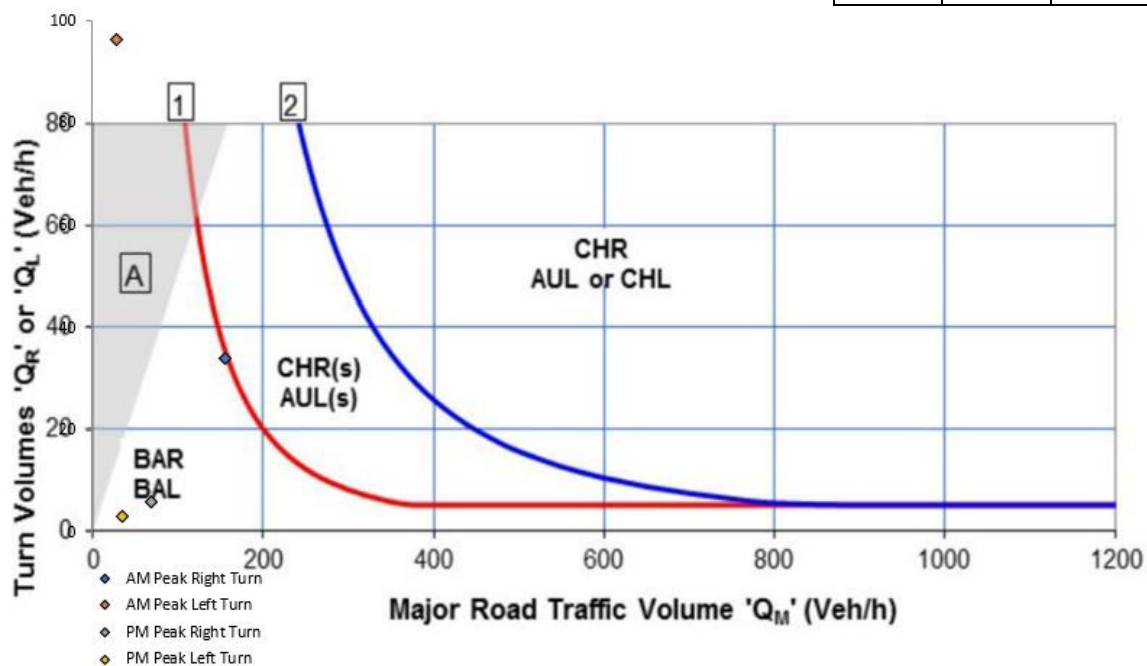


	AM Peak	PM Peak
Q_{T2}	29	36
Q_L	96	3

Splitter Island? **No**

Design speed (km/h) **110**

Graph	Q_M	Q_R/Q_L
AM Peak		
Right	158	34
Left	29	96
PM Peak		
Right	71	6
Left	36	3



Recommended treatments:

Right Turn	BAL
Left Turn	BAL

Legend

BAL	Basic Right Turn	BAL	Basic Left Turn
CHR(S)	Channelised Right Turn (short)	AUL(S)	Auxiliary Left Turn (short)
CHR	Channelised Right Turn	AUL	Auxiliary Left Turn
		CHL	Channelised Left Turn

Comments:

It is noted that the AM right turns are on the border of the BAR / CHRs treatments, but as the assessment is based on peak construction volumes that are only realised temporarily (only at full staff numbers for 3 months over 30 month period), with volumes decreasing to nearly zero at the end of construction, upgrade works at the intersection are not considered necessary. Furthermore, additional traffic management measures such as advanced warning truck turning signage etc, can be provided to improve delineation of intersection and potential for turning movements.

Prepared by: A.Barrie

Reviewed by: A.Barrie

Date: 6/05/2024

Turn Warrant Assessment

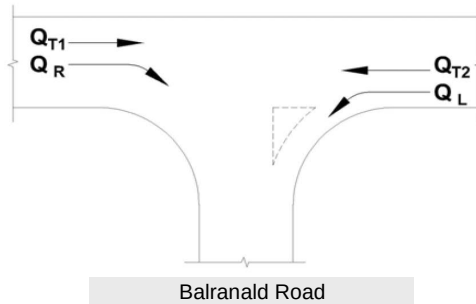
Intersection: **Yanga Way / Balranald Road**

Year / Peak: **2038 AM & PM**

Scenario: **Operations**

Assessment based on Austroads Guide to Traffic Management Part 6. This warrant assessment applies only to turning movements from the major road only.

	AM Peak	PM Peak
Q_{T1}	29	27
Q_R	1	1

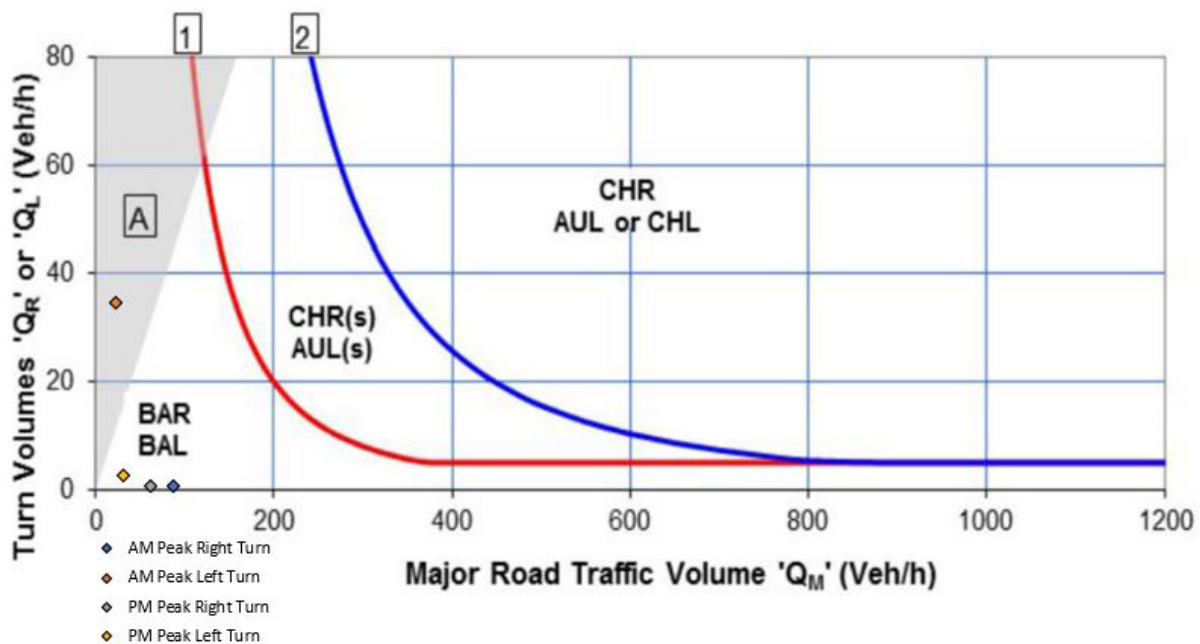


	AM Peak	PM Peak
Q_{T2}	25	33
Q_L	35	3

Splitter Island? **No**

Design speed (km/h) **110**

Graph	Q_M	Q_R/Q_L
AM Peak		
Right	88	1
Left	25	35
PM Peak		
Right	64	1
Left	33	3



Recommended treatments:

Right Turn	BAR
Left Turn	BAL

Legend

BAR	Basic Right Turn	BAL	Basic Left Turn
CHR(S)	Channelised Right Turn (short)	AUL(S)	Auxiliary Left Turn (short)
CHR	Channelised Right Turn	AUL	Auxiliary Left Turn
		CHL	Channelised Left Turn

Comments:

Prepared by:	A.Barrie
Reviewed by:	A.Barrie
Date:	6/05/2024

Turn Warrant Assessment

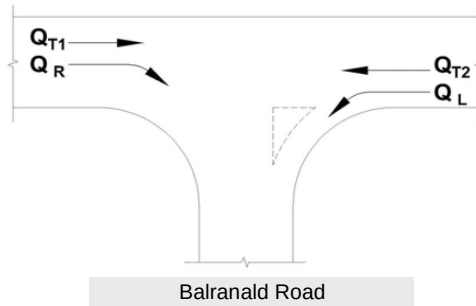
Intersection: **Yanga Way / Balranald Road**

Year / Peak: **2058 AM & PM**

Scenario: **Decommissioning**

Assessment based on Austroads Guide to Traffic Management Part 6. This warrant assessment applies only to turning movements from the major road only.

	AM Peak	PM Peak
Q_{T1}	43	41
Q_R	26	6

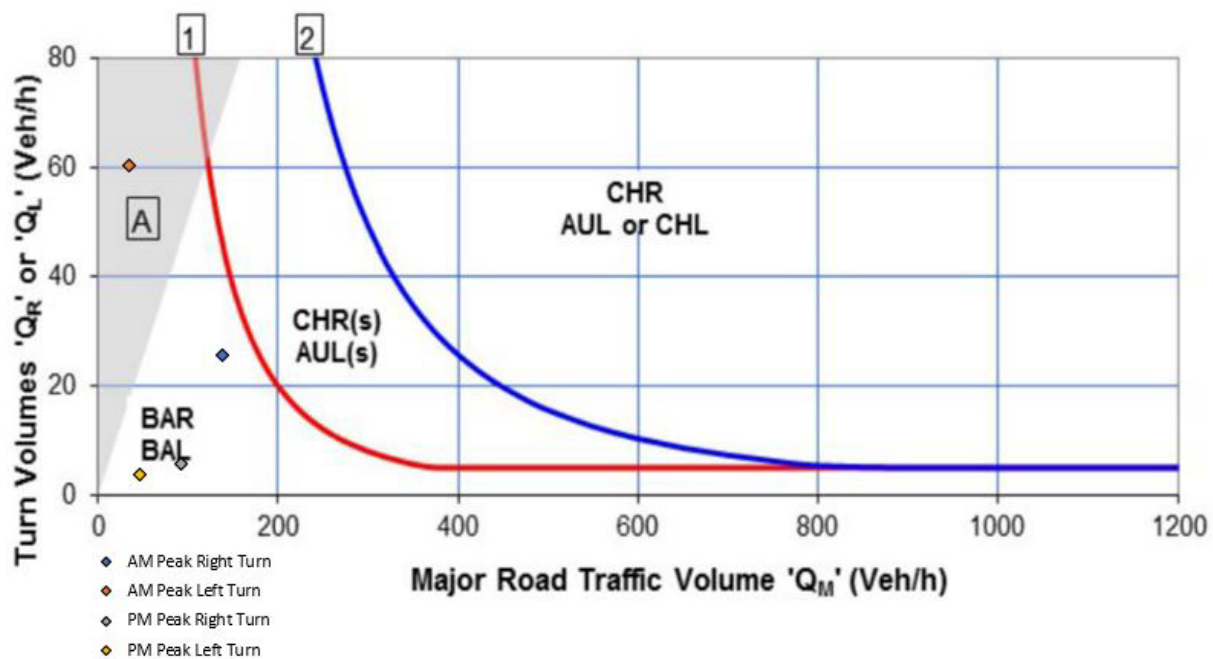


	AM Peak	PM Peak
Q_{T2}	37	49
Q_L	60	4

Splitter Island? **No**

Design speed (km/h) **110**

Graph	Q_M	Q_R/Q_L
AM Peak		
Right	140	26
Left	37	60
PM Peak		
Right	94	6
Left	49	4



Recommended treatments:

Right Turn	BAR
Left Turn	BAL

Legend

BAR	Basic Right Turn	BAL	Basic Left Turn
CHR(S)	Channelised Right Turn (short)	AUL(S)	Auxiliary Left Turn (short)
CHR	Channelised Right Turn	AUL	Auxiliary Left Turn
		CHL	Channelised Left Turn

Comments:

Prepared by:	A.Barrie
Reviewed by:	A.Barrie
Date:	6/05/2024



Appendix K – Project Traffic Impact Calculations

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Stage 1 Project Traffic Impact % Calculations

Road ID	Road Description	AADT Segment	AADT Segment		Base Data Year	Base Year AADT			Base Year HV%		Base Year HV		10 Yr GR%	2025	AADT		2025 HV	
			Start (km)	End (km)		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Gaz	A-Gaz		Gaz	A-Gaz	Gaz	A-Gaz	
A20	Sturt Highway (Mildura to Euston)	98064	0.000	82.400	2007	1,023	1,047	2,070	26.7%	26.9%	273	282	2.0%	1,461	1,495	2,956	390	403
A20	Sturt Highway (Euston to Balranald)	98064	82.400	162.100	2007	1,023	1,047	2,070	26.7%	26.9%	273	282	2.0%	1,461	1,495	2,956	390	403
A20	Sturt Highway (Balranald to Yanga Way)	T0234	162.100	165.500	2021	483	494	977	59.0%	60.1%	285	297	2.0%	523	535	1,058	308	321
-	Yanga Way (Sturt Highway to Balranald Road)	97488	0.000	11.800	2010	272	376	648	26.9%	27.7%	73	104	2.0%	366	506	872	98	140
-	Yanga Way (Balranald Road to Stony Crossing Road)	97494	11.800	36.200	2012	283	285	568	26.9%	27.7%	76	79	2.0%	366	369	735	98	102
-	Yanga Way (Stony Crossing Road to Tooleybuc)	97207	36.200	49.100	2006	221	220	441	34.8%	34.1%	77	75	2.0%	322	320	642	112	109
MRC	Balranald Road (Yanga Way to SA2)	-	0.000	6.930	2022	25	30	55	40.0%	50.0%	10	15	2.0%	27	32	58	11	16
MRC	Balranald Road (SA2 to SA3)	-	6.930	7.750	2022	25	30	55	40.0%	50.0%	10	15	2.0%	27	32	58	11	16
MRC	Balranald Road (SA3 to SA5)	-	7.750	11.095	2022	25	30	55	40.0%	50.0%	10	15	2.0%	27	32	58	11	16
-	Stony Crossing Road (Yanga Way to Swan Hill Road)	97206	0.000	40.900	2006	122	123	245	18.9%	26.8%	23	33	2.0%	178	179	357	34	48
-	Swan Hill Road (Swan Hill to Stony Crossing Road)	97200	0.000	11.100	2010	342	362	704	17.0%	16.9%	58	61	2.0%	460	487	947	78	82
B400	Murray River Highway (Swan Hill to Lake Boga)	-	0.000	16.000	2020	2,900	2,900	5,800	14.9%	17.7%	431	512	2.0%	3,202	3,202	6,404	476	565

