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Appendix D: Amended Traffic Impact Assessment



Bullawah Wind Farm Project
Amended Traffic Impact Assessment

Prepared for:

Umwelt (Australia) Pty Ltd

1 September 2025

The Transport Planning Partnership

Bullawah Wind Farm Project
Amended Traffic Impact Assessment

Client: Umwelt (Australia) Pty Ltd

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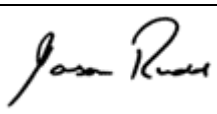
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Table of Contents

1 Introduction 1
1.1 Overview 1
1.2 Purpose of this Report 1
1.3 Stakeholder Comments 4
1.3.1 Submissions Report and Amendment Report 4
1.4 Report Structure 30
1.5 References 30
2 Strategic Context and Legislation 31
2.1 State Legislation 31
2.1.1 Environmental Planning and Assessment Act 1979 (EP&A Act) 31
2.1.2 Roads Act 1993 31
2.2 Regulatory policies/relevant guidelines 31
2.2.1 Future Transport Strategy 2056 31
2.2.2 Guide to Traffic Generating Developments 32
2.2.3 EIS Guidelines – Roads and Related Facilities 32
2.2.4 NSW Planning Guidelines for Walking and Cycling 33
2.2.5 Guide to Traffic Management Part 3: Traffic Studies and Analysis 33
2.2.6 Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments 33
2.2.7 Roads and Maritime Supplements to Austroads Guides 33
2.2.8 2026 Road Safety Action Plan 34
3 Existing Conditions 35
3.1 Project Context 35
3.2 Road Network 38
3.3 Road Safety 41
3.4 Public Transport 44
3.5 Active Transport 45
3.6 Existing Traffic Volumes 45
3.7 Nearby Developments 52
4 Proposed Development 55
4.1 Site Access 57
4.1.1 Port to Hay Transport Routes 57
4.1.2 Local Transport Route and Site Access 60
4.2 Construction Workforce 63

4.3 Construction Hours 63
4.4 Construction Staging and Duration 64
5 Project Traffic Generation 65
5.1 Types of Project Relative Traffic Generation 65
5.2 Pre-Construction Traffic 65
5.2.1 Pre-Construction Minor Works 65
5.2.2 General Pre-Construction Works 65
5.2.3 Impacts on the State Road Network 71
5.3 Construction Traffic 71
5.3.1 Water 76
5.3.2 Quarried Materials 76
5.3.3 Wind Turbine Generator Construction 80
5.3.4 Electrical 81
5.3.5 Construction Workers 81
5.4 Project Routes 82
5.5 Estimated Traffic Generation of Construction Period 83
5.6 Construction and Network Peak 85
5.7 Operational Traffic 86
5.8 Decommissioning 87
6 Construction Impacts 88
6.1 Road Network Capacity 88
6.2 Annual Background Traffic Growth 89
6.3 Traffic Distribution Assumptions 90
6.4 Cumulative Traffic Assessment 91
6.4.1 Port to Hay Transport Routes 91
6.4.2 Local Transport Route 100
6.5 Traffic Capacity Analysis Results 102
6.6 Project Site Access Arrangements 105
6.6.1 Sight Distance Assessment 105
6.7 Site Access Intersection Design – Turn Warrants 107
6.8 Impacts on Public Transport 116
6.9 Impacts on Pedestrians and Cyclists 116
6.10 Impacts on Parking 117
6.11 Impacts on Road Safety 117
7 Mitigation Measures 118
7.1 Information and Communication 118
7.2 OSOM Enabling Works 118

7.3 Driver Code of Conduct 119
7.4 Emergency Access 120
7.5 Off-Site Road Works 120
7.6 On-Site Mitigation Measures 123
7.7 Road Safety 123
7.7.1 Safe Road Use 124
7.7.2 Safe Vehicles 125
7.7.3 Safe Speeds 125
7.7.4 Sensitive Land Uses 125
7.7.5 Adverse Weather 125
7.8 Dilapidation Survey 125
7.9 Pre-Construction Works 125
7.10 Carpooling 126
7.11 Traffic and Route Management 127
7.12 Road Authority Approvals for OSOM Vehicles 128
8 Road Authority Consultation 129
8.1 EIS Phase 129
8.1.1 TfNSW 129
8.1.2 Hay Shire Council 130
8.1.3 Murrumbidgee Council 130
8.1.4 Edward River Council 130
8.2 Additional Consultation 130
8.2.1 Submissions and Amendment Report Consultation 131
9 Conclusion 133

Tables

Table 1.1: SEARs Requirements and Relevant Report Sections 1
Table 1.2: TfNSW Requirements and Relevant Report Sections 2
Table 1.3: Response to TfNSW Preliminary Queries (30 May 2025) 6
Table 1.4 Response to TfNSW comments and further information requested from EIS requiring RFI, dated 2 October 2024 (Attachment 1) 11
Table 1.5: Response to TfNSW comments and further information requested from EIS requiring RFI, dated 2 October 2024 (Attachment 2) 22
Table 1.6: Response to TfNSW comments and further information required in response to the inclusion of South Australia routes within the Amendment Report 27
Table 3.1: Cobb Highway and Sturt Highway Intersection Counts 47

Table 3.2: Sturt Highway and Conargo Road Intersection Counts 48
Table 3.3: Conargo Road and North Boundary Road Intersection Counts 49
Table 3.4: Jerilderie Road, Willurah Road and North Boundary Road Intersection Counts 50
Table 3.5: Cobb Highway and Jerilderie Road Intersection Counts 51
Table 3.6: Nearby Developments 52
Table 4.1: Site Access Points 60
Table 5.1: General Pre-Construction Traffic Generation 66
Table 5.2: Timing of Upgrades and Pre-Construction and Construction Scheduling 67
Table 5.3: Stage 2 (North) Traffic Generation – Construction 72
Table 5.4: Stage 1 (South) Traffic Generation – Construction 74
Table 5.5: Potential Quarry Locations 78
Table 5.6: Average and Peak Construction Traffic Generation 83
Table 6.1: Level of Service Definitions and Criteria for Mid-block Sections 89
Table 6.2: Annual Background Traffic Growth 89
Table 6.3: Construction Worker Locations and Travel Routes 90
Table 6.4: Port to Hay Transport Routes – Cumulative Impact Assessment 93
Table 6.5: Peak Construction Period Generation and V/C Ratio 103
Table 6.6: Calculation of the Major Road Traffic Volume Q_M 108
Table 6.7: Warrants for Unsignalised Intersections AM Peak 109
Table 6.8: Turn Warrants Assessment Cobb Highway and Jerilderie Road – Left Turn 111
Table 6.9: Traffic Count Data 115
Table 7.1: Required Road Infrastructure Works – Port to Hay Off-Site Road Works 121
Table 7.2: Required Road Infrastructure Works – Local Transport Route 123

Figures

Figure 3.1: Site Context 36
Figure 3.2: Site Location 37
Figure 3.3: Jerilderie Road 38
Figure 3.4: North Boundary Road 39
Figure 3.5: Willurah Road 39
Figure 3.6: Conargo Road/ Carrathool Road 40
Figure 3.7: Cobb Highway 40
Figure 3.8: Sturt Highway 41
Figure 3.9: Crash Analysis in the Vicinity of the Project Area 42
Figure 3.10: Crashes by Reporting Year 43

Figure 3.11: Crashes by Road User Movement (RUM) Group 43
Figure 3.12: Crashes by Injury Severity 44
Figure 3.13: NSW Regional Public Transport Network 45
Figure 3.14: Traffic Survey Locations 46
Figure 3.15: Jerilderie Road 46
Figure 3.16: Surrounding Developments 54
Figure 4.1: Indicative Amended Project Layout 56
Figure 4.2: Port to Hay Transport Routes 59
Figure 4.3: Local Transport Route and Site Access 62
Figure 4.4: Construction Workforce 63
Figure 5.1: Quarry Locations and Travel Routes 80
Figure 5.2: Potential Worker Locations 81
Figure 5.3: Indicative Travel Routes 82
Figure 5.4: Monday AM Peak Trip Generation 84
Figure 5.5: Friday PM Peak Trip Generation 85
Figure 5.6: Stage 1 and 2 Daily Trip Generation 85
Figure 5.7: Sturt Highway and Cobb Highway Hourly Vehicle Flows 86
Figure 6.1: Safe Intersection Sight Distance (SISD) 105
Figure 6.2: Available Driver Sight Distances at Potential Site Access Locations 105
Figure 6.3: Site Access 106
Figure 6.4: Warrants for Turn Treatments on Major Roads at Unsignalised Intersections 107
Figure 6.5: Calculation of the Major Road Traffic Volume Q_M 107
Figure 6.6: Warrants for Turn Treatments on Major Roads at Unsignalised Intersections – Plotted 112
Figure 6.7: Turn Warrants Assessment Cobb Highway and Jerilderie Road Intersection – Plotted 113
Figure 6.8: Cobb Highway / Jerilderie Road Strategic Design – CHL 114
Figure 6.9: Turn Warrants Assessment Four Corners Road and Kidman Way – Plotted 115
Figure 6.10: Turn Warrants Assessment Carrathool Road and Willurah Road 116
Figure 7.1: Safe Systems Approach 124

APPENDICES

A. OSOM ROUTE ASSESSMENTS – REX J ANDREWS P/L

B. RESPONSE TO PRELIMINARY TFNSW QUERIES, TTPP LETTER DATED 30 MAY 2025 (23022-L01V03-250528-RESPONSE TO RFIS)

C. SAMPLE DRIVER CODE OF CONDUCT

D. SURVEY RESULTS

E. NETWORK DIAGRAMS

F. STURT HIGHWAY TRAFFIC DELAY MODELLING MEMO (23022-M01V03-250826 TRAFFIC DELAY MODELLING)

G. CONSOLIDATED ROAD UPGRADES TABLE

Abbreviations

Abbreviation	Definition
AADT	Annual Average Daily Traffic
BWF	Bullawah Wind Farm Pty Ltd
DPHI	Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning and Assessment Act 1979
LGA	Local Government Area
LoS	Level of Service
NHVR	National Heavy Vehicle Regulator
OSOM	Oversize and/or overmass
RAV MAP	Restricted Access Maps
REZ	Renewable Energy Zone
SEARs	Secretary's Environmental Assessment Requirements
SISD	Safe Intersection Sight Distance
SSD	State Significant Development
TfNSW	Transport for New South Wales
The Guide	The Guide to Traffic Generating Developments, October 2002
TIA	Transport Impact Assessment
TMP	Traffic Management Plan
TTPP	The Transport Planning Partnership
Umwelt	Umwelt (Australia) Pty Ltd
V/C	Volume to Capacity Ratio
WTG	Wind turbine generators

Executive Summary

Bullawah Wind Farm Pty Ltd (BWF) proposes to develop the Bullawah Wind Farm (the Project), located approximately 36 kilometres (km) south east of Hay, within the South West Renewable Energy Zone (South West REZ). The Project Area is located within the Hay Shire, Murrumbidgee and Edward River Local Government Areas (LGAs).

The Project will include the installation, operation, maintenance and decommissioning of up to 141 wind turbine generators (WTGs), battery storage, ancillary infrastructure and temporary facilities associated with construction of the Project. The Project design incorporates up to 141 WTG, with a maximum blade-tip height of 300 m above ground level, and an installed capacity of up to 803.7[1] megawatts (MW).

This report supersedes the Traffic Impact Assessment dated July 2024 (Appendix 12 to the Environmental Impact Statement (EIS) for the Project). This Amended Traffic Impact Assessment has been prepared to address all relevant stakeholder issues raised during the exhibition period and to address subsequent Project amendments.

A full Amended Project Description is provided in the Project's Amendment Report (Umwelt, 2025). Relevantly for this report, the Project amendments include:

1. Construction staging amendments

The Amended Project proposes a greater overlap between the construction periods for Stage 1 (South) and Stage 2 (North). Consequently, the peak workforce would increase from 350 workers to 380 workers at the height of construction. It is noted that this amendment would also reduce the overall duration of the construction period from 44 months to 35 months. Project construction and grid connection will occur in two (2) stages with Stage 1 (South) consisting of 58 WTGs, and Stage 2 (North) consisting of 85 WTGs. The anticipated duration of the Project construction period is approximately 3 years (35 months), commencing in approximately Q4 2025 and concluding in Q4 2028. Stage 2 (North) is likely to commence construction first, and overlap with Stage 1 (South) construction, resulting in a peak construction workforce of up to 380 workers for a short period, indicatively two (2) months occurring in approximately Q1 2027.

2. Transport route amendments

In responding to agency advice from Transport for NSW (TfNSW) and with regard to other design and logistics considerations identified by BWF, a decision to extend the Port to Hay Transport Routes considered in the State Significant Development Application (SSDA) has occurred. This extension now encompasses two (2) port options, being Port of Newcastle (considered in the EIS but with impacts only being assessed for the "Local Transport Route"

[1] This Amended TIA has been prepared based on the 141 WTG layout assessed in the Project's Amendment Report. To avoid ambiguity and to provide consistency with the Project's Amendment Report (Umwelt, 2025) the updated capacity is 803.7 MW for the 141 WTG design. The removal of the two (2) WTG (being WTG 37 and WTG 38) from the Project design (143 WTG layout at that time) is expected to have a neutral or positive impact with respect to traffic, hence the prior Project vehicle types and flows have been retained where relevant to provide a precautionary assessment.

component) and Port Adelaide (a new port option considered in the Amendment Report). Accordingly, BWF is now seeking consent for impacts associated with off-site road works and alterations between the nominated Ports and the Project Area, noting that consent associated with the SSDA is wholly limited to works within NSW. As a result, the Amended Project proposes five (5) Port to Hay Over-size Over-mass (OSOM) transport route options. This includes three (3) route options from the Port of Newcastle, and two (2) route options from Port Adelaide. Updated Route Studies have been undertaken in respect of all five (5) routes (Appendix A) and areas have been identified along the Port to Hay Transport Routes where road modifications would be required to enable the safe transport of Project components using OSOM vehicles. These works now form part of the Amended Project and have been assessed in the Amendment Report (Umwelt, 2025).

3. WTG amendments

The Project EIS identified a maximum turbine size, being a tip height of up to 300 m, a hub height of up to 200 m and a blade length of up to 100 m. BWF has subsequently identified a maximum alternate turbine size (being a tip height of up to 233 m, a hub height of up to 148 m and a blade length of up to 80 m) for the purposes of identifying and assessing required road upgrades to the Port to Hay Transport Routes. However, due to the extent of renewable energy development proposed within the South West Renewable Energy Zone (REZ), it is possible that road upgrades to accommodate a larger turbine (with a blade length exceeding 80 m) will be undertaken along some or all of the proposed Port to Hay Routes either by the NSW Government or by a third party developer.

Should these upgrades be undertaken prior to the Project's construction period, BWF is seeking flexibility to transport and install a larger turbine, provided that the:

(a) The proposed WTG dimensions do not trigger the need for any additional off-site road works.

(b) The maximum WTG dimensions do not exceed a tip height of 300 m, a hub height of 200 m and a blade length of 100 m.

It is noted that the Project's Local Transport Route upgrades (extending from the intersection of the Cobb Highway and Jerilderie Road to the site access points) have been assessed and designed based on the maximum WTG dimensions, being a tip height of up to 300 m.

The proposed site access points will meet the minimum sight distance required to comply with Austroads requirements and will be design in accordance with the Austroads Guidelines.

Traffic surveys undertaken indicate that the proposed transport routes experience very little traffic in their existing operation. Construction activities, which are the highest traffic generating activities by the Project, are expected to generate up to 56 heavy vehicle trips and 265 light vehicles trips per hour in the road network during peak periods and up to 528 heavy vehicle trips, 530 light vehicle trips and 14 OSOM trips and daily during peak construction. It is noted that 'Trips' refers to combined inbound and outbound vehicle movements.

When considering nearby developments and background traffic growth, the development-generated traffic would result in negligible impacts to the operation of nearby intersections and roadways.

Operational traffic is expected to be insignificant in comparison to the construction traffic. Given the low traffic flows present on the road network, the minor additional traffic generated by the Project during the operational phase can be readily accommodated by the road network. The anticipated construction vehicle traffic volumes would not trigger the need for any upgrades to intersection turning provisions with existing basic turning treatments sufficient.

The decommissioning phase would require similar equipment and activities to the construction phase including mobile and heavy equipment (e.g. cranes, earthworks machinery, compressor and rock crusher). However, the decommissioning phase would generate fewer traffic movements than the construction phase, and over a shorter period of time.

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

Overall, the future conditions of the surrounding road network would be acceptable, and no additional road upgrades and infrastructure works would be required as part of the development.

1 Introduction

1.1 Overview

Bullawah Wind Farm Pty Ltd (BWF) proposes to develop the Bullawah Wind Farm (the Project), located approximately 36 kilometres (km) south east of Hay, within the South West Renewable Energy Zone (South West REZ).

The Project Area is located within the Hay Shire, Murrumbidgee and Edward River Local Government Areas (LGAs). The Project will include the installation, operation, maintenance and decommissioning of up to 141 wind turbine generators (WTGs), battery storage, ancillary infrastructure and temporary facilities associated with construction of the Project. The Project design incorporates up to 141 WTG, with a maximum blade-tip height of 300 m above ground level, and an installed capacity of up to 803.7[2] megawatts (MW).

The Transport Planning Partnership (TTPP) has been engaged by Umwelt (Australia) Pty Ltd (Umwelt) to prepare this Amended Traffic Impact Assessment (TIA) for inclusion within the Amendment Report for the Project. This Amended TIA supersedes the previous TIA dated July 2024 (Appendix 12 to the Environmental Impact Statement (EIS) for the Project).

1.2 Purpose of this Report

DPHI issued the Secretary's Environmental Assessment Requirements (SEARs) (SSD-50505215) for the Project on 12 December 2022; with Table 1.1 presenting the relevant traffic and transport related SEARs and where these have been addressed in this report.

Table 1.1: SEARs Requirements and Relevant Report Sections

Traffic and Transport	Addressed in
An assessment of the construction, operational and decommissioning traffic impacts of the development on the local and State road network.	Section 6
Provide details of the peak and average traffic volumes (including light, heavy and over-mass and over-dimensional vehicles / heavy vehicles requiring escort and construction worker transportation) and transport and haulage routes during construction, operation and decommissioning, including traffic associated with sourcing raw materials (water, sand and gravel).	Section 5
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.	Section 5.6
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.	Section 5.6
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)	Section 5

[2] This Amended TIA has been prepared based on the 141 WTG layout assessed in the Project's Amendment Report. To avoid ambiguity and to provide consistency with the Project's Amendment Report (Umwelt, 2025) the updated capacity is 803.7 MW for the 141 WTG design. The removal of the two (2) WTG (being WTG 37 and WTG 38) from the Project design (143 WTG layout at that time) is expected to have a neutral or positive impact with respect to traffic, hence the prior Project vehicle types and flows have been retained where relevant to provide a precautionary assessment.

particularly in relation to the capacity and conditions of the roads and use of rail level crossings (and rail safety assessment if required),and impacts to rail underbridges and overbridges.	
A cumulative impact assessment of traffic from nearby developments.	Section 6
Provide details of measures to mitigate and / or manage potential impacts including a schedule of all required road upgrades (including resulting from over mass / over dimensional traffic haulage routes), road maintenance contributions, and any other traffic control measures, developed in consultation with the relevant road and / or rail authority	Section 6

Further to the above, TfNSW requires additional detail on specific requirements relating to their authority as summarised in Table 1.2 along with where these have been addressed in this report. Murrumbidgee Council advised concern regarding the impact of the development on the local road infrastructure, however noted that this is adequately covered by the SEARs.

Table 1.2: TfNSW Requirements and Relevant Report Sections

Traffic and Transport	Addressed in
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. • The Scoping Report identifies that ancillary infrastructure and temporary facilities are to be provided on-site including (but not limited to) concrete batching facilities & provision for an accommodation camp. The TIA should identify: o Concrete batching facility - The source for input materials and quantify the traffic generation associated with the haulage of the source materials. Where the location of source materials is not yet known, worst case scenarios for traffic distribution of those materials to and from the development site are to be addressed. o Accommodation camp option - Details of the camp, including but not limited to the maximum accommodation capacity, the work schedules relevant to staff turn over at the camp, the transport options available (Light Vehicles, Shuttle Buses, carpooling etc) and traffic generation volumes of workers arriving / departing the camp, any staff pick up locations external to the project site, peak shift change / staff turn over details, any services required to support the accommodation camp and what traffic will those support services will generate.	Section 3.7 and 5.3.5
Cumulative impacts: • Identify and assess the implications of any road and rail projects that will potentially be occurring simultaneously with the scheduling of the OSOM movements along the proposed OSOM routes. • An assessment should be undertaken as a part of the EIS and TIA to identify the projects that will have overlapping construction periods and assess the cumulative traffic impacts with emphasis on the following: o The cumulative impacts from traffic generated from the construction workforces in terms of the origin-destination routes, access, AM/PM peaks where there is overlap with other projects. o The cumulative impacts of heavy vehicle movements in terms of AM/PM peaks and routes where there is an overlap with other projects. o 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.	Section 5
Heavy vehicle and OSOM routes: • Identify the return routes for OSOMs. • National Heavy Vehicle Regulator (NHVR) approved routes identified on the Restricted Access Maps (RAV MAP) are to be utilised for the heavy vehicle routes for the proposed development. • The TIA is required to include details on the number of OSOM movements, the intended time for OSOM movements to occur and identify the location of pull-over bays / rest areas along the OSOM routes.	Section 4

Traffic and Transport	Addressed in
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.	Section 4
Traffic volumes including: • Existing background traffic, • Project-related traffic for each phase or stage of the project, • Projected cumulative traffic at commencement of operation, and a 10-year horizon post-commencement.	Section 3 and Section 4
Traffic characteristics including: • Number and ratio of heavy vehicles to light vehicles, • Peak times for existing traffic, • Peak times for project-related traffic including commuter periods, • Proposed hours for transportation and haulage, • Interactions between existing and project-related traffic.	Section 4.3 Section 5.3
The origins, destinations and routes for: • Commuter (employee and contractor) light vehicles and pool vehicles (including shuttle buses) • Heavy (haulage) vehicles, • OSOM vehicles.	Section 4.2
Identify the necessary road network infrastructure and access upgrades required to cater for and mitigate the impact of project related traffic on both the local and classified road network for the development (for instance, road widening, hardstand areas, pullover bays, site access upgrades, intersection treatments etc). In this regard, a strategic design drawing/s should be submitted with the SSD application for any identified road infrastructure and access upgrades. It should be noted that any identified road infrastructure upgrades will need to be to the satisfaction of TfNSW and Council. Works must be appropriately designed in accordance with Austroads Guide to Road Design for the existing posted speed limit, including provision of Safe Intersection Sight Distance (SISD). Note: The design needs to comply with TfNSW Strategic design requirements for DAs. To assist you in preparing the designs, please refer to the link: https://roads-waterways.transport.nsw.gov.au/businessindustry/partners-suppliers/documents/planningprinciples/strategic-design-fact-sheet-02-2022.pdf	Section 4.1.1 Section 4.1.2 Section 6.6 Section 6.7 Appendix E of Response to RFI#2 (Umwelt, August 2025).
Road safety assessment of key haulage route/s: • Where road safety concerns are identified at a specific location along the proposed haulage routes, TfNSW suggests that the TIA be supported by a targeted Road Safety Audit undertaken by suitably qualified persons in accordance with the Austroads Guidelines.	Section 3.3
A review of crash data along the identified transport route/s for the most recent 5-year reporting period and an assessment of road safety along the proposed transport route/s considering the safe systems principles adopted under Future Transport 2056.	Section 2.3
Consideration of the local climate conditions that may affect road safety during the life of the project (e.g. fog, wet and dry weather, icy road conditions).	Section 7.7.5
The layout of the internal road network, parking facilities and infrastructure.	Section 3 and Section 5.6.
Impact on rail corridors and level crossings along the transport route/s detailing any proposed interface treatments, where applicable.	Appendix A
Impact on public transport (public and school bus routes) and consideration for alternative transport modes such as carpooling and shuttle buses during construction.	Section 3.4 Section 5.3.5
A draft Traffic Management Plan (TMP) that could be implemented following approval of the EIS, in consultation with relevant Councils and TfNSW. The TMP is to address the construction, operation and decommission phases of the proposed development and be prepared and implemented in accordance with Australian Standard 1742.3 and the Work Health and Safety Regulation 2017. The TMP would need to identify strategies to manage the impacts of project related traffic, including any community consultation measures for peak haulage periods | OSOM movements.	To be addressed post approval (as confirmed by TfNSW)

Traffic and Transport	Addressed in
The developer should consider the need to consult widely (i.e. outside the development's local government area), as the cumulative impacts of OSOM haulage, particularly blades, are acutely felt by the local communities in the townships along the route. Identification of the relevant townships likely to be affected and any consultation undertaken with those communities should be included in the TMP. The TMP would further need to propose a Driver Code of Conduct for haulage operations which could include, but not be limited to: A map of the primary transport route/s highlighting critical locations. • Identification of local bus operations, including maps of routes/bus stops, and consultation with local bus operators. • Safety initiatives for haulage through residential areas and/or school zones. • An induction process for vehicle operators and regular toolbox meetings. • A public complaint resolution and disciplinary procedure. • A complaint resolution and disciplinary procedure. • Any proposed temporary measures such a Traffic Guidance Scheme (TGS) • Community consultation measures for peak haulage periods	
Concept level route analysis based on high-level 3D swept path analysis to generally indicate locations where civil works are likely to be required.	Appendix A

1.3 Stakeholder Comments

After reviewing the EIS and TIA, TfNSW identified the following five (5) key issues:

1. Updated turn warrants are requested for assessing the traffic impacts to accurately scope the required road upgrades for the project access and intersections with the State road network.
2. Strategic concept designs have not been prepared and are requested to be included within a revised TIA to capture the scope of road upgrades to the State road network required to facilitate access and oversize overmass (OSOM) movements.
3. Detailed assessment of the traffic impacts for each stage of the construction schedule, including pre-construction minor works and temporary workforce accommodation, is requested.
4. Further detail is requested as the high-risk OSOM route assessment does not provide enough information to accurately scope the required road upgrades and mitigation measures for the State road network. Further, the assessment must include impacts to rail corridors.
5. The Port of Newcastle routes require specific detail to assess the impacts of OSOM vehicle movements on public assets. This will include further engagement with TfNSW due to the developing situation in the South-West Renewable Energy Zone.

These matters were addressed in detail within the Bullawah Wind Farm Project - Amended Traffic Impact Assessment, dated 2 April 2025 (TTPP, 2025).

1.3.1 Submissions Report and Amendment Report

TfNSW responded to the Project Submission Report and Amendment Report (Umwelt, 2025) that was referred to TfNSW by the Department of Planning, Housing and Infrastructure (DPHI) on 16 April 2025 via the Major Projects Portal, as part of the formal consultation process for SSD projects. In that response (TfNSW reference: REN25/00037/003 & REN25/00037/004, dated

23 June 2025) TfNSW sought additional information as requested in Attachments 1 and 2 of REN25/00037/003 & REN25/00037/004 and requested the Amended TIA be resubmitted to TfNSW for review, preferably before the determination is made.

Prior to that formal request being received, TfNSW provided preliminary queries to BWF that were consulted on at the time (8 May 2025), and then responded to prior to REN25/00037/003 & REN25/00037/004 being received, as documented within the Umwelt 30 May 2025 letter reproduced in **Appendix B** of this Amended TIA.

It is noted that the TfNSW REN25/00037/003 & REN25/00037/004 advice, dated 23 June 2025 formed part of the overarching 23 June 2025 'Request for Additional Information' provided to BWF by DPHI (i.e. RFI #2), which included the TfNSW advice and advice from other agencies who did not comment on traffic or transport related matters.

Based on this, TTPP has revised this Amended TIA to address the relevant matters raised by TfNSW, inclusive of both the preliminary queries (Table 1.3) and formal agency advice identified in REN25/00037/003 & REN25/00037/004 (Table 1.4 and Table 1.5 relating to a request for additional information on transport matters raised during the EIS, and Table 1.6 relating to the inclusion of South Australia routes within the Amendment Report). Each table (Table 1.3 to Table 1.6) reproduces the matter raised by TfNSW and then identifies where it has been addressed in this report.

- Matters relating to the OSOM Route Assessments were addressed in detail by RJA, as per the revised OSOM Route Assessment reports reproduced in Appendix A of this Amended TIA.
- Matters relating to concept designs were addressed in detail by GHD, as per Appendix E of the Response to RFI#2 (Umwelt, August 2025).

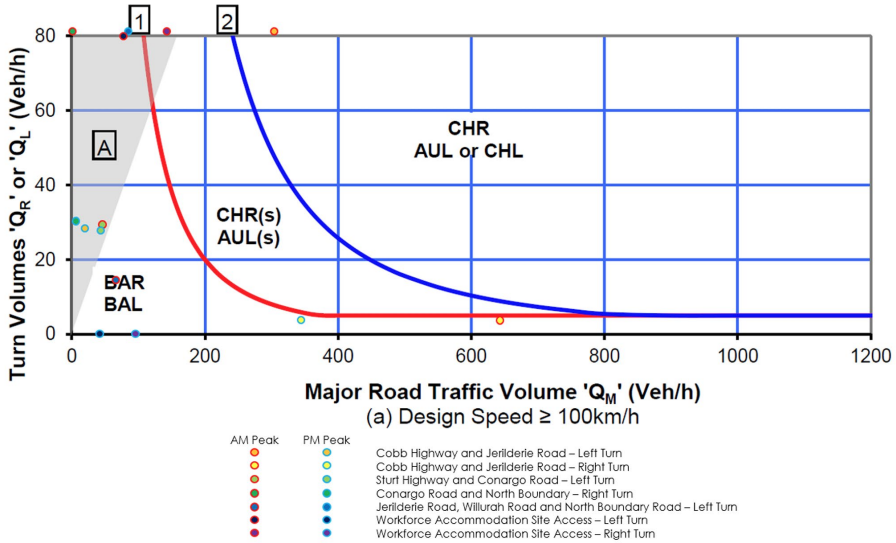
Table 1.3: Response to TfNSW Preliminary Queries (30 May 2025)

Item No.	Comment	Response
1	Missing strategic concept designs for high-risk OSOM	• As discussed at the meeting held 8 May 2025, consolidated strategic concept designs were provided in Appendix 2 of the Amendment Report (Umwelt, 8 April 2025). It was understood that TfNSW would review those designs and provide any feedback in its formal RFI.
2	• Missing hardstand designs on Jerilderie Road • Missing swept paths for design heavy vehicle • Need further elaboration on the CHL treatment for Cobb Hwy & Jerilderie Road (incl. any communications with Pottinger WF regarding upgrade)	TfNSW confirmed during the meeting on 8 May 2025 that these three (3) comments all refer to the Cobb Highway and Jerilderie Road intersection. As such, comments were grouped together for the purposes of this response. Consideration of Left Turn Treatment: • Consolidated strategic concept designs are provided in Appendix 2 of the Amendment Report (Umwelt, 8 April 2025). This includes the additional hardstand proposed at the intersection of the Cobb Highway and Jerilderie Road, consistent with the recommendations of the OSOM Route Assessments (RJA, March 2023) as presented in Appendix A of the Amended TIA, April 2025. • The response provided by TTPP (Appendix B) provides further consideration of the need for a Channelised Left (CHL) turn treatment at the intersection of the Cobb Highway and Jerilderie Road. As discussed in Section 6.7 of the Amended TIA, the need for a CHL treatment is primarily influenced by traffic generated by Pottinger Wind Farm. • The updated analysis provided by TTPP (Appendix B) demonstrates that with background traffic growth (2028) plus construction traffic generated by Bullawah Wind Farm, the intersection continues to operate at Level of Service (LOS A) and the existing BAL treatment does not require conversion to CHL. • The Amended Traffic Impact Assessment for Pottinger Wind Farm (Amber Traffic & Transport Direction, September 2024) identifies and commits to undertake the upgrade to a CHL treatment. This requirement would be triggered with or without the Bullawah Wind Farm Project proceeding. • Accordingly, the Bullawah Wind Farm Project is not responsible for providing the CHL upgrade and the road network can continue to function acceptably without any additional works. • BWF is committed to proactive consultation with Pottinger Wind Farm to manage cumulative traffic impacts and mitigate any potential project delays associated with Pottinger Wind Farm's planned road upgrades. Following the recent announcement of the initial allocation of access rights within the South West REZ, BWF has made contact with Pottinger Wind Farm regarding these specific matters and discussions are ongoing as of May 2025. A reply had not been received at the time of finalising this response. BWF will continue to consult with Pottinger Wind Farm and TfNSW to proactively manage potential traffic conflicts during detailed design and construction of the Project. Consideration of Right Turn Treatment

		• The Amended TIA, April 2025 identified several potential quarries that could be utilised during Project construction, including four (4) quarries to the south of the Project (Lake Cooper Quarry, Yabba Quarry, Fuzzards Quarry and Coonanga Sand Pit) which could travel to the Project Area via a right turn movement from the Cobb Highway onto Jerilderie Road.
		• In response to TfNSW concerns, BWF has:
		  ○ committed to the removal of the access route from the Lake Cooper Quarry.
		  ○ identified two (2) alternative transport routes (Option A and Option B) to service the three (3) remaining previously identified southern quarries, including Yabba Quarry, Fuzzards Quarry and Coonanga Sand Pit, such that no Project-related right-turn heavy vehicle movements are proposed at the intersection of the Cobb Highway and Jerilderie Road during construction.
		  ▪ Option A retains the existing outbound route to the quarries but modifies the return route whereby quarry vehicles would travel north along the Cobb Highway past Jerilderie Road, perform a U-turn at the Sturt Highway/Cobb Highway roundabout, and then return southbound to make a left turn into Jerilderie Road. This eliminates the need for a right-turn movement from the Cobb Highway into Jerilderie Road.
		  ▪ Option B would have vehicles accessing the southern quarries utilising Willurah Road and Carrathool Road to access the Riverina Highway. These routes are presented on Figure 3 of Appendix B.
		• A turn warrant assessment has been undertaken for Option B (included in Appendix B) using traffic counts provided by Edward River Council on 21 May 2025 to infer anticipated traffic volumes. After accounting for directional splits and peak hour proportions, the number of vehicles falls well short of the threshold for a higher-order intersection treatment. Accordingly, only a Basic Left (BAL) treatment is warranted. While it is understood that the existing intersection is in poor condition and will require resurfacing and updated line marking, no road widening is necessary. A concept design for these road improvements is included in Appendix E of the Response to RFI#2 (Umwelt, August 2025).
		
		It is noted that five (5) other potential quarry locations have been identified to the north-east and east of the Project which do not rely on a right-turn movements at this location.

3	Missing turn warrant graph plots for each turn warrant assessment	Turn warrant graph plots for each turn warrant assessment is shown below, noting that some of these points are beyond the extents of the graph.

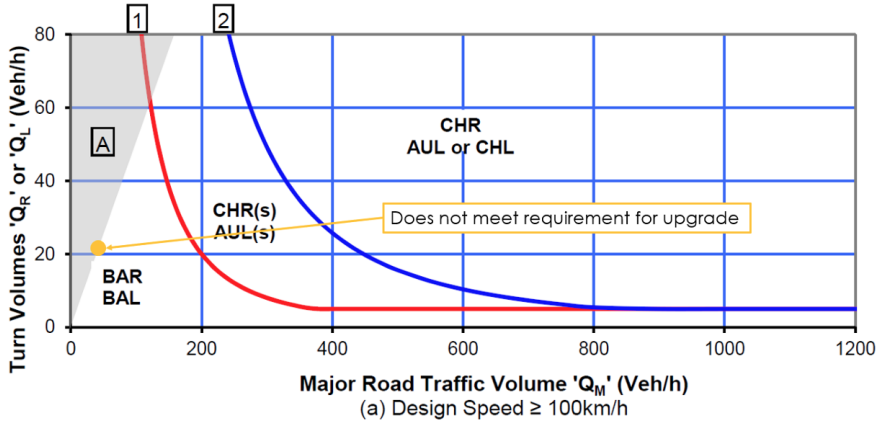
Figure 1: Warrants for Turn Treatments on Major Roads at Unsignalised Intersections – Plotted



4	Need Cobb Highway growth rate (not using Newell Highway growth rate)	Following consultation with TfNSW, an updated annual background traffic growth rate of 1.5% has been provided for the Cobb Highway, which has now been applied to traffic volumes in the updated intersection capacity assessments and turn warrant analyses presented by TTPP in Appendix B.
5	Need further clarification on the distributions and peak hour numbers for each intersection	The Amended TIA (April 2025) was based on conservative and realistic assumptions regarding construction activity timing and traffic distribution. Specifically: • Development peak periods have been assessed based on the arrival and departure times of construction workers, which are expected to occur between 6:30am–7:30am (AM peak) and 5:30pm–6:30pm (PM peak) on weekdays. • Heavy vehicle movements are expected to occur throughout the standard construction hours (i.e., 7:00am–6:00pm weekdays, 8:00am–1:00pm Saturdays) and are anticipated to be evenly distributed across the day. • Stick diagrams have been provided in Attachment 1 of TTPP's response (refer to Appendix B) to illustrate the distribution of construction traffic across key routes and intersections.

		• Network peak periods have been adopted from the surveyed intersections to establish baseline traffic conditions. These peak hours may not align with the development's peak periods; however, this approach provides a conservative, worst-case scenario assessment of traffic impacts. The surveyed road network peak periods are shown in Table 1 in Appendix B.
6	Clarify if there is a need to use Four Corners Road/Kidman Way to access the site as indicated in Figure 5.2 – analysis is required if so.	Access to the Project via Kidman Way and Four Corners Road will be restricted to a small number of light vehicles associated with construction personnel. This route will be used only by workers not housed in the temporary workers accommodation camp, being approximately 11 workers travelling from Coleambally. This represents approximately 30% of the 35 workers residing off-site. This results in 11 light vehicle trips during both the AM and PM peak periods. The only movement with potential to meet turn warrant thresholds is the right turn from Kidman Way onto Four Corners Road during the AM peak. The PM peak left turn out of Four Corners Road onto Kidman Way is not applicable for a warrant upgrade. Although this intersection was not included in the original TIA surveys, it is noted that the intersection currently provides a BAR treatment. Reference is made to traffic surveys undertaken for the Yanco Delta Wind Farm on Wednesday, 4 May 2022 that recorded the following results on Kidman Way during the AM Peak: • 16 northbound vehicles • 11 southbound vehicles Applying a growth rate of 1.2% on Kidman Way based on TfNSW Traffic volume Viewer data, this results in an additional vehicle in either direction for the expected Project peak. Additionally, surveys for the Project Energy Connect project identified 10 vehicles per hour on Four Corners Road during peak times. Assuming conservatively that all westbound vehicles on Four Corners Road turn right, and adding the Project-generated 11 right-turning vehicles (21 total vehicles), the plotted turn warrant analysis below demonstrates that the threshold for a CHR (Channelised Right Turn treatment) is not met. As such, no upgrade to the existing BAR treatment is required.

Figure 5: Turn Warrants Assessment Four Corners Road and Kidman Way – Plotted



(a) Design Speed ≥ 100km/h

Table 1.4 Response to TfNSW comments and further information requested from EIS requiring RFI, dated 2 October 2024 (Attachment 1)

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
1	a. The revised TIA should include updated traffic generation volumes and turn warrant assessment for each project access and intersection on the State road network to capture the extent of road upgrades for the project: a. Project-related traffic volumes (per an hour and day) vehicle types (inclusive of OSOM vehicles) routes for each vehicle type, distribution and travel direction for each stage of the project (pre-construction, construction, operation, and decommissioning). b. The turn warrants assessment must be revised per Austroads Guide to Traffic Management Part 6 and include: • Growth rates projected for each scenario peak hour • Provide an assessment of the AM/PM project peak hour with comparison to the network peak hour, • An assessment of each staging scenario considering overlap of the stage currently identified in the TIA and • The cumulative traffic volumes of major projects at (EIS or approved) that will be present in the background, turning volumes and accesses/intersections required to facilitate the project, in relation to the State road network.	PARTIALLY ADDRESSED: TfNSW notes that the traffic memo provided on 30 May 2025 provides turn warrants for Kidman Way/Four Corners Road, and updates to the existing turn warrants assessments to include growth rates and cumulative traffic volumes. However, TfNSW requires further clarification on the following matters related to point 1(a) and (b):	See below	See below.
		If the turn warrants assessment accounted for the overlap of Stages 1 and 2 as identified in Table 5.5 of the Amended TIA, noting the change in volume from 350 to 380 at the peak workforce.	Section 6.7 - Site Access Intersection Design – Turn Warrants of this version of the Amended TIA (August 2025) has been revised to clarify that the turn warrants assessment accounted for the overlap of Stages 1 and 2. There are no changes to the quantities identified in Table 5.5 of the Amended TIA i.e. the change in volume from 350 to 380 at the peak workforce was already addressed.	Section 6.7
		How the project traffic during the AM/PM peak hours will be prohibited from turning left from Kidman Way onto Four Corners Way.	Section 7.11 - Traffic and Route Management has been added to this version of the Amended TIA to provide details of how project traffic during the AM/PM peak hours will be prohibited from turning left from Kidman Way onto Four Corners Way. The Sample Drivers Code of Conduct (refer Appendix C of this Amended TIA) has been revised to reflect this.	Section 7.11 Appendix C
		The method in which the project traffic during the AM/PM peak hours will be prohibited from turning right from Sturt Highway into Conargo Road.	As above, with the right from Sturt Highway into Conargo Road addressed specifically. The Sample Drivers Code of Conduct (refer Appendix C of this Amended TIA) has again been revised to reflect this.	Section 7.11
		How the 1.5 persons per light vehicle will be enforced for the construction of the project. TfNSW requires further information on how this will be implemented and monitored throughout the project.	Section 7.10 – Carpooling has been updated define how the 1.5 persons per light vehicle will be enforced for the construction of the project.	Section 7.10
		Include information on the pre-construction minor works intersections that will be used during this period, the mitigation measures, and assess their suitability for use during this period.	Section 5.2 - Pre-Construction Traffic of this version of the Amended TIA has been updated to clearly define pre-construction works. Section 7.9 - Pre-Construction Works has been added to this Amended TIA to define appropriate mitigations.	Section 5.2
		The memo identifies a proposal for quarry traffic to pass the Jerilderie Road/Cobb Highway intersection and U-turn at the Cobb Highway/Sturt Highway roundabout to head southbound and turn left in at the Jerilderie Road/Cobb Highway intersection (which is intended to be upgraded to a CHL as part of Pottinger Wind Farm). The U-turn of quarry traffic will result in a	Section 7.11 - Traffic and Route Management has been added to this version of the Amended TIA to provide details of how project traffic using quarry transport route Option A will avoid the right turn from Cobb Highway into Jerilderie Road. The Sample Drivers Code of Conduct (refer Appendix C of this Amended TIA) has been revised to reflect this.	Section 7.11 Appendix C

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
		16km round trip. TfNSW requires further information on how this will be enforced and monitored throughout the project.		
		Clarify the number of light and heavy vehicles that will turn right onto Jerilderie Road during the morning and afternoon peak hours from Cobb Highway.	The Project does not propose any right turn movements for light and heavy vehicles from Cobb Highway onto Jerilderie Road. Figure 5.3 of this version of the Amended TIA summarises the indicative Project routes for light and heavy vehicles.	Figure 5.3
		The turn warrants assessment provided in the memo identifies that a CHL/CHR and a BAR are required for the Jerilderie Road/Cobb Highway intersection. The current intersection does not consist of a BAR or a BAL intersection treatment, contrary to what is stated in the Amended TIA and the memo. Regardless of Pottinger Wind Farm's traffic volume, any traffic movements on this intersection will trigger the requirement for road treatment.	The Project design has been updated to include an Auxiliary left turn treatment - short turn lane (AUL(s)) at the Cobb Highway and Jerilderie Road intersection. This exceeds the minimum BAL requirement that was identified in accordance with relevant Austroads guidance, based on Project traffic volumes. Similarly, a BAR (e.g., for vehicle movements turning right from Jerilderie Road onto Cobb Highway is not required in accordance with Austroads guidance as the Project does not propose to have any right turns onto Cobb Highway from Jerilderie Road, Accordingly, no other treatments beyond the proposed AUL(s) are proposed. The need for a CHL/CHR is as a result of the large traffic volumes proposed to be generated by Pottinger Wind Farm. BWF will not commit to incorporating a CHL/CHR into its design as it is not warranted based on the proposed Project volumes. On this basis TfNSW's requirement for road treatments has been addressed, commensurate to the Projects scale and road use.	Section 6.7
		The memo indicates that discussions have commenced with Pottinger Wind Farm regarding the construction of the CHL at this intersection. Currently, there is no commitment or ability to rely on Pottinger Wind Farm (which has not yet been approved) to deliver the CHL left turn treatment to accommodate Bullawah Wind Farm's traffic requirements and to meet Bullawah's construction timing. Therefore, a strategic concept design for the BAR/CHR and CHL is required.	As above, noting that a revised strategic concept design has been prepared by GHD for the Jerilderie Road/Cobb Highway intersection treatment, included as part of the fully revised and consolidated set of all concept designs within Appendix E of the Response to RFI#2 (Umwelt, August 2025). These have been prepared to reflect the changes presented in this version of the Amended TIA as informed by both the GHD design work, and the revised Port of Newcastle and Port Adelaide Route Studies (RJA, 2025) (refer to Appendix A of this Amended TIA).	Concept design 12659863-GHD-00-00-DRG-CI-00010 within Appendix E of Response to RFI#2 (Umwelt, August 2025).
1	(continued)	Option A for the quarry route presented in the memo indicates that the right turn from the Cobb Highway onto Jerilderie Road will be avoided. Mitigation measures are to be implemented to address this restriction, ensuring no movement.	Section 7.11 - Traffic and Route Management has been added to the Amended TIA to provide details of how project traffic associated with quarry Option A will avoid any right turns from Cobb Highway onto Jerilderie Road. The Sample Drivers Code of Conduct (refer to Appendix C of this Amended TIA) has been revised to reflect this.	Section 7.11 Appendix C
		Provision of strategic concept design for the Jerilderie Road/Cobb Highway intersection upgrade is required, as mentioned previously.	As above, noting that a revised strategic concept design has been prepared by GHD for the Jerilderie Road/Cobb Highway intersection treatment,	Concept design 12659863-GHD-00-00-DRG-CI-00010 within Appendix E of

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
			included in the revised and consolidated set of all concept designs within Appendix E of the Response to RFI#2 (Umwelt, August 2025).	Response to RFI#2 (Umwelt, August 2025).
2	The revised TIA should include strategic concept designs for required road upgrades for each project access and intersection on the State Road network, and assessment of swept paths: a. Strategic concept designs are required within the updated TIA for each road upgrade and modification to accommodate the high-risk OSOM and project traffic at each intersection and access with the State Road network.	**PARTIALLY ADDRESSED:** TfNSW acknowledges and has reviewed Appendix 2 -Project Design Information, which incorporates the strategic concept designs that have been prepared to accommodate the high-risk OSOM movements. Based on this review, the strategic concept designs are to be revised to address the following matters: Swept paths for each high-risk OSOM pinch point and accompanying strategic concept designs are to be reviewed to ensure that the strategic concept designs capture the entire footprint required to accommodate the wheel tracking and blade swing of the high-risk OSOM movement.	See below	
		Sturt Highway at Wagga Wagga, Route 1: Swept paths indicate that the OSOM crosses the traffic islands adjacent to the roundabouts on Sturt Highway at Kooringal Road and Pearson Street. Strategic concept designs are to be updated to include the scope of work for the removal or modification of the islands.	There are no works proposed at the traffic islands adjacent to the roundabouts. The fully revised and consolidated set of all concept designs included in Appendix E of the Response to RFI#2 (Umwelt, August 2025) show the works associated with the removal or modification of the roundabouts on Sturt Highway at Kooringal Road and Pearson Street and not the removal or modification of the traffic islands. Additionally, the swept paths included in the Newcastle Route Study (RJA, Appendix A) demonstrate the OSOM movements can travel through here with no further work required.	Appendix E of RFI#2 (Umwelt) Appendix A
		High-risk OSOM swept paths appear to utilise initial lock turns. Swept path modelling is to use a tangential turn as required in accordance with Austroads Design Vehicles and Turning Path Templates Guide.	We acknowledge the 'Austroads Design Vehicles and Turning Path Templates' guideline and supporting resources. We acknowledge the discussion and recommended use of tangential turns and initial lock turns within Section 3.2, Figure 3.1, Section 3.5 and Section 4.1, and then the guidance provided throughout regarding design vehicle selection. Whilst the suggested turn types are well understood, they are not applicable to the highest risk OSOM vehicle proposed for the Project, which requires a customised turn type to be modelled, by a suitably experienced logistics provider, that is representative of the actual turn those very large OSOM vehicles will make. The vehicles that are modelled here are custom vehicles with specific operational functionality. The ability for these vehicles to negotiate the route with minimal impact relies on this functionality and the traffic control permits that accompany the vehicle during transportation. The ability for the trailers to operate at low speeds and control their rear axle steering is a critical component of their functionality as is the ability to operate on all available pavement. Furthermore (and as relevant to the turn type matter) the Austroads Design Vehicles and Turning Path Templates guideline is underpinned by the	This row

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
			Austroads Design Vehicle Library. Section 2.1 of the Austroads Design Vehicles and Turning Path Templates guideline lists the design vehicles (with a layout drawing of each vehicle then shown in Section 2.2) from said Austroads Design Vehicle Library. The vehicles listed in Section 2.1/2.2 of the Austroads Design Vehicles and Turning Path Templates guideline and then within a) the vehicle templates supporting resource, and b) turning path templates supporting resource, do not correlate with or accurately represent the highest risk OSOM vehicle proposed for the Project. On this basis the recommended turn type and guideline is not suitable to implement for the Project. Accordingly, no further swept path analysis or revisions to the Newcastle and Port Adelaide Route Studies (RJA, Appendix A) are proposed to occur as a result of this feedback.	
		Based on the current RJA revised route analysis there are two pinch points that require strategic concept designs that have not been included within the Bullawah Wind Farm – Project Design Information. The missing pinch point strategic concept designs are identified in Attachment B figure 10 and 11.	We understand the pinch points in question are as follows: - Sturt Highway and Newell Highway (Bend on Sturt Hwy 712km Gillenbah – NSW. Page 30 of the Port of Newcastle to Bullawah Route Study) - Mitchell Highway onto Derribong Street (Mitchell Hwy onto Derribong St 450km Narromine – NSW. Page 32 of the Port of Newcastle to Bullawah Route Study). Strategic concept designs for these locations were provided in Appendix 2 of the Amendment Report (Umwelt, April 2025). Additionally, these locations are included in the fully revised and consolidated set of all concept designs included as Appendix E of the Response to RFI#2 (Umwelt, August 2025).	Refer to concept designs 12659863-GHD-00-00-DRG-CI-00009 and 12659863-GHD-00-00-DRG-CI-00014 in Appendix E of Response to RFI#2 (Umwelt, August 2025).
		Swept paths are to be provided for the largest heavy vehicle (design vehicle) on impacted State roads. Swept paths are to comply with Austroads Design Vehicles and Turning Path Templates.	The swept paths included in the Port of Newcastle Route Study (RJA, 2025) (Appendix A of this Amended TIA) represents the largest vehicles and loads expected to use the route. The transformer dimensions originally referenced were nominal and have since been revised following further Project design considerations. This is detailed in response to other feedback from TfNSW below. The updated transformer dimensions (reduced width of 3 m and a trailer width of 4.2 m) remain within the overall length and width envelope of the blades and towers already assessed. On this basis, the Newcastle Route Study (Appendix A) has been updated to reflect the revised transformer dimensions, and no additional or revised swept paths are required. Please refer our response above in relation to the use of the Austroads Design Vehicles and Turning Path Templates.	Appendix A

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
		Based on the review of 4(A)b further strategic concept designs will likely need to be provided to address the height and width obstructions that are present on the routes via Newcastle. See Attachment B for examples of where this conflict may occur.	Noted, the revised Newcastle Route Study identifies the height of all the safety cameras (and other gantries) along the route. This is documented in Section 7 (Route 1), Section 11 (Route 2) and Section 14 (Route 3). The height which has been measured by RJA shows that the loads can travel underneath the safety cameras (and other gantries) positioned along all routes. Regarding width restrictions, the Newcastle Route Study has not identified any width restrictions (additional to the locations requiring modifications, or identified as pinch points within the Newcastle Route Study). In addition to this, the OSOM movements will be escorted along the entire route which will aid in managing any narrower sections of road. The OSOM movements will not be able to travel without any escort.	Section 7 (Route 1), Section 11 (Route 2) and Section 14 (Route 3) of Appendix A.
3	The revised TIA is to consider the impacts of pre-construction works and the proposed workforce accommodation facilities: a. The TIA is to assess the pre-construction minor works' scope (inclusive of any operation of workforce accommodation), traffic volumes, types, hours of operation, timing, stages, and traffic types and recommend traffic mitigation measures to mitigate the traffic impacts during this stage. b. Assess the traffic volumes, trips, distribution, directions and routes for any parallel construction activities coinciding with the stages of the construction and occupation of the workforce accommodation, including an assessment of the changes to the traffic assessment post-full occupation of the workforce accommodation camp.	**OPEN:** Section 5.2 identifies pre-construction minor works volumes and timeframes, peak hours volumes, timeframe (3 months) and vehicle types. TfNSW requests that the following matters need to be considered and addressed for this pre-construction minor works period:	See below	
		Provide a swept path analysis of the existing intersection for the largest heavy vehicle, prepared following Austroads Design Vehicles and Turning Path Templates. The swept path analysis must demonstrate that the largest heavy vehicle can turn within the existing pavement and concurrently. If the design vehicle cannot turn, concurrently enforceable mitigation measures or additional temporary works will need to be implemented to manage and mitigate the impacts.	Noted, this Amended TIA has been revised to include further detail relating to pre-construction works, applicable intersections, and anticipated design vehicle. A fully revised and consolidated set of all strategic concept designs has been prepared to include designs for pre-construction works vehicles, included in Appendix E of the Response to RFI#2 (Umwelt, August 2025).	Section 5.2. Appendix E of the Response to RFI#2 (Umwelt, August 2025).
		Provide the intersections with the state road network that will be used during this period.	This version of the Amended TIA has been revised to list the intersections on the State road network that will be used during this period. Specifically, Table 5.2 (Timing of Upgrades and Pre-Construction and Construction Scheduling) and Section 5.2.3 have been updated to include relevant intersections.	Section 5.2.1 – Section 5.2.3
		Review the existing land use of the subject site and revise the AM/PM peak hour traffic volumes to be consistent with the traffic volumes that are generated by the existing land use within the peak hours. The traffic volumes for the AM/PM peak hour are currently identified as 14 light vehicles and 13 heavy vehicles.	This version of the Amended TIA has been revised to clarify this discrepancy. The traffic generated during the pre-construction phase is expected to be minimal and is summarised in Table 5.1, based on the construction traffic generation established in Table 5.3 of this Amended TIA.	Section 5.2, Table 5.1, Table 5.3

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
		Identify any temporary widening or works that may be required to accommodate swept paths of the design vehicle during this period within a strategic concept design.	This version of the Amended TIA has been revised to include further detail relating to pre-construction works and any applicable temporary road works required based on a nominated design vehicle required for pre-construction works. A fully revised and consolidated set of all strategic concept designs has been prepared to include designs for pre-construction works vehicles, included in Appendix E of the Response to RFI#2 (Umwelt, August 2025).	Section 5.2 Appendix E of Response to RFI#2 (Umwelt, August 2025).
		No OSOM will be permitted during this period, unless swept paths are provided that demonstrate that the intersection or access will be able to accommodate the turn of the OSOM movement within the existing pavement.	No OSOM movements are proposed to occur until off-site road works (i.e. for the Port to Project) are complete. Hence, swept paths demonstrating OSOM movements within the existing pavement are not required and have not been prepared.	This row
		Any overlap of construction and pre-construction minor works periods must be included in the traffic assessment for this stage, prior to completion of the intersection upgrade.	This version of the Amended TIA has been revised to include further detail relating to pre-construction works, applicable intersections, and anticipated design vehicle. As now reflected in Section 5.2, only minor activities will occur prior to off-site road works being completed. There is no overlap of construction and pre-construction minor works. The construction phase will not commence until all road upgrades (which form part of the pre-construction minor works) are complete.	Section 5.2
		Daily traffic volumes will need to be staggered throughout the day.	Section 7.11 - Traffic and Route Management has been added to this Amended TIA to provide information and commitments relating to daily traffic volumes that will be staggered throughout the day, noting that detailed design is yet to occur and specific aspects will be addressed in detail at that time and as part of the TMP.	Section 7.11
		Identify the traffic volumes for any temporary workforce accommodation that will be occupied during this period.	No change to the Amended TIA required. Traffic volumes associated with occupancy of the TWA are 0 during this period. TWA set up will commence after Local Transport Route upgrades are complete.	This row
		It is noted that the project does not currently include any scope for intersection upgrades for Jerilderie Road/Cobb Highway, therefore the use of the intersection will be permitted to have limited to traffic volumes that are consistent with the existing land use traffic volumes for the duration of the construction of the project, as there are no existing intersection treatments at the Jerilderie Road/Cobb Highway intersection.	As noted above, the Project design has been updated to include an AUL(s) treatment at the Cobb Highway and Jerilderie Road intersection. This exceeds the minimum BAL requirement that was identified in accordance with relevant Austroads guidance, based on Project traffic volumes. The need for a CHL/CHR is as a result of the large traffic volumes proposed to be generated by Pottinger Wind Farm. BWF will not commit to incorporating a CHL/CHR into its design as it is not warranted based on the proposed Project volumes. On this basis TfNSW's requirement for road treatments has been addressed, commensurate to the Projects scale and road use.	Refer to concept design 12659863-GHD-00-00-DRG-CI-00010 in Appendix E of the Response to RFI#2 (Umwelt, August 2025).

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
			A fully revised and consolidated set of all strategic concept designs has been prepared including the AUL(s) design at this location, included in Appendix E of the Response to RFI#2 (Umwelt, August 2025).	
		Traffic mitigation measures and hours of operation are required for pre-construction works (inclusive of any operation of workforce accommodation).	The primary means of mitigating pre-construction traffic impacts is the phasing works to align with the timing of road upgrades as outlined in Section 5.2. This will ensure that upgrades are completed prior to the vast majority of traffic generating activity occurring. In particular, the temporary workers accommodation (TWA) camp establishment will occur during pre-construction general works, when all road upgrades are complete, and the occupation of the TWA will not commence until the main construction period begins. Pre-construction hours of operation will be as per the main construction period, being between 7:00 am to 6:00 pm Monday to Friday, and 8:00 am to 1:00 pm Saturday, except during specific circumstances, as detailed in Section 1.2.4 of the Amended Project Description. This is clarified in the Amended Project Description (August 2025).	Section 5.2 Section 7.9 Appendix G of Response to RFI#2 (Umwelt, August 2025)
4(A)a	This section outlines overall considerations for all identified routes in the assessment, which need to be addressed within the revised TIA. Refer to Attachment 2 for specific comments related to routes from the Port of Newcastle. The route assessment identifies heavy-mass and large-axle group load vehicles. Bridge and culvert assessments are required for TfNSW assets to assess their suitability for use by these vehicle types. The proponent is to contact TfNSW to discuss the bridge and culvert assessment requirements and process. The route assessment is to be revised based on the outcomes of the TfNSW bridge and culvert assessments.	**OPEN:** Provide evidence of the bridge and culvert assessments that TfNSW has completed.	A bridge and culvert assessment has been completed by TfNSW for the Project. As confirmed by TfNSW via email on 20/02/2025, there are no concerns regarding the transport of turbine blades and tower components. At that point in time TfNSW had not evaluated the transformers proposed by BWF. Further assessment was requested by BWF on 15/07/2025 for TfNSW to evaluate the revised transformer dimensions. As of August 2025, BWF are awaiting confirmation of the outcomes of the bridge and culvert assessment for the proposed transformer by TfNSW. Email correspondence will be supplied separately.	This row
4(A)b	An extensive review of the high-risk OSOM routes regarding vertical and horizontal obstructions alignment, including existing formations, crossings, bridges, culverts, intersection roadside furniture, hazards, roundabouts, traffic signals, level crossings, existing developments, signage and powerlines.	**OPEN:** The swept path analysis for the pinch points through all towns along all routes appears to have been based on a tower width of 5.9 m, rather than the transformer width, which is 6.5 m. The routes should be reviewed to see if there are any further impacts to state road infrastructure (such as medians, pedestrian refugees, signage, traffic signals, overhead gantry signage from Dubbo to Wagga, street lighting or	As noted here and in response to other comments on this matter, the Newcastle Route Study (RJA, 2025) (Appendix A of this Amended TIA) has been updated to reflect the typographical error. The swept paths included in the Route Study represent the largest vehicles and loads expected to use the route. The transformer dimensions originally referenced were nominal and have since been revised following further Project design considerations. The updated transformer dimensions and trailer (reduced to 4.2 m) remain within the overall length and width envelope of the blades and towers already	Appendix A

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
		any widening of intersections) due to the maximum widths, heights and lengths of the high-risk OSOM vehicle configurations for this project. On this point, clarification is required on why the swept path analysis for the tower high-risk OSOM configuration has been based on a width of 5.9m, when the 22.0 Appendix 1- Transport Combinations of the RJA Route Analysis identifies a maximum width of 5.2m for the tower high-risk OSOM configurations. Attachment B contains further examples of missing obstructions.	assessed. On this basis, the Route Study has been updated to reflect the revised transformer dimensions, and no additional or revised swept paths are required.	
		Newell Highway intersection with Dowling Street, Route 2: Evidence of communications with Forbes Shire Council and TfNSW regarding the removal of car parking is to be provided.	Correspondence with Forbes Shire Council has been undertaken in response to this matter. As per the correspondence, Forbes Shire Council have not raised concerns regarding the loss of car parking, however, have requested to be consulted throughout the development of the Project Traffic Management Plan (TMP). BWF have made commitment to preparation of the TMP in consultation with relevant road authorities which is included in a revised set of Project mitigation measures as part of Response to RFI#2 (Umwelt, August 2025). Evidence of this consultation has been provided to TfNSW separately as it contains sensitive information, such as people's names and contact details.	Appendix G (updated mitigation measures) of Response to RFI#2 (Umwelt, August 2025), with consultation evidence provided separately.
4(A)c	EIS section 3.3.9.1 assumes reliance on Port to Hay Road works being completed under an agreement between EnergyCo and TfNSW (Port to REZ MOU). TfNSW advises that the routes and extent of the road upgrades for the Southwest REZ have not yet been determined. Road upgrades to facilitate the high-risk OSOM deliveries are the responsibility of the Proponent. The scope of all required road upgrades is to be identified by the Proponent within a revised route assessment and supported by strategic concept designs for each road upgrade to the State road network.	**OPEN:** Section 4.1.1 of the TIA references that the route analysis and upgrades have been based on an 80m blade length for transportation, however, seeks flexibility to transport and install a larger turbine if road upgrades for a larger turbine (with a blade length exceeding 80m) is undertaken by NSW Government or other third parties and that the Bullawah Wind Farm WTG dimensions do not trigger any additional off site road works. TfNSW advises that no road upgrades are proposed to be completed by TfNSW for any of the high-risk OSOM routes for the southwest REZ (apart from the section of the high-risk OSOM route from Port of Newcastle to Elong Elong). Concerning other projects completing the road upgrades along the route, there are currently no approved projects with the exact scope of road upgrades that would cover the necessary scope of road upgrades and modifications needed to the state road network that would capture the pavement widening for Bullawah Wind Farm WTG component high-risk OSOM movements.	As discussed in Section 3.4 of the Amendment Report, the default option is a 233 m tip height with an 80 m blade and BWF has committed to undertake Port to Hay Transport Route upgrades on this basis. BWF is seeking flexibility in the conditions of consent, such that if the necessary road upgrades are undertaken by others, then a larger WTG could be utilised for the Project without increasing its environmental impacts beyond those assessed in the EIS and Amendment Report. However, should this not eventuate, BWF will proceed with the default option, being an 80 m blade. BWF acknowledges that the option to utilise a larger WTG would not be activated if those third party upgrades do not eventuate and this does not present a risk to the Project.	This row