Road ID	Road Description	AADT Segment	AADT Segment		Project Traffic (Daily) - Construction																															
			Start (km)	End (km)	Gazettal													A-Gazettal													Bi-Dir					
					1A	1B	1C	1D	2A	2B	3A	3B	4	Water	Fuel	Waste	Staff	Max	1A	1B	1C	1D	2A	2B	3A	3B	4	Water	Fuel	Waste	Staff	Max	Total	LV	HV	
A20	Sturt Highway (Mildura to Euston)	98064	0.000	82.400	4	1	1	2	1	3	7	2	2	0	1	1	0	11	4	1	1	2	1	3	7	2	2	0	1	1	0	11	22	0	22	
A20	Sturt Highway (Euston to Balranald)	T0234	82.400	162.100	4	1	1	2	1	3	7	2	2	0	1	1	0	11	4	1	1	2	1	3	7	2	2	0	1	1	0	11	22	0	22	
A20	Sturt Highway (Balranald to Yanga Way)	T0234	162.100	165.500	4	1	1	2	1	3	7	2	2	5	1	1	44	60	4	1	1	2	1	3	7	2	2	5	1	1	44	60	120	88	32	
-	Yanga Way (Sturt Highway to Balranald Road)	97488	0.000	11.800	4	1	1	2	1	3	7	2	2	5	1	1	44	60	4	1	1	2	1	3	7	2	2	5	1	1	44	60	120	88	32	
-	Yanga Way (Balranald Road to Stony Crossing Road)	97494	11.800	36.200	4	58	26	7	2	3	0	0	2	0	1	0	16	87	4	58	26	7	2	3	0	0	2	0	1	0	16	87	174	32	142	
-	Yanga Way (Stony Crossing Road to Tooleybuc)	97207	36.200	49.100	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	4	4	8	8	0		
MRC	Balranald Road (Yanga Way to SA2)	-	0.000	6.930	8	58	27	9	2	5	7	2	4	5	1	1	60	143	8	58	27	9	2	5	7	2	4	5	1	1	60	143	286	120	166	
MRC	Balranald Road (SA2 to SA3)	-	6.930	7.750	6	25	27	19	2	5	7	2	3	2	1	1	60	117	6	25	27	19	2	5	7	2	3	2	1	1	60	117	234	120	114	
MRC	Balranald Road (SA3 to SA5)	-	7.750	11.095	2	8	0	1	1	0	7	2	1	1	1	1	0	15	2	8	0	1	1	0	7	2	1	1	1	1	0	15	30	0	30	
-	Stony Crossing Road (Yanga Way to Swan Hill Road)	97206	0.000	40.900	4	58	26	7	2	3	0	0	2	0	1	0	12	83	4	58	26	7	2	3	0	0	2	0	1	0	12	83	166	24	142	
-	Swan Hill Road (Swan Hill to Stony Crossing Road)	97200	0.000	11.100	4	58	26	7	2	3	0	0	2	0	1	0	12	83	4	58	26	7	2	3	0	0	2	0	1	0	12	83	166	24	142	
B400	Murray River Highway (Swan Hill to Lake Boga)	-	0.000	16.000	0	58	25	5	2	0	0	0	0	0	0	0	0	65	0	58	25	5	2	0	0	0	0	0	0	0	0	65	130	0	130	

Dev Traffic % Impact - Construction		
Gaz %	A-Gaz %	Bi-Dir %
0.75%	0.74%	0.74%
0.75%	0.74%	0.74%
11.48%	11.22%	11.35%
16.39%	11.86%	13.76%
23.76%	23.60%	23.68%
1.24%	1.25%	1.25%
539.01%	449.17%	490.01%
441.01%	367.51%	400.92%
56.54%	47.12%	51.40%
46.70%	46.32%	46.51%
18.03%	17.04%	17.52%
2.03%	2.03%	2.03%

IN CONS		
Gaz	A-Gaz	Bi-Dir
1,472	1,506	2,978
1,472	1,506	2,978
583	595	1,178
426	566	992
453	456	909
326	324	650
170	175	344
144	149	292
42	47	88
261	262	523
543	570	1,113
3,267	3,267	6,534

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Stage 2 Project Traffic Impact % Calculations

Road ID	Road Description	AADT Segment	AADT Segment		Base Data Year	Base Year AADT			Base Year HV%		Base Year HV		10 Yr GR%	2028		AADT			2028 HV	
			Start (km)	End (km)		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Gaz	A-Gaz		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz		
A20	Sturt Highway (Mildura to Euston)	98064	0.000	82.400	2007	1,023	1,047	2,070	26.7%	26.9%	273	282	2.0%	1,551	1,587	3,137	414	427		
A20	Sturt Highway (Euston to Balranald)	98064	82.400	162.100	2021	1,023	1,047	2,070	26.7%	26.9%	273	282	2.0%	1,175	1,203	2,378	314	324		
A20	Sturt Highway (Balranald to Yanga Way)	T0234	162.100	165.500	2021	483	494	977	59.0%	60.1%	285	297	2.0%	555	567	1,122	327	341		
-	Yanga Way (Sturt Highway to Balranald Road)	97488	0.000	11.800	2010	272	376	648	26.9%	27.7%	73	104	2.0%	388	537	926	104	149		
-	Yanga Way (Balranald Road to SA1)	97494	11.800	19.800	2012	283	285	568	26.9%	27.7%	76	79	2.0%	388	391	780	104	108		
-	Yanga Way (SA1 to Stony Crossing Road)	97494	19.800	36.200	2012	283	285	568	26.9%	27.7%	76	79	2.0%	388	391	780	104	108		
-	Yanga Way (Stony Crossing Road to Tooleybuc)	97207	36.200	49.100	2006	221	220	441	34.8%	34.1%	77	75	2.0%	342	340	682	119	116		
MRC	Balranald Road (Yanga Way to Arundel Road)	-	0.000	10.402	2022	25	30	55	40.0%	50.0%	10	15	2.0%	28	34	62	11	17		
MRC	Balranald Road (Arundel Road to SA5)	-	10.402	11.095	2022	25	30	55	40.0%	50.0%	10	15	2.0%	28	34	62	11	17		
MRC	Balranald Road (SA5 to SA6)	-	11.095	17.340	2022	25	30	55	40.0%	50.0%	10	15	2.0%	28	34	62	11	17		
MRC	Balranald Road (SA6 to SA7)	-	17.340	18.995	2022	25	30	55	40.0%	50.0%	10	15	2.0%	28	34	62	11	17		
MRC	Balranald Road (SA7 to SA8)	-	18.995	22.140	2022	25	30	55	40.0%	50.0%	10	15	2.0%	28	34	62	11	17		
MRC	Arundel Road (Balranald Road to SA4)	-	0.000	0.710	2022	10	10	20	40.0%	40.0%	4	4	2.0%	11	11	23	5	5		
-	Stony Crossing Road (Yanga Way to Swan Hill Road)	97206	0.000	40.900	2006	122	123	245	18.9%	26.8%	23	33	2.0%	189	190	379	36	51		
-	Swan Hill Road (Swan Hill to Stony Crossing Road)	97200	0.000	11.100	2010	342	362	704	17.0%	16.9%	58	61	2.0%	488	517	1,005	83	87		
B400	Murray River Highway (Swan Hill to Lake Boga)	-	0.000	16.000	2020	2,900	2,900	5,800	14.9%	17.7%	431	512	2.0%	3,398	3,398	6,796	505	600		

Road ID	Road Description	AADT Segment	AADT Segment		Project Traffic (Daily) - Construction																																
			Start (km)	End (km)	Gazettal															A-Gazettal													Bi-Dir				
					1A	1B	1C	1D	2A	2B	3A	3B	4	Water	Fuel	Waste	Staff	Stg 1 Op	Max	1A	1B	1C	1D	2A	2B	3A	3B	4	Water	Fuel	Waste	Staff	Stg 1 Op	Max	Total	LV	HV
A20	Sturt Highway (Mildura to Euston)	98064	0.000	82.400	5	1	1	2	1	2	7	2	2	0	1	1	0	0	10	5	1	1	2	1	2	7	2	2	0	1	1	0	0	10	20	0	20
A20	Sturt Highway (Euston to Balranald)	T0234	82.400	162.100	5	1	1	2	1	2	7	2	2	0	1	1	0	0	10	5	1	1	2	1	2	7	2	2	0	1	1	0	0	10	20	0	20
A20	Sturt Highway (Balranald to Yanga Way)	T0234	162.100	165.500	5	1	1	2	1	2	7	2	2	6	1	1	77	15	108	5	1	1	2	1	2	7	2	2	6	1	1	77	15	108	216	184	32
-	Yanga Way (Sturt Highway to Balranald Road)	97488	0.000	11.800	5	1	1	2	1	2	7	2	2	6	1	1	77	15	108	5	1	1	2	1	2	7	2	2	6	1	1	77	15	108	216	184	32
-	Yanga Way (Balranald Road to SA1)	97494	11.800	19.800	5	39	17	5	2	2	7	2	2	3	1	1	28	0	83	5	39	17	5	2	2	7	2	2	3	1	1	28	0	83	166	56	110
-	Yanga Way (SA1 to Stony Crossing Road)	97494	19.800	36.200	5	62	22	7	3	2	0	0	2	0	1	0	28	0	103	5	62	22	7	3	2	0	0	2	0	1	0	28	0	103	206	56	150
-	Yanga Way (Stony Crossing Road to Tooleybuc)	97207	36.200	49.100	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0	7	0	7	14	14	0
MRC	Balranald Road (Yanga Way to Arundel Road)	-	0.000	10.402	7	39	20	5	2	3	7	2	3	4	1	1	105	15	177	7	39	20	5	2	3	7	2	3	4	1	1	105	15	177	354	240	114
MRC	Balranald Road (Arundel Road to SA5)	-	10.402	11.095	5	37	11	5	2	1	7	2	2	4	1	1	105	0	158	5	37	11	5	2	1	7	2	2	4	1	1	105	0	158	316	210	106
MRC	Balranald Road (SA5 to SA6)	-	11.095	17.340	5	36	11	5	2	1	7	2	2	4	1	1	105	0	157	5	36	11	5	2	1	7	2	2	4	1	1	105	0	157	314	210	104
MRC	Balranald Road (SA6 to SA7)	-	17.340	18.995	3	21	5	3	1	0	7	2	2	2	1	1	105	0	136	3	21	5	3	1	0	7	2	2	2	1	1	105	0	136	272	210	62
MRC	Balranald Road (SA7 to SA8)	-	18.995	22.140	2	14	4	2	1	0	7	2	1	2	1	1	105	0	128	2	14	4	2	1	0	7	2	1	2	1	1	105	0	128	256	210	46
MRC	Arundel Road (Balranald Road to SA4)	-	0.000	0.710	2	1	10	0	1	3	7	0	1	1	1	1	26	0	34	2	1	10	0	1	3	7	0	1	1	1	1	26	0	34	69	53	16
-	Stony Crossing Road (Yanga Way to Swan Hill Road)	97206	0.000	40.900	5	62	22	7	3	2	0	0	2	0	1	0	21	0	96	5	62	22	7	3	2	0	0	2	0	1	0	21	0	96	192	42	150
-	Swan Hill Road (Swan Hill to Stony Crossing Road)	97200	0.000	11.100	5	62	22	7	3	2	0	0	2	0	1	0	21	0	96	5	62	22	7	3	2	0	0	2	0	1	0	21	0	96	192	42	150
B400	Murray River Highway (Swan Hill to Lake Boga)	-	0.000	16.000	0	62	22	5	3	0	0	0	0	0	0	0	0	0	70	0	62	22	5	3	0	0	0	0	0	0	0	0	0	70	140	0	140

Dev Traffic % Impact - Construction		
Gaz %	A-Gaz %	Bi-Dir %
0.64%	0.63%	0.64%
0.85%	0.83%	0.84%
19.47%	19.03%	19.25%
27.80%	20.11%	23.34%
21.36%	21.21%	21.29%
26.51%	26.33%	26.42%
2.05%	2.06%	2.05%
628.68%	523.90%	571.53%
561.20%	467.66%	510.18%
557.65%	464.71%	506.95%
483.06%	402.55%	439.14%
454.64%	378.87%	413.31%
304.13%	304.13%	304.13%
50.90%	50.48%	50.69%
19.65%	18.57%	19.10%
2.06%	2.06%	2.06%

IN CONS		
Gaz	A-Gaz	Bi-Dir
1,561	1,597	3,157
1,185	1,213	2,398
663	675	1,338
496	645	1,142
471	474	946
491	494	986
349	347	696
205	211	416
186	192	378
185	191	376
164	170	334
156	162	318
46	46	91
285	286	571
584	613	1,197
3,468	3,468	6,936

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Project Traffic Volume Calculations

Road ID	Road Description	AADT Segment	AADT Segment		HV	2028			AADT		2028 HV		2038			2038 HV		2058			2058 HV	
			Start (km)	End (km)		A-Gaz	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz
A20	Sturt Highway (Mildura to Euston)	98064	0.000	82.400	411	1,551	1,587	3,137	414	427	1,890	1,934	3,825	504	521	2,809	2,874	5,683	749	774		
A20	Sturt Highway (Euston to Balranald)	98064	82.400	162.100	311	1,175	1,203	2,378	314	324	1,432	1,466	2,898	382	395	2,129	2,178	4,307	568	587		
A20	Sturt Highway (Balranald to Yanga Way)	T0234	162.100	165.500	328	555	567	1,122	327	341	676	692	1,368	399	416	1,005	1,028	2,033	593	618		
-	Yanga Way (Sturt Highway to Balranald Road)	97488	0.000	11.800	143	388	537	926	104	149	474	655	1,128	127	181	704	973	1,676	189	270		
-	Yanga Way (Balranald Road to SA1)	97494	11.800	19.800	104	388	391	780	104	108	474	477	951	127	132	704	709	1,412	189	196		
-	Yanga Way (SA1 to Stony Crossing Road)	97494	19.800	36.200	104	388	391	780	104	108	474	477	951	127	132	704	709	1,412	189	196		
-	Yanga Way (Stony Crossing Road to Tooleybuc)	97207	36.200	49.100	111	342	340	682	119	116	416	415	831	145	141	619	616	1,235	216	210		
MRC	Balranald Road (Yanga Way to SA2)	-	0.000	6.930	16	28	34	62	11	17	34	41	76	14	21	51	61	112	20	31		
MRC	Balranald Road (SA2 to SA3)	-	6.930	7.750	16	28	34	62	11	17	34	41	76	14	21	51	61	112	20	31		
MRC	Balranald Road (SA3 to Arundel Road)	-	7.750	10.402	16	28	34	62	11	17	34	41	76	14	21	51	61	112	20	31		
MRC	Balranald Road (Arundel Road to SA5)	-	10.402	11.095	16	28	34	62	11	17	34	41	76	14	21	51	61	112	20	31		
MRC	Balranald Road (SA5 to SA6)	-	11.095	17.340	16	28	34	62	11	17	34	41	76	14	21	51	61	112	20	31		
MRC	Balranald Road (SA6 to SA7)	-	17.340	18.995	16	28	34	62	11	17	34	41	76	14	21	51	61	112	20	31		
MRC	Balranald Road (SA7 to SA8)	-	18.995	22.140	16	28	34	62	11	17	34	41	76	14	21	51	61	112	20	31		
MRC	Arundel Road (Balranald Road to SA4)	-	0.000	0.710	4	11	11	23	5	5	14	14	27	5	5	20	20	41	8	8		
-	Stony Crossing Road (Yanga Way to Swan Hill Road)	97206	0.000	40.900	49	189	190	379	36	51	230	232	462	43	62	342	344	686	64	92		
-	Swan Hill Road (Swan Hill to Stony Crossing Road)	97200	0.000	11.100	84	488	517	1,005	83	87	595	630	1,226	101	106	885	937	1,821	150	158		
B400	Murray River Highway (Swan Hill to Lake Boga)	-	0.000	16.000	577	3,398	3,398	6,796	505	600	4,142	4,142	8,284	616	731	6,155	6,155	12,309	915	1,087		

Road ID	Road Description	AADT Segment	AADT Segment		Stage 1 % Increase			Stage 1 Construction Vols			Stage 2 % Increase			Stage 2 Construction			Operations % Increase			Operations			Decommissioning %			Decommissioning		
			Start (km)	End (km)	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
A20	Sturt Highway (Mildura to Euston)	98064	0.000	82.400	0.7%	0.7%	0.7%	1,501	1,536	3,038	0.6%	0.6%	0.6%	1,561	1,597	3,157	0.1%	0.1%	0.1%	1,892	1,936	3,829	0.2%	0.2%	0.2%	2,816	2,881	5,697
A20	Sturt Highway (Euston to Balranald)	T0234	82.400	162.100	1.0%	1.0%	1.0%	1,140	1,167	2,307	0.9%	0.8%	0.8%	1,185	1,213	2,398	0.1%	0.1%	0.1%	1,434	1,468	2,902	0.3%	0.3%	0.3%	2,136	2,185	4,321
A20	Sturt Highway (Balranald to Yanga Way)	T0234	162.100	165.500	11.3%	11.0%	11.1%	593	605	1,199	19.5%	19.0%	19.2%	663	675	1,338	4.7%	4.6%	4.7%	708	724	1,432	7.5%	7.4%	7.4%	1,081	1,103	2,184
-	Yanga Way (Sturt Highway to Balranald Road)	97488	0.000	11.800	16.1%	11.6%	13.5%	433	576	1,010	27.8%	20.1%	23.3%	496	645	1,142	6.8%	4.9%	5.7%	506	687	1,192	10.7%	7.8%	9.0%	779	1,048	1,828
-	Yanga Way (Balranald Road to SA1)	97494	11.800	19.800	23.3%	23.1%	23.2%	460	463	923	21.4%	21.2%	21.3%	471	474	946	0.0%	0.0%	0.0%	474	477	951	8.3%	8.2%	8.2%	762	767	1,529
-	Yanga Way (SA1 to Stony Crossing Road)	97494	19.800	36.200	23.3%	23.1%	23.2%	460	463	923	26.5%	26.3%	26.4%	491	494	986	0.0%	0.0%	0.0%	474	477	951	10.2%	10.2%	10.2%	776	781	1,557
-	Yanga Way (Stony Crossing Road to Tooleybuc)	97207	36.200	49.100	1.2%	1.2%	1.2%	332	331	663	2.0%	2.1%	2.1%	349	347	696	0.0%	0.0%	0.0%	416	415	831	0.8%	0.8%	0.8%	624	621	1,245
-	Balranald Road (Yanga Way to SA2)	-	0.000	6.930	528.4%	440.4%	480.4%	170	175	346	628.7%	523.9%	571.5%	205	211	416	93.2%	77.7%	84.8%	66	73	140	243.0%	202.5%	220.9%	175	185	360
-	Balranald Road (SA2 to SA3)	-	6.930	7.750	432.4%	360.3%	393.1%	144	149	294	628.7%	523.9%	571.5%	205	211	416	93.2%	77.7%	84.8%	66	73	140	243.0%	202.5%	220.9%	175	185	360
-	Balranald Road (SA3 to Arundel Road)	-	7.750	10.402	55.4%	46.2%	50.4%	42	47	90	628.7%	523.9%	571.5%	205	211	416	46.6%	38.9%	42.4%	50	57	108	243.0%	202.5%	220.9%	175	185	360
-	Balranald Road (Arundel Road to SA5)	-	10.402	11.095	55.4%	46.2%	50.4%	42	47	90	561.2%	467.7%	510.2%	186	192	378	0.0%	0.0%	0.0%	34	41	76	216.9%	180.7%	197.2%	162	172	333
-	Balranald Road (SA5 to SA6)	-	11.095	17.340	0.0%	0.0%	0.0%	27	32	60	557.6%	464.7%	507.0%	185	191	376	0.0%	0.0%	0.0%	34	41	76	215.5%	179.6%	195.9%	161	171	332
-	Balranald Road (SA6 to SA7)	-	17.340	18.995	0.0%	0.0%	0.0%	27	32	60	483.1%	402.5%	439.1%	164	170	334	0.0%	0.0%	0.0%	34	41	76	186.7%	155.6%	169.7%	146	156	303
-	Balranald Road (SA7 to SA8)	-	18.995	22.140	0.0%	0.0%	0.0%	27	32	60	454.6%	378.9%	413.3%	156	162	318	0.0%	0.0%	0.0%	34	41	76	175.7%	146.4%	159.7%	141	151	291
-	Arundel Road (Balranald Road to SA4)	-	0.000	0.710	0.0%	0.0%	0.0%	11	11	22	304.1%	304.1%	304.1%	46	46	91	116.6%	116.6%	116.6%	30	30	59	117.5%	117.5%	117.5%	44	44	89
-	Stony Crossing Road (Yanga Way to Swan Hill Road)	97206	0.000	40.900	45.8%	45.4%	45.6%	264	266	530	50.9%	50.5%	50.7%	285	286	571	0.0%	0.0%	0.0%	230	232	462	19.7%	19.5%	19.6%	409	412	820
-	Swan Hill Road (Swan Hill to Stony Crossing Road)	97200	0.000	11.100	17.7%	16.7%	17.2%	552	580	1,132	19.7%	18.6%	19.1%	584	613	1,197	0.0%	0.0%	0.0%	595	630	1,226	7.6%	7.2%	7.4%	952	1,004	1,956
B400	Murray River Highway (Swan Hill to Lake Boga)	-	0.000	16.000	2.0%	2.0%	2.0%	3,331	3,331	6,662	2.1%	2.1%	2.1%	3,468	3,468	6,936	0.0%	0.0%	0.0%	4,142	4,142	8,284	0.8%	0.8%	0.8%	6,204	6,204	12,407

Road ID	Road Description	AADT Segment	AADT Segment		Tchelery Wind Farm		Wilan Wind Farm			Overall External Project		
			Start (km)	End (km)	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
A20	Sturt Highway (Mildura to Euston)	98064	0.000	82.400	0	0	11	11	22	87	87	174
A20	Sturt Highway (Euston to Balranald)	T0234	82.400	162.100	0	0	11	11	22	87	87	174
A20	Sturt Highway (Balranald to Yanga Way)	T0234	162.100	165.500	13	26	36	36	72	252	252	504
-	Yanga Way (Sturt Highway to Balranald Road)	97488	0.000	11.800	0	0	0	0	0	85	85	170
-	Yanga Way (Balranald Road to SA1)	97494	11.800	19.800	0	0	0	0	0	85	85	170
-	Yanga Way (SA1 to Stony Crossing Road)	97494	19.800	36.200	0	0	0	0	0	85	85	170
-	Yanga Way (Stony Crossing Road to Tooleybuc)	97207	36.200	49.100	0	0	0	0	0	85	85	170
-	Balranald Road (Yanga Way to SA2)	-	0.000	6.930	0	0	0	0	0	0	0	0
-	Balranald Road (SA2 to SA3)	-	6.930	7.750	0	0	0	0	0	0	0	0
-	Balranald Road (SA3 to Arundel Road)	-	7.750	10.402	0	0	0	0	0	0	0	0
-	Balranald Road (Arundel Road to SA5)	-	10.402	11.095	0	0	0	0	0	0	0	0
-	Balranald Road (SA5 to SA6)	-	11.095	17.340	0	0	0	0	0	0	0	0
-	Balranald Road (SA6 to SA7)	-	17.340	18.995	0	0	0	0	0	0	0	0
-	Balranald Road (SA7 to SA8)	-	18.995	22.140	0	0	0	0	0	0	0	0
-	Arundel Road (Balranald Road to SA4)	-	0.000	0.710	0	0	0	0	0	0	0	0
-	Stony Crossing Road (Yanga Way to Swan Hill Road)	97206	0.000	40.900	0	0	0	0	0	0	0	0
-	Swan Hill Road (Swan Hill to Stony Crossing Road)	97200	0.000	11.100	0	0	0	0	0	0	0	0
B400	Murray River Highway (Swan Hill to Lake Boga)	-	0.000	16.000	0	0	0	0	0	0	0	0

Stage 1 + External			Stage 1 + External % Increase			Stage 2 + External			Stage 2 + External % Increase		
Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Bi-Dir
1,588	1,623	3,212	6.6%	6.4%	6.5%	1,648	1,684	3,331	6.3%	6.1%	6.2%
1,227	1,254	2,481	8.7%	8.5%	8.6%	1,272	1,300	2,572	8.3%	8.1%	8.2%
845	857	1,703	58.5%	57.2%	57.8%	915	927	1,842	64.9%	63.4%	64.2%
518	661	1,180	38.8%	28.1%	32.6%	581	730	1,312	49.7%	35.9%	41.7%
545	548	1,093	46.1%	45.7%	45.9%	556	559	1,116	43.2%	42.9%	43.1%
545	548	1,093	46.1%	45.7%	45.9%	576	579	1,156	48.4%	48.1%	48.



Appendix L – Project Pavement Loading Calculations

UMW0122-006 | Junction Rivers Wind Farm

Stage 1 - Project Pavement Loadings

TASK 1A - MOBILISATION AND ESTABLISHMENT

Activity Description	Project Volume	Vehicle	Origin
Construction Mobilisation - Ancilliary Equipment (via SA2)	13	Semi / Low Loader	Mildura
	13	Semi / Low Loader	Swan Hill
	13	Semi / Low Loader	Mildura
Construction Mobilisation - Ancilliary Equipment (via SA3)	13	Semi / Low Loader	Swan Hill
	13	Semi / Low Loader	Mildura
	13	Semi / Low Loader	Swan Hill
Construction Mobilisation - Ancilliary Equipment (via SA5)	13	Semi / Low Loader	Mildura
	13	Semi / Low Loader	Swan Hill
	13	Semi / Low Loader	Mildura
Construction Mobilisation - EW Plant (via SA2)	10	Semi / Low Loader	Mildura
	10	Semi / Low Loader	Swan Hill
	10	Semi / Low Loader	Mildura
Construction Mobilisation - EW Plant (via SA3)	10	Semi / Low Loader	Swan Hill
	10	Semi / Low Loader	Mildura
	10	Semi / Low Loader	Swan Hill
Construction Mobilisation - EW Plant (via SA5)	10	Semi / Low Loader	Mildura
	10	Semi / Low Loader	Swan Hill
	10	Semi / Low Loader	Mildura
Construction Compound Establishment & Buildings (via SA3)	13	Semi / Low Loader	Mildura
	13	Semi / Low Loader	Swan Hill
	13	Semi / Low Loader	Mildura
Batch Plant Area Establishment (via SA3)	13	Semi / Low Loader	Mildura
	13	Semi / Low Loader	Swan Hill

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	456	47
Sturt Highway (Balranald to Yanga Way)	456	47
Yanga Way (Sturt Highway to Balranald Road)	456	47
Balranald Road (Yanga Way to SA2)	912	94
Balranald Road (SA2 to SA3)	690	71
Balranald Road (SA3 to SA5)	222	23
Yanga Way (Balranald Road to Stony Crossing Road)	456	47
Stony Crossing Road (Yanga Way to Swan Hill Road)	456	47
Swan Hill Road (Stony Crossing Road to Swan Hill)	456	47

TASK 1B - ACCESS ROADS, HARDSTANDS & SITE ENTRANCES

Activity Description	Project Volume	Vehicle	Origin
Internal Access Track (HV) Gravel Pavement Materials (via SA2)	2,340	Truck Trailer	Mawsons Quarry Lake Boga
Internal Access Track (HV) Gravel Pavement Materials (via SA3)	1,640	Truck Trailer	Mawsons Quarry Lake Boga
Internal Access Track (HV) Gravel Pavement Materials (via SA5)	423	Truck Trailer	Mawsons Quarry Lake Boga
Internal Access Track (LV) Gravel Pavement Materials (via SA2)	36	Truck Trailer	Mawsons Quarry Lake Boga
External Access Intersection Upgrade Pavement Materials (Stage 1)	38	Truck Trailer	Mawsons Quarry Lake Boga
Site Access SA2 Upgrade Pavement Materials (Stage 1)	25	Truck Trailer	Mawsons Quarry Lake Boga
Site Access SA3 Upgrade Pavement Materials (Stage 1)	25	Truck Trailer	Mawsons Quarry Lake Boga
Site Access SA5 Upgrade Pavement Materials (Stage 1)	25	Truck Trailer	Mawsons Quarry Lake Boga
Balranald Road Upgrade Gravel Pavement (Stage 1)	642	Truck Trailer	Mawsons Quarry Lake Boga
Turbine Hardstand Area Gravel (via SA2)	3,719	Truck Trailer	Mawsons Quarry Lake Boga
Turbine Hardstand Area Gravel (via SA3)	2,188	Truck Trailer	Mawsons Quarry Lake Boga
Turbine Hardstand Area Gravel (via SA5)	657	Truck Trailer	Mawsons Quarry Lake Boga
Culverts/Pipes (via SA2)	8	Semi	Mildura
	8	Semi	Swan Hill
Culverts/Pipes (via SA3)	6	Semi	Mildura
	6	Semi	Swan Hill
	2	Semi	Mildura
Culverts/Pipes (via SA5)	2	Semi	Mildura
	2	Semi	Swan Hill

Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs
Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	74	8
Sturt Highway (Balranald to Yanga Way)	74	8
Yanga Way (Sturt Highway to Balranald Road)	74	8
Balranald Road (Yanga Way to SA2)	72,226	19,236
Balranald Road (SA2 to SA3)	32,043	8,533
Balranald Road (SA3 to SA5)	8,001	2,131
Yanga Way (Balranald Road to Stony Crossing Road)	72,386	19,291
Stony Crossing Road (Yanga Way to Swan Hill Road)	72,386	19,291
Swan Hill Road (Stony Crossing Road to Swan Hill)	72,386	19,291
Murray River Highway (Swan Hill to Lake Boga)	72,312	19,283

TASK 1C - SITE COMPOUND AREAS (CIVIL)

Activity Description	Project Volume	Vehicle	Origin	
Substation (SA3) Slab Wet Concrete	458	Concrete Truck	SA3 Batch Plant	Internal
Substation (SA3) Slab Concrete Sand/Aggregates	99	Truck Trailer	Mawsons Quarry Lake Boga	
Substation (SA3) Slab Cement	12	Semi	Mildura	
	12		Swan Hill	
Substation (SA3) Slab Reinforcing Steel	20	Semi	Mildura	Internal
	20		Swan Hill	
Substation (SA3) Slab Water	5	Semi Water Truck	Balranald	
BESS (SA3) Slab Wet Concrete	257	Concrete Truck	SA3 Batch Plant	Internal
BESS (SA3) Slab Concrete Sand/Aggregates	56	Truck Trailer	Mawsons Quarry Lake Boga	
BESS (SA3) Slab Cement	7	Semi	Mildura	
	7		Swan Hill	
BESS (SA3) Slab Reinforcing Steel	11	Semi	Mildura	Internal
	11		Swan Hill	
BESS (SA3) Slab Water	3	Semi Water Truck	Balranald	
Batch Plant (SA3) Slab Wet Concrete	116	Concrete Truck	SA3 Batch Plant	Internal
Batch Plant (SA3) Slab Concrete Sand/Aggregates	25	Truck Trailer	Mawsons Quarry Lake Boga	
Batch Plant (SA3) Slab Cement	3	Semi	Mildura	
	3		Swan Hill	
Batch Plant (SA3) Slab Reinforcing Steel	5	Semi	Mildura	Internal
	5		Swan Hill	
Batch Plant (SA3) Slab Water	2	Semi Water Truck	Balranald	
Construction Compound (SA3) Slab Wet Concrete	79	Concrete Truck	SA3 Batch Plant	Internal
Construction Compound (SA3) Slab Concrete Sand/Aggregates	17	Truck Trailer	Mawsons Quarry Lake Boga	
Construction Compound (SA3) Slab Cement	2	Semi	Mildura	
	2		Swan Hill	
Construction Compound (SA3) Slab Reinforcing Steel	4	Semi	Mildura	Internal
	4		Swan Hill	
Construction Compound (SA3) Slab Water	1	Semi Water Truck	Balranald	
Operational and Maintenance Facility (SA3) Slab Wet Concrete	87	Concrete Truck	SA3 Batch Plant	Internal
Operational and Maintenance Facility (SA3) Slab Concrete Sand/Aggregates	19	Truck Trailer	Mawsons Quarry Lake Boga	
Operational and Maintenance Facility (SA3) Slab Cement	3	Semi	Mildura	
	3		Swan Hill	
Operational and Maintenance Facility (SA3) Slab Reinforcing Steel	4	Semi	Mildura	Internal
	4		Swan Hill	
Operational and Maintenance Facility (SA3) Slab Water	1	Semi Water Truck	Balranald	
Substation / Switching Station Area Gravel (via SA3)	950	Truck Trailer	Mawsons Quarry Lake Boga	
Battery Storage Area Gravel (via SA3)	236	Truck Trailer	Mawsons Quarry Lake Boga	
Batch Plant Area Gravel (via SA3)	299	Truck Trailer	Mawsons Quarry Lake Boga	
Site Construction Compound Gravel (via SA3)	203	Truck Trailer	Mawsons Quarry Lake Boga	
Operational and Maintenance Facility Area Gravel (via SA3)	250	Truck Trailer	Mawsons Quarry Lake Boga	
Site Laydown Area Gravel (via SA3)	225	Truck Trailer	Mawsons Quarry Lake Boga	

Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs
Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs
Concrete Truck (4 Axle Rigid) Unloaded (0%)	0.46	ESAs
Concrete Truck (4 Axle Rigid) Loaded (100%)	4.09	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	338	35
Sturt Highway (Balranald to Yanga Way)	397	41
Yanga Way (Sturt Highway to Balranald Road)	397	41
Balranald Road (Yanga Way to SA2)	15,365	4,333
Balranald Road (SA2 to SA3)	15,365	4,333
Balranald Road (SA3 to SA5)	0	0
Yanga Way (Balranald Road to Stony Crossing Road)	14,969	3,936
Stony Crossing Road (Yanga Way to Swan Hill Road)	14,969	3,936
Swan Hill Road (Stony Crossing Road to Swan Hill)	14,969	3,936
Murray River Highway (Swan Hill to Lake Boga)	14,631	3,902

TASK 1D - TURBINE FOUNDATIONS

Activity Description	Project Volume	Vehicle	Origin
Concrete aggregates for turbine footings (SA2)	510	Truck Trailer	Mawsons Quarry Lake Boga
Reinforcing steel for turbine footings (SA2)	100	Semi	Mildura
	100		Swan Hill
Other concrete supplies for turbine footings (SA2)	58	Semi	Mildura
	58		Swan Hill
Water for turbine footings concrete (SA2)	26	Semi Water Truck	Balranald
Wet concrete for turbine footings (SA2)	2,267	Concrete Truck	SA3 Batch Plant
Formwork (via SA2)	9	Semi	Mildura
	9		Swan Hill
Geomembrane (via SA2)	17	Semi	Mildura
	17		Swan Hill
Concrete aggregates for turbine footings (SA3)	300	Truck Trailer	Mawsons Quarry Lake Boga
Reinforcing steel for turbine footings (SA3)	59	Semi	Mildura
	59		Swan Hill
Other concrete supplies for turbine footings (SA3)	34	Semi	Mildura
	34		Swan Hill
Water for turbine footings concrete (SA3)	15	Semi Water Truck	Balranald
Wet concrete for turbine footings (SA3)	1,333	Concrete Truck	SA3 Batch Plant
Formwork (via SA3)	5	Semi	Mildura
	5		Swan Hill
Geomembrane (via SA3)	10	Semi	Mildura
	10		Swan Hill
Concrete aggregates for turbine footings (SA5)	90	Truck Trailer	Mawsons Quarry Lake Boga
Reinforcing steel for turbine footings (SA5)	18	Semi	Mildura
	18		Swan Hill
Other concrete supplies for turbine footings (SA5)	10	Semi	Mildura
	10		Swan Hill
Water for turbine footings concrete (SA5)	5	Semi Water Truck	Balranald
Wet concrete for turbine footings (SA5)	400	Concrete Truck	SA3 Batch Plant
Formwork (via SA5)	2	Semi	Mildura
	2		Swan Hill
Geomembrane (via SA5)	3	Semi	Mildura
	3		Swan Hill

Internal

Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs
Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs
Concrete Truck (4 Axle Rigid) Unloaded (0%)	0.46	ESAs
Concrete Truck (4 Axle Rigid) Loaded (100%)	4.09	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	1,598	165
Sturt Highway (Balranald to Yanga Way)	1,821	188
Yanga Way (Sturt Highway to Balranald Road)	1,821	188
Balranald Road (Yanga Way to SA2)	10,927	5,235
Balranald Road (SA2 to SA3)	7,716	1,702
Balranald Road (SA2 to SA3)	9,271	1,043
Balranald Road (SA3 to SA5)	219	23
Yanga Way (Balranald Road to Stony Crossing Road)	7,133	1,641
Stony Crossing Road (Yanga Way to Swan Hill Road)	7,133	1,641
Swan Hill Road (Stony Crossing Road to Swan Hill)	7,133	1,641
Murray River Highway (Swan Hill to Lake Boga)	5,535	1,476

Concrete Trucks SA3 to SA2

TASK 2A - CABLING

Activity Description	Project Volume	Vehicle	Origin
Underground Powerline Cable (via SA2)	4	Semi	Mildura
	4		Swan Hill
Underground Powerline Bedding Sand (via SA2)	105	Truck Trailer	Mawsons Quarry Lake Boga
Underground Powerline Cable (via SA3)	5	Semi	Mildura
	5		Swan Hill
Underground Powerline Bedding Sand (via SA3)	119	Truck Trailer	Mawsons Quarry Lake Boga
Underground Powerline Cable (via SA5)	4	Semi	Mildura
	4		Swan Hill
Underground Powerline Bedding Sand (via SA5)	85	Truck Trailer	Mawsons Quarry Lake Boga

Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs
Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	59	6
Sturt Highway (Balranald to Yanga Way)	59	6
Yanga Way (Sturt Highway to Balranald Road)	59	6
Balranald Road (Yanga Way to SA2)	2,019	572
Balranald Road (SA2 to SA3)	1,333	343
Balranald Road (SA3 to SA5)	557	143
Yanga Way (Balranald Road to Stony Crossing Road)	1,960	513
Stony Crossing Road (Yanga Way to Swan Hill Road)	1,960	513
Swan Hill Road (Stony Crossing Road to Swan Hill)	1,960	513
Murray River Highway (Swan Hill to Lake Boga)	1,900	507

TASK 2B - SITE COMPOUND AREAS (ELECTRICAL WORKS)

Activity Description	Project Volume	Vehicle	Origin
Transformer (via SA3)	1	Special	Port Adelaide
Switchroom (via SA3)	1	Special	Port Adelaide
Electrical Components (via SA3)	100	Semi	Mildura
	100		Swan Hill
Substation / Switching Station Area Establishment & Buildings (via SA3)	20	Semi	Mildura
	20		Swan Hill
Battery Storage Establishment (via SA3)	20	Semi	Mildura
	20		Swan Hill
Operational and Maintenance Facility Establishment (via SA3)	13	Semi	Mildura
	13		Swan Hill

Transformer Unloaded (0%)	37.77	ESAs
Transformer Loaded (100%)	89.31	ESAs
Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	930	153
Sturt Highway (Balranald to Yanga Way)	930	153
Yanga Way (Sturt Highway to Balranald Road)	930	153
Balranald Road (Yanga Way to SA2)	1,682	231
Balranald Road (SA2 to SA3)	1,682	231
Balranald Road (SA3 to SA5)	0	0
Yanga Way (Balranald Road to Stony Crossing Road)	752	78
Stony Crossing Road (Yanga Way to Swan Hill Road)	752	78
Swan Hill Road (Stony Crossing Road to Swan Hill)	752	78
Murray River Highway (Swan Hill to Lake Boga)	752	78

TASK 3A - TURBINE TRANSPORTATION

Activity Description	Project Volume	Vehicle	Origin
Turbine Blades (SA2)	51	Special	Port Adelaide
Turbine Blades (SA3)	30	Special	Port Adelaide
Turbine Blades (SA5)	9	Special	Port Adelaide
Turbine Nacelles (SA2)	17	Special	Port Adelaide
Turbine Nacelles (SA3)	10	Special	Port Adelaide
Turbine Nacelles (SA5)	3	Special	Port Adelaide
Turbine Drive Trains (SA2)	17	Special	Port Adelaide
Turbine Drive Trains (SA3)	10	Special	Port Adelaide
Turbine Drive Trains (SA5)	3	Special	Port Adelaide
Turbine Hub & Nose Cone (SA2)	17	Special	Port Adelaide
Turbine Hub & Nose Cone (SA3)	10	Special	Port Adelaide
Turbine Hub & Nose Cone (SA5)	3	Special	Port Adelaide
Tower Sections 1-2 (SA2)	34	Special	Port Adelaide
Tower Sections 1-2 (SA3)	20	Special	Port Adelaide
Tower Sections 1-2 (SA5)	6	Special	Port Adelaide
Tower Sections 3-7 (SA2)	85	Special	Port Adelaide
Tower Sections 3-7 (SA3)	50	Special	Port Adelaide
Tower Sections 3-7 (SA5)	15	Special	Port Adelaide
Tower Base Rings (SA2)	6	Semi	Port Adelaide
Tower Base Rings (SA3)	4	Semi	Port Adelaide
Tower Base Rings (SA5)	1	Semi	Port Adelaide
Tower Assembly Components (SA2)	17	Semi	Port Adelaide
Tower Assembly Components (SA3)	10	Semi	Port Adelaide
Tower Assembly Components (SA5)	3	Semi	Port Adelaide
Performance Monitoring Masts (SA2)	5	Special	Port Adelaide
Performance Monitoring Masts (SA3)	0	Special	Port Adelaide
Performance Monitoring Masts (SA5)	0	Special	Port Adelaide

Turbine Blade Transport Unloaded (0%)	7.95	ESAs
Turbine Blade Transport Loaded (100%)	11.47	ESAs
Turbine Nacelle Transport Unloaded (0%)	4.88	ESAs
Turbine Nacelle Transport Loaded (100%)	24.41	ESAs
Turbine Drive Train Transport Unloaded (0%)	4.98	ESAs
Turbine Drive Train Transport Loaded (100%)	22.78	ESAs
Turbine Hub Transport Unloaded (0%)	4.77	ESAs
Turbine Hub Transport Loaded (100%)	12.38	ESAs
Turbine Tower Section (1-2) Transport Unloaded (Average) (0%)	2.59	ESAs
Turbine Tower Section (1-2) Transport Loaded (Average) (100%)	14.86	ESAs
Turbine Tower Section (3-7) Transport Unloaded (Average) (0%)	2.73	ESAs
Turbine Tower Section (3-7) Transport Loaded (Average) (100%)	22.87	ESAs
PMM Unloaded (0%)	1.87	ESAs
PMM Loaded (100%)	7.91	ESAs
Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Euston)	6,348	1,034
Sturt Highway (Euston to Balranald)	7,381	1,749
Sturt Highway (Balranald to Yanga Way)	7,381	1,749
Yanga Way (Sturt Highway to Balranald Road)	7,381	1,749
Balranald Road (Yanga Way to SA2)	7,381	1,749
Balranald Road (SA2 to SA3)	3,181	754
Balranald Road (SA3 to SA5)	734	174
Yanga Way (Balranald Road to Stony Crossing Road)	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0

TASK 3B - TURBINE ERECTION

Activity Description	Project Volume	Vehicle	Origin
Site Crane (Turbines)	8	Special / Crane	Port Adelaide
Secondary Crane	1	Crane / Semi	Mildura