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
		Furthermore, there is no evidence within the TIA of consultation with other parties about relying on their projects to complete the road upgrades and within the timeframes required for Bullawah Wind Farm. The proponent is required to clarify whether the maximum blade length for the project is 80m or 100m, and if there are any changes to the dimensions of other high-risk OSOM components if the blade length is required to be 100m. The high-risk OSOM route analysis and strategic concept designs will need to be revised if there is an increase in the blade length or any other components.		
4(A)d	The route assessment does not include relevant TfNSW projects or other third-party projects that are currently under construction, or will be completed, on the State road network for either route. The route assessment must be updated to include mitigation measures or modifications required to navigate any identified road or rail projects along the routes (e.g., the Hexham Straight project).	**OPEN:** All routes should be reviewed to understand which TfNSW projects will be under construction or completed during the proposed time horizon for the high-risk OSOM movements from Newcastle. For example, the Marshalls Creek Bridge project (currently under construction), the Sturt Highway upgrade at Wagga Wagga between Tasman Road and Stuart Road (also currently under construction), and the Parkes Bypass project (which has been completed) have not been identified in the route analysis. Further consultation with TfNSW will be required for the Marshalls Creek Bridge project, as the REF identifies that only light and heavy vehicles will be accommodated during the bridge's construction.	Noted, and reiterating that various projects are already considered within the Newcastle Route Study (RJA, Appendix A) based on the list of projects identified by RJA. We note that the Parkes Bypass is specifically referenced in the Route Study (RJA, 2025) (Appendix A of this Amended TIA). Separate communications have been undertaken between BWF and TfNSW which has confirmed the interaction between the Project and the Marshalls Creek Bridge Project will be minimal, noting the Projects OSOM movements are likely to proceed following completion of construction of the Marshalls Creek Bridge Project. BWF would be pleased to consult with TfNSW on this matter further, however it respectfully seeks this work occur following determination of the Project, and as part the TMP preparation. This would enable project interactions to be informed by detailed design. On this basis, no further revisions to the Route Study (RJA, 2025) have occurred or are proposed to address this matter.	This row Appendix A
		Review the following link to ensure that all known TfNSW projects currently under construction or nearing completion have been included in the revised high-risk OSOM route analysis. https://www.transport.nsw.gov.au/projects/current-projects	As above	As above
4(A)e	The route assessment is to include the use of the alternative route via Newcastle Inner City Bypass to Newcastle Road for high-risk OSOM loads that do not exceed the vertical clearance limitations after the road upgrades are completed.	**OPEN:** TfNSW have provided the final designs via email following the meeting held on 8 May 2025 for the Newcastle Inner City Bypass. The Route Analysis is to be updated to include the Newcastle Inner City Bypass route for high-risk OSOM that are below the 5.2m height clearance restrictions for this route.	Noted, and the supply of this data was appreciated. The Project is not proposing to use the Newcastle Inner City Bypass, as this option does not currently support the transportation of project-related materials. On this basis, no changes to the Newcastle Route Study (RJA, 2025) has occurred to address this matter.	This row
4(A)f	Tables 5.1 and 5.2 of the TIA identify night travel for some components; however, the routes are not approved for night travel, with Route 2 likely to be mostly day travel. Scheduling of OSOM	**OPEN:**	The Newcastle Route Study (RJA, 2025) (Appendix A of this Amended TIA) identifies several suitable pull-over bays prior to Wagga Wagga, including (but not limited to) locations at Tarcutta, South Gundagai, Jugiong, Mungi Mungi Hill, and Berremangra Reddy Creek. As advised by the Project's transport	Port of Newcastle to Bullawah Route Study - Appendix A Appendix G (Updated Mitigation Measures) of

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
	movements should be reviewed, with AM/PM network peak times to be avoided through townships.	Night travel through Wagga Wagga is currently not approved. All OSOM movements through Wagga Wagga must occur during daylight hours and outside of the morning and afternoon peaks. Travel time delays must be modelled and considered before consent is given for high-risk OSOM movements through Wagga Wagga on the Sturt Highway, to determine the optimal time of day to travel through Wagga Wagga. TfNSW's preference is that this traffic modelling of the travel time delay occurs before development consent, as further pull-over locations to clear through traffic at pinch points within Wagga Wagga, in particular underneath the Edward Street rail overpass, may need to be considered as a mitigation measure, dependent on the outcome of the travel time delay modelling. On this point, the following information will be required for pull-over bays for any proposed pull-over bays: • Location (GPS coordinates), • Cadastral boundaries, • A typical section of the drainage requirements, • Swept path analysis demonstrating that the longest and widest load, including escort vehicles, can be accommodated within the pullover bay. TfNSW will not support any partial parking of the high-risk OSOM within the through lanes, • The dimensions and area of the pullover bays, and • Annotation on the plan to identify that the pullover bays will be constructed to the same pavement standard as the Sturt Highway. The advisory notes section has further information on strategic concept design requirements.	logistics provider (RJA), these designated pull-over bays offer sufficient opportunities along the route for OSOM vehicles to pause and wait, enabling safe passage through Wagga Wagga at any time of day (including during daylight hours and outside of morning and afternoon peaks). Therefore, additional pull-over bays (beyond those nominated in the Route Study (RJA, 2025) (Appendix A of this Amended TIA)) are not considered necessary. We note TfNSW's preference that traffic modelling of travel time delay occurs before development consent. BWF commits to this work occurring, however we respectfully seek it to occur following determination of the Project, and as part the TMP preparation. This would enable it to be informed by detailed design. On this basis no further revisions to the Route Study (beyond those summarised here) are proposed to occur. BWF would seek to consult with Wagga Wagga Council and TfNSW on this matter during detailed design and through the preparation of the TMP to understand whether appropriate logistical design and associated management measures could be implemented to allow for night travel through Wagga Wagga. We note that the above-mentioned traffic modelling of travel time delay would also address traffic modelling to consider impacts of movements through townships and the Sydney area, as requested by TfNSW to occur as part of the TMP in response to item 2d below (noting that TfNSW response specifically calls for it to occur as part of the TMP, which BWF agrees is appropriate). Project mitigation measures have been revised in response to RFI#2 from DPHI (that included TfNSW's advice) to address these additional traffic management commitments. Refer to Appendix G of Response to RFI#2 (Umwelt, August 2025).	Response to RFI#2 (Umwelt, August 2025)
4(A)g	Include an assessment of the pull-over locations and rest areas, providing the following: • Locations (including GPS coordinates) and dimensions, and • Swept path analysis for the largest high-risk OSOM vehicles demonstrating that the largest design vehicle can physically enter, exit and park without impacting travel lanes for pull-over locations or public parking within rest areas.	**CLOSED:** Swept path analysis provided for the Newcastle routes.	Noted with thanks	N/A
4(B)	Assess the UGLR level crossings along the route.	**CLOSED - Satisfactorily addressed.**	Noted with thanks	N/A

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
		Note that if the proponent proposes to use UGLRL-managed assets or infrastructure for OSOM/heavy vehicles, they must lodge a request for a permit via the National Heavy Vehicle portal or send the request directly to UGLRL via heavyvehicle@uglregionallinx.com.au. The proponent must submit the request at least 2 months before passage and include the specifications of their OSOM and heavy vehicles (including axle loading, axle spacing, and dimensions of the heavy vehicles) with the lodgement of the request.		

Table 1.5: Response to TfNSW comments and further information requested from EIS requiring RFI, dated 2 October 2024 (Attachment 2)

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
1a	The NorthConnex tunnel operator will need to be consulted, and any assessments and mitigation measures regarding the use of the tunnel in the proposed Route 1.	OPEN: No evidence has been if consultation has occurred with Transurban. The proponent is advised to consult with Transurban before determination, to ensure that the Newcastle route via Sydney is a viable option.	Consultation has occurred with Transurban. These records are being supplied to TfNSW directly as they contain sensitive information, such as people's names and contact details.	N/A
1b	The NorthConnex tunnel has a 4.9m height restriction. Loads over this height will need to use an alternate route via Pennant Hills Road. An assessment of Pennant Hills Road and its pinch points via this route will be required as part of the revised route assessment.	CLOSED: Satisfactorily addressed.	Noted with thanks	N/A
1c	Route 1b requires further consideration of the intended check vehicle, pinch points and maximum heights permissible.	CLOSED: An additional route from the Port of Newcastle has been added to accommodate components over 4.9m loaded height.	Noted with thanks	N/A
1d	Further assessment of the height constraints along the Hume Highway must be undertaken, including the Fairway Drive overpass which has a 5.2m maximum restriction.	OPEN: Fairway Drive overpass over the Hume Highway at Wilton has a signposted maximum height clearance restriction of 5.2m. The route study reports incorrect clearances of 5.4m in the left lane and 5.3m in the right lane, and notes that loads exceeding 5.2m in height can travel under the bridge.	BWF can confirm that a survey took place at 3:00 am on the 23 November 2023 by Warrick and Carl Andrews. Survey data was captured by a 'Leica DISTO' laser distance measurement system. We note that whilst the sign may suggest 5.2 m, there is likely a safety factor built into that restriction. The measurements captured during the 23 November 2023 survey show the actual height of the bridge and demonstrate that loads exceeding 5.3 m in height are not to travel under this structure. Loads over 5.2 m high (but not more than 5.3 m high) are to travel under the bridge in the left lane, and at a speed of no more than 5 km/hour. A spotter would also be present to guide the load through this section of road. The measurements are captured in the Km index included in Section 7 of the Newcastle Route Study (RJA, 2025) (Appendix A of this Amended TIA). Please refer to KM Index of 238KM which outlines the current clearance, procedure and comments related to travelling under Fairway Driver Overpass.	Appendix A (Section 7).
		Loads that exceed 5.2m height are not to travel under this structure. This is to be rectified in a revised TIA.	As above	As above
1e	A vertical typical curve assessment is to be provided for the rail underpass on Sturt Highway at Wagga Wagga before any further consideration of the proposed route is made. This is required as the clearances of the underpass	OPEN: TfNSW data suggests that the clearance of the Edward Street rail underpass is 5.2m, contradicting the 5770mm measurement indicated in Figure 15 of the Newcastle Route Study in the TIA. Provide the information from the	It is noted that a LiDAR study took place at the Wagga Wagga Rail Bridge on the 13/03/2025 by Rivland Surveyors. The results were presented as per the images included in Figure 15 of the Newcastle Route Study (RJA, 2025 (Appendix A of this Amended TIA). The measurement is 5,570 mm and not 5,770 mm as indicated by TfNSW on this matter. On this basis no further changes to the Route Study (RJA, 2025) are required to address this matter.	This row

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
	may impact the viability of the transport route for blade components.	survey that has been used to inform the vertical study for the rail underpass on Sturt Highway in Wagga Wagga.		
		Include the units of measurement on the vertical typical curve assessment for the Edward Street rail underpass at Wagga Wagga (Figure 15 of the Newcastle Route Study in the TIA).	As above, and confirming that the units of measurement have been included in Figure 15 of the updated Newcastle Route Study (RJA, 2025) (Appendix A of this Amended TIA).	Appendix A (Figure 15).
1f	Provide within the updated route assessment further assessment of roundabout intersections identified on the Sturt Highway through Wagga Wagga, addressing the following: • Clarification on whether a portion of roundabouts will be removed or if it is proposed to mount existing annulus(s). If mounting is required, assessment of the existing suitability or upgrades required to the roundabouts for the movements must be included. • Swept paths and road design plans are needed to confirm the impacts on the roundabout(s). • Vegetation trimmed or removed and other infrastructure to be removed or modified.	OPEN: See comments above in 2(a) in response to the roundabouts on the Sturt Highway, Wagga Wagga.	This matter has been responded to as part of the response to TfNSW matter 2(a) above.	N/A
1g	The removal of traffic islands at the Gillenbah Road/Sturt Highway pinch point to facilitate high-risk OSOM movements will conflict with the service centre conditions and infrastructure, prohibiting right turns into Gillenbah Road. Designs to navigate this pinch point without impacting service centre consent conditions must be investigated and included within a revised route assessment.	OPEN: Comments in 2(a) point four are applicable and must be addressed for the Gillenbah Road/Sturt Highway pinch point.	Please refer to Figure 17 of the updated Newcastle Route Study (RJA, 2025) (Appendix A of this Amended TIA) which demonstrates how this will not conflict with the service centre conditions. A section of the traffic island (not opposite the service station exit but more east towards the Sturt Highway / Newell Highway intersection) is to be made trafficable for the tractor unit to cross to the incorrect side of the road. The trailer wheels will remain on the correct side of the road and the load will straddle the centre median (i.e. the rear axle will not traverse the island) until reaching the existing break in the median across from the exit of the service station. By using this procedure and the median removal offset (not directly opposite) from the exit of the service station, there will be no conflict to the service centre conditions. A suitable trailer will be used in order to straddle the centre median. An updated strategic concept design has been prepared to support this response, contained within Appendix E of the Response to RFI#2 (Umwelt, August 2025).	Appendix A (Figure 17). Concept design 12659863-GHD-00-00-DRG-CI-00009 within Appendix E of Response to RFI#2 (Umwelt, August 2025).
1h	The Cobb Highway/ Jerilderie Road widening must consider longitudinal drainage on the Cobb Highway. A pipe may be required under the hardstand area. Strategic designs are required.	PARTIALLY ADDRESSED: TfNSW notes that drainage is identified on the current strategic concept design for the widening of this intersection. However, the extension of the culvert and	An updated strategic concept design has been prepared to allow for the extension of the culvert and stormwater pipe as part of the required treatment for this intersection. This is included in the fully revised and consolidated set of all concept designs provided within Appendix E of the Response to RFI#2 (Umwelt, August 2025).	Refer to concept design 12659863-GHD-00-00-DRG-CI-00010) within Appendix E of

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
		stormwater pipe will need to be considered as part of the revised design that incorporates the required intersection treatment for this intersection.		the Response to RFI#2 (Umwelt, August 2025).
2a	The route assessment and TIA are contingent upon road upgrades provided by EnergyCo from the Port of Newcastle to Elong Elong. Pavement extents and the scope of works must be reviewed to ensure configurations and swept paths for this project's higher-risk OSOM align with the scope of the Port to Renewable Energy Zone (P2R) project, particularly the relocation of traffic signals at the George Street, Industrial Drive and Maitland Road intersections. An assessment of consistency with the P2R project is required as a part of the revised route assessment.	PARTIALLY CLOSED: Table has been provided in the high-risk OSOM route assessment.	Refer to the response provided in the row below which addresses this matter.	N/A, see row below.
		Swept paths have not been provided to demonstrate compliance with the Port to REZ (P2R) scope of work and will need to be provided. On this point, Mayfield No.4 berth onto Selwyn Street, Newcastle Route 1: The route study comments that the "blade is to oversail the fence". Note that the fence is 6m in height. This matter must be addressed before a determination is made.	The Port to REZ (P2R) Project upgrades have been designed to accommodate OSOM vehicle movements up to 85–100 metres in length and up to 6.2 metres in width. The OSOM transport requirements for the Project are within these parameters. Therefore, it is assumed that all OSOM movements associated with the Project will be able to utilise the P2R-upgraded routes without additional modifications. As such, new swept path assessments are not required and the existing P2R assessments can be relied upon. The fence height at the Mayfield No. 4 Berth onto Selwyn Street, as verified through on-site observations and publicly available imagery (e.g., Google Street View), is approximately 3 metres, not 6 metres as stated in TfNSW feedback. While there is a nearby pole with a mounted solar panel that may approach 6 metres in height, it is located outside the vehicle's swept path and can be avoided during manoeuvring, as confirmed in the Newcastle Route Study (RJA, 2025) included in Appendix A of this version of the Amended TIA.	Appendix A
		as part of the Traffic Management Plan to confirm consistency with the P2R project.	Noted with thanks. BWF commit to this occurring throughout preparation of the TMP.	N/A
		The timing of the completion of the Port to REZ, Port of Newcastle to Elong Elong will be completed. As there is an assumption within the TIA that the Port of Newcastle to Elong Elong road upgrades will be completed by June 2026, and that this route will be available for the project to use for high-risk OSOM movements by June 2026.	Noted with thanks.	N/A
2b	The refuge island at Bettington Street/Vernacher Street Merriwa is located on a State road network (Golden Highway). TfNSW requires the scope of works in the form of a strategic concept design identifying the removal of the refugee island and evidence of consultation with Upper Hunter Shire Council.	OPEN: Conflicting information between the Project Design Information and the Route Study in TIA. Confirm whether the refuge islands at Bettington Street / Vernacher Street at Merriwa are to be removed, or if a parking area along Bettington Street is to be put in place. It is noted that a zebra crossing is located adjacent to the islands. Refer to the advisory notes in Attachment B of this response for further information.	The fully revised and consolidated set of all concept designs reflect recent discussions with Upper Hunter Shire Council. The medians will be removed through Merriwa, resulting in the removal of the no parking restriction from the design. This is reflected in the updated concept designs which are provided in Appendix E of the Response to RFI#2 (Umwelt, August 2025).	Refer to concept design 12659863-GHD-00-00-DRG-CI-00015 in Appendix E of Response to RFI#2 (Umwelt, August 2025).

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
		Further efforts are required to ensure consultation with the Upper Hunter Shire Council and TfNSW.	Additional consultation with Upper Hunter Shire Council has occurred since receipt of TfNSW advice. Upper Hunter Shire Council has advised that they would prefer the concept design to be updated to remove the no parking requirement along Bettingrton Street through Merriwa. BWF has agreed to this occurring. GHD has subsequently updated the concept design to reflect the removal of the no parking stipulation, which results in medians being removed through Merriwa instead. Evidence of this consultation has been provided to TfNSW separately as it contains sensitive information, such as people's names and contact details.	Refer to concept design 12659863-GHD-00-00-DRG-CI-00015 in Appendix E of Response to RFI#2 (Umwelt, August 2025), with consultation evidence provided separately.
2c	Strategic concept designs and swept paths must be provided for any road widening on the State road network required to accommodate high-risk OSOM vehicles. The hardstands and pavement are to be sealed to the standards of the adjacent road.	OPEN: There are multiple instances of swept paths showing the vehicle chassis traversing outside of the paved road area including, but not limited to, the roundabout on Sturt Highway at Hay onto Cobb Highway (Newcastle Route 1/Adelaide Route 1), the Newell Highway / Showground Road intersection (Newcastle Route 2), and the north section of the Cobb Highway / Jerilderie Road intersection (Newcastle Route 1). These examples are shown in Figures 1-3 of Attachment B of this response for ease of understanding. Note that these are just a few examples, and there may be additional instances across the OSOM route. It is the Proponent's responsibility to ensure that all vehicle movements are on sealed pavement. Strategic concept designs are to be updated and provided with road and/or shoulder widening pavement designs. See advisory notes for more information.	Relevant swept paths and strategic concept designs included in the Newcastle and Port Adeliade Route Study Reports (RJA, 2025) (Appendix A of this Amended TIA) have been updated and demonstrate that the proposed transport vehicles are contained to sealed pavement. There is no additional shoulder widening required. This is also reflected in the fully revised and consolidated set of all concept designs, included in Appendix E of the Response to RFI#2 (Umwelt, August 2025).	Appendix A Appendix E of Response to RFI#2 (Umwelt, August 2025).
		Pavements are to be designed to withstand frequent heavy vehicle loads per Austroads Guide to Pavement Technology Part 2: Pavement Structural Design. The hardstands and pavement are to be sealed to the standards of the adjacent road.	Strategic concept designs have been updated to include the commitment for designs to withstand frequent heavy vehicle loads per Austroads Guide to Pavement Technology Part 2: Pavement Structural Design. Similarly, that the hardstands and pavement are to be sealed to the standards of the adjacent road. This is reflected in the fully revised and consolidated set of all concept designs, included in Appendix E of the Response to RFI#2 (Umwelt, August 2025).	Appendix E of Response to RFI#2 (Umwelt, August 2025).
2d	Timing of high-risk OSOM deliveries within the construction schedule, indicative weekly program(s), and timeframe to complete deliveries from the relevant port to the site is required.	CLOSED: A schedule has been provided within the revised high-risk OSOM route analysis.	Noted with thanks.	N/A
		While the timing has been provided, the traffic management plan will need to include traffic modelling	Noted. Indicative traffic delay modelling has been undertaken for section of the Sturt Highway (identified by TfNSW as a particular area of concern), with results included in Appendix F of this version	This row.

ID	TfNSW comments from EIS requiring RFI	Updated TfNSW response, request for further information in response to the review of the RtS	Formal Response	Where addressed?
		that considers the impacts of movements through townships and the Sydney area.	of the Amended TIA (August 2025). As per item 4(a)f BWF commits to detailed traffic modelling of travel time delay for townships and the Sydney area occurring, following determination of the Project, and as part the TMP preparation. This would enable it to be informed by detailed design. As this comment speaks to the work occurring as part of the TMP, BWF accepts this advice. Project mitigation measures have been revised in response to RFI#2 from DPHI (that included TfNSW's advice) to address these additional traffic management commitments. Refer to TT02 in Appendix G of Response to RFI#2 (Umwelt, August 2025).	

Table 1.6: Response to TfNSW comments and further information required in response to the inclusion of South Australia routes within the Amendment Report

ID	Amendment Report- Requested additional information: Port Adelaide routes via Robinvale	Formal Response (Approach to Addressing this Comment)	Where addressed?
1	Market Street (Sturt Highway) travelling through Balranald, The traffic islands and associated road furniture along Market Street are located on a State road network (Sturt Highway). TfNSW requires swept paths and, if applicable, the scope of works in the form of a strategic concept design that identifies the removal or modification of the refuge island or street, medians, or relocation of street lighting that would be required. Refer to the advisory notes for additional information on strategic concept design requirements. Strategic designs for the removal or modification of traffic islands and medians are to be provided to TfNSW and must comply with AS1742.2. On this point, all routes are to be reviewed to ensure that the worst-case dimensions in terms of height and width have been considered through the townships and along the roads of all identified routes from Port Adelaide to the NSW border to the site. It is noted that existing infrastructure on the state road network has not been considered in terms of maximum width (governed by the transformer at 6.5m) and maximum height (6.1m for towers). Further review and checks of the height clearances and widths must be undertaken for the Port Adelaide route from the NSW border to the site.	The Port Adelaide Route Study (RJA, 2025) (Appendix A of this Amended TIA) has been reviewed and updated to reflect the tower section travelling through Balranald. Swept paths shown in Figure 17, 18, 67 and 68 of the Route Study demonstrate that some street furniture will need to be removed but no traffic islands are proposed to be removed. Consultation has occurred with Balranald Shire Council on this matter (as per the response in the row below) and would continue through detailed design. Evidence of this consultation has been provided to TfNSW separately as it contains sensitive information, such as people's names and contact details. A concept design has been prepared by GHD that identify the work required. This is included in the fully revised and consolidated set of all concept designs, included in Appendix E of the Response to RFI#2 (Umwelt, August 2025). In addition, the transformer size has been reduced and the Port Adelaide Route Study (Appendix A of this Amended TIA) updated as a result to reflect a transformer trailer width of 4.2 m. This design change has occurred due to revised Project design information made available to BWF. The revised transformer swept path (representing the trailer width of 4.2 m) is less than the blades and all modifications completed for the blades are adequate for a load of this size. The route has been checked for width and height. This information is documented in the Route Study (RJA, 2025) which demonstrates that the OSOM movements can traverse from Port Adelaide to the Project (refer to Appendix A of this Amended TIA). With regard to Figure 7 and 8 of the TfNSW RFI, a concept design has now been prepared to show the proposed road modifications to allow for trailer movements at this location. This has been reflected in the fully revised and consolidated set of all concept designs, included in Appendix E of the Response to RFI#2 (Umwelt, August 2025). With specific regard to Figure 9 of the TfNSW RFI, this area has not been identified as a pinch point within the Port Adelaide Route Study (RJA, 2025), but as can be seen from the photos the street furniture is sleeved, and therefore can be removed if necessary to allow movement of the loads. Reiterating however that this area has not been identified by RJA as a pinch point. This is reflected in the Route Study (RJA, 2025) provided as Appendix A of this Amended TIA.	Appendix A (Figure 17, 18, 67 and 68) Appendix E of Response to RFI#2 (Umwelt, August 2025) (refer to concept design 12659863-GHD-00-00-DRG-CI-00019), with consultation evidence provided separately.
	Evidence of consultation with Balranald Shire Council and any other affected parties should be provided to DPHI.	Consultation and engagement has occurred including: - Direct engagement with Balranald Council on the OSOM upgrades proposed (two (2) options), - Written acceptance of these two options by Balranald Council, and then - Landowner consent for the private landowner required to progress OSOM "Option 1" with impacts in the inside of the corner. Noting that "Option 2" is within the road reserve for the State road network but Council has planted street trees that would be impacted. Evidence of this consultation has been provided to DPHI separately as it contains sensitive information, such as people's names and contact details.	This row, with consultation evidence provided separately.
2	Suitability of the existing rest areas on the Sturt Highway route pre and post Balranald The RJA Route Analysis identifies the use of the existing widened section past Balranald (see image of this location within Attachment B). The existing widened shoulder is currently unsuitable for use as it is unsealed and does not provide a suitable length and width to accommodate the high-risk OSOM vehicle configuration and escorts within the pullover bay. Strategic concept designs will need to be prepared if this pullover location is identified, which will require the widening of the shoulder to be sealed, extended, and widened to accommodate the width and length of the governing high-risk OSOM design vehicle.	This rest area (i.e., the existing widened section past Balranald) has been removed from the Port Adelaide Route Study (RJA, 2025). The rest area was included for emergency use only. However, it is noted that the existing rest area on the opposite side of the road, between the Mallee and Sturt Highways, offered additional space to accommodate escort and support vehicles, and could have supported OSOM movements without the need for road upgrades. However, given the limited space and the availability of more suitable alternatives, this location is no longer considered necessary. The revised Port Adelaide Route Study (RJA, 2025) (Appendix A of this Amended TIA) now incorporates additional rest areas, including a rest area located 6 km before this point. These newly identified locations provide sufficient and suitable options along the route. A detailed review of the use and suitability of rest areas will also be undertaken as part of the TMP preparation following approval of the Project, which will be prepared in consultation with TfNSW.	Appendix A
3	Sturt Highway and Market Street pinch point TfNSW has not acquired the land identified at this location, which is marked as acquired by TfNSW within the high-risk OSOM route analysis. The proponent will need to discuss with the landowner any landowner consent, acquisition or easements that will be required to accommodate the blade swing over this land.	Noted, consultation with the landowner has occurred and landholder consent has been received. Evidence of this consultation (and landowner consent) has been provided to DPHI separately as it contains sensitive information, such as people's names and contact details.	N/A

ID	Amendment Report- Requested additional information: Port Adelaide routes via Robinvale	Formal Response (Approach to Addressing this Comment)	Where addressed?
4	Consent under Section 138 of the Roads Act 1993 is required for any works or activities in a public reserve, public roadway or footpath, including for works that form part of a State Significant Development. Section 2.1.2 of the TIA is to be rectified to reflect this.	Section 2.1.2 of the Amended TIA (TTPP, 2025) has been revised to clarify that consent under Section 138 of the Roads Act 1993 is required for any works or activities in a public reserve, public roadway or footpath, including for works that form part of a State Significant Development. We have noted however that, Section 4.42 of the EP&A Act provides that Section 138 approval cannot be refused if it is necessary for carrying out SSD that is authorised by a development consent under this Division and is to be substantially consistent with the consent.	Section 2.1.2
5	The timing of high-risk OSOM movements through the township of Hay, Balranald and movements on the Sturt Highway from Robinvale to Hay and the south of Hay on the Cobb Highway require further consideration and modelling to understand the optimal timing of the high-risk OSOM movements on the state road network and impact of the high-risk OSOM movements through this segment of the corridor as the narrow widths of the travel lanes, minimal shoulders, overtaking opportunities, steel barriers and limited rest area locations will impact on the oncoming and following traffic on this section of the network. Furthermore, to this point, high crash rates have been identified for this section of the Sturt Highway between Balranald and Darlington Point, as shown in Figures 4 and 5 in the attachment. The traffic modelling of travel time delays to oncoming and following traffic on the State Road network should start with a maximum 10-minute travel time delay as a baseline. Strategic concept designs will need to be provided for pull-over bays as an outcome of the assessment and a proposed mitigation measure to manage travel time delays that exceed 10 minutes. On this point, the following information will be required for pull-over bays for any proposed pull-over bays: • Location (GPS coordinates), • Cadastral boundaries, • A typical section of the drainage requirements, • Swept path analysis demonstrating that the longest and widest load, including escort vehicles, can be accommodated within the pullover bay. TfNSW will not support any partial parking of the high-risk OSOM within the through lanes, • The dimensions and area of the pullover bays, and • Annotation on the plan to identify that the pullover bays will be constructed to the same pavement standard as the Sturt Highway. The advisory notes section has further information on strategic concept design requirements.	Additional suitable rest areas have now been incorporated into the Port Adelaide Route Study (RJA, 2025) (Appendix A of this Amended TIA), including locations at Zinder Park, Balranald, Willowvale, Ravensworth, and Mungadal. As advised by the Project's transport logistics provider (RJA), these identified rest areas offer sufficient opportunities to stop and manage the timing of OSOM vehicle movements through the townships of Hay and Balranald, as well as along the Sturt Highway. The OSOM movements will be conducted under police escort, supported by accompanying pilot vehicles, and will operate in accordance with a TMP. While it is acknowledged that there are narrow sections along the Sturt Highway, the logistics provider has confirmed this section of the route is routinely used for high-risk OSOM movements; and in addition to designated pull-over bays, there are adequate opportunities along the highway, such as shoulders, where OSOM vehicles can safely pull over, allowing police escorts to manage the passage of other traffic. TfNSW has indicated a preference for traffic modelling of travel time delays to be undertaken for this section prior to development consent. As such, TTPP were engaged to undertake indicative traffic delay modelling for this section of the Sturt Highway, with results included in Appendix F of this version of the Amended TIA. TTPP modelled travel time delays to oncoming and passing traffic using a maximum 10-minute delay as the baseline, with mitigation measures proposed where delays exceed this threshold. Two scenarios were considered: 1. Worst Case Scenario – only using the formal rest areas as control points. 2. Indicative Scenario – using example traffic management areas identified by BWF to show that acceptable delays can be achieved. These locations are examples only and will be further refined during preparation of the TMP. Numerous suitable locations are available along the corridor. In the worst-case scenario, the 10-minute TfNSW baseline for acceptable average delay may be exceeded in select locations with the highest average delay calculated at 14.1 minutes between Zinder Park and Balranald. In the indicative scenario (incorporating example traffic management areas, thereby reducing the maximum spacing between pullover locations from 65 km to 38 km, all average oncoming delays remain below the 10-minute threshold, ranging from 1.3 minutes on the shortest segments to 8.2 minutes on the longest. This demonstrates that the inclusion of additional traffic management areas has a material benefit in keeping average oncoming delays within the TfNSW performance baseline. Delays experienced by following traffic are substantially lower in both scenarios, with average delays of around 2.1 minutes before release at the next pull-over location. While the formal rest area scenario represents the upper bound of potential delay, the indicative scenario illustrates that, in practice, average delays can be kept within required limits. Final pull-over locations will be refined during preparation of the TMP, supported by strategic concept designs to meet TfNSW requirements. BWF acknowledges that the traffic delay modelling undertaken in Appendix F is indicative, and that detailed modelling will be completed post-determination, as part of the TMP preparation. This approach would allow the modelling to be informed by detailed design and would be undertaken in consultation with TfNSW. On this basis, no further revisions to the Route Study, beyond those summarised above, have occurred. It is further noted that the requested travel time delay modelling will also address traffic impacts through townships and the Sydney area, as requested by TfNSW in relation to item 2d above. We note that TfNSW specifically recommends the matters raised under item 2d above be addressed within the TMP, which BWF agrees is the appropriate stage for such analysis. Project mitigation measures have been revised in response to RFI#2 from DPHI (that included TfNSW's advice) to address these additional traffic management commitments. Refer to TT02 in Appendix G of Response to RFI#2 (Umwelt, August 2025).	Refer to the Sturt Highway Indicative Traffic Delay Modelling undertaken in Appendix F
6	Where street lighting has been identified within the strategic concept designs to be removed or relocated, the revised location of the street lighting is to be identified on the strategic concept designs, and it must be demonstrated that the street lighting will comply with AS/NZS 1158. At this point, the only location where modifications to the street lighting will be required is at the Sturt Highway/Cobb Highway roundabout.	BWF would be pleased to consult with TfNSW on this matter further, however it respectfully seeks this work occur following determination of the Project, and as part the TMP preparation. This would enable these lighting changes to be informed by detailed design. On this basis no revision to this version of the Amended TIA , revised Port Adelaide Route Study (RJA, 2025) (Appendix A of this Amended TIA) or associated strategic concept designs have been made in response.	This row

ID	Amendment Report- Requested additional information: Port Adelaide routes via Robinvale	Formal Response (Approach to Addressing this Comment)	Where addressed?
	However, the route should be reviewed, including through the townships of Balranald, to identify if any further lighting needs to be removed or relocated. Any additional locations are to be determined through a strategic concept design and demonstrated to comply with AS/NZS 1158.		
7	Loads over 5 metres are to receive appropriate electrical clearance approval per Safe Work Australia Guide for Transporting High Loads Near Overhead Electric Lines. Approval is to be included within a revised TIA.	BWF would be pleased to consult with TfNSW on this matter further, however it respectfully seeks this work occur following determination of the Project, and as part the TMP preparation. This would enable these additional approvals to be informed by detailed design. On this basis no revision to this version of the Amended TIA or revised Port Adelaide Route Study (RJA, 2025) (Appendix A of this Amended TIA) have been made in response.	This row

1.4 Report Structure

This report has been prepared to assess the traffic and parking implications of the proposed development and address the SEARs (including TfNSW advice) as detailed above. The report is set out as follows:

- Chapter 1 outlines key elements of the Project, SEARs, the structure of this report and the references used.
- Chapter 2 provides an outline of the statutory context, including applicable legislation and planning policies.
- Chapter 3 provides a description of the existing traffic and transport environment, including the key roads, traffic volumes and patterns, road safety, the public and active transport networks.
- Chapter 4 provides a description of the Project including the site accesses, oversized overmass (OSOM) haulage routes, and relevant details regarding the proposed construction arrangements.
- Chapter 5 establishes the traffic generated by the Project during construction, operation and decommissioning
- Chapter 6 assesses the impacts of the Project on the road network, road safety and public and active transport networks during construction.
- Chapter 7 presents the traffic and transport management measures applicable to the Project.
- Chapter 8 summarises the findings of this report.

1.5 References

In preparing this report, reference has been made to the following:

- Site inspection of the site and surrounds
- Relevant Local Environmental Plans
- Austroads Guide to Traffic Management series
- Austroads Guide to Road Design series
- The Guide to Traffic Generating Developments, October 2002 (The Guide)
- Australian Standards AS2890 series for parking facilities
- Historic traffic count data provided by local councils
- Traffic surveys completed by TTPP
- Rex J Andrews Bullawah Windfarm Route Study dated 20 March 2023 and updated Route Studies dated 28 March 2025 (included in Appendix A)
- Project layout plans prepared by Umwelt
- Information provided by BWF and Umwelt
- Other documents as referenced in this report.

2 Strategic Context and Legislation

2.1 State Legislation

2.1.1 Environmental Planning and Assessment Act 1979 (EP&A Act)

The EP&A Act and Environmental Planning and Assessment Regulation 2021 establish the framework for development assessments in NSW. The EP&A Act and the Regulation include provisions to ensure that the potential environmental impacts of a development are considered in the decision-making process prior to proceeding to construction.

The Project will require development consent under Part 4 of the EP&A Act. Being development for the purpose of electricity generation with a capital investment value of more than $30 million, the Project is declared to be SSD under the provisions of State Environmental Planning Policy (Planning Systems) 2021.

Under Section 4.12(8) of the EP&A Act, the application is to be accompanied by an EIS prepared by or on behalf of the applicant in the form prescribed by the Regulations.

This assessment forms part of the EIS in order to comply with the SEARs and assess the traffic and transport impacts of the Project in accordance with relevant Government legislation, plans, policies and guidelines.

2.1.2 Roads Act 1993

The NSW Roads Act 1993 sets out the rights of members of the public to pass along public roads and the rights of persons who own land adjoining a public road to have access to the public road. In addition, the Act provides guidance on the classification of roads and establishes the procedures for the opening and closing of a public road.

Consent under Section 138 of the Roads Act 1993 is required for any works or activities in a public reserve, public roadway or footpath, including for works that form part of an SSDA. It is noted that in addition to consent from the relevant road authority, consent must also be obtained from Transport for NSW (TfNSW) with respect to a classified road under the Act. However, Section 4.42 of the EP&A Act provides that Section 138 approval cannot be refused if it is necessary for carrying out SSD that is authorised by a development consent under Division 4.7 of the EP&A Act and is to be substantially consistent with the consent.

2.2 Regulatory policies/relevant guidelines

2.2.1 Future Transport Strategy 2056

The Future Transport Strategy 2056 is a 40-year strategy that guides transport investment to deliver customer mobility for Sydney and regional NSW. It sets out a vision, strategic directions and customer outcomes with a focus on harnessing advances in technology and innovation to create and maintain a world-class, safe, efficient and reliable transport system.

The Future Transport Strategy 2056 outlines the following six guiding principles which aim to positively impact the economy, communities and environment of NSW:

- Customer focused – Customers' experiences and their end-to-end journeys are seamless, interactive and personalised, supported by technology and data
- Successful places – The liveability, amenity and economic success of communities and places are enhanced by transport
- A strong economy – In 2056, the transport system powers NSW's $1.3 trillion economy and enables economic activity across the State
- Safety performance – Every customer enjoys safe travel, regardless of transport mode or location, across a high-performing, integrated and efficient network
- Accessible services – Transport enables everyone to get the most out of life, wherever they live and whatever their age, ability or personal circumstances
- Sustainability – The transport system is economically, environmentally and socially sustainable, operationally resilient, affordable for customers and supports emissions reductions.

The Project seeks to support appropriate integration of land use in accordance with the Future Transport Strategy 2056. In addition, the Project seeks to support objectives of the strategy by maintaining the safety and efficiency of the transport network for all road users during the Project.

2.2.2 Guide to Traffic Generating Developments

The Guide to Traffic Generating Developments (Version 2.2) (Roads and Traffic Authority, 2002) provides guidance on a number of matters related to the traffic impacts of land use developments, notably matters relating to traffic generation. The Guide provides information regarding traffic issues for those submitting Development Applications, including methods for conducting traffic impact studies and compiling traffic impact statements.

The Guide to Traffic Generating Developments has been used to guide the structure and development of this assessment.

2.2.3 EIS Guidelines – Roads and Related Facilities

The EIS Guidelines – Roads and Related Facilities (Department of Urban Affairs and Planning, 1996) outlines the factors to be considered when preparing the traffic and transport component of an EIS. The key factors identified in the guide for roads and related facilities include:

- Strategic planning context
- Traffic issues
- Community issues, including noise and visual impacts
- Air and water quality issues.

The EIS Guidelines – Roads and Related Facilities also outlines commitments to the ongoing management of the Project, including monitoring. The Guidelines have been used to guide the structure and development of assessment.

2.2.4 NSW Planning Guidelines for Walking and Cycling

The NSW Planning Guidelines for Walking and Cycling (Department of Infrastructure, Planning and Natural Resources, 2004) aim to assist land-use planners and related professionals to improve consideration of walking and cycling in their network. It is anticipated that improving practice in planning for walking and cycling will create more opportunities for people to live in places with easy walking and cycling access to urban services and public transport. The Guidelines outline the city-scale design principles that assist the creation of walkable and cyclable cities and neighbourhoods as well as methods to achieve this including Transport Management and Accessibility Plans and Transport Access Guides.

The NSW Planning Guidelines for Walking and Cycling have not been used in this assessment as there are no formal pedestrian or cycling facilities in the vicinity of the Project (discussed further in 3.5).

2.2.5 Guide to Traffic Management Part 3: Traffic Studies and Analysis

The Guide to Traffic Management Part 3: Traffic Studies and Analysis (Austroads, 2017) is concerned with the collection and analysis of traffic data for the purpose of traffic management and traffic control within a network. It serves as a means to ensure some degree of consistency in conducting traffic studies and surveys. It provides guidance on the different types of traffic studies and surveys that can be undertaken, their use and application, and methods for traffic data collection and analysis.

The Guide to Traffic Management Part 3: Traffic Studies and Analysis has been used to guide the structure and development of this assessment.

2.2.6 Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments

The Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments (Austroads, 2020a) is concerned with identifying and managing the impacts on the road system arising from land use developments. It provides guidance for planners and engineers associated with the design, development and management of a variety of land use developments. The aim is to ensure consistency in the assessment and treatment of traffic impacts, including addressing the needs of all road users and the effect upon the broader community.

The Guide to Traffic Management Part 12: Integrated Transport Assessments has been used to guide the structure and development of this assessment.

2.2.7 Roads and Maritime Supplements to Austroads Guides

The Supplements to Austroads Guides (Roads and Maritime Services, 2013) were produced to support the Austroads Guides and address specific issues concerning the design, construction, maintenance, operation and safety of road network issues in NSW.

The Supplements to Austroads Guides have been used to guide the structure and development of this traffic and transport impact assessment.

2.2.8 2026 Road Safety Action Plan

The 2026 Road Safety Action Plan (TfNSW, 2021) recognises the importance of reducing road trauma on NSW roads and sets out targeted actions to halve deaths and reduce serious injuries by 30% on NSW roads by 2030. The 2026 Road Safety Action Plan seeks to increase road safety through five (5) focus areas including:

- Creating safer country roads and urban places
- Enhancing road safety in local communities
- Increasing the safety of light vehicles, heavy vehicles and protective equipment
- Making safer choices on our roads
- Ensuring the safety of vulnerable and other at-risk road users.

The Project seeks to support the objectives of the 2026 Road Safety Action Plan by ensuring road safety is prioritised at all times during the construction, operation and decommissioning of the Project.

3 Existing Conditions

3.1 Project Context

The Project is located in the Riverina region of south western NSW within the Hay Shire, Murrumbidgee and Edward River Local Government Areas (LGAs). The site is approximately 36 km southeast of Hay, 560 km from Sydney, 600 km from Adelaide and 330 km from Melbourne.

The Project Area encompasses approximately 20,628 hectares (ha) of predominantly grazing land and adjoins the Oolambeyan National Park, which is located directly north. Within the Project Area, BWF has identified:

- a Development Corridor of approximately 4, 274 ha, in which all proposed Project infrastructure will be placed and all Project related ground disturbance will occur
- an indicative Disturbance Footprint of approximately 656.5 ha, comprising approximately 637 ha of disturbance within the Project's Development Corridor and 19.5 ha associated with off-site road works.

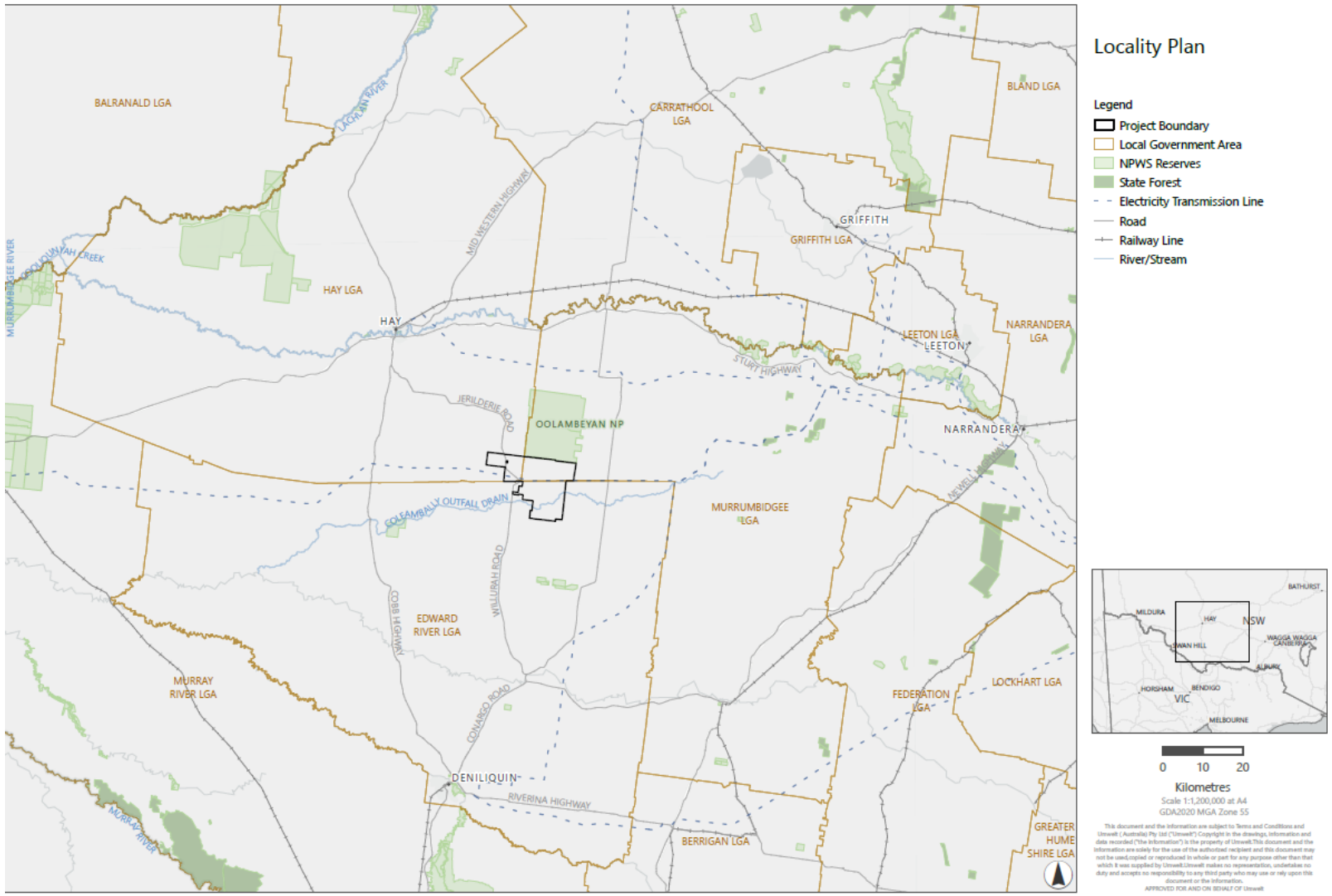
The local context of the Project Area is shown in Figure 3.1. The north-western extents of the Project Area fall within the Hay LGA, whilst the eastern and southern extents of the Project Area fall within the Murrumbidgee LGA and Edward River LGA, respectively.

The Project Area is zoned as RU1 Primary Production within the Hay Local Environment Plan (LEP) 2011, the Murrumbidgee LEP 2013 and Edward River LEP 2013 (formerly Conargo LEP). The majority of land that surrounds the Project is also zoned RU1 Primary Production. The Oolambeyan National Park (directly north and adjacent to the Project Boundary) is primarily zoned as E1 National Parks and Nature Reserves, with small areas of land zoned RU1 Primary Production.

The Project Area is located mostly east of the Jerilderie Road, North Boundary Road and Willurah Road junction, either side of the existing 220 kV Balranald to Darlington Point transmission line which runs through the Project Area in an east to west direction.

The Project is located approximately 36 km south east of Hay, 66 km north east of Deniliquin and 100 km south west of Griffith. Smaller townships of Darlington Point, Coleambally and Jerilderie are located to the north east and south east of the Project.

Figure 3.1: Site Context



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Locality Plan

Legend

- Project Boundary
- Local Government Area
- NPWS Reserves
- State Forest
- Electricity Transmission Line
- Road
- Railway Line
- River/Stream

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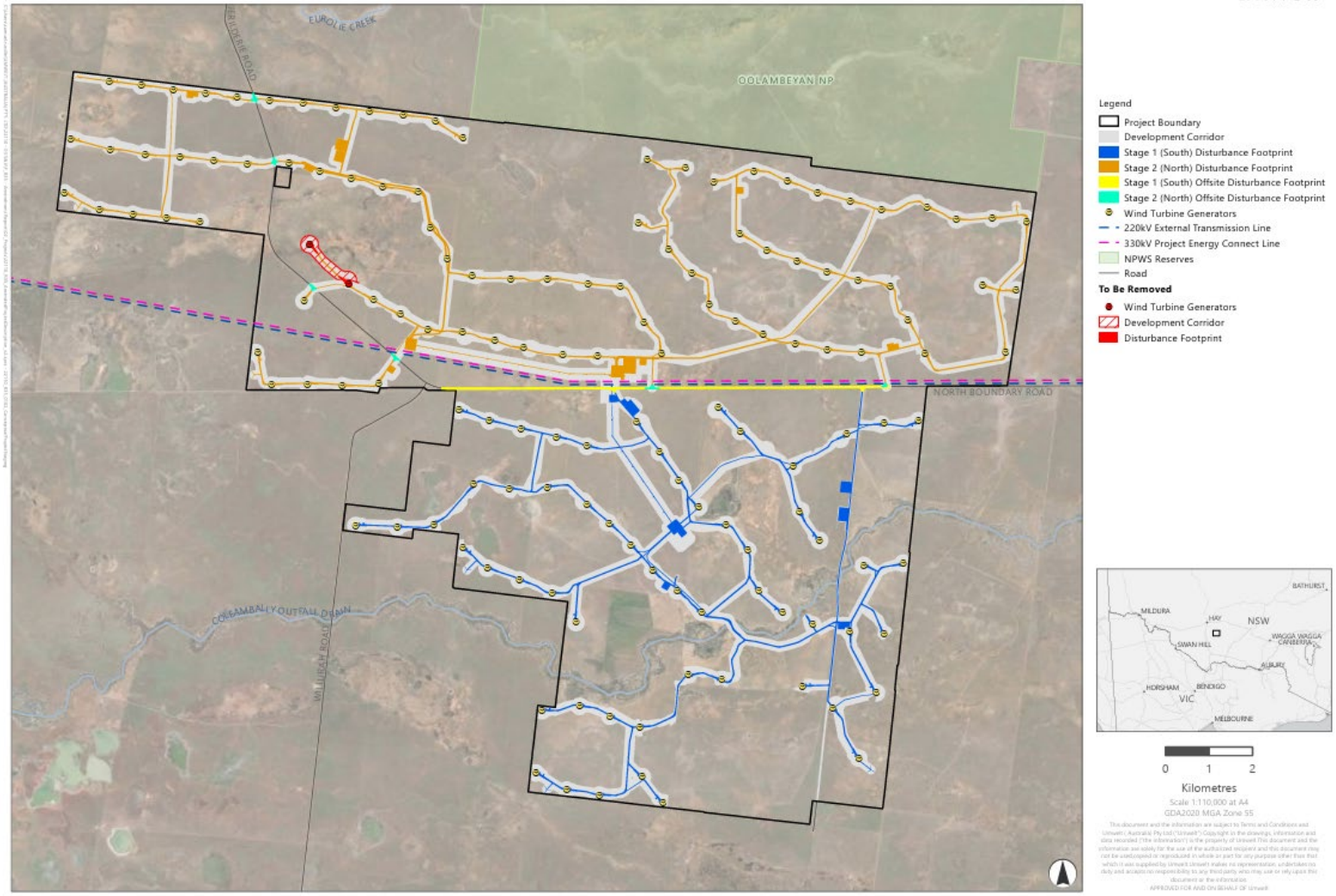
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Figure 3.2: Site Location



3.2 Road Network

This section provides a description of the existing condition of the State, regional and local road network in the vicinity of the Project. Overall, it is noted that the roads assessed in this section are generally very flat, with few bends and that road verges are mostly devoid of trees and shrubs, providing excellent visibility.

Jerilderie Road (shown in Figure 3.3) is a sealed two-lane, two-way road aligned in the northwest-southeast direction. It connects to Cobb Highway 40 km northwest of the Project Area and terminates at the intersection with Willurah Road and North Boundary Road within the Project Area. It has a default speed limit of 100km/h.

Figure 3.3: Jerilderie Road



Source: TTPP site visit 29 February 2024

North Boundary Road (shown in Figure 3.4) is an unsealed two-lane, two-way road aligned in the east-west direction. Half of the road length is located within the Project Boundary, separating the southern portion of the Project Area from the northern. It connects with Conargo Road/Carrathool Road to the west and has a default speed limit of 100km/h.

Figure 3.4: North Boundary Road



Source: TTPP site visit 29 February 2024

North Boundary Road provides access to Bullewah Road, an unsealed two-lane, two-way public road aligned in the north-south direction in the southern portion of the Project Area. Bullewah Road terminates approximately 10 km south of North Boundary Road and provides access to four (4) residences (refer to Figure 3.2). Bullewah Road incorporates an existing bridge where the road crosses over the Coleambally Outfall Drain.

Willurah Road (shown in Figure 3.5) is an unsealed two-lane, two-way road aligned in the north-south direction. It connects the Project Area to Conargo which is approximately 50km south of the Project Area and has a default speed limit of 100km/h.

Figure 3.5: Willurah Road



Source: TTPP site visit 29 February 2024

Conargo Road/Carrathool Road (shown in Figure 3.6) is a two-lane, two-way road aligned in the north-south direction 10 km east of the Project Area. It serves as a connection between

Conargo and Carrathool and intersects with North Boundary Road west of the Project Area and Willurah Road south of the Project Area.

Figure 3.6: Conargo Road/ Carrathool Road



Source: TTPP site visit 29 February 2024

Cobb Highway (B57) (shown in Figure 3.7) is a state highway in the western Riverina and is aligned in the north-south direction approximately 40 km west of the Project Area. In the vicinity of the Project Area, it is a sealed two-lane, two-way road and intersects with the Sturt Highway to the northwest of the Project Area at a large roundabout in South Hay. It is the primary connection south to Victoria from Hay and the surrounding area and has a posted speed limit of 110km/h.

Figure 3.7: Cobb Highway



Source: TTPP site visit 29 February 2024

Sturt Highway (A20) (shown in Figure 3.8) is a national highway that links between Sydney and Adelaide and the regions along the route including Mildura and Wagga Wagga. It is aligned in the east-west direction 35 km north of the Project Area. In the vicinity of the Project Area, it is a sealed two-lane, two-way road and has a posted speed limit of 110km/h.

Figure 3.8: Sturt Highway



Source: Google Streetview dated August 2022

3.3 Road Safety

A review of the historic crash data for the most recent five (5) year period has been undertaken to assess the existing safety issues and trends with the proposed site access points and Local Transport Route for the project shown in Figure 3.9. The Local Transport Route, which extends from the intersection of the Cobb Highway and Jerilderie Road to the eastern-most site access point on North Boundary Road, will be utilised for all OSOM movements and the majority of light and heavy vehicle movements associated with the Project.

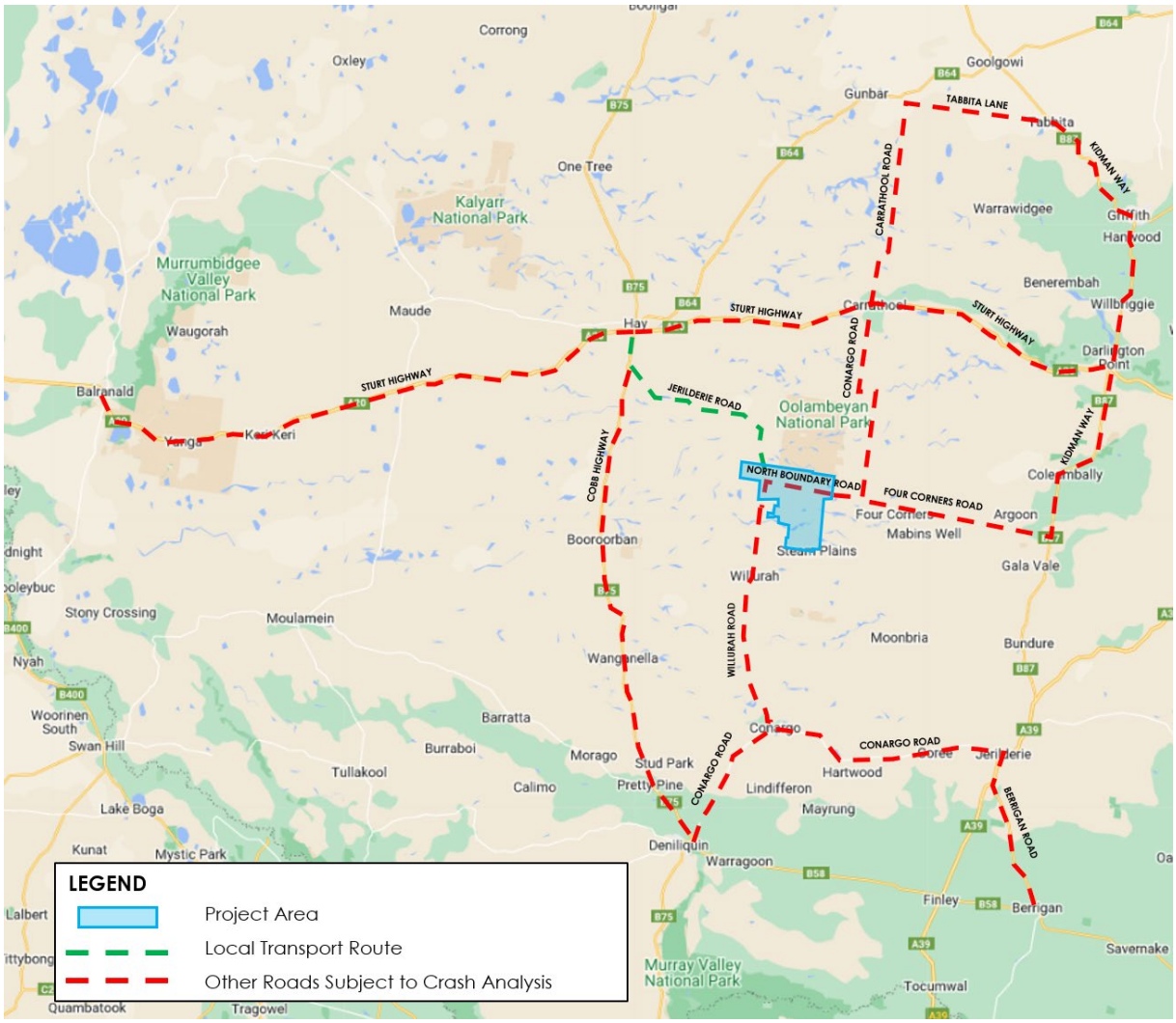
Alternative routes may be utilised to transport quarried materials (such as gravel, aggregate and sand) which cannot be sourced on site. The routes used to move the resources through the surrounding towns and road network will be along the major road network and standard heavy vehicle road network, or alternatively along routes permitted by the resource supplier's permitting and approvals process. Refer to Section 5.3.2 that provides detailed information in this regard.

Additionally, alternative routes may be utilised by a small proportion of the construction workforce (approximately 9%), who are based locally and may travel to site from the south or east of the Project Area. As such, this assessment has sought to expand the crash analysis to the wider road network as shown in Figure 3.9. Further detail is provided in Section 4.

The proposed routes account for approximately 800 km of the road network. These proposed routes are detailed further in Section 4.

The data has been sourced from the NSW Centre for Road Safety website.

Figure 3.9: Crash Analysis in the Vicinity of the Project Area

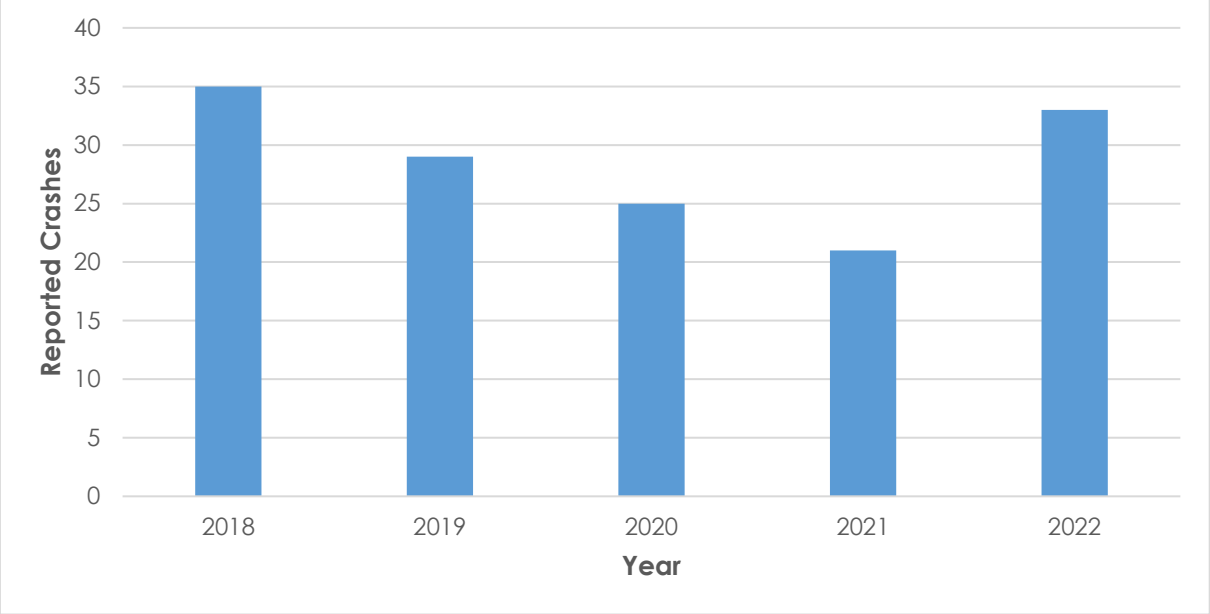


Basemap Source: Google Maps (accessed 19/03/24)

It is noted that there have been no crashes recorded in the last five (5) years within 10 km of the Project Area, and there have been no crashes recorded on Conargo Road, Willurah Road, Jerilderie Road or North Boundary Road. The last five-year period has been assessed as 2018-2022 as the 2023 data has not been finalised.

Figure 3.10 presents the breakdown of crashes per year along the routes identified in Figure 3.9 within the last five (5) years. There is a significant decline in incidents from 2020 to 2021 which can be attributed to the pandemic which significantly reduced traffic along road networks throughout NSW. Notwithstanding this, there is no indication that road safety has decreased in the last five (5) year period as incidents in 2022 were consistent with data from 2018.

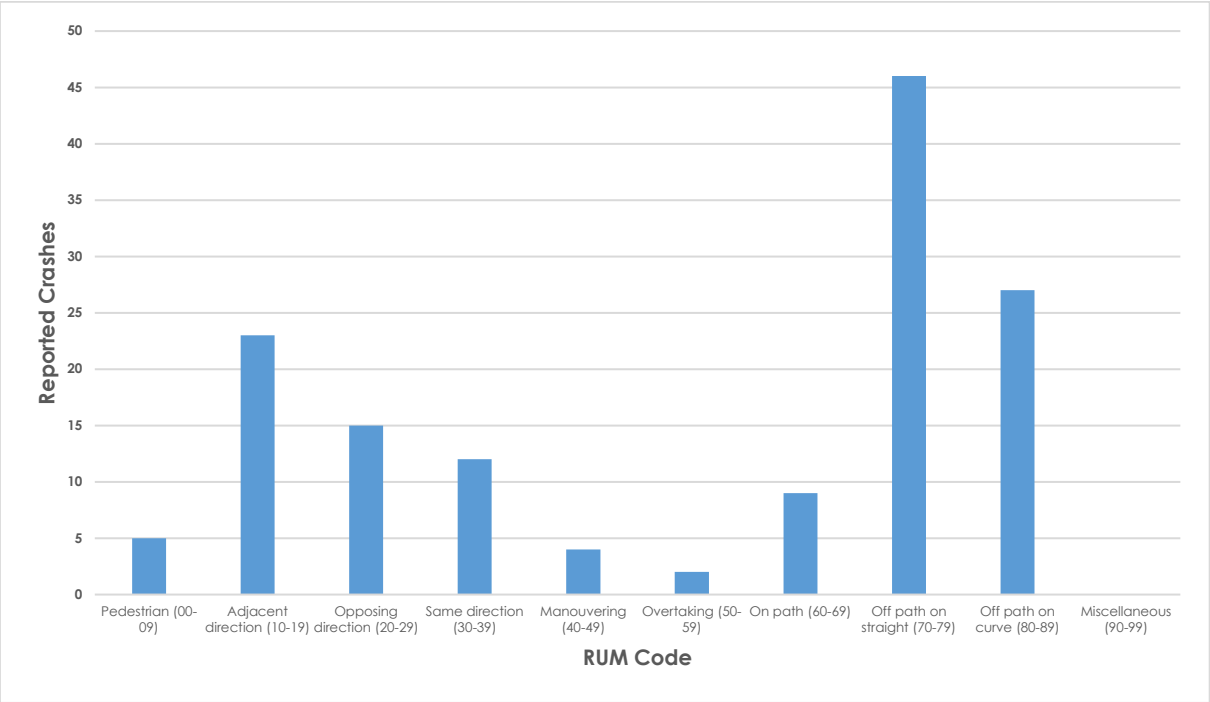
Figure 3.10: Crashes by Reporting Year



Data source: NSW Centre for Road Safety (2024)

Figure 3.11 shows the number of crashes by road user movement (RUM) group within the last five (5) years. A majority of crashes involved vehicles travelling off the road in a straight (32% of all crashes) or curved section (19% of all crashes). All crashes within the on-path category (6%) of all crashes involved vehicles striking animals along the roadway.