Special Crane (Assume B-Double) Unloaded (0%)	1.69	ESAs
Special Crane (Assume B-Double) Loaded (100%)	6.91	ESAs
Crane / Semi Unloaded (0%)	0.51	ESAs
Crane / Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Euston to Balranald)	60	14
Sturt Highway (Balranald to Yanga Way)	60	14
Yanga Way (Sturt Highway to Balranald Road)	60	14
Balranald Road (Yanga Way to SA2)	60	14
Balranald Road (SA2 to SA3)	60	14
Balranald Road (SA3 to SA5)	60	14
Yanga Way (Balranald Road to Stony Crossing Road)	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0

TASK 4 - FINALISATION / COMMISSIONING / DEMOBILISATION

Activity Description	Project Volume	Vehicle	Origin
Construction Demobilisation - Ancilliary Equipment (via SA2)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Demobilisation - Ancilliary Equipment (via SA3)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Demobilisation - Ancilliary Equipment (via SA5)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Demobilisation - EW Plant (via SA2)	10	Semi / Low Loader	Mildura
	10		Swan Hill
Construction Demobilisation - EW Plant (via SA3)	10	Semi / Low Loader	Mildura
	10		Swan Hill
Construction Demobilisation - EW Plant (via SA5)	10	Semi / Low Loader	Mildura
	10		Swan Hill
Construction Compound Decommissioning (via SA3)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Batch Plant Area Decommissioning (via SA3)	13	Semi / Low Loader	Mildura
	13		Swan Hill

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	456	47
Sturt Highway (Balranald to Yanga Way)	456	47
Yanga Way (Sturt Highway to Balranald Road)	456	47
Balranald Road (Yanga Way to SA2)	912	94
Balranald Road (SA2 to SA3)	690	71
Balranald Road (SA3 to SA5)	222	23
Yanga Way (Balranald Road to Stony Crossing Road)	456	47
Stony Crossing Road (Yanga Way to Swan Hill Road)	456	47
Swan Hill Road (Stony Crossing Road to Swan Hill)	456	47

TASK W - SITE WATER

Activity Description	Project Volume	Vehicle	Origin
Site Water (via SA2)	1,027	Semi Water Truck	Balranald
Site Water (via SA3)	604	Semi Water Truck	Balranald
Site Water (via SA5)	175	Semi Water Truck	Balranald

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	0	0
Sturt Highway (Balranald to Yanga Way)	8,904	921
Yanga Way (Sturt Highway to Balranald Road)	8,904	921
Balranald Road (Yanga Way to SA2)	8,904	921
Balranald Road (SA2 to SA3)	3,840	397
Balranald Road (SA3 to SA5)	863	89
Yanga Way (Balranald Road to Stony Crossing Road)	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0

TASK F - SITE FUEL

Activity Description	Project Volume	Vehicle	Origin
Fuel (via SA2)	33	Semi Tanker	Mildura
	33		Swan Hill
Fuel (via SA3)	19	Semi Tanker	Mildura
	19		Swan Hill
Fuel (via SA5)	6	Semi Tanker	Mildura
	6		Swan Hill

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	283	29
Sturt Highway (Balranald to Yanga Way)	283	29
Yanga Way (Sturt Highway to Balranald Road)	283	29
Balranald Road (Yanga Way to SA2)	567	59
Balranald Road (SA2 to SA3)	247	26
Balranald Road (SA3 to SA5)	59	6
Yanga Way (Balranald Road to Stony Crossing Road)	283	29
Stony Crossing Road (Yanga Way to Swan Hill Road)	283	29
Swan Hill Road (Stony Crossing Road to Swan Hill)	283	29
Murray River Highway (Swan Hill to Lake Boga)	0	0

TASK WC - WASTE COLLECTION

Activity Description	Project Volume	Vehicle	Origin
Waste Collection (via SA2)	78	Semi	Mildura
Waste Collection (via SA3)	78	Semi	Mildura
Waste Collection (via SA5)	78	Semi	Mildura

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	1,157	120
Sturt Highway (Balranald to Yanga Way)	1,157	120
Yanga Way (Sturt Highway to Balranald Road)	1,157	120
Balranald Road (Yanga Way to SA2)	1,157	120
Balranald Road (SA2 to SA3)	771	80
Balranald Road (SA3 to SA5)	386	40
Yanga Way (Balranald Road to Stony Crossing Road)	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0

Road ID	Road Description	AADT Segment	AADT Segment		Base Data Year	Base Year AADT			Base Year HV%		Base Year HV		10 Yr GR%	2025	AADT			2025	HV		ESAs / HV	Duration (Days)	Background Pavement Loading (ESAs)		
			Start (km)	End (km)		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Gaz	A-Gaz		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz							
A20	Sturt Highway (Mildura to Euston)	98064	0.000	82.400	2007	1,023	1,047	2,070	26.7%	26.9%	273	282	2.0%	1,461	1,495	2,956	390	403	3.19	548	680,990	703,440	1,384,430		
A20	Sturt Highway (Euston to Balranald)	98064	82.400	162.100	2007	1,023	1,047	2,070	26.7%	26.9%	273	282	2.0%	1,461	1,495	2,956	390	403	3.19	548	680,990	703,440	1,384,430		
A20	Sturt Highway (Balranald to Yanga Way)	70234	162.100	165.500	2021	483	494	977	59.0%	60.1%	285	297	2.0%	523	535	1,058	308	321	3.19	548	538,791	561,477	1,100,268		
-	Yanga Way (Sturt Highway to Balranald Road)	97488	0.000	11.800	2010	272	376	648	26.9%	27.7%	73	104	2.0%	366	506	872	98	140	3.19	548	171,701	244,989	416,691		
-	Yanga Way (Balranald Road to Stony Crossing Road)	97494	11.800	36.200	2012	283	285	568	26.9%	27.7%	76	79	2.0%	366	369	735	98	102	3.19	548	171,708	178,486	350,194		
-	Yanga Way (Stony Crossing Road to Tooleybuc)	97207	36.200	49.100	2006	221	220	441	34.8%	34.1%	77	75	2.0%	322	320	642	112	109	3.19	548	195,915	190,827	386,742		
MRC	Balranald Road (Yanga Way to SA2)	-	0.000	6.930	2022	25	30	55	40.0%	50.0%	10	15	2.0%	27	32	58	11	16	3.19	548	18,534	27,801	46,336		
MRC	Balranald Road (SA2 to SA3)	-	6.930	7.750	2022	25	30	55	40.0%	50.0%	10	15	2.0%	27	32	58	11	16	3.19	548	18,534	27,801	46,336		
MRC	Balranald Road (SA3 to SA5)	-	7.750	11.095	2022	25	30	55	40.0%	50.0%	10	15	2.0%	27	32	58	11	16	3.19	548	18,534	27,801	46,336		
-	Stony Crossing Road (Yanga Way to Swan Hill Road)	97206	0.000	40.900	2006	122	123	245	18.9%	26.8%	23	33	2.0%	178	179	357	34	48	3.19	548	58,520	83,964	142,484		
-	Swan Hill Road (Swan Hill to Stony Crossing Road)	97200	0.000	11.100	2010	342	362	704	17.0%	16.9%	58	61	2.0%	460	487	947	78	82	3.19	548	136,334	143,386	279,721		
B400	Murray River Highway (Swan Hill to Lake Boga)	-	0.000	16.000	2020	2,900	2,900	5,800	14.9%	17.7%	431	512	2.0%	3,202	3,202	6,404	476	565	3.19	548	831,099	987,292	1,818,391		

Road ID	Road Description	AADT Segment	AADT Segment		Project Traffic (Daily) - Stage 1 Construction																												% Increase ESAs		
			Start (km)	End (km)	Gazettal														A-Gazettal																
					1A	1B	1C	1D	2A	2B	3A	3B	4	Water	Fuel	Waste	Total	1A	1B	1C	1D	2A	2B	3A	3B	4	Water	Fuel	Waste	Total	Bi-Dir				
A20	Sturt Highway (Mildura to Euston)	98064	0.000	82.400	456	74	338	1,598	59	930	6,348	60	456	0	283	1,157	11,760	47	8	35	165	6	153	1,034	14	47	0	29	120	1,659	13,419	1.73%	0.24%	0.97%	
A20	Sturt Highway (Euston to Balranald)	98064	82.400	162.100	456	74	338	1,598	59	930	7,381	60	456	0	283	1,157	12,793	47	8	35	165	6	153	1,749	14	47	0	29	120	2,374	15,167	1.88%	0.34%	1.10%	
A20	Sturt Highway (Balranald to Yanga Way)	70234	162.100	165.500	456	74	397	1,821	59	930	7,381	60	456	8,904	283	1,157	21,979	47	8	41	188	6	153	1,749	14	47	921	29	120	3,324	25,303	4.08%	0.59%	2.30%	
-	Yanga Way (Sturt Highway to Balranald Road)	97488	0.000	11.800	456	74	397	1,821	59	930	7,381	60	456	8,904	283	1,157	21,979	47	8	41	188	6	153	1,749	14	47	921	29	120	3,324	25,303	12.80%	1.36%	6.07%	
-	Yanga Way (Balranald Road to Stony Crossing Road)	97494	11.800	36.200	47	19,291	3,936	1,641	513	78	0	0	47	0	29	0	25,583	456	72,386	14,969	7,133	1,960	752	0	0	456	0	283	0	98,394	123,977	14.90%	55.13%	35.40%	
-	Yanga Way (Stony Crossing Road to Tooleybuc)	97207	36.200	49.100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%	0.00%	
MRC	Balranald Road (Yanga Way to SA2)	-	0.000	6.930	912	72,226	15,365	10,927	2,019	1,682	7,381	60	912	8,904	567	1,157	122,111	94	19,236	4,333	5,235	572	231	1,749	14	94	921	59	120	32,659	154,770	658.84%	117.47%	334.02%	
MRC	Balranald Road (SA2 to SA3)	-	6.930	7.750	690	32,043	15,365	8,759	1,333	1,682	3,181	60	690	3,840	247	771	68,663	71	8,533	4,333	10,972	343	231	754	14	71	397	26	80	25,826	94,489	370.46%	92.90%	203.92%	
MRC	Balranald Road (SA3 to SA5)	-	7.750	11.095	222	8,001	0	9,293	557	0	734	60	222	863	59	386	20,397	23	2,131	0	1,261	143	0	174	14	23	89	6	40	3,904	24,301	110.05%	14.04%	52.45%	
-	Stony Crossing Road (Yanga Way to Swan Hill Road)	97206	0.000	40.900	47	19,291	3,936	1,641	513	78	0	0	47	0	29	0	25,583	456	72,386	14,969	7,133	1,960	752	0	0	456	0	283	0	98,394	123,977	43.72%	117.19%	87.01%	
-	Swan Hill Road (Swan Hill to Stony Crossing Road)	97200	0.000	11.100	456	72,386	14,969	7,133	1,960	752	0	0	456	0	283	0	98,394	47	19,291	3,936	1,641	513	78	0	0	47	0	29	0	25,583	123,977	72.17%	17.84%	44.32%	
B400	Murray River Highway (Swan Hill to Lake Boga)	-	0.000	16.000	0	72,312	14,631	5,535	1,900	752	0	0	0	0	0	0	95,130	0	19,283	3,902	1,476	507	78	0	0	0	0	0	0	25,245	120,375	11.45%	2.56%	6.62%	

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Stage 2 - Project Pavement Loadings

TASK 1A - MOBILISATION AND ESTABLISHMENT

Activity Description	Project Volume	Vehicle	Origin
Construction Mobilisation - Ancilliary Equipment (via SA1)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Mobilisation - Ancilliary Equipment (via SA4)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Mobilisation - Ancilliary Equipment (via SA6)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Mobilisation - Ancilliary Equipment (via SA7)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Mobilisation - Ancilliary Equipment (via SA8)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Mobilisation - EW Plant (via SA1)	10	Semi / Low Loader	Mildura
	10		Swan Hill
Construction Mobilisation - EW Plant (via SA4)	10	Semi / Low Loader	Mildura
	10		Swan Hill
Construction Mobilisation - EW Plant (via SA6)	10	Semi / Low Loader	Mildura
	10		Swan Hill
Construction Mobilisation - EW Plant (via SA7)	10	Semi / Low Loader	Mildura
	10		Swan Hill
Construction Mobilisation - EW Plant (via SA8)	10	Semi / Low Loader	Mildura
	10		Swan Hill
Construction Compound Establishment & Buildings (via SA1)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Batch Plant Area Establishment (via SA1)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Compound Establishment & Buildings (via SA4)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Batch Plant Area Establishment (via SA6)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Compound Establishment & Buildings (via SA6)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Batch Plant Area Establishment (via SA8)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Compound Establishment & Buildings (via SA8)	13	Semi / Low Loader	Mildura
	13		Swan Hill

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	986	102
Sturt Highway (Balranald to Yanga Way)	986	102
Yanga Way (Sturt Highway to Balranald Road)	986	102
Balranald Road (Yanga Way to Arundel Road)	1,504	156
Balranald Road (Arundel Road to SA5)	1,159	120
Balranald Road (SA5 to SA6)	1,159	120
Balranald Road (SA6 to SA7)	690	71
Balranald Road (SA7 to SA8)	468	48
Arundel Road (Balranald Road to SA4)	345	36
Yanga Way (Balranald Road to SA1)	234	24
Yanga Way (SA1 to Balranald Road)	752	78
Yanga Way (SA1 to Stony Crossing Road)	986	102
Stony Crossing Road (Yanga Way to Swan Hill Road)	986	102
Swan Hill Road (Stony Crossing Road to Swan Hill)	986	102
Murray River Highway (Swan Hill to Lake Boga)	0	0