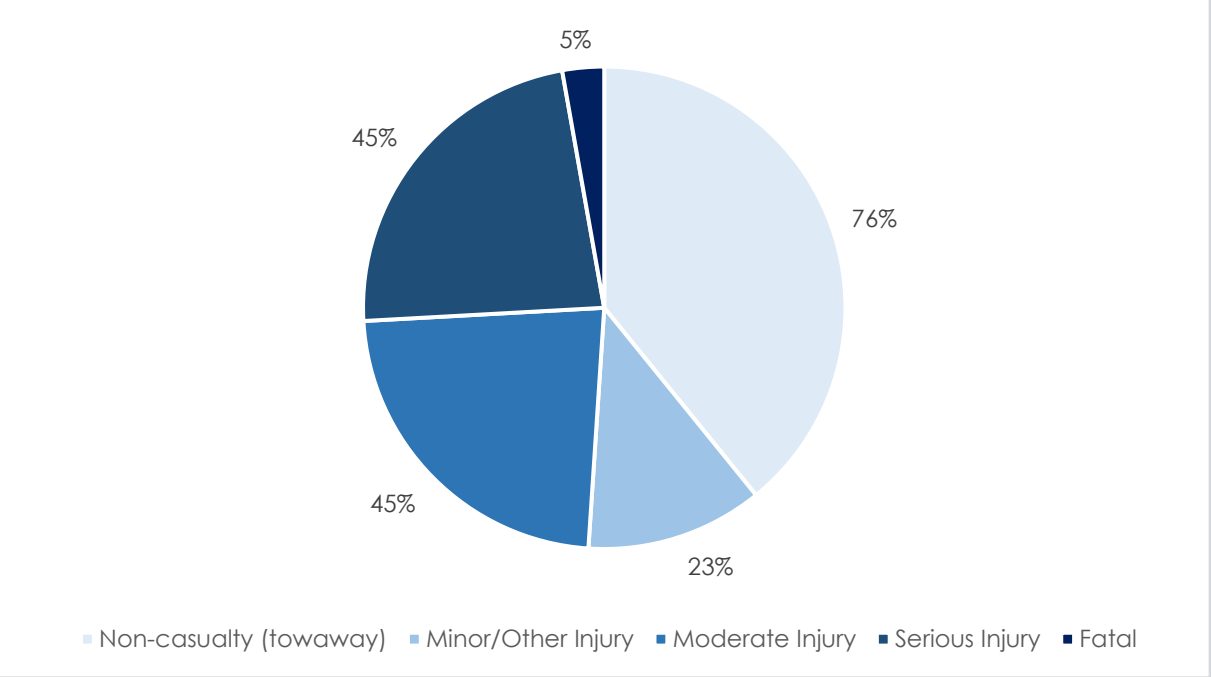
Figure 3.11: Crashes by Road User Movement (RUM) Group



Data source: NSW Centre for Road Safety

Crashes by injury severity are presented in Figure 3.12 within the last five (5) years, and show that a majority of incidents (76%) along the routes identified in Figure 3.9 resulted in a towaway with no casualties. There was a total of four (4) fatal crashes, three occurring along the Sturt Highway and one on Kidman Way.

Figure 3.12: Crashes by Injury Severity



Data source: NSW Centre for Road Safety

Given the size of the study area for the crash analysis (refer to Figure 3.9) and volume of traffic, there is no indication that there is a notable safety or crash concern along the haulage routes.

3.4 Public Transport

There are no public transport services near the Project Area. The Hay coach stop in South Hay on the Sturt Highway is the nearest coach stop and is located approximately 50 km away or a 35-minute drive from the Project Area. The pre-paid coach routes 725 and 726 service between Mildura and Cootamundra using Sturt Highway. There are two (2) services per day, typically one (1) in the early morning and one (1) in the evening.

Griffith Station is located 100 km northeast from the Project Area and is served by the NSW TrainLink Regional train and coach service. The Project's location in relation to NSW's regional public transport network is presented in Figure 3.13.

The Dyson Group operate the school bus services in the area of Hay and surrounds. It is understood that there are no bus stops within the vicinity of the Project Area or along Jerilderie Road. Currently the school bus travels along the Cobb Highway and passes West Burrabogie Road at the following times:

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

Figure 3.13: NSW Regional Public Transport Network



Map Source: Transport for NSW (accessed 19/03/24)

3.5 Active Transport

There is no formal pedestrian or cycling facilities provided in the vicinity of the Project Area, or along the Local Transport Route. The nearest pedestrian/cycling facilities are located in the nearby townships, such as Hay, where concrete footpaths are present.

3.6 Existing Traffic Volumes

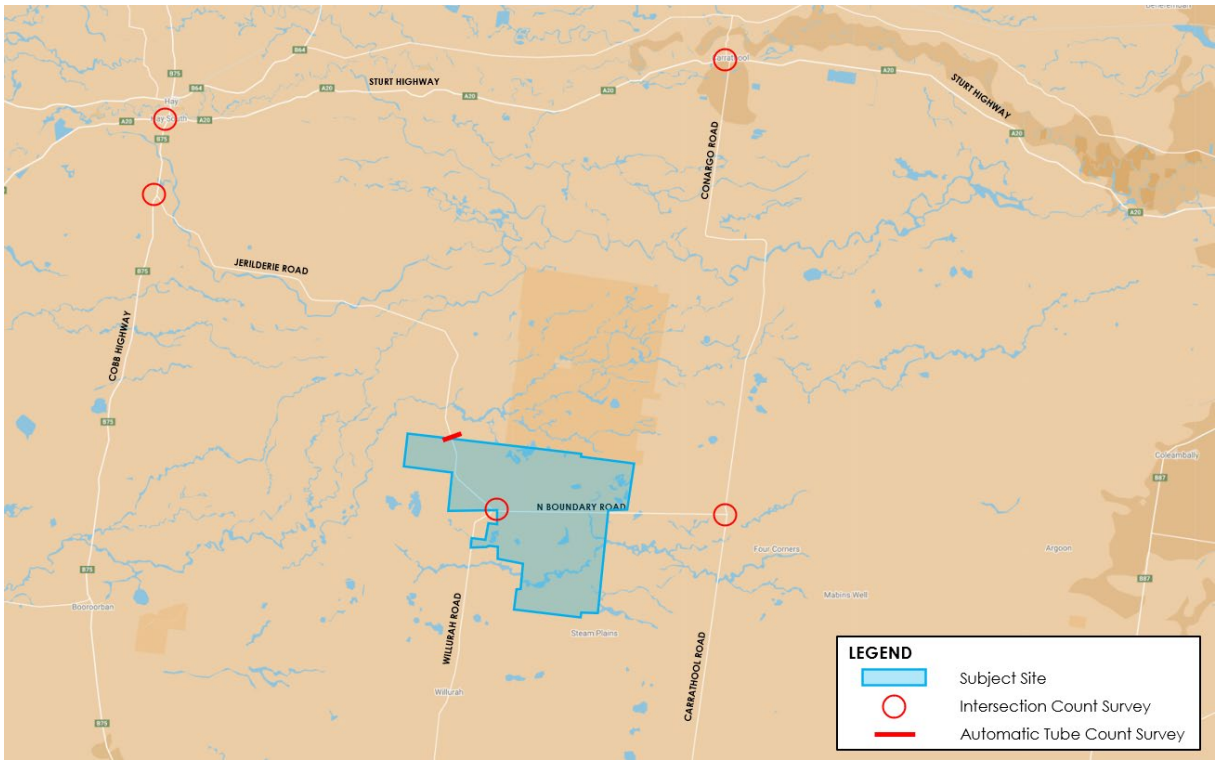
TTPP completed turning movement counts at the following intersections for 24-hour periods on Thursday 29 February 2024 and Saturday 2 March 2024:

- Sturt Highway and Cobb Highway (roundabout)
- Sturt Highway and Conargo Road (priority-controlled)
- Jerilderie Road, Willurah Road and North Boundary Road (priority-controlled)
- Cobb Highway and Jerilderie Road (priority-controlled)
- Conargo Road and North Boundary Road (priority-controlled).

In addition, automatic tube counters were installed on Jerilderie Road 6 km north of North Boundary Road to record two-way traffic flows for the duration of the survey period.

The locations of the intersection and midblock traffic surveys are presented in Figure 3.14.

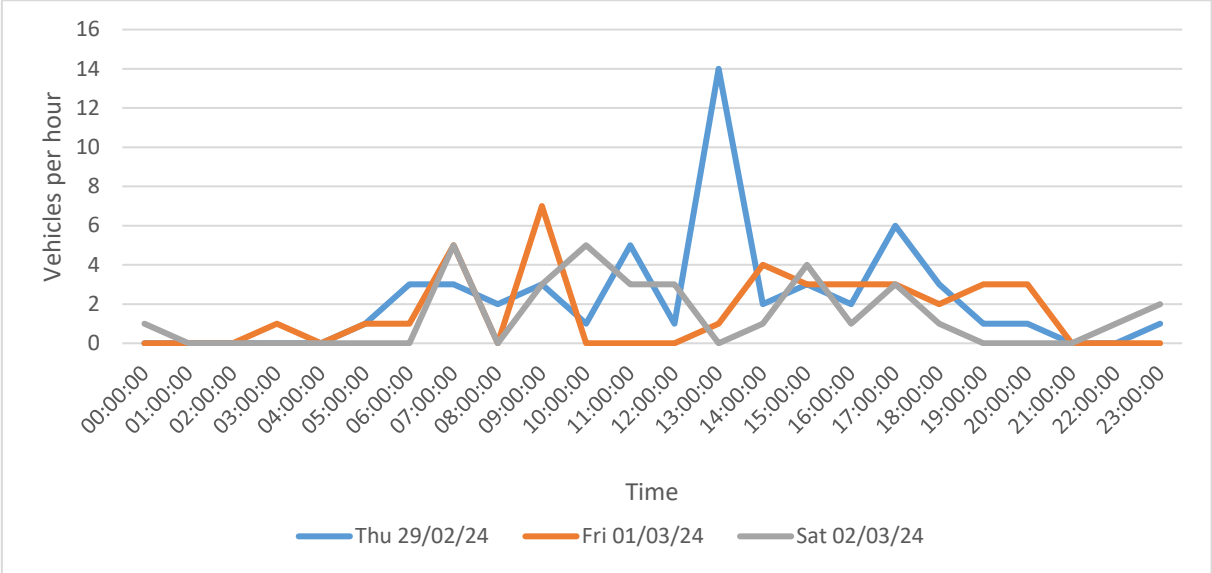
Figure 3.14: Traffic Survey Locations



Basemap Source: Google Maps (accessed 19/03/24)

The hourly profile data from the tube count data for both directions on Jerilderie Road is provided in Figure 3.15. The 85th percentile speed recorded in the southbound and northbound direction on Jerilderie Road was 104km/h and 109km/h, respectively.

Figure 3.15: Jerilderie Road



As evident in Figure 3.15, volumes on Jerilderie Road were generally low, typically less than eight (8) vehicles per hour except for a one-hour period on Thursday, 29 February 2024 which recorded 14 vehicles per hour. There was no clearly identifiable peak from the tube count data. The peak hour data from the intersection surveys is shown in Table 3.2 to Table 3.5. The detailed survey data is provided in Appendix D.

Table 3.1: Cobb Highway and Sturt Highway Intersection Counts

Intersection	Peak Hour	Approach	Light	Heavy	Total	Direction	Light	Heavy	Total
Cobb Highway and Sturt Highway	AM Peak 8:15am-9:15am	Cobb Highway North	218	27	245	Inbound	98	11	109
						Outbound	120	16	136
		Cobb Highway South	41	6	47	Inbound	22	3	25
						Outbound	19	3	22
		Sturt Highway East	158	48	206	Inbound	71	20	91
						Outbound	87	28	115
		Sturt Highway West	183	63	246	Inbound	109	38	147
						Outbound	74	25	99
	PM Peak 2:00pm-3:00pm	Cobb Highway North	226	34	260	Inbound	131	21	152
						Outbound	95	13	108
		Cobb Highway South	34	15	49	Inbound	9	7	16
						Outbound	25	8	33
		Sturt Highway East	132	47	179	Inbound	65	22	87
						Outbound	67	25	92
		Sturt Highway West	204	72	276	Inbound	93	34	127
						Outbound	111	38	149
	Weekend Peak 11:15am-12:15pm	Cobb Highway North	261	10	271	Inbound	137	7	144
						Outbound	124	3	127
		Cobb Highway South	38	5	43	Inbound	16	0	16
						Outbound	22	5	27
		Sturt Highway East	113	29	142	Inbound	52	17	69
						Outbound	61	12	73
		Sturt Highway West	230	38	268	Inbound	116	17	133
						Outbound	114	21	135

Table 3.2: Sturt Highway and Conargo Road Intersection Counts

Intersection	Peak Hour	Approach	Light	Heavy	Total	Direction	Light	Heavy	Total
Sturt Highway and Conargo Road	AM Peak 9:00am-10:00am	Conargo Road South	6	3	9	Inbound	4	2	6
						Outbound	2	1	3
		Sturt Highway East	60	42	102	Inbound	34	12	46
						Outbound	26	30	56
		Sturt Highway West	64	41	105	Inbound	27	29	56
						Outbound	37	12	49
	PM Peak 1:45pm-2:45pm	Conargo Road South	5	1	6	Inbound	3	0	3
						Outbound	2	1	3
		Sturt Highway East	65	43	108	Inbound	36	26	62
						Outbound	29	17	46
		Sturt Highway West	68	46	114	Inbound	30	18	48
						Outbound	38	28	66
	Weekend Peak 11:00am-12:00pm	Conargo Road South	8	2	10	Inbound	3	0	3
						Outbound	5	2	7
		Sturt Highway East	128	28	156	Inbound	57	14	71
						Outbound	71	14	85
		Sturt Highway West	132	28	160	Inbound	74	13	87
						Outbound	58	15	73

Table 3.3: Conargo Road and North Boundary Road Intersection Counts

Intersection	Peak Hour	Approach	Light	Heavy	Total	Direction	Light	Heavy	Total
Conargo Road and North Boundary Road	AM Peak 9:30am-10:30am	Conargo Road North	6	0	6	Inbound	3	0	3
						Outbound	3	0	3
		Conargo Road South	1	0	1	Inbound	1	0	1
						Outbound	0	0	0
		North Boundary Road West	3	0	3	Inbound	1	0	1
						Outbound	2	0	2
	PM Peak 1:00pm-2:00pm	Conargo Road North	1	8	9	Inbound	0	4	4
						Outbound	1	4	5
		Conargo Road South	1	1	2	Inbound	0	0	0
						Outbound	1	1	2
		North Boundary Road West	2	9	11	Inbound	2	4	6
						Outbound	0	5	5
	Weekend Peak	Conargo Road North	54	0	54	Inbound	54	0	54
						Outbound	0	0	0
		Conargo Road South	52	0	52	Inbound	0	0	0
						Outbound	52	0	52
		North Boundary Road West	2	0	2	Inbound	0	0	0
						Outbound	2	0	2

Table 3.4: Jerilderie Road, Willurah Road and North Boundary Road Intersection Counts

Intersection	Peak Hour	Approach	Light	Heavy	Total	Direction	Light	Heavy	Total
Jerilderie Road, North Boundary Road and Willurah Road	AM Peak 6:15am-7:15am	Willurah Road South	1	0	1	Inbound	1	0	1
						Outbound	0	0	0
		North Boundary Road East	3	1	4	Inbound	3	1	4
						Outbound	0	0	0
		Jerilderie Road West	4	1	5	Inbound	0	0	0
						Outbound	4	1	5
	PM Peak 1:00pm-2:00pm	Willurah Road South	2	0	2	Inbound	1	0	1
						Outbound	1	0	1
		North Boundary Road East	7	6	13	Inbound	3	3	6
						Outbound	4	3	7
		Jerilderie Road West	9	6	15	Inbound	5	3	8
						Outbound	4	3	7
	Weekend Peak 6:30am-7:30am	Willurah Road South	1	0	1	Inbound	1	0	1
						Outbound	0	0	0
		North Boundary Road East	2	2	4	Inbound	2	2	4
						Outbound	0	0	0
		Jerilderie Road West	3	2	5	Inbound	0	0	0
						Outbound	3	2	5

Table 3.5: Cobb Highway and Jerilderie Road Intersection Counts

Intersection	Peak Hour	Approach	Light	Heavy	Total	Direction	Light	Heavy	Total
Cobb Highway and Jerilderie Road	AM Peak 9:15am-10:15am	Cobb Highway North	27	17	44	Inbound	10	8	18
						Outbound	17	9	26
		Cobb Highway South	24	18	42	Inbound	14	10	24
						Outbound	10	8	18
		Jerilderie Road East	3	1	4	Inbound	3	0	3
						Outbound	0	1	1
	PM Peak 2:15pm-3:15pm	Cobb Highway North	34	17	51	Inbound	24	9	33
						Outbound	10	8	18
		Cobb Highway South	28	5	33	Inbound	10	0	10
						Outbound	18	5	23
		Jerilderie Road East	6	4	10	Inbound	0	0	0
						Outbound	6	4	10
	Weekend Peak 11:15am-12:15am	Cobb Highway North	29	9	38	Inbound	17	7	24
						Outbound	12	2	14
		Cobb Highway South	23	7	30	Inbound	9	0	9
						Outbound	14	7	21
		Jerilderie Road East	6	0	6	Inbound	3	0	3
						Outbound	3	0	3

3.7 Nearby Developments

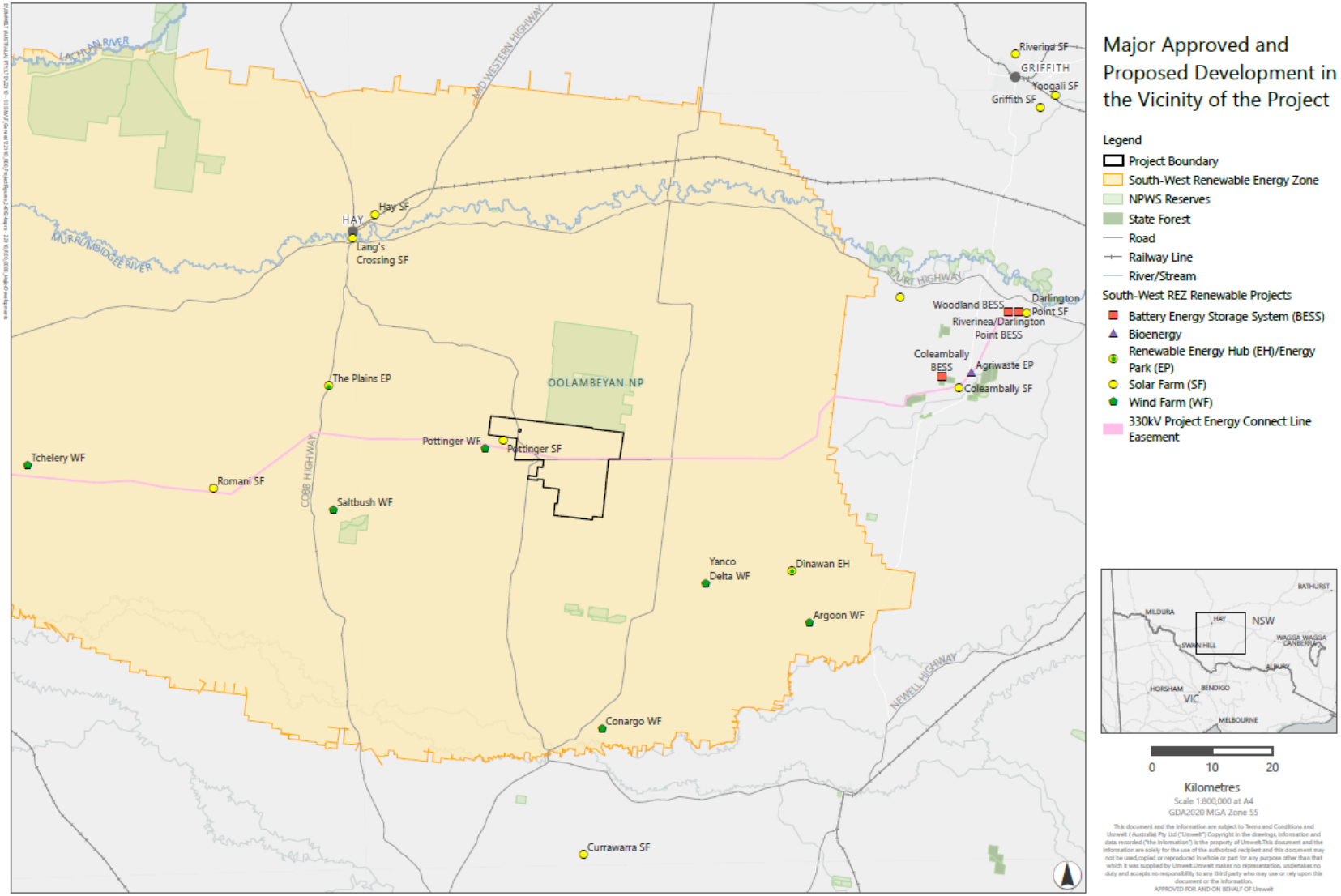
The Project is located within the South-West Renewable Energy Zone (South-West REZ). This area has been chosen due to the abundance of high-quality wind and solar resources and relative land-use compatibility. In the vicinity of the Project Area, numerous solar and wind farms have either been proposed or approved. A summary of the nearby surrounding developments (as at the date the original TIA was completed) is provided in Table 3.6 and their location in relation to the proposed Project Area is shown in Figure 3.13.

Table 3.6: Nearby Developments

Development	Description	Status	Estimated Traffic Generation	Potential Vehicle Conflict
Project Energy Connect	Electricity transmission line which will connect the South Australia and New South Wales districts of the National Electricity Market in Australia	Under construction, Stage 2 estimated completion 2026.	Varies across location, maximum on roads that overlap is 36 vehicles per hour during peak construction. Peak construction is not expected to overlap.	Vehicles will potentially be using Sturt Highway, Cobb Highway, Jerilderie Road, North Boundary Road and Willurah Road.
Pottinger Solar Farm	500 MW solar farm and a battery storage facility.	Proposed, SEARs Issued	No information publicly available.	Vehicles will potentially be using North Boundary Road, Willurah Road, Jerilderie Road and Cobb Highway.
Pottinger Wind Farm	Wind farm consisting of up to 253 turbines.	Approved, not yet commenced construction. Construction estimated to commence in 2026 and last 55 months, with a peak of 28 months.	675 vehicles per hour during peak construction	Vehicles will potentially be using North Boundary Road, Willurah Road, Jerilderie Road and Cobb Highway.
The Plains Wind Farm	Wind farm consisting of up to 188 turbines.	Response to Submissions Construction estimated to commence in 2025 and last three (3) years, with a peak of two (2) years.	206 vehicles per hour during peak construction	Vehicles will potentially be using Cobb Highway.
The Plains Solar Farm	400 MW solar farm and a battery storage facility.	Response to Submissions. Construction estimated to commence in late 2026 and take two (2) years, with a peak of (1) year.	82 vehicle movements per hour during peak construction	Vehicles will potentially be using Cobb Highway.
Dinawan Solar Farm	800 MW solar farm and a battery storage facility.	Response to Submissions. Construction estimated to commence in 2025.	100 light vehicle movements, 18 heavy vehicle movements and 9 shuttle bus movements in peak	Vehicles will potentially be using Sturt Highway.

			hour during construction	
Yanco Delta Wind Farm	Wind farm consisting of 208 turbines and a battery storage facility.	Approved, not yet commenced construction. Estimated completion 2028.	310 trips in peak hour during peak construction.	Vehicles will potentially be using Sturt Highway.
Romani Solar Farm	250 MW solar farm and a battery storage facility.	Proposed, SEARs Issued	No information publicly available.	Vehicles will potentially be using Cobb Highway and Sturt Highway.
Dinawan Wind Farm	Wind farm consisting of up to 250 turbines and a battery storage facility.	Proposed, SEARs Issued	No information publicly available.	Vehicles will potentially be using Sturt Highway.
Argoon Wind Farm	Wind farm consisting of 106 turbines and a battery storage facility.	Proposed, SEARs Issued.	No information publicly available.	Vehicles will potentially be using Sturt Highway.
Conargo Wind Farm	Wind farm consisting of up to 53 WTG and ancillary infrastructure, and a total generation capacity of 300 MW.	Proposed, SEARs Issued	No information publicly available.	Vehicles will potentially be using Sturt Highway.
Booroorban (Saltbush) Wind Farm	Wind farm consisting of up to 70 WTG and ancillary infrastructure, and a total generation capacity of 400 MW.	Proposed, SEARs Issued	No information publicly available.	Vehicles will potentially be using Sturt Highway.
Tchelery Wind Farm	Wind farm consisting of 120 turbines, with a battery storage facility to be investigated	Proposed, SEARs Issued	No information publicly available.	Vehicles will potentially be using Sturt Highway.
Hay Solar Farm	110 MW solar farm and a battery storage facility	Construction completed.	36 vehicle movements per hour during peak construction	Construction completed, no overlap.

Figure 3.16: Surrounding Developments



Major Approved and Proposed Development in the Vicinity of the Project

Legend

- Project Boundary
- South-West Renewable Energy Zone
- NPWS Reserves
- State Forest
- Road
- Railway Line
- River/Stream

South-West REZ Renewable Projects

- Battery Energy Storage System (BESS)
- Bioenergy
- Renewable Energy Hub (EH)/Energy Park (EP)
- Solar Farm (SF)
- Wind Farm (WF)
- 330kV Project Energy Connect Line Easement

0 10 20

Kilometres

Scale 1:800,000 at A4

GDA2020 MGA Zone 55

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Image Source: ESRI Basemap (2023) | **Data Source:** NSW DFSI (2023)

4 Proposed Development

The key components of the Project include:

- up to 141[3] (three (3) blade) WTGs, with a maximum blade-tip height of 300 metres (m) above ground
- a 359 MW / 718 MWh battery energy storage facility
- permanent ancillary infrastructure including internal roads, hardstands, main and collector substations, switchyards, operations and maintenance facilities, underground and overhead electricity transmission lines and poles, telecommunications facilities and utility services, permanent meteorological masts and water storage tanks
- temporary facilities including temporary workers accommodation (TWA) camp, site offices, amenities, construction compounds and laydown areas, on-site borrow pits, rock crushing facilities, concrete or asphalt batching plants, minor 'work front' construction access roads, environmental management and monitoring and signage
- off-site road works, involving upgrades to the proposed local transport route and establishment of site access points to facilitate delivery of WTG components to the Project Area as required.

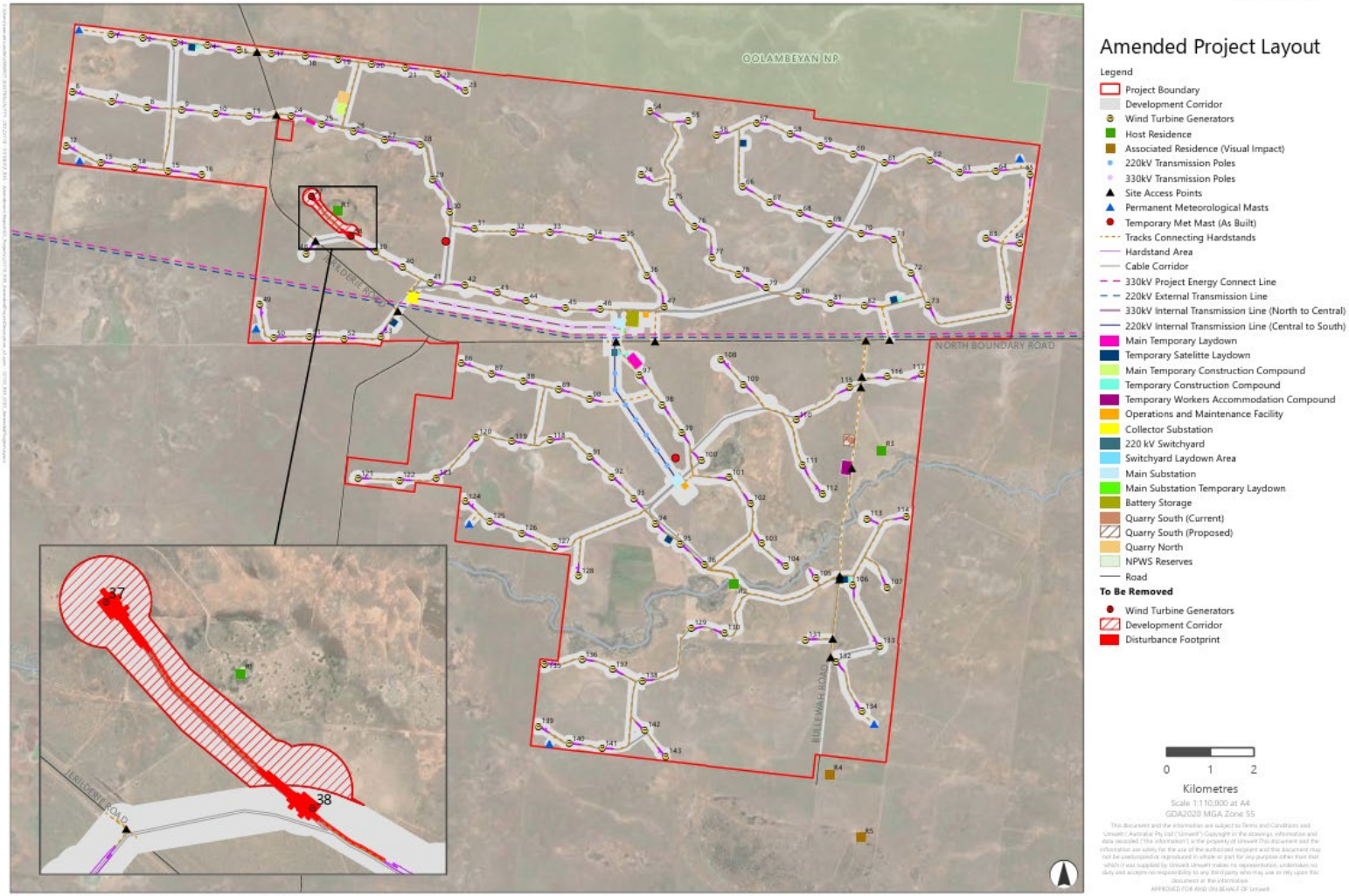
Project construction and grid connection will occur in two (2) stages. The conceptual staging plan for the Project involves:

- Stage 1 (South), located mostly south of North Boundary Road, connecting to the existing 220 kV transmission line which runs through the Project Area
- Stage 2 (North) located north of North Boundary Road, connecting to the approved (but not yet constructed) 330 kV Eastern Section of Project EnergyConnect, which will also run through the Project Area.

The indicative Project layout is shown on Figure 4.1

[3] This Amended TIA has been prepared based on the 141 WTG layout assessed in the Project's Amendment Report. To avoid ambiguity and to provide consistency with the Project's Amendment Report (Umwelt, 2025) the updated capacity is 803.7 MW for the 141 WTG design. The removal of the two (2) WTG (being WTG 37 and WTG 38) from the Project EIS design (143 WTG layout at that time) is expected to have a neutral or positive impact with respect to traffic, hence the prior Project vehicle types and flows have been retained where relevant to provide a precautionary assessment.

Figure 4.1: Indicative Amended Project Layout



4.1 Site Access

4.1.1 Port to Hay Transport Routes

The delivery of materials to the Project Area by oversize, overmass (OSOM) vehicles would include:

- WTG components such as blades, tower section, hubs etc
- Large substation, BESS and batching plant equipment
- Water tanks and other operation and maintenance facility equipment.

In responding to agency advice from Transport for NSW (TfNSW) and with regard to other design and logistics considerations identified by BWF, a decision to extend the Port to Hay Transport Routes considered in the State Significant Development Application (SSDA) has occurred. This extension now encompasses two (2) port options, being Port of Newcastle (considered in the EIS but with impacts only being assessed for the "Local Transport Route" component) and Port Adelaide (a new port option considered in the Amendment Report). Accordingly, BWF is now seeking consent for impacts associated with off-site road works and alterations between the nominated Ports and the Project Area, noting that consent associated with the SSDA is wholly limited to works within NSW.

As a result, the Amended Project proposes five (5) Port to Hay Over-size Over-mass (OSOM) transport route options. This includes three (3) route options from the Port of Newcastle, and two (2) route options from the Port Adelaide. Updated Route Studies have been undertaken in respect of all five (5) routes (Appendix A) and areas have been identified along the Port to Hay Transport Routes where road modifications would be required to enable the safe transport of Project components using OSOM vehicles. These works now form part of the Amended Project and have been assessed in the Amendment Report (Umwelt, 2025).

The five (5) Port to Hay Transport Routes are shown in Figure 4.2.

The Project EIS identified a maximum turbine size, being a tip height of up to 300 m, a hub height of up to 200 m and a blade length of up to 100 m. BWF has subsequently identified a maximum alternate turbine size (being a tip height of up to 233 m, a hub height of up to 148 m and a blade length of up to 80 m) for the purposes of identifying and assessing required road upgrades to the Port to Hay Transport Routes. Updated Route Studies have been undertaken by Rex J Andrews based on a worst-case blade length of up to 80 m (refer to Appendix A). The Route Study identifies that minor works will be required along the Port to Hay transport routes to carry out the Project.

However, due to the extent of renewable energy development proposed within the South West Renewable Energy Zone (REZ), it is possible that road upgrades to accommodate a larger turbine (with a blade length exceeding 80 m) will be undertaken along some or all of the proposed Port to Hay Routes either by the NSW Government or by a third party developer.

Should these upgrades be undertaken prior to the Project's construction period, BWF is seeking flexibility to transport and install a larger turbine, provided that the:

- The proposed WTG dimensions do not trigger the need for any additional off-site road works.
- The maximum WTG dimensions do not exceed a tip height of 300 m, a hub height of 200 m and a blade length of 100 m.

OSOM vehicles would require permits that specify the designated route for travel, the number of escorts required and the permissible travel times for the vehicles. Further information regarding this is presented in the Rex J Andrews report in Appendix A.

South of Hay (and closer to the Project Area), off site road works are required and also form part of the proposed Project, as described below in Section 4.1.2. It is noted that the Project's Local Transport Route upgrades (extending from the intersection of the Cobb Highway and Jerilderie Road to the site access points) have been identified and assessed within the Project EIS (Umwelt, 2024) based on the maximum WTG dimensions, being a tip height of up to 300 m.

Figure 4.2: Port to Hay Transport Routes

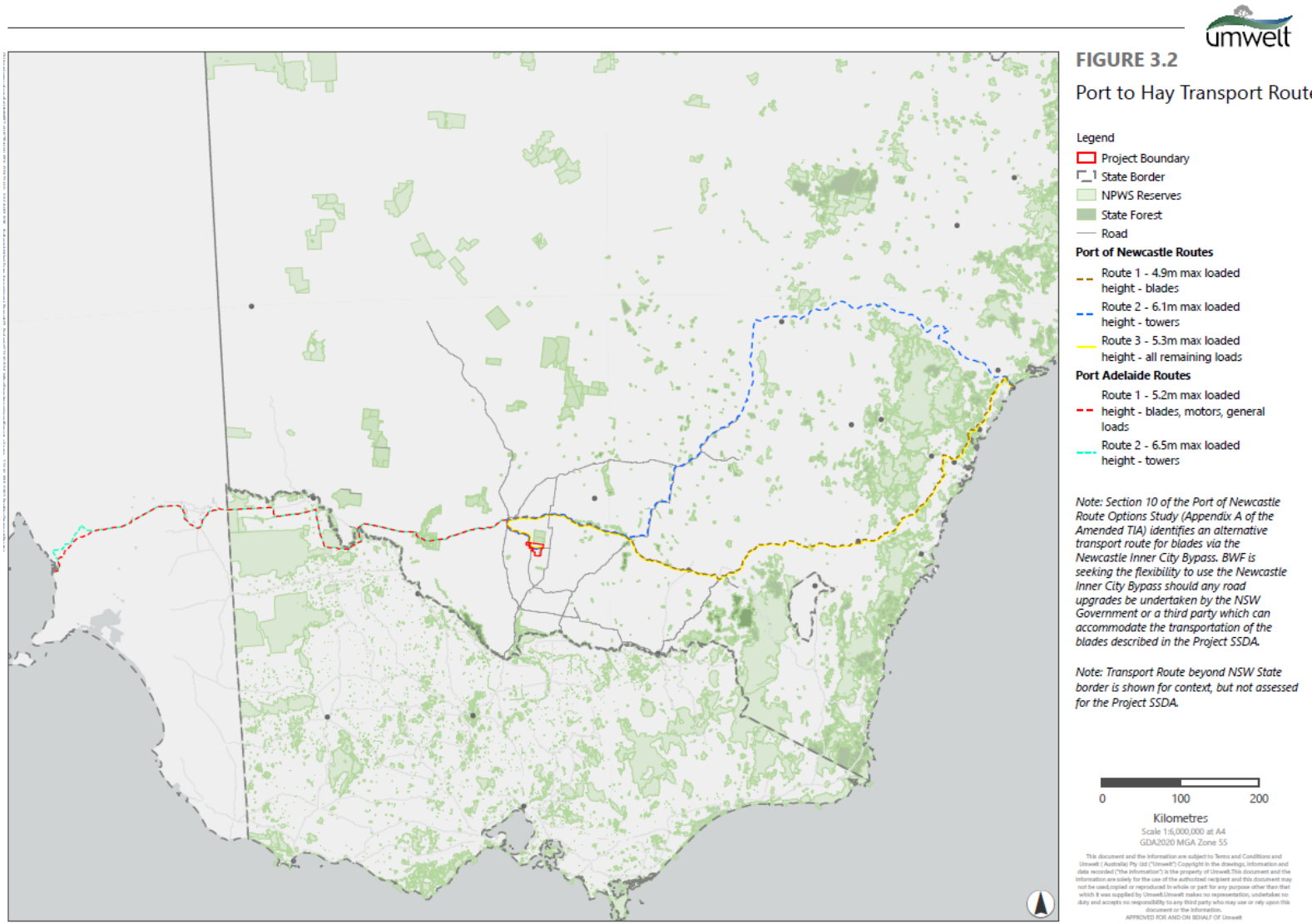


Image Source: ESRI Basemap (2023) | **Data Source:** NSW DFSI (2023)

4.1.2 Local Transport Route and Site Access

BWF has identified a Local Transport Route which will be utilised for all OSOM movements and the majority of light and heavy vehicle movements associated with the Project. The Local Transport Route extends from the intersection of the Cobb Highway and Jerilderie Road to the eastern-most site access point located on Northern Boundary Road, as shown on Figure 4.3.

The original Route Study undertaken by Rex J Andrews (2023) for the EIS identified the need for only very minor works along the Local Transport Route to accommodate Project traffic movements, based on the maximum proposed turbine dimensions for the Project (i.e. a 100 m blade length). These works will be undertaken as part of 'off-site road works' which form part of the Project (Refer to Section 4).

These off-site road works include:

- Proposed upgrades to the local transport route, including an auxiliary left turn treatment – short turn lane (AUL(s)) and hardstand widening at the intersection of Cobb Highway and Jerilderie Road, widening of North Boundary Road and the maintenance and use of roadside parking areas along Jerilderie Road during the construction period.
- Establishment of 14 site access points off Jerilderie Road, North Boundary Road and Bullewah Road, with 13 accommodating OSOM movements for incoming WTG components (refer to Figure 4.3) and one (1) providing access to the proposed TWA camp as shown in Figure 4.3. Each access will be gated and secured, and appropriate warning signs erected.
- Ground disturbance, clearing/pruning of vegetation associated with the activities described above.

A description of the 14 site access points off Jerilderie Road, North Boundary Road and Bullewah Road is provided below in Table 4.1.

Table 4.1: Site Access Points

Development	Description
Site access point #1	Proposed intersection turning left from Jerilderie Road, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00021 in Appendix E of Response to RFI#2 (Umwelt, August 2025).
Site access point #2	Proposed intersection turning left from Jerilderie Road, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00022 in Appendix E of Response to RFI#2 (Umwelt, August 2025).
Site access point #3	Proposed intersection turning right from Jerilderie Road, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00023 in Appendix E of Response to RFI#2 (Umwelt, August 2025).
Site access point #4	Proposed intersection turning right from Jerilderie Road, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00024 in Appendix E of Response to RFI#2 (Umwelt, August 2025).
Site access point #5	Proposed intersection turning right from North Boundary Road, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00025 in Appendix E of Response to RFI#2 (Umwelt, August 2025).

Site access point #6	Proposed intersection turning left from North Boundary Road, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00026 in Appendix E of Response to RFI#2 (Umwelt, August 2025).
Site access point #7	Proposed intersection turning right from North Boundary Road, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00027 in Appendix E of Response to RFI#2 (Umwelt, August 2025).
Site access point #8	Proposed intersection turning left from North Boundary Road, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00028 in Appendix E of Response to RFI#2 (Umwelt, August 2025)..
Site access point #9	Proposed intersection turning left from Bullewah Road, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00029 in Appendix E of Response to RFI#2 (Umwelt, August 2025).
Site access point #10	Proposed intersection turning right from Bullewah Road, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00030 in Appendix E of Response to RFI#2 (Umwelt, August 2025).
Site access point #11	Proposed intersection turning right and left from Bullewah Road, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00031 in Appendix E of Response to RFI#2 (Umwelt, August 2025).
Site access point #12	Proposed intersection turning right from Bullewah Road, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00032 in Appendix E of Response to RFI#2 (Umwelt, August 2025).
Site access point #13	Road modification to allow left turn from Bullewah Road, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00033 in Appendix E of Response to RFI#2 (Umwelt, August 2025).
Site access point #14	Establishment of a minor access point to provide access for non-OSOM vehicles to the proposed on-site Temporary Workers Accommodation (TWA) camp.

Note: Please refer to Figure 6.3 *of this report that maps each of the proposed site access points, including their unique numeric identification as described in the table above.*

The proposed off-site road works will be undertaken in consultation with the relevant roads authorities, being TfNSW or the relevant Council and consent under Section 138 of the Roads Act will be sought as outlined in Section 2.1.2.

While the Local Transport Route will be utilised preferentially for all Project traffic, alternative local routes may be utilised for the transport of some quarried materials (refer to Section 5.3.2) and the Project workforce (9%) (refer to Section 5.3.5).

Figure 4.3: Local Transport Route and Site Access

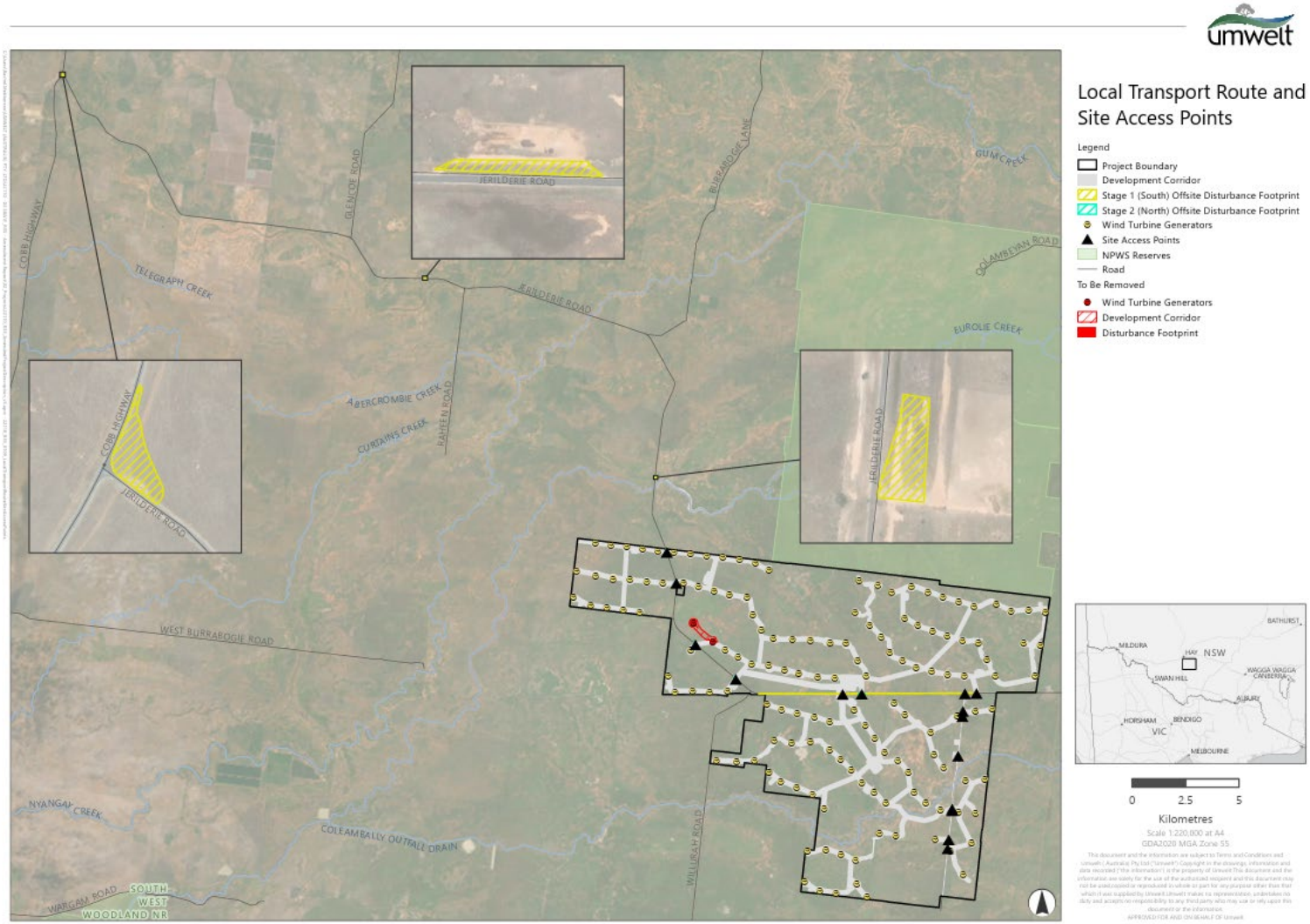
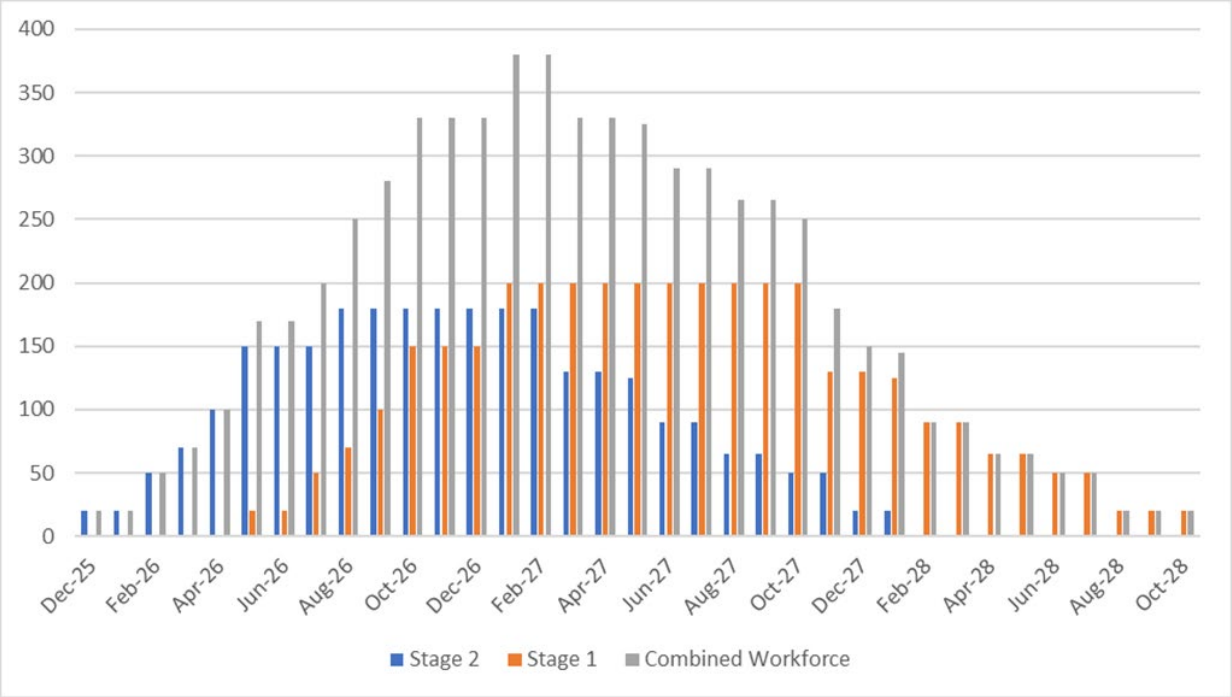


Image Source: ESRI Basemap (2023) | **Data Source:** NSW DFSI (2023)

4.2 Construction Workforce

BWF has identified that Stage 2 (North) is likely to commence sooner than was previously indicated in the Project EIS (Umwelt, 2024a) and prior to Stage 1 (South). As a result, a greater overlap is anticipated between the construction periods for Stage 1 (South) and Stage 2 (North). Consequently, this would result in an increase in the peak workforce from 350 workers as identified in the EIS to 380 workers in the Amendment Report (Umwelt, 2025) at the height of construction, with the additional 30 workers being housed within the on-site TWA facility. This peak would occur during the height of construction in Stages One and Two and reduce thereafter, as shown indicatively in the amended construction workforce histogram in Figure 4.4 below. It is noted that this amendment reduces the overall duration of the construction period from 44 months as identified in the Project EIS, to 35 months as proposed under the Amended Project.

Figure 4.4: Construction Workforce



4.3 Construction Hours

Generally, the Project will undertake construction activities between:

- 7:00 am to 6:00 pm, Monday to Friday.
- 8:00 am to 1:00 pm, Saturdays.

However, works may be undertaken outside these standard hours under any of the following circumstances:

- the activities are inaudible at non-associated residences
- the delivery or dispatch of materials as requested by the NSW Police Force or other public authorities for safety reasons

- the activities are necessary to avoid the loss of life, property or prevent material harm to the environment
- the out of hours activities are authorised by the Planning Secretary of DPHI
- to enable concrete pouring to be completed, once commenced.
- The majority of construction traffic movements (approximately 85%) would occur during the standard construction hours specified above. However, a small proportion of construction traffic movements, including some OSOM deliveries, will occur in the early morning hours (prior to 7:00am). This is necessary to minimise traffic disruption associated with OSOM deliveries, and in some circumstances, to enable construction work to begin promptly at 7:00am on weekdays (or at 8:00am on Saturdays).

4.4 Construction Staging and Duration

BWF is seeking flexibility to construct, operate, re-power and/or decommission the Project in stages of various sizes or permutations within the limits of the development consent, should the Project be approved. Staging would be determined post-development consent and subject to detailed design and procurement processes.

For the purposes of assessment, it has been assumed that the Project will be constructed and operated in two (2) stages:

- Stage 1 (South) would involve the construction and operation of all Project infrastructure located south of North Boundary Road, including 58 WTGs (WTG 86 to WTG 143).
- Stage 2 (North) would involve the construction and operation of all other Project infrastructure located north of North Boundary Road, including 83 WTGs (WTG 1 to WTG 85).

The construction process will be separated into two (2) stages. The first stage will involve the construction of 58 WTGs for the portion of the Project Area south of North Boundary Road. The second stage will be the construction of 83 WTGs for the remaining Project Area north of North Boundary Road.

The anticipated duration of the Project construction period is approximately 3 years (35 months), commencing in approximately Q4 2025 and concluding in Q4 2028. Stage 2 (North) is likely to commence construction first, and overlap with Stage 1 (South) construction, resulting in a peak construction workforce of up to 380 workers for a short period, indicatively two (2) months occurring in approximately Q1 2027.

5 Project Traffic Generation

5.1 Types of Project Relative Traffic Generation

For the purpose of the traffic assessment presented in this report, traffic generation potential for the Project has been considered as either construction, operational or decommissioning.

It is noted that the project will primarily generate traffic during construction, and to a lesser degree, during the decommissioning stage. Traffic generated during operation should be negligible.

5.2 Pre-Construction Traffic

Pre-construction comprises:

- Pre-construction minor works: including all road upgrades and other low traffic generating activities, which will be undertaken in tranches, to minimise impacts to the road network.
- General pre-construction: including site establishment activities such as assembling the concrete batching plant, setting up the temporary workforce accommodation and site sheds, mobilising the earth moving equipment and establishing hardstand areas.

The timing of pre-construction works and the proposed road upgrades is set out in Table 5.2 below. Pre-construction is expected to occur between November 2025 and January 2026.

5.2.1 Pre-Construction Minor Works

Pre-construction minor works will occur in tranches as set out in Table 5.2. The timing of these tranches is designed such that the upgrading of the intersection of Cobb Highway and Jerilderie Road, the establishment of the Jerilderie Road roadside parking areas and the establishment of relevant site access points occurs prior to the vast majority of traffic generating activities occurring, and that no OSOM movements occur prior to all road upgrades being completed for the relevant stage.

5.2.2 General Pre-Construction Works

As noted above, this substage includes site establishment activities, including limited OSOM deliveries, and would not commence until all road upgrades for the relevant stage are completed (refer to Table 5.2).

It is proposed to use temporary on-site concrete and/or asphalt batching plants to supply materials for Project construction. The use of temporary on-site batching plants will reduce the number of external truck vehicle movements to/ from the Project Area.

Two (2) OSOM vehicles will be required to transport the concrete batching plant. This will be delivered across two (2) days in the first month. In addition, 20 concrete agitators will be required and driven to site over a month-long period resulting in a maximum of four (4) deliveries per day during peak construction. Once on site these agitators will remain on site for the period of construction.

Four (4) cranes will be required consisting of one (1) 700-tonne crane, one (1) 300-tonne crane and two (2) 100-tonne cranes. Similar to the concrete agitators, these will remain on site for the duration of the construction period.

Earthmoving equipment, site sheds, and various other set up equipment will be delivered using approximately 100 heavy vehicles. These will arrive on site over a period of three (3) months with a peak volume of two (2) vehicles per day.

As the construction of Stage 2 (North) progresses, vehicles will relocate to the southern side of North Boundary Road into Stage 1 (South).

The traffic generated during the pre-construction phase is expected to be minimal and is summarised in Table 5.1, based on the construction traffic generation established in Table 5.3.

Table 5.1: General Pre-Construction Traffic Generation

Vehicle Class	Daily Trips	Peak Hour Trips
Light	40	14
Heavy	136	13
OSOM	0*	0
Total	176	27

**There will be a total of 2 OSOM vehicles arriving over the three-month period.*

It is noted that the current land use generates very minimal if any traffic, primarily being grazing land. As shown in Section 3.6, Jerilderie Road (the primary road through the site) typically has a two-way volume of between 1-6 vehicles per hour during the day.

Table 5.2: Timing of Upgrades and Pre-Construction and Construction Scheduling

Project Phase	Status of Upgrades at Commencement of Phase	Permitted Activities	Largest Vehicle Size Permitted (Design Vehicle)	Relevant Intersections and Site Access Points
Pre-Construction Minor Works (Tranche 1) – Stage 2	Baseline conditions: with no changes to existing road network	• Construction of AUL(s) and additional hardstand at intersection of Cobb Highway and Jerilderie Road • Establishment of roadside parking areas on Jerilderie Road • Establishment of Semi-Trailer U-Turn on North Boundary Road (Site Access Point 7) • Minor clearing of native vegetation to accommodate road upgrades listed above • Importation of small quantities of quarry materials to facilitate road upgrades listed above.	Semi-trailer	1. Cobb Highway and Jerilderie Road 2. Site Access Point 7 3. Quarry transport routes (excl. Option B route)
Pre-Construction Minor Works (Tranche 2) – Stage 2	Baseline conditions + temporary treatments + AUL(s) construction complete + roadside parking areas established	• Surveys, including road dilapidation surveys • Establishment of temporary gravel treatment at Stage 2 site access points (1, 2, 3, 4, 6, 7, 8 and 14) to provide semi-trailer access for Stage 2 (including the TWA) during the construction of permanent site access points. • Aboriginal cultural heritage salvage • Biodiversity investigations, pre-clearance surveys and habitat feature relocation (where required) • Minor clearing of native vegetation to accommodate road upgrades listed above • Importation of small quantities of quarry materials to facilitate road upgrades listed above.	Semi-Trailer	1. Cobb Highway and Jerilderie Road 2. Quarry transport routes (excl. Option B route) 3. Establishment of temporary gravel treatment: Stage 2 site accesses (1, 2, 3, 4, 6, 7, 8 and 14) 4. For surveys, salvage and biodiversity investigations: Stage 2 site access points, once temporary gravel treatment is installed (see 3 above).
Pre-Construction Minor Works (Tranche 3) – Stage 2	Baseline conditions + temporary treatments + AUL(s) construction complete + roadside parking areas established	• Construction of permanent site access points (1, 2, 3, 4, 6, 7 and 8) to accommodate OSOM vehicles	Semi-trailer	1. Cobb Highway and Jerilderie Road 2. Quarry transport routes (excl. Option B route)

		• Construction of Bullewah Road and formalisation of Site Access Point 7 to provide semi-trailer access to the TWA. • Minor clearing of native vegetation to accommodate road upgrades listed above • Importation of small quantities of quarry materials to facilitate road upgrades • Continuation of Tranche 2 activities as required (salvage and biodiversity investigations) • Quarry "Option B" intersection upgrade i.e. at Willurah Road/Carrathool Road intersection.		3. Construction of Stage 2 site access points (1, 2, 3, 4, 6 and 8)) 4. Construction of Bullewah Road + TWA site entry (site access 7 and 14)
Pre-Construction Minor Works (Tranche 4) – Stage 2	Baseline conditions + AUL(s) construction complete + roadside parking areas established + all site access points for Stage 2 and TWA site entry constructed + "Option B" intersection upgrade complete	• Widening of North Boundary Road • Minor clearing of native vegetation to accommodate road upgrades listed above • Importation of small quantities of quarry materials to facilitate road upgrades listed above • Geotechnical investigative drilling, excavation of test pits and bore holes • Establishment of temporary site office and compounds and signage • Installation of environmental management and monitoring measures, fencing and meteorological masts • Minor adjustments to telecommunications facilities and utility services • Continuation of Tranche 2 activities as required (salvage and biodiversity investigations).	Semi-trailer	1. Cobb Highway and Jerilderie Road 2. Quarry transport routes (incl. Option B route) 3. Stage 2 site access points (1, 2, 3 4, 6 and 8) 4. Bullewah Road + TWA site entry (site access 7 and 14)
Pre-Construction Minor Works (Tranche 5) – Port to Hay Off-site Road Works	Baseline conditions: with no changes to existing road network along Port to Hay Transport Routes	• Port to Hay off-site works • Minor clearing of native vegetation to accommodate road upgrades listed above • Importation of small quantities of quarry materials to facilitate road upgrades listed above.	Semi-trailer	1. Port to Hay Transport Routes

Pre-Construction Minor Works (Tranche 6) – Stage 1	Baseline conditions + AUL(s) construction complete + roadside parking areas established + "Option B" intersection upgrade complete	• Establishment of temporary gravel treatment at Stage 1 site accesses (5, 9, 10, 11, 12, and 13) to provide semi-trailer access during the construction of the permanent site access points. • Aboriginal cultural heritage salvage • Biodiversity investigations, pre-clearance surveys and habitat feature relocation (where required) • Minor clearing of native vegetation to accommodate road upgrades listed above • Importation of small quantities of quarry materials to facilitate road upgrades listed above.	Semi-trailer	1. Cobb Highway and Jerilderie Road 2. Quarry transport routes (incl. Option B route) 3. Temporary treatment of Stage 1 site access points (5, 9, 10, 11, 12 and 13) 4. For salvage and biodiversity investigations: Stage 1 site access points, once temporary gravel treatment is installed (see 3 above).
Pre-Construction Minor Work (Tranche 7) – Stage 1	Baseline conditions + AUL(s) construction complete + roadside parking areas established + "Option B" intersection upgrade complete + temporary treatments	• Construction of permanent Stage 1 site access points (5, 9, 10, 11, 12 and 13) to accommodate OSOM vehicles • Minor clearing of native vegetation to accommodate road upgrades listed above • Continuation of Tranche 6 activities as required (salvage and biodiversity investigations) • Geotechnical investigative drilling, excavation of test pits and bore holes • Establishment of temporary site office and compounds and signage • Installation of environmental management and monitoring measures, fencing and meteorological masts • Minor adjustments to telecommunications facilities and utility services • Importation of small quantities of quarry materials to facilitate road upgrades listed above.	Semi-trailer	1. Cobb Highway and Jerilderie Road 2. Quarry transport routes (incl. Option B route) 3. Construction of permanent Stage 1 site access points (5, 9, 10, 11, 12 and 13) 4. For geotechnical investigations, establishment of site office/compounds/ signage, environmental management and monitoring measures, fencing and meteorological masts and adjustments to telecommunications/utilities: Stage 1 site access points once they are permanently constructed.
General Pre-Construction Works	Baseline conditions + AUL(s) construction complete + roadside parking areas established + all site access points for relevant stage + TWA site entry constructed + all OSOM upgrades	General pre-construction works as described in Section 5.2.2, including: • Delivery and assembly of concrete batching plant • Setting up the temporary workforce accommodation and site sheds • Mobilising earth moving equipment.	OSOM	1. Cobb Highway and Jerilderie Road 2. Quarry transport routes (incl. Option B route) 3. Site access points (as relevant to that stage)

	complete + Option B intersection upgrade complete			4. Bullewah Road + TWA site entry
Construction	Baseline conditions + AUL(s) construction complete + roadside parking areas established + all site access points constructed for the relevant Stage + TWA and associated site entry established + all OSOM upgrades complete + Option B intersection upgrade complete	Main construction works as per Section 5.3 below.	OSOM	1. Cobb Highway and Jerilderie Road 2. Quarry transport routes (incl. Option B route) 3. Site access points (as relevant to that stage) 4. Bullewah Road + TWA site entry 5. Port to Hay Transport Routes

5.2.3 Impacts on the State Road Network

It is proposed to restrict vehicles to the Project routes established in Section 5.4, using the following intersections within the state road network:

- Conargo Road and Sturt Highway
- Sturt Highway and Cobb Highway
- Cobb Highway and Jerilderie Road
- Four Corners Road and Kidman Way
- Sturt Highway and Kidman Way
- Lachlan Street and Mid Western Highway

Of these intersections, all have a suitable intersection treatment to accommodate the proposed pre-construction Project traffic, and no upgrades are proposed for the Project as a result, except for the Cobb Highway and Jerilderie Road intersection; which requires a AUL(s) treatment as identified in Section 6.7. This upgrade to the Cobb Highway and Jerilderie Road intersection will occur at the beginning of pre-construction works. Mitigation measures to be implemented during the pre-construction phase are presented in Section 7.9.

5.3 Construction Traffic

As noted in Section 4.4, it is estimated that construction activities will be undertaken over a 24-month period for Stage 1 (South) and a 30-month period for Stage 2 (North). The volume of construction vehicles will vary significantly over the construction period. Whilst there will be an overlap between the two (2) stages, the peak construction traffic periods for the stages are not expected to overlap as shown in Figure 5.6. A summary of the peak traffic generated for the two (2) stages are presented in Table 5.3 and Table 5.4.

Table 5.3: Stage 2 (North) Traffic Generation – Construction

Material	Vehicle Type	Staging Months (Indicative Only)	Traffic Generation	Peak Traffic Generation (trips/day)	Peak Hour Traffic Generation (trips/hour)	Notes
Temporary Facilities						
Concrete Batching Plant	OSOM	November 2025	2 trucks total	-	-	Delivered across two (2) days in the first month (prior to peak construction)
Agitators	Concrete Truck	February 2026	20 vehicles total	4	-	Will stay on site for the period of construction.
Cranes	Mobile Cranes	June 2026	4 vehicles total	-	-	
Crane parts	Semi-Trailer	June 2026	8 average daily trips	16	2	-
Earth moving equipment and site sheds	Various Heavy Vehicles	December 2025 – January 2026	100 vehicles total	4	-	-
Temporary Workforce Accommodation	Semi-Trailer	December 2025 – January 2026	8 average daily trips	20	2	-
Construction						
Water	18m³ Water Truck	November 2025 – December 2027	2 average daily trips	2	1	Assuming one (1) truck per day during construction period
Cement - Foundations	42m³ Bulk Road Tanker	February 2026 – January 2027	4 average daily trips	10	1	Peak vehicles based on one (1) foundation per day.
Sand - Foundations	Truck and Dog	February 2026 – January 2027	12 average daily trips	34	3	
Aggregate - Foundations	Truck and Dog	February 2026 – January 2079	16 average daily trips	72	6	Assuming no material is won on site and required to use quarries.
Aggregate - Roads	Truck and Dog	November 2025 – February 2027	40 average daily trips	70	6	
Aggregate - Hardstand	Truck and Dog	November 2025 – February 2027	20 average daily trips	40	4	
Steel	Semi-Trailer	February 2026 – November 2026	8 average daily trips	28	4	-
WTGs						

Material	Vehicle Type	Staging Months (Indicative Only)	Traffic Generation	Peak Traffic Generation (trips/day)	Peak Hour Traffic Generation (trips/hour)	Notes
Blade	OSOM	June 2026 – August 2027	3 trucks per week	14	-	One (1) WTG delivered per week. Components would be delivered over the course of the week, with a maximum of 7 OSOM deliveries (14 trips) on any working day. Trips would occur outside of peak hour.
Tower	OSOM	June 2026 – August 2027	7 trucks per week			
Hubs	OSOM	June 2026 – August 2027	1 truck per week			
Nacelle	OSOM	June 2026 – August 2027	1 truck per week			
Drive Train	OSOM	June 2026 – August 2027	1 truck per week			
Electrical						
Substations	OSOM	May 2026	2 trucks total	4	-	Trips would occur outside of peak hour.
Underground Cabling	Semi-Trailer	February 2026 – November 2027	2 average daily trips	4	1	-
Overhead Cabling	Semi-Trailer	June 2026 – August 2026	2 average daily trips	5	1	-
Construction Workforce						
Construction Workforce	Light vehicle	November 2025 – January 2028	156 average daily trips	256	128	Inbound and outbound trips to occur during each peak hour, respectively. 35 workers (approximately 9% of workforce will be housed off site). All the workforce staying on-site will arrive on Monday morning, with 70% leaving on Friday afternoon and the remaining 30% leaving at the conclusion of work on Saturday. Temporary accommodation workforce has assumed to carpool at a rate of 1.5 people per vehicle. Off-site workers will travel individually.