TASK 1B - ACCESS ROADS, HARDSTANDS & SITE ENTRANCES

Activity Description	Project Volume	Vehicle	Origin
Internal Access Track (HV) Gravel Pavement Materials (via SA1)	4,076	Truck Trailer	Mawsons Quarry Lake Boga
Internal Access Track (HV) Gravel Pavement Materials (via SA4)	16	Truck Trailer	Mawsons Quarry Lake Boga
Internal Access Track (HV) Gravel Pavement Materials (via SA6)	2,590	Truck Trailer	Mawsons Quarry Lake Boga
Internal Access Track (HV) Gravel Pavement Materials (via SA7)	1,012	Truck Trailer	Mawsons Quarry Lake Boga
Internal Access Track (HV) Gravel Pavement Materials (via SA8)	1,895	Truck Trailer	Mawsons Quarry Lake Boga
Internal Access Track (LV) Gravel Pavement Materials (via SA8)	27	Truck Trailer	Mawsons Quarry Lake Boga
Balranald / Arundel Intersection Upgrade Pavement Materials (Stage 2)	38	Truck Trailer	Mawsons Quarry Lake Boga
Site Access SA1 Upgrade Pavement Materials (Stage 2)	25	Truck Trailer	Mawsons Quarry Lake Boga
Site Access SA4 Upgrade Pavement Materials (Stage 2)	25	Truck Trailer	Mawsons Quarry Lake Boga
Site Access SA6 Upgrade Pavement Materials (Stage 2)	25	Truck Trailer	Mawsons Quarry Lake Boga
Site Access SA7 Upgrade Pavement Materials (Stage 2)	25	Truck Trailer	Mawsons Quarry Lake Boga
Site Access SA8 Upgrade Pavement Materials (Stage 2)	25	Truck Trailer	Mawsons Quarry Lake Boga
Balranald Road Upgrade Gravel Pavement (Stage 2 - SA5 to SA6)	375	Truck Trailer	Mawsons Quarry Lake Boga
Balranald Road Upgrade Gravel Pavement (Stage 2 - SA6 to SA7)	97	Truck Trailer	Mawsons Quarry Lake Boga
Balranald Road Upgrade Gravel Pavement (Stage 2 - SA7 to SA8)	192	Truck Trailer	Mawsons Quarry Lake Boga
Arundel Road Upgrade Gravel Pavement (Stage 2 - Balranald Rd to SA4)	79	Truck Trailer	Mawsons Quarry Lake Boga
Turbine Hardstand Area Gravel (via SA1)	5,907	Truck Trailer	Mawsons Quarry Lake Boga
Turbine Hardstand Area Gravel (via SA6)	3,719	Truck Trailer	Mawsons Quarry Lake Boga
Turbine Hardstand Area Gravel (via SA7)	1,313	Truck Trailer	Mawsons Quarry Lake Boga
Turbine Hardstand Area Gravel (via SA8)	3,500	Truck Trailer	Mawsons Quarry Lake Boga
Culverts/Pipes (via SA1)	14	Semi	Mildura
	14		Swan Hill
Culverts/Pipes (via SA4)	1	Semi	Mildura
	1		Swan Hill
Culverts/Pipes (via SA6)	9	Semi	Mildura
	9		Swan Hill
Culverts/Pipes (via SA7)	4	Semi	Mildura
	4		Swan Hill
Culverts/Pipes (via SA8)	7	Semi	Mildura
	7		Swan Hill

Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs
Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	165	17
Sturt Highway (Balranald to Yanga Way)	165	17
Yanga Way (Sturt Highway to Balranald Road)	165	17
Balranald Road (Yanga Way to Arundel Road)	92,153	24,523
Balranald Road (Arundel Road to SA5)	91,177	24,283
Balranald Road (SA5 to SA6)	91,177	24,283
Balranald Road (SA6 to SA7)	49,828	13,271
Balranald Road (SA7 to SA8)	34,744	9,255
Arundel Road (Balranald Road to SA4)	743	197
Yanga Way (Balranald Road to SA1)	69	7
Yanga Way (SA1 to Balranald Road)	92,057	24,533
Yanga Way (SA1 to Stony Crossing Road)	153,675	40,953
Stony Crossing Road (Yanga Way to Swan Hill Road)	153,675	40,953
Swan Hill Road (Stony Crossing Road to Swan Hill)	153,675	40,953
Murray River Highway (Swan Hill to Lake Boga)	153,510	40,936

TASK 1C - SITE COMPOUND AREAS (CIVIL)

Activity Description	Project Volume	Vehicle	Origin	
Switching Station (SA1) Slab Wet Concrete	346	Concrete Truck	SA1 Batch Plant	Internal
Switching Station (SA1) Slab Concrete Sand/Aggregates	75	Truck Trailer	Mawsons Quarry Lake Boga	
Switching Station (SA1) Slab Cement	9	Semi	Mildura	
	9		Swan Hill	
	15		Mildura	
Switching Station (SA1) Slab Reinforcing Steel	15	Semi	Swan Hill	
	4		Balranald	
Switching Station (SA1) Slab Water	4	Semi Water Truck	Balranald	
Batch Plant (SA1) Slab Wet Concrete	106	Concrete Truck	SA1 Batch Plant	Internal
Batch Plant (SA1) Slab Concrete Sand/Aggregates	23	Truck Trailer	Mawsons Quarry Lake Boga	
Batch Plant (SA1) Slab Cement	3		Mildura	
	3	Semi	Swan Hill	
	5		Mildura	
Batch Plant (SA1) Slab Reinforcing Steel	5	Semi	Swan Hill	
	2		Balranald	
Batch Plant (SA1) Slab Water	2	Semi Water Truck	Balranald	
Construction Compound (SA1) Slab Wet Concrete	79	Concrete Truck	SA1 Batch Plant	Internal
Construction Compound (SA1) Slab Concrete Sand/Aggregates	17	Truck Trailer	Mawsons Quarry Lake Boga	
Construction Compound (SA1) Slab Cement	2		Mildura	
	2	Semi	Swan Hill	
	4		Mildura	
Construction Compound (SA1) Slab Reinforcing Steel	4	Semi	Swan Hill	
	1		Balranald	
Construction Compound (SA1) Slab Water	1	Semi Water Truck	Balranald	
Substation (SA4) Slab Wet Concrete	441	Concrete Truck	SA6 Batch Plant	
Substation (SA4) Slab Concrete Sand/Aggregates	96	Truck Trailer	Mawsons Quarry Lake Boga	
Substation (SA4) Slab Cement	11		Mildura	
	11	Semi	Swan Hill	
	19		Mildura	
Substation (SA4) Slab Reinforcing Steel	19	Semi	Swan Hill	
	5		Balranald	
Substation (SA4) Slab Water	5	Semi Water Truck	Balranald	
BESS (SA4) Slab Wet Concrete	278	Concrete Truck	SA6 Batch Plant	
BESS (SA4) Slab Concrete Sand/Aggregates	60	Truck Trailer	Mawsons Quarry Lake Boga	
BESS (SA4) Slab Cement	7		Mildura	
	7	Semi	Swan Hill	
	12		Mildura	
BESS (SA4) Slab Reinforcing Steel	12	Semi	Swan Hill	
	4		Balranald	
BESS (SA4) Slab Water	4	Semi Water Truck	Balranald	
Construction Compound (SA4) Slab Wet Concrete	79	Concrete Truck	SA6 Batch Plant	
Construction Compound (SA4) Slab Concrete Sand/Aggregates	17	Truck Trailer	Mawsons Quarry Lake Boga	
Construction Compound (SA4) Slab Cement	2		Mildura	
	2	Semi	Swan Hill	
	4		Mildura	
Construction Compound (SA4) Slab Reinforcing Steel	4	Semi	Swan Hill	
	1		Balranald	
Construction Compound (SA4) Slab Water	1	Semi Water Truck	Balranald	
Operational and Maintenance Facility (SA4) Slab Wet Concrete	87	Concrete Truck	SA6 Batch Plant	
Operational and Maintenance Facility (SA4) Slab Concrete Sand/Aggregates	19	Truck Trailer	Mawsons Quarry Lake Boga	
Operational and Maintenance Facility (SA4) Slab Cement	3		Mildura	
	3	Semi	Swan Hill	
	4		Mildura	
Operational and Maintenance Facility (SA4) Slab Reinforcing Steel	4	Semi	Swan Hill	
	1		Balranald	
Operational and Maintenance Facility (SA4) Slab Water	1	Semi Water Truck	Balranald	
Switching Station (SA6) Slab Wet Concrete	346	Concrete Truck	SA6 Batch Plant	Internal
Switching Station (SA6) Slab Concrete Sand/Aggregates	75	Truck Trailer	Mawsons Quarry Lake Boga	
Switching Station (SA6) Slab Cement	9		Mildura	
	9	Semi	Swan Hill	
	15		Mildura	
Switching Station (SA6) Slab Reinforcing Steel	15	Semi	Swan Hill	
	4		Balranald	
Switching Station (SA6) Slab Water	4	Semi Water Truck	Balranald	
Batch Plant (SA6) Slab Wet Concrete	111	Concrete Truck	SA6 Batch Plant	Internal
Batch Plant (SA6) Slab Concrete Sand/Aggregates	24	Truck Trailer	Mawsons Quarry Lake Boga	
Batch Plant (SA6) Slab Cement	3		Mildura	
	3	Semi	Swan Hill	
	5		Mildura	
Batch Plant (SA6) Slab Reinforcing Steel	5	Semi	Swan Hill	
	2		Balranald	
Batch Plant (SA6) Slab Water	2	Semi Water Truck	Balranald	
Construction Compound (SA6) Slab Wet Concrete	79	Concrete Truck	SA6 Batch Plant	Internal
Construction Compound (SA6) Slab Concrete Sand/Aggregates	17	Truck Trailer	Mawsons Quarry Lake Boga	
Construction Compound (SA6) Slab Cement	2		Mildura	
	2	Semi	Swan Hill	
	4		Mildura	
Construction Compound (SA6) Slab Reinforcing Steel	4	Semi	Swan Hill	
	1		Balranald	
Construction Compound (SA6) Slab Water	1	Semi Water Truck	Balranald	
Batch Plant (SA8) Slab Wet Concrete	110	Concrete Truck	SA8 Batch Plant	Internal
Batch Plant (SA8) Slab Concrete Sand/Aggregates	24	Truck Trailer	Mawsons Quarry Lake Boga	
Batch Plant (SA8) Slab Cement	3		Mildura	
	3	Semi	Swan Hill	
	5		Mildura	
Batch Plant (SA8) Slab Reinforcing Steel	5	Semi	Swan Hill	
	2		Balranald	
Batch Plant (SA8) Slab Water	2	Semi Water Truck	Balranald	
Construction Compound (SA8) Slab Wet Concrete	79	Concrete Truck	SA8 Batch Plant	Internal
Construction Compound (SA8) Slab Concrete Sand/Aggregates	17	Truck Trailer	Mawsons Quarry Lake Boga	
Construction Compound (SA8) Slab Cement	2		Mildura	
	2	Semi	Swan Hill	
	4		Mildura	
Construction Compound (SA8) Slab Reinforcing Steel	4	Semi	Swan Hill	
	1		Balranald	
Construction Compound (SA8) Slab Water	1	Semi Water Truck	Balranald	
Switching Station Area Gravel (via SA1)	318	Truck Trailer	Mawsons Quarry Lake Boga	
Batch Plant Area Gravel (via SA1)	275	Truck Trailer	Mawsons Quarry Lake Boga	
Site Construction Compound Gravel (via SA1)	203	Truck Trailer	Mawsons Quarry Lake Boga	
Site Laydown Area Gravel (via SA1)	225	Truck Trailer	Mawsons Quarry Lake Boga	
Substation Area Gravel (via SA4)	406	Truck Trailer	Mawsons Quarry Lake Boga	
Battery Storage Area Gravel (via SA4)	256	Truck Trailer	Mawsons Quarry Lake Boga	
Site Construction Compound Gravel (via SA4)	203	Truck Trailer	Mawsons Quarry Lake Boga	
Operational and Maintenance Facility Area Gravel (via SA4)	225	Truck Trailer	Mawsons Quarry Lake Boga	
Switching Station Area Gravel (via SA6)	318	Truck Trailer	Mawsons Quarry Lake Boga	
Batch Plant Area Gravel (via SA6)	287	Truck Trailer	Mawsons Quarry Lake Boga	
Site Construction Compound Gravel (via SA6)	203	Truck Trailer	Mawsons Quarry Lake Boga	
Site Laydown Area Gravel (via SA6)	225	Truck Trailer	Mawsons Quarry Lake Boga	

Site Laydown Area Gravel (via SA7)	225	Truck Trailer	Mawsons Quarry Lake Boga
Batch Plant Area Gravel (via SA8)	284	Truck Trailer	Mawsons Quarry Lake Boga
Site Construction Compound Gravel (via SA8)	203	Truck Trailer	Mawsons Quarry Lake Boga
Site Laydown Area Gravel (via SA8)	225	Truck Trailer	Mawsons Quarry Lake Boga

Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs
Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs
Concrete Truck (4 Axle Rigid) Unloaded (0%)	0.46	ESAs
Concrete Truck (4 Axle Rigid) Loaded (100%)	4.09	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	730	75
Sturt Highway (Balranald to Yanga Way)	868	90
Yanga Way (Sturt Highway to Balranald Road)	868	90
Balranald Road (Yanga Way to Arundel Road)	22,168	5,715
Balranald Road (Arundel Road to SA5)	13,628	3,545
Balranald Road (SA5 to Arundel Road)	3,620	407
Balranald Road (SA5 to SA6)	13,628	3,545
Balranald Road (SA6 to SA5)	3,620	407
Balranald Road (SA6 to SA7)	5,910	1,552
Balranald Road (SA7 to SA8)	4,527	1,183
Arundel Road (Balranald Road to SA4)	8,540	2,170
Yanga Way (Balranald Road to SA1)	210	22
Yanga Way (SA1 to Balranald Road)	21,515	5,648
Yanga Way (SA1 to Stony Crossing Road)	28,681	7,529
Stony Crossing Road (Yanga Way to Swan Hill Road)	28,681	7,529
Swan Hill Road (Stony Crossing Road to Swan Hill)	28,681	7,529
Murray River Highway (Swan Hill to Lake Boga)	27,952	7,454