Table 5.4: Stage 1 (South) Traffic Generation – Construction

Material	Vehicle Type	Staging Months	Traffic Generation	Peak Traffic Generation (trips/day)	Peak Hour Traffic Generation (trips/hour)	Notes
Temporary Facilities						
Concrete Batching Plant	OSOM	May-26	2 trucks total	-	-	
Agitators	Concrete Truck	May-26	20 vehicles total	4	-	
Cranes	Mobile Cranes	May-26	4 vehicles total	-	-	
Earth moving equipment and site sheds	Various Heavy Vehicles	May-26	100 vehicles total	4	-	
Construction						
Water	18m³ Water Truck	May 2026 – October 2028	2 average daily trips	2	1	Assuming one (1) truck per day during construction period
Cement - Foundations	42m³ Bulk Road Tanker	August 2026 – August 2027	4 average daily trips	10	1	Peak vehicles based on one (1) foundation per day.
Sand - Foundations	Truck and Dog	August 2026 – August 2027	12 average daily trips	34	3	
Aggregate - Foundations	Truck and Dog	August 2026 – August 2027	16 average daily trips	72	6	Assuming no material is won on site and required to use nearby quarries.
Aggregate - Roads	Truck and Dog	August 2026 – August 2027	40 average daily trips	60	5	
Aggregate - Hardstand	Truck and Dog	August 2026 – August 2027	20 average daily trips	40	4	
Steel	Semi-Trailer	August 2026 - May 2027	8 average daily trips	28	4	-
WTGs						
Blade	OSOM	November 2026 – January 2028	3 trucks per week	14	-	One (1) WTG delivered per week. Components would be delivered over the course of the week, with a maximum of seven (7) OSOM
Tower	OSOM	November 2026 – January 2028	7 trucks per week			
Hubs	OSOM	November 2026 – January 2028	1 truck per week			

Material	Vehicle Type	Staging Months	Traffic Generation	Peak Traffic Generation (trips/day)	Peak Hour Traffic Generation (trips/hour)	Notes
Nacelle	OSOM	November 2026 – January 2028	1 truck per week			deliveries (14 trips) on any working day. Trips would occur outside of peak hour.
Drive Train	OSOM	November 2026 – January 2028	1 truck per week			
Electrical						
BESS	OSOM	December 2027	2 trucks total	2	-	Trips would occur outside of peak hour.
Substations	OSOM	June 2027 – September 2027	8 trucks total	2	-	Trips would occur outside of peak hour.
Energy Segments	Semi-Trailer	September 2027 – January 2028	8 average daily trips	12	2	
Collector Segment	Semi-Trailer	September 2027 – January 2028	2 average daily trips	4	1	
Power Conversion System	Semi-Trailer	September 2027 – January 2028	2 average daily trips	4	1	
Transformers	Semi-Trailer	September 2027 – January 2028	2 average daily trips	4	1	
Underground Cabling	Semi-Trailer	July 2026 – June 2027	4 average daily trips	8	2	
Overhead Cabling	Semi-Trailer	March 2027 – October 2027	2 average daily trips	4	1	
BESS Cabling	Semi-Trailer	July 2027 – September 2027	2 average daily trips	4	1	
Construction Workforce						
Construction Workforce	Light vehicle	May 2026 – October 2028	156 average daily trips	256	128	Inbound and outbound trips to occur during each peak hour, respectively. 35 workers (approximately 9% of workforce will be housed off site). All the workforce staying on-site will arrive on Monday morning, with 70% leaving on Friday afternoon and the remaining 30% leaving at the conclusion of work on Saturday. Temporary accommodation workforce has assumed to carpool at a rate of 1.5 people per vehicle. Off-site workers will travel individually.

5.3.1 Water

Water used for batching, dust control and general use will be retrieved from the Project Area using 18m^3 water trucks (approximately the size of an 8.8m Medium Rigid Vehicle). Roughly 150m^3 of water will be required per foundation for each WTG. All these movements will be internal and will not impact the external road network.

Drinking water will be delivered once per day using an 18m^3 water truck for the duration of the construction period.

5.3.2 Quarried Materials

While gravel will be sourced from the two (2) proposed on-site borrow pits where possible, importation of quarried materials including gravel, aggregate and sand will be required for the construction of hardstands and WTG foundations and to support Project infrastructure including internal access roads, laydown areas and installation of electrical cabling.

To provide a worst-case assessment of traffic impacts, it has been conservatively assumed that 100% of gravel, aggregate and sand would be sourced externally from quarries within the surrounding region. However, if suitable gravel of sufficient quantities is confirmed to be available within the proposed borrow pits, the number of trips generated would likely reduce significantly. Additionally, it is anticipated that excavation material will be recycled where suitable, which will reduce the estimated traffic volumes upon confirmed geotechnical testing and construction procurement.

In discussion with local quarry operators, BWF has identified eight (8) regional quarries which could supply quarried materials including aggregates and sand for Project construction. Table 5.4 below provides details of the potential quarries, with quarry locations shown in Figure 5.1.

Each of the identified quarries holds relevant approvals for the extraction, processing and transport of quarry products to the State road network, in some cases, subject to hourly or daily trucking limits as set out in Table 5.4. All vehicle trips associated with the construction of the Project (i.e. Bullawah Wind Farm) would be carried out within the respective limits of the quarry approvals (where applicable).

A comprehensive traffic impact assessment has then been undertaken for the remainder of the journey, from the State road network to the Project. As indicated in Figure 5.1, quarry trucks may approach the Project via the Local Transport Route (via the Cobb Highway and Jerilderie Road) to the north west, via Willurah Road to the south west, or via Conargo Road to the north east.

Two (2) options for inbound and outbound routes are nominated near the Project, for the three (3) southern quarries, Option A involves:

- Inbound (quarry vehicles delivering material to the Project) - quarry vehicles would travel north along the Cobb Highway past Jerilderie Road, perform a U-turn at the Sturt Highway/Cobb Highway roundabout, and then return southbound to make a left turn into Jerilderie Road. This eliminates the need for a right-turn movement from the Cobb Highway onto Jerilderie Road, thereby removing the requirement for a turn warrant

assessment (i.e., no heavy vehicles would turn right from Cobb Highway onto Jerilderie Road).[4]

- Outbound (quarry vehicles departing the Project) - quarry vehicles would utilise internal access roads, Bullewah Road, North Boundary Road and then Jerilderie Road as required, and then turn left onto the Cobb Highway.

Alternatively, Option B requires:

- Inbound (quarry vehicles delivering material to the Project) - quarry vehicles would travel westbound along the Riverina Highway before turning right onto Conargo Road. Vehicles would then turn left onto Willurah Road to access the project area.
- Outbound (quarry vehicles departing the Project) - quarry vehicles would utilise Willurah Road southbound before turning right onto Conargo Road, then turning left onto the Riverina Highway.

For the five (5) quarries situated north-west of the Project Area inbound and outbound movements will be from (and to) the north via the Cobb Highway and Jerilderie Road, utilising North Boundary Road, Bullewah Road and internal access roads within the Project Area as required.

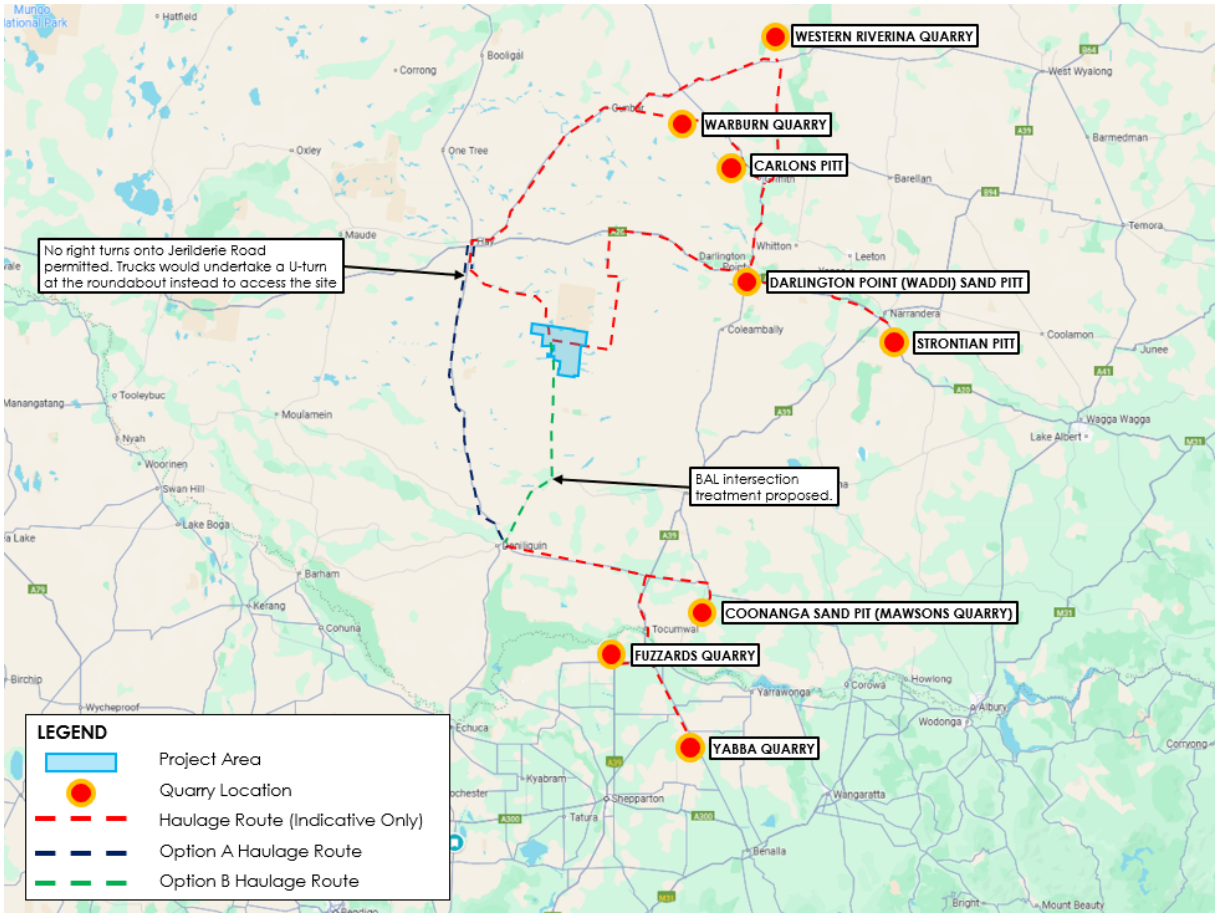
[4] It is noted BWF previously proposed limited right turn movements at this location. This is no longer proposed.

Table 5.5: Potential Quarry Locations

Quarry Name	Address	Approval Status	Resource	Approved Transport Route	Approved Trucking Limits	Operator
Western Riverina Quarry	439 Wiltshire Road, Rankins Springs, NSW	Expansion approved July 2024 under DA2022/029 DA2022/029-MOD1 (to increase extraction to 300,000 tonnes per annum (tpa) approved 20/11/2024. EPL 3767	Hard rock	DA2022/029 identifies the quarry's transport route to Mid-Western Highway only, where it was assumed that trucks could travel east (towards West Wyalong) or west (towards Goolgowi). From Goolgowi, trucks could then travel towards the Project via the Mid-Western Highway or Kidman Way.	Transportation of up to 300,000 tpa quarry products to end points of use within the Carrathool LGA and broader Riverina Region. EIS assumed maximum of 12 laden heavy vehicle movements per hour and 60 laden heavy vehicle movements per day.	Milbrae
Warburn Quarry	Stevenson Road, Tharbogang, NSW	DA 78/2023 approved 29 January 2024 and modified October 2024. DA 78/2023 (2) Modification - approved 27/09/2024 EPL 934	Hard rock	DA 78/2023 identifies the quarry's transport route via Stephenson Road and Brown Road to Kidman Way at Griffith. From Griffith, trucks could travel in any direction, including south to the Sturt Highway (and towards the Project).	Transportation of up to 250,000 tpa of quarry products via Stevenson Road to end points of use within the Griffith LGA and the broader Riverina Region. EIS assumed maximum of 60 laden trucks on any one day, and 12 during any one hour.	Milbrae
Carlons Pit	Lot 2, DP 1096699 Shaw Road, Tabbita, NSW	Development consent granted 1996	Hard Rock	The development consent does not limit routes of transport. It is assumed trucks would travel via Bringagee Road and Tabbita Lane and then towards the Project via Kidman Way.	Extraction of approximately 100,000 tpa. There are no limits on hourly or daily truck movements from the quarry.	Milbrae
Strontian Pit	Strontian Road, Gillenbah, NSW	DA-050-2020-2021 approved 30/09/2021	Sandstone, sand	DA-050-2020-2021 identifies the quarry's transport route to the Sturt Highway. From there, trucks could travel north (towards Narrandera and then on towards the Project) or south.	Extraction and processing of indurated sandstone material at an average rate of 100,000 tpa and a maximum of 125,000 tpa. EIS assumed extraction and processing operations would occur on a campaign basis, with approximately four campaigns required per year.	Milbrae
Darlington Point	Jim Cattanach Rd (off Kidman Way),	DA07-2-18/19 - Approved 16/06/2021 EPL 21567	Sand	Quarry transport is from Jim Cattanach Road via Kidman Way to the Sturt Highway. From there, trucks	Current EPL allows extraction and processing of 30,000 – 50,000	Milbrae

(Waddi) Sand Pit	Darlington Point, NSW			can travel towards the Project via Conargo Road.	tonnes per annum. No restrictions on truck movements.	
Yabba Quarry	1942 Marungi Rd, Waggarandall VIC 3646	WA325	Hard rock	Quarry transport is via Heavy Vehicle Route Performance Based Standards Level 1 (HVR-PBS1) network.	No restrictions on truck movements[1]	Mawsons
Fuzzards Quarry	Old Cobram, Berrigan Rd, Berrigan NSW 2712	DA 43/20/DA/DM - Approved 20/11/2019 EPL 21966	Hard rock	Old Cobram Road to Riverina Highway via Yarrawonga Road	25,000m^3 extraction limit[1]	Mawsons
Coonanga Sand Pit (Mawsons Quarry)	577 Bearii - Mywee Road, Strathmerton VIC	WA227	Sand	HVR-PBS1	No restrictions on truck movements[1]	Mawsons

Figure 5.1: Quarry Locations and Travel Routes



Map Source: Google Maps.

5.3.3 Wind Turbine Generator Construction

OSOM vehicles would be used for the transportation of the various components of the WTGs including blades, tower and turbine components between the port and the Project Area.

As discussed above, the Route Study and transport logistics associated with OSOM vehicles deliveries of WTG components to the Project Area has been prepared by Rex J Andrews Pty Ltd and subsequently updated as part of the Amendment Report. These studies have assumed a maximum 149 m tower and 100 m blade for each of the 141 proposed WTGs in respect of the Local Transport Route upgrades and a 148 m tower and 80 m blade in respect of the Port to Hay Transport Routes. The vehicle dimensions, road upgrades and traffic management measures associated with OSOM vehicle movements are set out in the Rex J Andrews report (Appendix A).

It is anticipated that one (1) turbine will be delivered per week. For each turbine, there will be three (3) OSOM vehicles required for the blades, seven (7) OSOM vehicles required for the tower, and one (1) OSOM vehicle each for the hubs, nacelle and drive train. This results in a total of 13 OSOM vehicles per week. Additional periodic OSOM deliveries will be required for the concrete batching plant, substations and BESS, in some cases, overlapping with WTG delivery days.

Overall, a maximum of seven (7) OSOM deliveries may occur per working day during peak construction. This equates to 14 OSOM trips (combined inbound and outbound) per working day. These vehicles will depart from the Port of Newcastle outside of the peak hour.

5.3.4 Electrical

The battery storage system will be transported at the beginning of Stage 2 (North) and will arrive on two (2) OSOM vehicles over the period of one (1) week.

Semi-trailers will be required to deliver energy segments, power conversion systems, transformers and cabling for the site during both stages of construction. These are expected to generate approximately 22 trips on average with a peak generation of 40 trips.

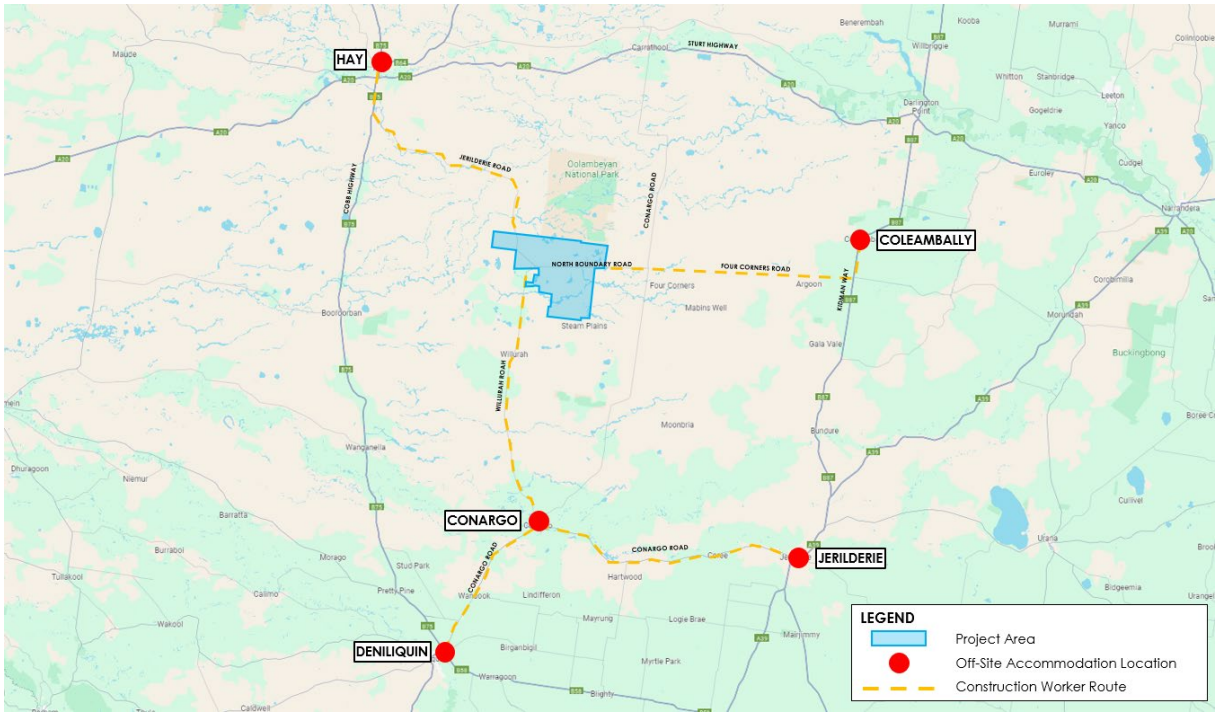
5.3.5 Construction Workers

Of the approximately 380 workers (FTE) expected on-site during peak construction, 35 workers (approximately 9%) are expected to be housed off-site (including workers living locally) with the remainder housed on-site. Off-site locations include:

- Hay (travelling via the Local Transport Route)
- Coleambally (via North Boundary Road/Four Corners Road)
- Deniliquin (via Willurah Road)
- Conargo (via Willurah Road).
- Jerilderie (via Willurah Road)

The routes for construction workers from these locations are shown below in Figure 5.2.

Figure 5.2: Potential Worker Locations



Map Source: Google Maps.

It is assumed that workers will travel to the site via private vehicle, noting the workforce would be encouraged to carpool.

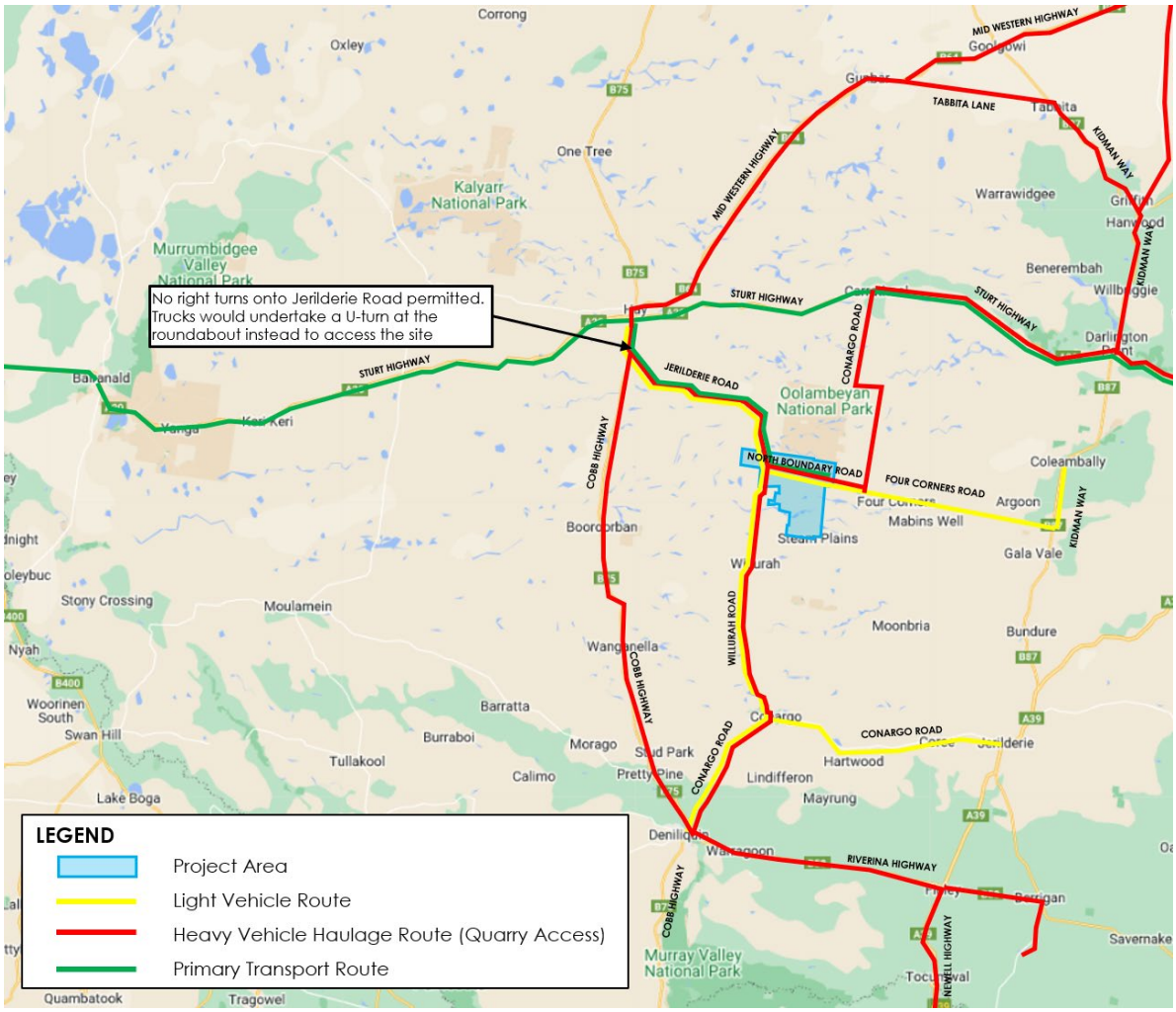
It is conservatively estimated that off-site workers will travel independently, with a vehicle occupancy of 1 person per car (i.e. 35 additional light vehicles during the AM and PM peak hour).

For on-site workers residing at the TWA, a conservative vehicle occupancy of approximately 1.5 people per car has been adopted to calculate the light vehicle traffic generation. It is assumed that workers would stay at the TWA site during the week, leaving the site on Friday and Saturday, and returning on Monday morning. It is estimated that 70% of the workforce will leave on Friday afternoon with the remaining leaving on Saturday afternoon. During peak construction, this results in approximately 254, 175, and 79 additional vehicles during the Monday AM peak, Friday PM peak and Saturday PM peak respectively based on the above assumption of 1.5 workers per car.

5.4 Project Routes

A map summarising all the indicative project routes is presented in Figure 5.3.

Figure 5.3: Indicative Travel Routes



Map Source: Google Maps.

The heavy vehicle route is expected to be used primarily by truck and dog vehicles hauling material to and from the quarry as explained in Section 5.3.2. Meanwhile light vehicles used by construction workers will use the light vehicle routes as per Section 5.3.5.

All remaining vehicles will use the primary transport routes, including the semi-trailers used for the electrical components of the project, the assorted heavy vehicles used for site establishment during pre-construction and all OSOM vehicles.

5.5 Estimated Traffic Generation of Construction Period

For the purpose of this assessment, a vehicle trip is defined in accordance with the *RTA Guide to Traffic Generating Developments (2002)* as a movement to or from the Project Area, so that inbound and outbound movements are calculated as two (2) separate trips. The average daily traffic generation has been calculated based on the assumptions and information set out in Section 5.2.

The average and peak volumes for each stage are provided in Table 5.6. It is noted that Stage 1 and Stage 2 do overlap; however, their respective peak construction periods do not coincide. As such, the overall assessment should not be based on the combined peak of both stages, but rather on the peak construction activity of the Project as a whole.

Table 5.6: Average and Peak Construction Traffic Generation

Vehicle Class	Daily Trips		Peak Hour Trips	
	Average Construction	Peak Construction	Average Construction	Peak construction
Stage 2 (North)				
Light	156	256	78	128
Heavy	138	282	14	30
OSOM	6	14	-	-
Total	300	552	92	158
Stage 1 (South)				
Light	178	280	87	140
Heavy	118	262	14	28
OSOM	6	14	-	-
Total	302	556	101	168
Overall (Overlap)				
Light	258	530	129	265
Heavy	196	528	22	56
OSOM	6	14	-	-
Total	460	1072	151	321

During the peak construction period of Stage 2 (North), there will be approximately 552 vehicle trips per day. This increases slightly to 556 vehicle trips per day during peak construction period of Stage 1 (South). For the overall peak construction period of the project

there will be approximately 1,072 vehicle trips per day. Heavy vehicle traffic accounts for approximately half of vehicle trips generated.

It is also noted that the daily trips and peak hour trips for light vehicles have been assessed for a Monday when a majority of the workforce arrives, on other days the light vehicle traffic is expected to reduce by up to 90% except for Fridays and Saturdays where it will reduce by approximately 37% and 73%, respectively.

While it is unlikely that peak activity for each of the construction activities and material deliveries are to occur simultaneously, Table 5.6 shows the potential peak activity of component occurring simultaneously. This is considered to be the worst-case scenario assessment and in reality, this scenario is likely to occur infrequently, if at all.

Based on Figure 4.4, Table 5.3, and Table 5.4 the AM and PM peak trip generation has been estimated for each month of the project. It is noted that the AM peak shown in Figure 5.4 is specifically Monday morning when a majority of the workforce arrives at the site and the PM peak shown in Figure 5.5 is specifically Friday afternoon when a majority of the workforce leaves the site. During the other days, light vehicle traffic is not expected to contribute more than 26 vehicles to the peak hour trip generation.

It is also highlighted that this has been estimated using the peak construction hourly volumes for each staging month and realistically the heavy vehicle volumes are likely to be a lot less.

OSOM vehicles are not expected to contribute to the trip generation during the AM and PM peak hour and will be scheduled to arrive outside these hours.

Figure 5.4: Monday AM Peak Trip Generation

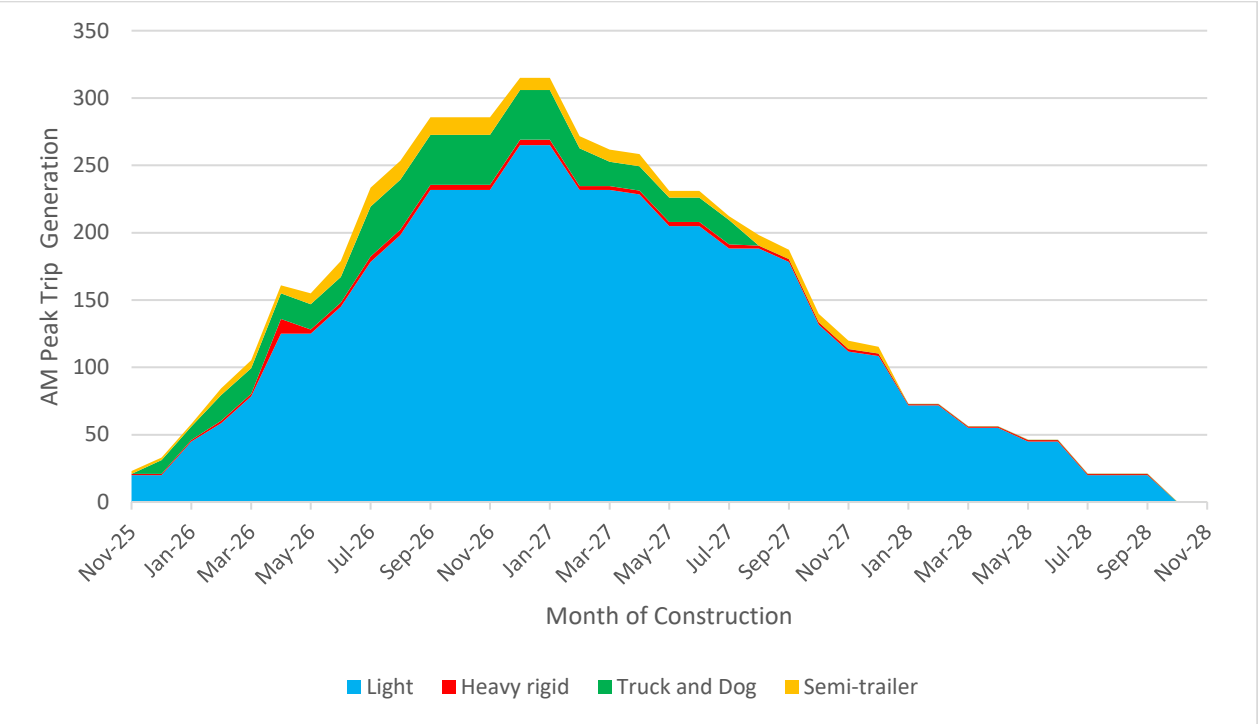
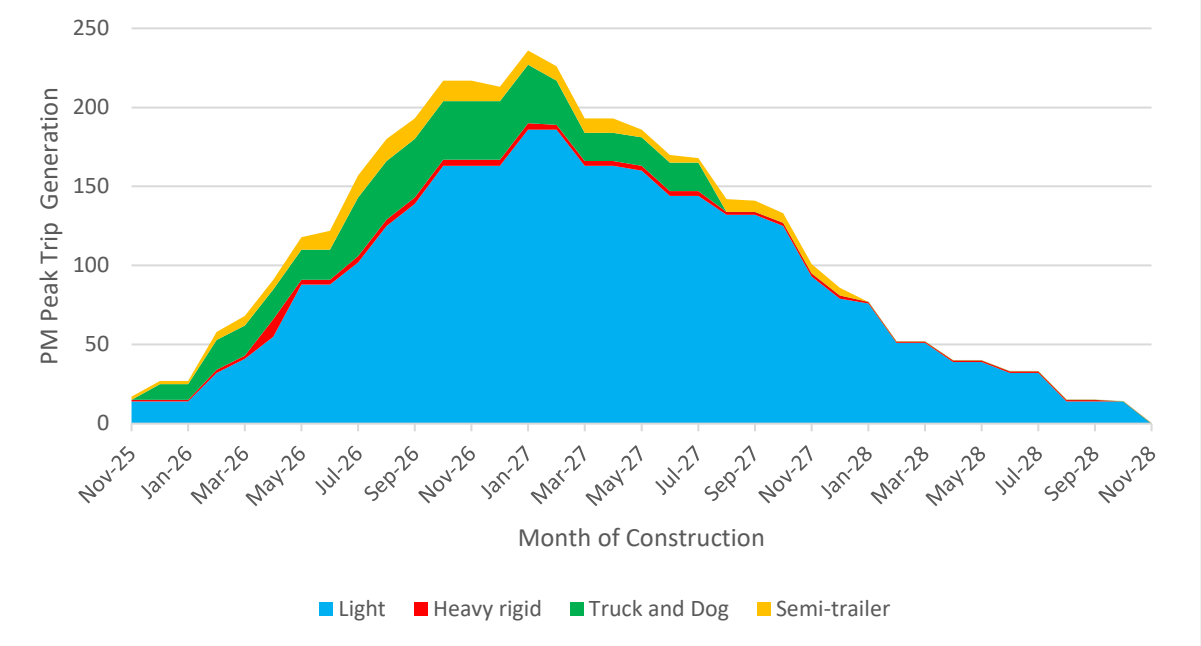
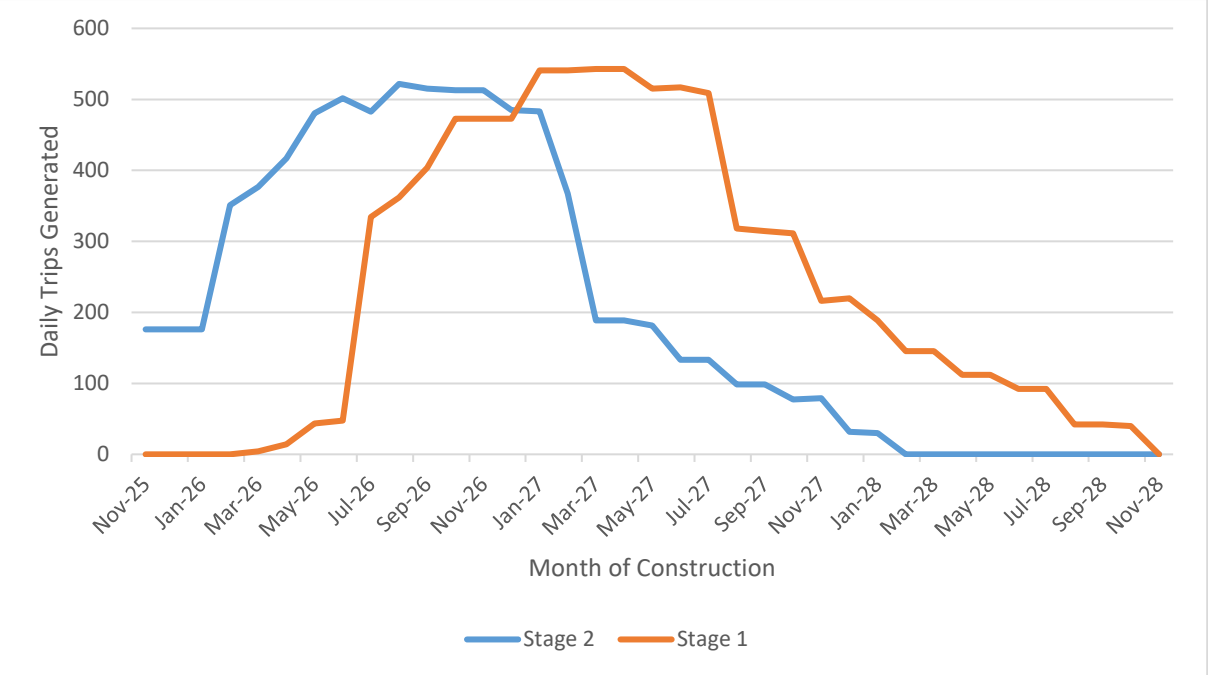


Figure 5.5: Friday PM Peak Trip Generation



The Stage 1 peak is not expected to overlap with the Stage 2 peak and has been arranged to efficiently make use of the available resources. Figure 5.6 shows a comparison of the expected peak daily trips generated for each month of construction for Stage 1 and Stage 2.