TASK 1D - TURBINE FOUNDATIONS

Activity Description	Project Volume	Vehicle	Origin	
Concrete aggregates for turbine footings (SA1)	810	Truck Trailer	Mawsons Quarry Lake Boga	
Reinforcing steel for turbine footings (SA1)	159	Semi	Mildura	
	159		Swan Hill	
Other concrete supplies for turbine footings (SA1)	92	Semi	Mildura	
	92		Swan Hill	
Water for turbine footings concrete (SA1)	41	Semi Water Truck	Balranald	
Wet concrete for turbine footings (SA1)	3,600	Concrete Truck	SA1 Batch Plant	Internal
Formwork (via SA1)	14	Semi	Mildura	
	14		Swan Hill	
Geomembrane (via SA1)	27	Semi	Mildura	
	27		Swan Hill	
Concrete aggregates for turbine footings (SA6)	510	Truck Trailer	Mawsons Quarry Lake Boga	
Reinforcing steel for turbine footings (SA6)	100	Semi	Mildura	
	100		Swan Hill	
Other concrete supplies for turbine footings (SA6)	58	Semi	Mildura	
	58		Swan Hill	
Water for turbine footings concrete (SA6)	26	Semi Water Truck	Balranald	
Wet concrete for turbine footings (SA6)	2,267	Concrete Truck	SA6 Batch Plant	Internal
Formwork (via SA6)	9	Semi	Mildura	
	9		Swan Hill	
Geomembrane (via SA6)	17	Semi	Mildura	
	17		Swan Hill	
Concrete aggregates for turbine footings (SA7)	180	Truck Trailer	Mawsons Quarry Lake Boga	
Reinforcing steel for turbine footings (SA7)	35	Semi	Mildura	
	35		Swan Hill	
Other concrete supplies for turbine footings (SA7)	21	Semi	Mildura	
	21		Swan Hill	
Water for turbine footings concrete (SA7)	9	Semi Water Truck	Balranald	
Wet concrete for turbine footings (SA7)	800	Concrete Truck	SA8 Batch Plant	
Formwork (via SA7)	3	Semi	Mildura	
	3		Swan Hill	
Geomembrane (via SA7)	6	Semi	Mildura	
	6		Swan Hill	
Concrete aggregates for turbine footings (SA8)	480	Truck Trailer	Mawsons Quarry Lake Boga	
Reinforcing steel for turbine footings (SA8)	94	Semi	Mildura	
	94		Swan Hill	
Other concrete supplies for turbine footings (SA8)	55	Semi	Mildura	
	55		Swan Hill	
Water for turbine footings concrete (SA8)	24	Semi Water Truck	Balranald	
Wet concrete for turbine footings (SA8)	2,133	Concrete Truck	SA8 Batch Plant	Internal
Formwork (via SA8)	8	Semi	Mildura	
	8		Swan Hill	
Geomembrane (via SA8)	16	Semi	Mildura	
	16		Swan Hill	

Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs
Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs
Concrete Truck (4 Axle Rigid) Unloaded (0%)	0.46	ESAs
Concrete Truck (4 Axle Rigid) Loaded (100%)	4.09	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	3,516	364
Sturt Highway (Balranald to Yanga Way)	4,007	415
Yanga Way (Sturt Highway to Balranald Road)	4,007	415
Balranald Road (Yanga Way to Arundel Road)	11,641	2,379
Balranald Road (Arundel Road to SA5)	11,641	2,379
Balranald Road (SA5 to SA6)	11,641	2,379
Balranald Road (SA6 to SA5)	0	0
Balranald Road (SA6 to SA7)	6,567	1,342
Balranald Road (SA7 to SA8)	4,776	976
Balranald Road (SA8 to SA7)	3,272	368
Arundel Road (Balranald Road to SA4)	0	0
Yanga Way (Balranald Road to SA1)	1,639	170
Yanga Way (SA1 to Balranald Road)	9,273	2,134
Yanga Way (SA1 to Stony Crossing Road)	15,693	3,611
Stony Crossing Road (Yanga Way to Swan Hill Road)	15,693	3,611
Swan Hill Road (Stony Crossing Road to Swan Hill)	15,693	3,611
Murray River Highway (Swan Hill to Lake Boga)	12,177	3,247

TASK 2A - CABLING

Activity Description	Project Volume	Vehicle	Origin
Underground Powerline Cable (via SA1)	13	Semi	Mildura
	13		Swan Hill
Underground Powerline Bedding Sand (via SA1)	344	Truck Trailer	Mawsons Quarry Lake Boga
Overhead Powerline Cable (via SA1)	4	Semi	Mildura
	4		Swan Hill
Overhead Powerline Poles (via SA1)	2	Semi	Mildura
	2		Swan Hill
Underground Powerline Cable (via SA4)	1	Semi	Mildura
	1		Swan Hill
Underground Powerline Bedding Sand (via SA4)	18	Truck Trailer	Mawsons Quarry Lake Boga
Overhead Powerline Cable (via SA4)	1	Semi	Mildura
	1		Swan Hill
Overhead Powerline Poles (via SA4)	1	Semi	Mildura
	1		Swan Hill
Underground Powerline Cable (via SA6)	9	Semi	Mildura
	9		Swan Hill
Underground Powerline Bedding Sand (via SA6)	238	Truck Trailer	Mawsons Quarry Lake Boga
Overhead Powerline Cable (via SA6)	8	Semi	Mildura
	8		Swan Hill
Overhead Powerline Poles (via SA6)	3	Semi	Mildura
	3		Swan Hill
Underground Powerline Cable (via SA7)	2	Semi	Mildura
	2		Swan Hill
Underground Powerline Bedding Sand (via SA7)	44	Truck Trailer	Mawsons Quarry Lake Boga
Underground Powerline Cable (via SA8)	5	Semi	Mildura
	5		Swan Hill
Underground Powerline Bedding Sand (via SA8)	118	Truck Trailer	Mawsons Quarry Lake Boga

Truck & 4 Axle Dog Unloaded (0%)	1.64	ESAs
Truck & 4 Axle Dog Loaded (100%)	6.15	ESAs
Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	229	24
Sturt Highway (Balranald to Yanga Way)	229	24
Yanga Way (Sturt Highway to Balranald Road)	229	24
Balranald Road (Yanga Way to Arundel Road)	2,847	714
Balranald Road (Arundel Road to SA5)	2,711	682
Balranald Road (SA5 to SA6)	2,711	682
Balranald Road (SA6 to SA7)	1,060	272
Balranald Road (SA7 to SA8)	770	198
Arundel Road (Balranald Road to SA4)	135	32
Yanga Way (Balranald Road to SA1)	91	9
Yanga Way (SA1 to Balranald Road)	2,709	700
Yanga Way (SA1 to Stony Crossing Road)	4,916	1,273
Stony Crossing Road (Yanga Way to Swan Hill Road)	4,916	1,273
Swan Hill Road (Stony Crossing Road to Swan Hill)	4,916	1,273
Murray River Highway (Swan Hill to Lake Boga)	4,686	1,250

TASK 2B - SITE COMPOUND AREAS (ELECTRICAL WORKS)

Activity Description	Project Volume	Vehicle	Origin
Transformer (via SA1)	1	Special	Port Adelaide
Switchroom (via SA1)	1	Special	Port Adelaide
Transformer (via SA4)	1	Special	Port Adelaide
Switchroom (via SA4)	1	Special	Port Adelaide
Transformer (via SA6)	1	Special	Port Adelaide
Switchroom (via SA6)	1	Special	Port Adelaide
Electrical Components (via SA1 - Switching Station)	25	Semi	Mildura
	25		Swan Hill
Electrical Components (via SA4 - Substation)	50	Semi	Mildura
	50		Swan Hill
Electrical Components (via SA4 - BESS)	50	Semi	Mildura
	50		Swan Hill
Electrical Components (via SA6 - Switching Station)	25	Semi	Mildura
	25		Swan Hill
Switching Station Area Establishment & Buildings (via SA1)	20	Semi	Mildura
	20		Swan Hill
Substation Area Establishment & Buildings (via SA4)	20	Semi	Mildura
	20		Swan Hill
Battery Storage Establishment (via SA4)	20	Semi	Mildura
	20		Swan Hill
Operations and Maintenance Facility Establishment (via SA4)	13	Semi	Mildura
	13		Swan Hill
Switching Station Area Establishment & Buildings (via SA6)	20	Semi	Mildura
	20		Swan Hill

Transformer Unloaded (0%)	37.77	ESAs
Transformer Loaded (100%)	89.31	ESAs
Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	1,731	350
Sturt Highway (Balranald to Yanga Way)	1,731	350
Yanga Way (Sturt Highway to Balranald Road)	1,731	350
Balranald Road (Yanga Way to Arundel Road)	2,305	353
Balranald Road (Arundel Road to SA5)	622	121
Balranald Road (SA5 to SA6)	622	121
Balranald Road (SA6 to SA7)	0	0
Balranald Road (SA7 to SA8)	0	0
Arundel Road (Balranald Road to SA4)	1,682	231
Yanga Way (Balranald Road to SA1)	400	98
Yanga Way (SA1 to Balranald Road)	974	101
Yanga Way (SA1 to Stony Crossing Road)	1,196	124
Stony Crossing Road (Yanga Way to Swan Hill Road)	1,196	124
Swan Hill Road (Stony Crossing Road to Swan Hill)	1,196	124
Murray River Highway (Swan Hill to Lake Boga)	0	0

TASK 3A - TURBINE TRANSPORTATION

Activity Description	Project Volume	Vehicle	Origin
Turbine Blades (SA1)	81	Special	Port Adelaide
Turbine Blades (SA6)	51	Special	Port Adelaide
Turbine Blades (SA7)	18	Special	Port Adelaide
Turbine Blades (SA8)	48	Special	Port Adelaide
Turbine Nacelles (SA1)	27	Special	Port Adelaide
Turbine Nacelles (SA6)	17	Special	Port Adelaide
Turbine Nacelles (SA7)	6	Special	Port Adelaide
Turbine Nacelles (SA8)	16	Special	Port Adelaide
Turbine Drive Trains (SA1)	27	Special	Port Adelaide
Turbine Drive Trains (SA6)	17	Special	Port Adelaide
Turbine Drive Trains (SA7)	6	Special	Port Adelaide
Turbine Drive Trains (SA8)	16	Special	Port Adelaide
Turbine Hub & Nose Cone (SA1)	27	Special	Port Adelaide
Turbine Hub & Nose Cone (SA6)	17	Special	Port Adelaide
Turbine Hub & Nose Cone (SA7)	6	Special	Port Adelaide
Turbine Hub & Nose Cone (SA8)	16	Special	Port Adelaide
Tower Sections 1-2 (SA1)	54	Special	Port Adelaide
Tower Sections 1-2 (SA6)	34	Special	Port Adelaide
Tower Sections 1-2 (SA7)	12	Special	Port Adelaide
Tower Sections 1-2 (SA8)	32	Special	Port Adelaide
Tower Sections 3-7 (SA1)	135	Special	Port Adelaide
Tower Sections 3-7 (SA6)	85	Special	Port Adelaide
Tower Sections 3-7 (SA7)	30	Special	Port Adelaide
Tower Sections 3-7 (SA8)	80	Special	Port Adelaide
Tower Base Rings (SA1)	9	Semi	Port Adelaide
Tower Base Rings (SA6)	6	Semi	Port Adelaide
Tower Base Rings (SA7)	2	Semi	Port Adelaide
Tower Base Rings (SA8)	6	Semi	Port Adelaide
Tower Assembly Components (SA1)	27	Semi	Port Adelaide
Tower Assembly Components (SA6)	17	Semi	Port Adelaide
Tower Assembly Components (SA7)	6	Semi	Port Adelaide
Tower Assembly Components (SA8)	16	Semi	Port Adelaide
Performance Monitoring Masts (SA8)	3	Special	Port Adelaide

Turbine Blade Transport Unloaded (0%)	7.95	ESAs
Turbine Blade Transport Loaded (100%)	11.47	ESAs
Turbine Nacelle Transport Unloaded (0%)	4.88	ESAs
Turbine Nacelle Transport Loaded (100%)	24.41	ESAs
Turbine Drive Train Transport Unloaded (0%)	4.98	ESAs
Turbine Drive Train Transport Loaded (100%)	22.78	ESAs
Turbine Hub Transport Unloaded (0%)	4.77	ESAs
Turbine Hub Transport Loaded (100%)	12.38	ESAs
Turbine Tower Section (1-2) Transport Unloaded (Average) (0%)	2.59	ESAs
Turbine Tower Section (1-2) Transport Loaded (Average) (100%)	14.86	ESAs
Turbine Tower Section (3-7) Transport Unloaded (Average) (0%)	2.73	ESAs
Turbine Tower Section (3-7) Transport Loaded (Average) (100%)	22.87	ESAs
PMM Unloaded (0%)	1.87	ESAs
PMM Loaded (100%)	7.91	ESAs
Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Euston)	13,899	2,258
Sturt Highway (Euston to Balranald)	16,170	3,833
Sturt Highway (Balranald to Yanga Way)	16,170	3,833
Yanga Way (Sturt Highway to Balranald Road)	16,170	3,833
Balranald Road (Yanga Way to Arundel Road)	9,563	2,267
Balranald Road (Arundel Road to SA5)	9,563	2,267
Balranald Road (SA5 to SA6)	9,563	2,267
Balranald Road (SA6 to SA7)	5,403	1,281
Balranald Road (SA7 to SA8)	3,935	933
Arundel Road (Balranald Road to SA4)	0	0
Yanga Way (Balranald Road to SA1)	6,607	1,566
Yanga Way (SA1 to Stony Crossing Road)	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0

TASK 3B - TURBINE ERECTION

Activity Description	Project Volume	Vehicle	Origin
Site Crane (Turbines)	8	Special / Crane	Port Adelaide
Secondary Crane	1	Crane / Semi	Mildura

Special Crane (Assume B-Double) Unloaded (0%)	1.69	ESAs
Special Crane (Assume B-Double) Loaded (100%)	6.91	ESAs
Crane / Semi Unloaded (0%)	0.51	ESAs
Crane / Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Euston)	60	14
Sturt Highway (Euston to Balranald)	60	14
Sturt Highway (Balranald to Yanga Way)	60	14
Yanga Way (Sturt Highway to Balranald Road)	60	14
Balranald Road (Yanga Way to Arundel Road)	60	14
Balranald Road (Arundel Road to SA5)	60	14
Balranald Road (SA5 to SA6)	60	14
Balranald Road (SA6 to SA7)	60	14
Balranald Road (SA7 to SA8)	60	14
Arundel Road (Balranald Road to SA4)	0	0
Yanga Way (Balranald Road to SA1)	60	14
Yanga Way (SA1 to Stony Crossing Road)	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0

TASK 4 - FINALISATION / COMMISSIONING / DEMOBILISATION

Activity Description	Project Volume	Vehicle	Origin
Construction Demobilisation - Ancilliary Equipment (via SA1)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Demobilisation - Ancilliary Equipment (via SA4)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Demobilisation - Ancilliary Equipment (via SA6)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Demobilisation - Ancilliary Equipment (via SA7)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Demobilisation - Ancilliary Equipment (via SA8)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Demobilisation - EW Plant (via SA1)	10	Semi / Low Loader	Mildura
	10		Swan Hill
Construction Demobilisation - EW Plant (via SA4)	10	Semi / Low Loader	Mildura
	10		Swan Hill
Construction Demobilisation - EW Plant (via SA6)	10	Semi / Low Loader	Mildura
	10		Swan Hill
Construction Demobilisation - EW Plant (via SA7)	10	Semi / Low Loader	Mildura
	10		Swan Hill
Construction Demobilisation - EW Plant (via SA8)	10	Semi / Low Loader	Mildura
	10		Swan Hill
Construction Compound Decommissioning (via SA1)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Batch Plant Area Decommissioning (via SA1)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Compound Decommissioning (via SA4)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Compound Decommissioning (via SA6)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Batch Plant Area Decommissioning (via SA6)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Construction Compound Decommissioning (via SA8)	13	Semi / Low Loader	Mildura
	13		Swan Hill
Batch Plant Area Decommissioning (via SA8)	13	Semi / Low Loader	Mildura
	13		Swan Hill

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	986	102
Sturt Highway (Balranald to Yanga Way)	986	102
Yanga Way (Sturt Highway to Balranald Road)	986	102
Balranald Road (Yanga Way to Arundel Road)	1,504	156
Balranald Road (Arundel Road to SA5)	1,159	120
Balranald Road (SA5 to SA6)	1,159	120
Balranald Road (SA6 to SA7)	690	71
Balranald Road (SA7 to SA8)	468	48
Arundel Road (Balranald Road to SA4)	345	36
Yanga Way (Balranald Road to SA1)	234	24
Yanga Way (SA1 to Balranald Road)	752	78
Yanga Way (SA1 to Stony Crossing Road)	986	102
Stony Crossing Road (Yanga Way to Swan Hill Road)	986	102
Swan Hill Road (Stony Crossing Road to Swan Hill)	986	102
Murray River Highway (Swan Hill to Lake Boga)	0	0

TASK W - SITE WATER

Activity Description	Project Volume	Vehicle	Origin
Site Water (via SA1)	1,631	Semi Water Truck	Balranald
Site Water (via SA4)	189	Semi Water Truck	Balranald
Site Water (via SA6)	1,027	Semi Water Truck	Balranald
Site Water (via SA7)	363	Semi Water Truck	Balranald
Site Water (via SA8)	967	Semi Water Truck	Balranald

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	0	0
Sturt Highway (Balranald to Yanga Way)	20,593	2,130
Yanga Way (Sturt Highway to Balranald Road)	20,593	2,130
Balranald Road (Yanga Way to Arundel Road)	12,552	1,298
Balranald Road (Arundel Road to SA5)	11,620	1,202
Balranald Road (SA5 to SA6)	11,620	1,202
Balranald Road (SA6 to SA7)	6,557	678
Balranald Road (SA7 to SA8)	4,767	493
Arundel Road (Balranald Road to SA4)	932	96
Yanga Way (Balranald Road to SA1)	8,041	832
Yanga Way (SA1 to Stony Crossing Road)	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0

TASK F - SITE FUEL

Activity Description	Project Volume	Vehicle	Origin
Fuel (via SA1)	51	Semi Tanker	Mildura
	51		Swan Hill
Fuel (via SA4)	6	Semi Tanker	Mildura
	6		Swan Hill
Fuel (via SA6)	33	Semi Tanker	Mildura
	33		Swan Hill
Fuel (via SA7)	12	Semi Tanker	Mildura
	12		Swan Hill
Fuel (via SA8)	31	Semi Tanker	Mildura
	31		Swan Hill

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	648	67
Sturt Highway (Balranald to Yanga Way)	648	67
Yanga Way (Sturt Highway to Balranald Road)	648	67
Balranald Road (Yanga Way to Arundel Road)	794	82
Balranald Road (Arundel Road to SA5)	735	76
Balranald Road (SA5 to SA6)	735	76
Balranald Road (SA6 to SA7)	414	43
Balranald Road (SA7 to SA8)	301	31
Arundel Road (Balranald Road to SA4)	59	6
Yanga Way (Balranald Road to SA1)	251	26
Yanga Way (SA1 to Balranald Road)	397	26
Yanga Way (SA1 to Stony Crossing Road)	648	67
Stony Crossing Road (Yanga Way to Swan Hill Road)	648	67
Swan Hill Road (Stony Crossing Road to Swan Hill)	648	67
Murray River Highway (Swan Hill to Lake Boga)	0	0

TASK WC - WASTE COLLECTION

Activity Description	Project Volume	Vehicle	Origin
Waste Collection (via SA1)	130	Semi	Mildura
Waste Collection (via SA4)	130	Semi	Mildura
Waste Collection (via SA6)	130	Semi	Mildura
Waste Collection (via SA7)	130	Semi	Mildura
Waste Collection (via SA8)	130	Semi	Mildura

Semi Unloaded (0%)	0.51	ESAs
Semi Loaded (100%)	4.93	ESAs

Route Summary	Loaded	Unloaded
Sturt Highway (Mildura to Balranald)	3,213	332
Sturt Highway (Balranald to Yanga Way)	3,213	332
Yanga Way (Sturt Highway to Balranald Road)	3,213	332
Balranald Road (Yanga Way to Arundel Road)	2,571	266
Balranald Road (Arundel Road to SA5)	1,928	199
Balranald Road (SA5 to SA6)	1,928	199
Balranald Road (SA6 to SA7)	1,285	133
Balranald Road (SA7 to SA8)	643	66
Arundel Road (Balranald Road to SA4)	643	66
Yanga Way (Balranald Road to SA1)	643	66
Yanga Way (SA1 to Stony Crossing Road)	0	0
Stony Crossing Road (Yanga Way to Swan Hill Road)	0	0
Swan Hill Road (Stony Crossing Road to Swan Hill)	0	0
Murray River Highway (Swan Hill to Lake Boga)	0	0

Road ID	Road Description	AADT Segment	AADT Segment		Base Data Year	Base Year AADT			Base Year HV%		Base Year HV		10 Yr GR%	2027			AADT			2027 HV	ESAs / HV	Duration (Days)	Background Pavement Loading (ESAs)		
			Start (km)	End (km)		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz	Gaz	A-Gaz		Gaz	A-Gaz	Bi-Dir	Gaz	A-Gaz							
																			Gaz				A-Gaz	Bi-Dir	Gaz
A20	Sturt Highway (Mildura to Euston)	98064	0.000	82.400	2007	1,023	1,047	2,070	26.7%	26.9%	273	282	2.0%	1,520	1,556	3,076	406	419	3.19	913	1,180,836	1,219,765	2,400,601		
A20	Sturt Highway (Euston to Balranald)	98064	82.400	162.100	2021	1,023	1,047	2,070	26.7%	26.9%	273	282	2.0%	1,152	1,179	2,331	307	318	3.19	913	894,926	924,429	1,819,356		
A20	Sturt Highway (Balranald to Yanga Way)	70234	162.100	165.500	2021	483	494	977	59.0%	60.1%	285	297	2.0%	544	556	1,100	321	334	3.19	913	934,264	973,601	1,907,865		
-	Yanga Way (Sturt Highway to Balranald Road)	97488	0.000	11.800	2010	272	376	648	26.9%	27.7%	73	104	2.0%	381	526	907	102	146	3.19	913	297,730	424,812	722,542		
-	Yanga Way (Balranald Road to SA1)	97494	11.800	19.800	2012	283	285	568	26.9%	27.7%	76	79	2.0%	381	384	764	102	106	3.19	913	297,742	309,495	607,236		
-	SA1 Way (SA1 to Stony Crossing Road)	97494	19.800	36.200	2012	283	285	568	26.9%	27.7%	76	79	2.0%	381	384	764	102	106	3.19	913	297,742	309,495	607,236		
-	Yanga Way (Stony Crossing Road to Tooleybuc)	97207	36.200	49.100	2006	221	220	441	34.8%	34.1%	77	75	2.0%	335	333	668	117	114	3.19	913	339,717	330,894	670,611		
MRC	Balranald Road (Yanga Way to Arundel Road)	-	0.000	10.402	2022	25	30	55	40.0%	50.0%	10	15	2.0%	28	33	61	11	17	3.19	913	32,138	48,208	80,346		
MRC	Balranald Road (Arundel Road to SA5)	-	10.402	11.095	2022	25	30	55	40.0%	50.0%	10	15	2.0%	28	33	61	11	17	3.19	913	32,138	48,208	80,346		
MRC	Balranald Road (SA5 to SA6)	-	11.095	17.340	2022	25	30	55	40.0%	50.0%	10	15	2.0%	28	33	61	11	17	3.19	913	32,138	48,208	80,346		
MRC	Balranald Road (SA6 to SA7)	-	17.340	18.995	2022	25	30	55	40.0%	50.0%	10	15	2.0%	28	33	61	11	17	3.19	913	32,138	48,208	80,346		
MRC	Balranald Road (SA7 to SA8)	-	18.995	22.140	2022	25	30	55	40.0%	50.0%	10	15	2.0%	28	33	61	11	17	3.19	913	32,138	48,208	80,346		
MRC	Arundel Road (Balranald Road to SA4)	-	0.000	0.710	2022	10	10	20	40.0%	40.0%	4	4	2.0%	11	11	22	4	4	3.19	913	12,855	12,855	25,711		
-	Stony Crossing Road (Yanga Way to Swan Hill Road)	97206	0.000	40.900	2006	122	123	245	18.9%	26.8%	23	33	2.0%	185	186	371	35	50	3.19	913	101,474	145,593	247,067		
-	Swan Hill Road (Swan Hill to Stony Crossing Road)	97200	0.000	11.100	2010	342	362	704	17.0%	16.9%	58	61	2.0%	479	507	986	81	85	3.19	913	236,404	248,632	485,035		
B400	Murray River Highway (Swan Hill to Lake Boga)	-	0.000	16.000	2020	2,900	2,900	5,800	14.9%	17.7%	431	512	2.0%	3,331	3,331	6,662	495	588	3.19	913	1,441,126	1,711,964	3,153,091		

Road ID	Road Description	AADT Segment	AADT Segment		Project Traffic (Daily) - Stage 1 Construction																								Bi-Dir	% Increase ESAs				
			Start (km)	End (km)	Gazettal														A-Gazettal															
					1A	1B	1C	1D	2A	2B	3A	3B	4	Water	Fuel	Waste	Total	1A	1B	1C	1D	2A	2B	3A	3B	4	Water	Fuel		Waste	Total	Total	Gaz	A-Gaz
A20	Sturt Highway (Mildura to Euston)	98064	0.000	82.400	986	165	730	3,516	229	1,731	13,899	60	986	0	648	332	23,284	102	17	75	364	24	350	2,258	14	102	0	67	3,213	6,587	29,871	1.97%	0.54%	1.24%
A20	Sturt Highway (Euston to Balranald)	98064	82.400	162.100	986	165	730	3,516	229	1,731	16,170	60	986	0	648	332	25,555	102	17	75	364	24	350	3,833	14	102	0	67	3,213	8,161	33,716	2.86%	0.88%	1.85%
A20	Sturt Highway (Balranald to Yanga Way)	70234	162.100	165.500	986	165	868	4,007	229	1,731	16,170	60	986	20,593	648	332	46,776	102	17	90	415	24	350	3,833	14	102	2,130	67	3,213	10,357	57,133	5.01%	1.06%	2.99%
-	Yanga Way (Sturt Highway to Balranald Road)	97488	0.000	11.800	986	165	868	4,007	229	1,731	16,170	60	986	20,593	648	332	46,776	102	17	90	415	24	350	3,833	14	102	2,130	67	3,213	10,357	57,133	15.71%	2.44%	7.91%
-	Yanga Way (Balranald Road to SA1)	97494	11.800	19.800	312	24,602	5,857	3,773	791	501	6,607	60	312	8,041	277	66	51,200	776	92,064	21,537	9,443	2,718	1,072	1,566	14	776	832	423	643	131,863	183,064	17.20%	42.61%	30.15%
-	Yanga Way (SA1 to Stony Crossing Road)	97494	19.800	36.200	102	40,953	7,529	3,611	1,273	124	0	0	102	0	67	0	53,761	986	153,675	28,681	15,693	4,916	1,196	0	0	986	0	648	0	206,781	260,542	18.06%	66.81%	42.91%
-	Yanga Way (Stony Crossing Road to Tooleybuc)	97207	36.200	49.100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	0.00%	0.00%
MRC	Balranald Road (Yanga Way to Arundel Road)	-	0.000	10.402	1,504	92,153	22,168	11,641	2,847	2,305	9,563	60	1,504	12,552	794	266	157,356	156	24,523	5,715	2,379	714	353	2,267	14	156	1,298	82	2,571	40,226	197,582	489.62%	83.44%	245.91%
MRC	Balranald Road (Arundel Road to SA5)	-	10.402	11.095	1,159	91,177	14,035	11,641	2,711	622	9,563	60	1,159	11,620	735	199	144,681	120	24,283	7,165	2,379	682	121	2,267	14	120	1,202	76	1,928	40,356	185,038	450.18%	83.71%	230.30%
MRC	Balranald Road (SA5 to SA6)	-	11.095	17.340	1,159	91,177	14,035	11,641	2,711	622	9,563	60	1,159	11,620	735	199	144,681	120	24,283	7,165	2,379	682	121	2,267	14	120	1,202	76	1,928	40,356	185,038	450.18%	83.71%	230.30%
MRC	Balranald Road (SA6 to SA7)	-	17.340	18.995	690	49,828	5,910	6,567	1,060	0	5,403	60	690	6,557	414	133	77,313	71	13,271	1,552	1,342	272	0	1,281	14	71	678	43	1,285	19,881	97,194	240.56%	41.24%	120.97%
MRC	Balranald Road (SA7 to SA8)	-	18.995	22.140	468	34,744	4,527	5,144	770	0	3,935	60	468	4,767	301	66	55,251	48	9,255	1,183	4,248	198	0	933	14	48	493	31	643	17,094	72,345	171.92%	35.46%	90.04%
MRC	Arundel Road (Balranald Road to SA4)	-	0.000	0.710	345	743	8,540	0	135	1,682	0	0	345	932	59	66	12,848	36	197	2,170	0	32	231	0	0	36	96	6	643	3,447	16,296	99.94%	26.82%	63.38%
-	Stony Crossing Road (Yanga Way to Swan Hill Road)	97206	0.000	40.900	102	40,953	7,529	3,611	1,273	124	0	0	102	0	67	0	53,761	986	153,675	28,681	15,693	4,916	1,196	0	0	986	0	648	0	206,781	260,542	52.98%	142.03%	105.45%
-	Swan Hill Road (Swan Hill to Stony Crossing Road)	97200	0.000	11.100	986	153,675	28,681	15,693	4,916	1,196	0	0	986	0	648	0	206,781	102	40,953	7,529	3,611	1,273	124	0	0	102	0	67	0	53,761	260,542	87.47%	21.62%	53.72%
B400	Murray River Highway (Swan Hill to Lake Boga)	-	0.000	16.000	0	153,510	27,952	12,177	4,686	0	0	0	0	0	0	0	198,325	0	40,936	7,454	3,247	1,250	0	0	0	0	0	0	0	52,887	251,212	13.76%	3.09%	7.97%



ACCESS TRAFFIC
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