Figure 5.6: Stage 1 and 2 Daily Trip Generation

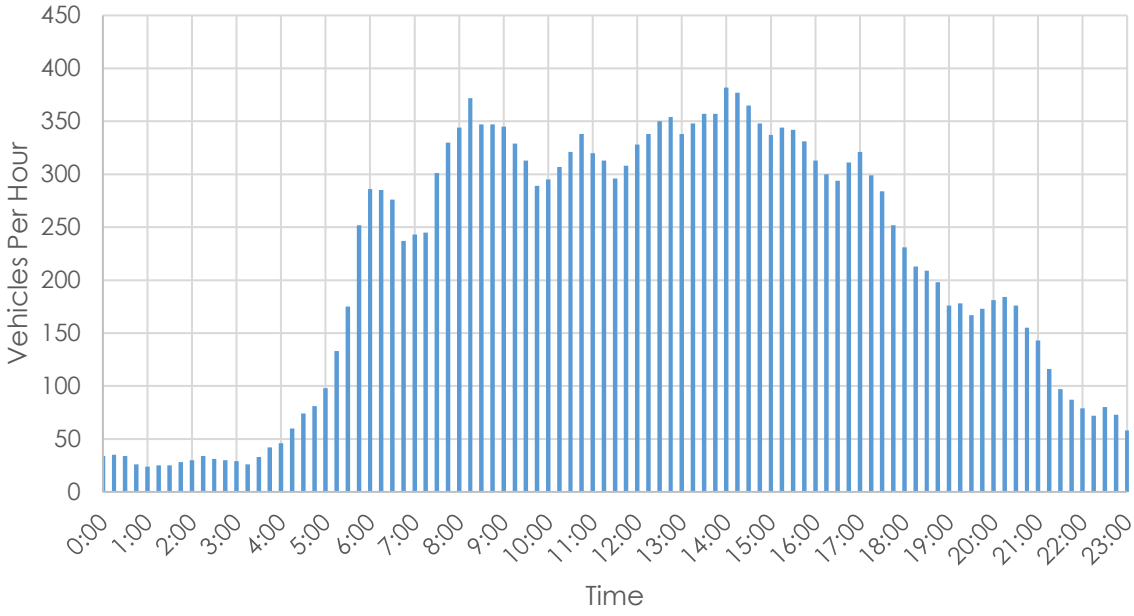


5.6 Construction and Network Peak

As evident from the existing traffic volume assessment in Section 3.6, traffic volumes are generally low across the network especially along the local roads near the site such as Conargo Road, Willurah Road, Jerilderie Road and North Boundary Road.

Figure 5.7 presents the traffic volumes across a 24-hour period of the Sturt Highway and Cobb Highway intersection recorded on Thursday 28 February 2024. This intersection experiences the highest volumes in the network and serves as a key point along the Project's primary transport route.

Figure 5.7: Sturt Highway and Cobb Highway Hourly Vehicle Flows



As evident, the weekday AM peak is between 8am and 9am although traffic remains elevated from 6:00am. Meanwhile, the weekday PM peak is between 2pm and 3pm with traffic remaining high until approximately 6pm. The expected project weekday AM peak is between 6:00am and 7:00am when most workers will arrive-on site, whilst the expected weekday PM peak is between 5:30pm and 6:30pm.

When examining the construction impacts to the traffic, the network peak volumes for each intersection has been used to establish the existing traffic conditions rather than the Project peak. This results in a conservative assessment on the expected impact of the generated traffic; however, it is noted that the existing traffic is relatively minor compared to the traffic generated by the Project and the nearby developments.

5.7 Operational Traffic

Once operational, the Project will operate 24 hours per day seven (7) days a week. The WTGs will be monitored remotely; however, regular maintenance will be required.

During the operational phase of the Project, it is estimated that the Project would employ up to 40 on-site workers who would access the site by car / utility vehicles.

The occasional heavy vehicle would be required for the delivery of parts for a repair to the WTGs.

Given the low traffic flows present on the Local Transport Route, the minor additional traffic generated by the Project during the operational phase can be readily accommodated by

the road network, and as such no further assessment or operational-specific mitigation measures are required.

5.8 Decommissioning

The WTGs have an expected operating life of approximately 30 years and the agreements with the host landholders provide for the operations to continue for 30 years. At the end of that 30 year period, three (3) options will be considered:

- continued use of the Project Area as a wind farm and battery storage utilising the existing WTGs and other facilities (subject to contractual agreement with the host landholders and condition of equipment)
- replace the WTGs and battery storage with technology current at that time and continue the wind farm and battery storage operation for a further term (subject to contractual agreement with the host landholders and further development consent)
- decommission the wind farm and battery storage and remove the WTGs and other infrastructure.

The decommissioning phase would require similar equipment and activities to the construction phase including mobile and heavy equipment (e.g. cranes, earthworks machinery, compressor and rock crusher). However, the decommissioning phase would generate fewer traffic movements than the construction phase, and over a shorter period of time.

Prior to the commencement of decommissioning activities, BWF would prepare a detailed decommissioning plan, incorporating a TMP, in consultation with DPHI and the relevant Councils to guide the implementation of the decommissioning works.

6 Construction Impacts

6.1 Road Network Capacity

A mid-block capacity assessment has been used in this study to assess the impact of the Project on road capacity and performance. This approach is considered to be appropriate given the rural location of the Project where intersections are less frequent, and as such, are less of a determinant of rural road capacity (RMS, 2002). Further details on the performance indicators and lane capacity assumptions used in the assessment are provided below.

For the purposes of this section, the 'study area' comprises:

- The Sturt Highway, which forms the southernmost section of the Port to Hay Transport Routes
- Cobb Highway, Jerilderie Road and North Boundary Road, which form the Local Transport Route
- Conargo Road and Willurah Road, which may be utilised as an alternative route for quarried material and off-site workers.

Section 5.2 of *Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis* specifies the capacity for a two-lane highway to be 1,700 passenger car units per hour (pcu/h) for each direction of travel. Accordingly, a capacity of 1,700 pcu/h for each direction of travel has been adopted for two-lane highways in the study area, including Cobb Highway (A75) and Sturt Highway (A20).

In accordance with the *Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis*, heavy vehicles have been considered to be equivalent to two passenger cars.

Local unsealed roads have reduced capacity resulting from lower vehicle operating speeds (due to factors such as reduced vehicle control) and increased headways between vehicles (due to factors such as dust). As such, a capacity of 1,000 pcu/h for each direction of travel has been conservatively assumed for unsealed local roads in the study area, including Jerilderie Road, North Boundary Road and Conargo Road.

The criteria for evaluating road performance used in this study is Level of Service (LoS). Table 6.1 outlines the LoS categories and definitions provided in Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis (Austroads, 2017). LoS is a qualitative measure that describes the operational conditions within a traffic stream and the perception of these by motorists and / or passengers. LoS ranges from A (best) to F (worst).

In rural areas, LoS C can be considered a minimum desirable standard; a deterioration of the LoS under this level would imply that remedial measures to maintain the existing LoS should be sought. In this study, LoS has been determined using the volume-to-capacity (V/C) ratios outlined in the *Guide to Traffic Management Part 3: Traffic Studies and Analysis (Austroads, 2020)* and the *Highway Capacity Manual 2010 (Transportation Research Board, 2010)*.

Table 6.1: Level of Service Definitions and Criteria for Mid-block Sections

Level of Service	Description	Volume-to-capacity (V/C) Threshold*
A	LOS A is a condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.	0.32
B	LOS B is in the zone of stable flow and drivers still have reasonable freedom to select their desired speed and to manoeuvre within the traffic stream, although the general level of comfort and convenience is little less than that of the Level of Service A.	0.50
C	LOS C is also in the zone of stable flow, but most drivers are restricted to some extent in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience declines noticeably at this level.	0.71
D	LOS D is close to the limit of stable flow but is approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.	0.91
E	LOS E occurs when traffic volumes are at or close to capacity and there is virtually no freedom to select desired speeds or to manoeuvre within the traffic stream. Flow is unstable and minor disturbances within the traffic stream will cause a traffic-jam	1.00
F	LOS F describes unstable flow. Such conditions exist within queues forming behind bottlenecks. The projected flow rate can exceed the estimated capacity of a given location. Flow break-down occurs and queuing and delays result.	>1.00

Source: Guide to Traffic Management Part 3: Traffic Studies and Analysis (Austroads, 2020)
** Based on a free-flow speed of 100km/h*

6.2 Annual Background Traffic Growth

The annual background traffic growth rate used in this assessment has been estimated based on the average growth in Annual Average Daily Traffic (AADT) observed on key roads within the study area. This data has been obtained from the TfNSW Traffic Volume Viewer.

There are two (2) permanent classifiers that have operated in the vicinity of the Project Area one (1) located on the Sturt Highway between Darlington Point and Narrandera, and one (1) on the Newell Highway at Jerilderie. The data obtained is presented in Table 3.6.

Table 6.2: Annual Background Traffic Growth

Road	Direction	Annual Background Traffic Growth		
		Light	Heavy	Total
Sturt Highway (A20)	Eastbound	1.3%	5.0%	2.7%
	Westbound	1.7%	4.7%	2.9%
	Total	1.5%	4.8%	2.8%

Newell Highway (A39)	Northbound	-0.1%	1.8%	0.6%
	Southbound	-0.1%	1.6%	0.6%
	Total	-0.1%	1.7%	0.6%

Source: TfNSW Traffic Volume Viewer

In the absence of historical data for Jerilderie Road, Willurah Road, North Boundary Road and Conargo Road it has been conservatively assumed that the annual background traffic growth is based on the closest road with available data (Newell Highway (A37)).

Based on preliminary advice from TfNSW received prior to the formal revision of this Amended TIA, an annual background traffic growth rate of 1.5% was applied to the Cobb Highway, as was confirmed by Umwelt in its 30 May 2025 response to preliminary queries letter. This rate supersedes the previously assumed 0.6% per annum, which was based on Newell Highway growth rates. The updated growth rate has been applied to traffic volumes used in the intersection capacity assessments and turn warrant analyses associated with the Project and generally adds no more than one vehicle to any particular movement on Cobb Highway, as indicated in the network diagrams provided in Appendix E.

Based on the construction staging and duration in Section 4.4, 2028 is the latest that construction traffic is expected to be generated. Therefore, a five (5) year time-frame was used when assessing traffic capacity. In ten years, the project will be operational and be generating significantly less traffic, so it is deemed redundant to use this time frame.

6.3 Traffic Distribution Assumptions

For the purposes of this traffic assessment, and as the specific location for quarries has not been determined, it has been conservatively assumed that each potential route identified in Section 5 will be assessed with the total peak hour volume of project traffic applied. Realistically, this traffic will be split amongst these different routes but at this stage in the project this information is not available.

Furthermore, it has been assumed that heavy vehicle traffic will be split 50:50 between inbound and outbound trips during the peak hour. Light vehicles (workers arriving and departing) have been assumed to all arrive during the AM peak and depart during the PM peak.

The distribution of worker routes has been estimated by BWF and is shown in Table 6.3 below.

Table 6.3: Construction Worker Locations and Travel Routes

Worker Type	Distribution			
	North (Hay)	South (Conargo and Deniliquin)	East (Coleambally)	Southeast (Jerilderie)
Temporary accommodation workers	25%	30%	30%	15%
Offsite workers	30%	30%	30%	10%

6.4 Cumulative Traffic Assessment

NSW Government – EnergyCo seeks to maximise opportunities created by the transformation of the NSW electricity system by coordinating investment in Renewable Energy Zones (REZs) across NSW. A REZ is the equivalent of modern-day power stations, combining new renewable energy infrastructure, including generators (such as solar and wind farms), storage (such as batteries and pumped hydro) and then high-voltage transmission infrastructure. Five (5) dedicated REZs have already been identified in NSW.

The Project is located wholly within the South West REZ. Because of this, and the REZ benefits anticipated by NSW Government – EnergyCo, the South West REZ has the potential to see strong interest for renewable energy development.

6.4.1 Port to Hay Transport Routes

As the Amended Project now includes the Port to Hay Transport Routes and associated off-site works required to facilitate OSOM deliveries for the Project, an assessment of cumulative impacts has been undertaken to assess cumulative traffic impacts on the Port to Hay Transport Routes.

To avoid an overly exhaustive list of projects, and to ensure the approach to understanding potential cumulative impacts stayed targeted to relevant projects, a screening process was undertaken which involved the following steps:

- A preliminary review of all listed SSD projects on the NSW Major Projects Planning Portal across all 36 LGAs in NSW which the Port to Hay Transport Routes intercept. This resulted in a preliminary list of approximately 1000 major projects.
- Refinement of the original project list via project type and status (for example, filtering out projects which have not progressed far through the NSW planning approvals process and do not have an EIS and associated traffic and transport impact assessment publicly available for review, projects that will generate no or minimal heavy vehicle traffic during construction, and projects which are already in operation or have been inactive for more than five (5) years).
- The screening process then focused on Projects with overlapping construction timeframes, and potential for cumulative traffic impacts associated with overlapping transport routes and proposed OSOM or heavy vehicle movements.
- Consultation with relevant Councils along the Port to Hay Transport Routes. The Councils did not identify any additional projects requiring consideration.

The screening process resulted in a list of 35 remaining projects with potential for cumulative traffic and transport-related impacts. Of these projects, 10 were previously identified within the Project EIS and previous TIA (July 2024), being:

- Dinawan Solar Farm (SSD-50725959)
- Dinawan Wind Farm (SSD-50725708)
- Baldon Wind Farm (SSD-40138508)

- Pottinger Wind Farm (SSD-59235464)
- The Plains Wind Farm (SSD-50629707).
- Yanco Delta Wind Farm (SSD-41743746).
- Argoon Wind Farm (SSD-64935522).
- Tchelery Wind Farm (SSD-59701722).
- Conargo Wind Farm (SSD-70611708).
- Booroorban (Saltbush) Wind Farm (SSD-70636459)

Further discussion regarding potential cumulative traffic and transport-related impacts for each project is provided in Table 6.4.

Table 6.4: Port to Hay Transport Routes – Cumulative Impact Assessment

Project[1]	SSDA Number	LGA(s)	Status (February 2025)	Construction Timeframe	Potential for Cumulative Impacts
Baldon Wind Farm	SSD-40138508	Hay	Response to Submissions	4 years; commencing Q4 2025 subject to approval; staging option included	There is potential for construction of both projects to overlap. The construction period is expected to commence in Q4 of 2025 and would take approximately 3.5 years, with the peak construction period expected to occur between months 9 to 24. Traffic generated from both projects may interact within the town of Hay.
Birriwa Solar Farm	SSD-29508870	Warrumbungle	Determination (Approved August 2024)	28 months; construction dates not specified	There is the potential for construction of both projects to overlap. While the construction dates have not yet been specified, the project was approved in August 2024 with construction expected to take approximately 28 months. Cumulative traffic impacts are possible along the two proposed transport routes for this project from Newcastle via the Golden Highway and Sydney via Castlereagh Highway, with both projects proposing OSOM vehicle movements. It is anticipated that approximately 75% of all heavy vehicle movements to and from the site will be from Newcastle with the remaining 25% to and from Sydney.
Bowmans Creek Wind Farm	SSD-10315	Muswellbrook; Singleton; Upper Hunter	Determination (Approved February 2024)	18 months; construction dates not specified	There is the potential for construction of both projects to overlap. While the construction dates have not been specified, the project was approved in February 2024, with construction expected to take approximately 18 months. As such, it is likely that the construction phase of this project and the Amended Project may overlap in 2026. Cumulative impacts to traffic are possible along the proposed transport route for this project from the Port of Newcastle to the intersection between the New England Highway and Golden Highway in Whittingham, involving OSOM vehicle movements.
Burrendong Wind Farm	SSD-8950984	Dubbo Regional	Response to Submissions	18-24 months; construction to commence 1-5 years following project approval	This project is currently at the Response to Submissions phase, following the submission of the EIS in November 2023. Construction is anticipated to take approximately 18-24 months, and is likely to commence between 1-5 years following project approval. There is the potential for the construction phases of both projects to overlap, including possible cumulative traffic impacts involving OSOM vehicle movements along the proposed transport route for this project from the Port of Newcastle (two routes via the Golden Highway – Routes 2A and 2B).

Project[1]	SSDA Number	LGA(s)	Status (February 2025)	Construction Timeframe	Potential for Cumulative Impacts
Burroway Solar Farm	SSD-55968733	Narromine	Response to Submissions	18 months; construction to commence in the 2026/2027 financial year	This project is currently at the Response to Submissions phase, following the submission of the EIS in April 2024. If approved, construction is anticipated to take approximately 18 months and would commence in the 2026/27 financial year. Cumulative traffic impacts are possible along the proposed transport route from the Port of Newcastle via the Golden Highway. However, cumulative impacts would likely be minor or negligible given only six (6) OSOM vehicle movements are proposed across all project phases.
Central-West Orana REZ Transmission	SSI-48323210	Dubbo Regional; Upper Hunter; Warrumbungle	Determination (Approved June 2024)	33 months; initial construction timeframes from Q3 2024 to Q1 2027	There is the potential for construction of both projects to overlap. Construction of this project is expected to take approximately 33 months, with initial construction timeframes in the EIS identified as being from Q3 of 2024 to Q1 of 2027. However, these timeframes are likely to be pushed back given the approval of this project in June (Q2) 2024, allowing for greater crossover with the proposed construction timeframe of the Amended Project. Cumulative traffic impacts are possible along the proposed transport route from the Port of Newcastle via the Hunter Expressway and Golden Highway, a route that has been pre-approved for OSOM vehicle transport.
Coppabella Wind Farm	SSD-6698	Hilltops; Yass Valley	Determination (Mod-1 approved December 2018)	24-36 months; construction to commence in 2025	There is the potential for the construction phases of both projects to overlap. This project was initially approved in March 2026 and was last modified in December 2018. According to the project website, construction of this project is expected to commence in 2025 and is estimated to take 24-36 months, therefore overlapping with the proposed construction timeframes of the Amended Project. There is the potential for cumulative traffic impacts along the proposed transport route from Port Kembla via the Hume Highway, associated with the use of OSOM vehicles for both projects.
Dalswinton Sand and Gravel Quarry	SSD-9094	Muswellbrook Shire	Assessment	Construction dates and timeframes not specified	This project is currently under assessment. While the construction dates and timeframes have not yet been specified, construction timeframes have the potential to overlap with the Amended Project. Cumulative traffic impacts are possible along the proposed transport routes for this project via the Golden Highway, involving the use of OSOM vehicles.
Daroobalgie Solar Farm	SSD-10387	Forbes	Determination (Approved June 2024)	12-18 months; construction likely to commence in 2025/26	There is the potential for the construction phases of both projects to overlap. This project was approved in June 2024, with construction likely to commence in 2025/26 across a period of 12-18 months. Cumulative traffic impacts are possible along a section of the proposed transport routes from Port Botany, the Port of Newcastle, or Port Kembla. However, any impacts would likely be minor, given

Project[1]	SSDA Number	LGA(s)	Status (February 2025)	Construction Timeframe	Potential for Cumulative Impacts
					there are 18 OSOM vehicle movements proposed across all phases of this project.
Dinawan Solar Farm	SSD-50725959	Murrumbidgee	Assessment	18-36 months; likely commencing in 2025	This project is currently under assessment, with construction likely to commence in 2025 over a period of 18-36 months, if approved. There is the potential for the construction phases of both projects to overlap from 2026 onwards. This project proposes to utilise similar transport routes to the Amended Project from the Port of Newcastle and the Port of Adelaide. There is the potential for cumulative traffic impacts as both projects propose the use of OSOM vehicles along these routes.
Dinawan Wind Farm	SSD-50725708	Murrumbidgee	Response to Submissions	36 months (or 60 months allowing for overlap between stages)	This project is currently at the response to submission stage, and while dates have not been specified, construction is likely to take approximately 36 months. As such, there is the potential for the construction phase of both projects to overlap. There are two OSOM transport routes proposed for this project from the Port of Newcastle, creating the potential for cumulative traffic impacts along these routes.
Eraring Battery Energy Storage System	SSD-15950052	Lake Macquarie City	Determination (Approved August 2023)	36-54 months (Across three separate stages) including Stage 1 (2025), Stage 2 (2026-2027) and Stage 3 (TBC)	This project was approved in august 2023, with construction to occur across three separate stages over a period of 36-54 months. There is the potential for the construction phase of the Amended Project to overlap with this project across Stages 2 and 3 from 2026 onwards. Cumulative traffic impacts are also possible along the proposed transport route from the Port of Newcastle, which would involve the use of OSOM vehicles.
Goulburn River Solar Farm	SSD-33964533	Upper Hunter	Determination (Approved August 2024)	27 months; construction initially projected to commence in early 2025)	This project was approved in August 2024, with construction expected to occur over a period of 27 months commencing in early 2025. There is the potential for the construction phases of both projects to overlap from 2026 onwards. Cumulative traffic impacts are possible along the proposed transport route from the Port of Newcastle, involving the use of OSOM vehicles.
Gregadoo Solar Farm	SSD-8825	Wagga Wagga	Response to Submissions (Approved in December 2018; Mod-4 currently at the RtS phase)	12-18 months; construction to commence in 2025	This project was initially approved in December 2018, with Mod-4 currently at the Response to Submissions stage. Construction is expected to commence in 2025 over a period of 12-18 months, creating the potential for the construction phases of both projects to overlap in 2026. OSOM vehicle movements are also proposed

Project[1]	SSDA Number	LGA(s)	Status (February 2025)	Construction Timeframe	Potential for Cumulative Impacts
					along a portion of the proposed transport route from Port Botany, allowing for the potential for cumulative traffic impacts.
Gundary Solar Farm	SSD-48225958	Goulburn Mulwaree	Response to Submissions	18-24 months; construction commencing Q4 2025/Q1 2026	There is the potential for the construction phases of both projects to overlap. This project is currently at the Response to Submissions stage, with construction expected to commence in Q4 of 2025 or Q1 of 2026 if approved for a period for a period of 18-24 months. Cumulative impacts to traffic are also possible along the proposed transport routes from Port Botany or Port Kembla along the Hume Highway, however these impacts would likely be minor given there are only 10 OSOM vehicle movements proposed across all phases of the project.
Hills of Gold Wind Farm	SSD-9679	Upper Hunter	Determination (Approved September 2024)	18-24 months; construction likely to commence in 2025/2026	There is the potential for the construction phases of both projects to overlap. This project was approved in September 2024, with construction likely commencing in 2025 or 2026 across a period of 18-24 months, overlapping with that of the Amended Project. Cumulative traffic impacts are possible along the proposed transport route from the Port of Newcastle, involving the use of OSOM vehicles.
HumeLink	SSI-36656827	Cootamundra-Gundagai Regional; Goulburn Mulwaree; Upper Lachlan; Wagga Wagga; Yass Valley	Determination (Approved November 2024)	30 months; construction to commence in 2025	This project was approved in November 20254 and spans across five (5) LGAs. Construction is proposed to commence in 2025 over a period of 30 months, creating the potential for the construction phases of both projects to overlap. Cumulative traffic impacts are possible along the proposed transport route from the Port of Newcastle, involving the use of OSOM vehicles.
Junction Rivers Wind Farm (formerly Burrawong Wind Farm)	SSD-30448824	Murray River	Response to Submissions	48 months; construction to commence within 6 months of project approval	This project is currently at the Response to Submissions stage. Construction is projected to occur over a period of 48 months, with construction dates yet to be specified. Cumulative impacts to traffic are possible along the proposed transport route from Port Adelaide, involving the use of OSOM vehicles.

Project[1]	SSDA Number	LGA(s)	Status (February 2025)	Construction Timeframe	Potential for Cumulative Impacts
Keri Keri Wind Farm	SSD-38358962	Murray River	Response to Submissions	24 months; construction commencing in late 2027	This project is currently at the Response to Submissions stage, with construction expected to commence in late 2027 subject to approvals over a period of 24 months. The construction phases of both projects have the potential to overlap in 2028. Cumulative traffic impacts are likely along the proposed transport routes from the Port of Newcastle and the Port of Adelaide, given the similar nature and location of each project and the use of OSOM vehicles for each project.
Kyoto Wind Farm (now known as Upper Hunter Energy Park)	MP06_0055	Muswellbrook; Upper Hunter	Determination (Approved January 2010)	20 months; construction period between 2025-2027	This project was originally approved in January 2010. According to the project website, this project was formerly known as Kyoto Wind Farm and is now known as the Upper Hunter Energy Park. Construction is expected to commence in late 2025 and be completed in 2027 across a period of 20 months, creating the potential for the construction phases of both projects to overlap in 2027. Cumulative traffic impacts are also possible along the proposed transport route from the Port of Newcastle, involving the use of OSOM vehicles. It should be noted however, that the traffic assessment prepared for this project EIS dates from 2008.
Liverpool Range Wind Farm	SSD-6696	Upper Hunter; Warrumbungle	Determination (Approved in March 2018; last modified in October 2024)	36 months; construction dates not specified	There is the potential for the construction phases of both projects to overlap. While construction dates have not been specified, construction is expected to take place across a period of 36 months. Cumulative traffic impacts are possible along the proposed transport route from the Port of Newcastle, involving the use of OSOM vehicles.
Marulan Solar Farm	SSD-13137914	Goulburn Mulwaree	Determination (Approved August 2023)	18 months; construction expected to commence in 2025	There is the potential for the construction phases of both projects to overlap. This project was approved in August 2023, with construction expected to commence in 2025 over a period of 18 months. The proposed transport route for this project from Port Botany along the Hume Highway overlaps with the proposed transport route for the Amended Project. However, cumulative traffic impacts are considered unlikely or negligible given there are only three (3) OSOM vehicle movements proposed across all stages of the project.
Maryvale Solar Farm	SSD-8777	Dubbo Regional	Determination (Approved December 2019; last modified in December 2023)	14 months; construction to commence in early 2025	This project was last modified in December 2023, with construction expected to commence in early 2025 for a period of 14 months. As such, the construction phases of both projects are possible, though unlikely to overlap. Cumulative traffic impacts are therefore also possible along the proposed transport routes from the Port of Newcastle or Port Botany involving the use of OSOM vehicles,

Project[1]	SSDA Number	LGA(s)	Status (February 2025)	Construction Timeframe	Potential for Cumulative Impacts
					however this is also considered unlikely given the proposed construction timeframe.
Pottinger Wind Farm	SSD-59235464	Hay	Assessment	55 months; dates not specified	This project is currently under assessment, with a proposed construction timeframe of 55 months. Although construction dates have not been specified, the construction phases of both projects are likely to overlap given the long construction timeframe. In terms of traffic, there is potential for interactions along the transport route from the Port of Adelaide involving OSOM vehicle movements. However, as this project elects a route from Port of Adelaide via Broken Hill, interactions are expected to be limited.
The Plains Wind Farm	SSD-50629707	Hay	Response to Submissions	40 months; commencing Q1 2027	The construction phases of both projects are likely to overlap. Construction is expected to commence in Q1 2027 across a period of 40 months, subject to approval. This project proposes a to utilise a transport route from the Port of Adelaide, using a different route from the Amended Project. However, the proposed transport route is still subject to review and therefore cumulative traffic impacts are still possible including through OSOM vehicle interactions.
Sandy Creek Solar Farm	SSD-41287735	Dubbo Regional; Warrumbungle	Assessment	22-28 months; construction to commence in Q2 2026	There is the potential for the construction phases of both projects to overlap. Subject to approval, construction of this project is expected to commence in Q2 2026 over a period of 22-28 months, with similar timeframes to the Amended Project. The project proposes a transport route for OSOM vehicles from the Port of Newcastle, however cumulative traffic impacts are likely to be negligible given only occasional OSOM vehicle movements are proposed.
Spicers Creek Wind Farm	SSD-41134610	Dubbo Regional; Warrumbungle	Determination (Approved in October 2024)	40 months; early works commencing in 2025	There is the potential for the construction phases of both projects to overlap. This project was approved in October 2024, with early works commencing in 2025 and an overall construction period of approximately 40 months. OSOM vehicle movements are expected along the proposed transport route from the Port of Newcastle, creating the potential for cumulative traffic impacts.
Muswellbrook Solar Farm	SSD-46543209	Muswellbrook	Recommendation	31 months; construction commenced in Q3 2024	There is the potential for the construction phases of both projects to overlap. Construction of this project commenced in Q3 2024 and is anticipated to take approximately 31 months. There is the potential for cumulative traffic impacts along sections of the proposed transport route from Melbourne to Muswellbrook, specifically

Project[1]	SSDA Number	LGA(s)	Status (February 2025)	Construction Timeframe	Potential for Cumulative Impacts
					between Dubbo and Muswellbrook along the Golden Highway, given both projects propose OSOM vehicle movements along this route.
Uungula Wind Farm	SSD-6687	Dubbo Regional	Determination (Approved May 2021; last modified in December 2022)	24-30 months; project currently at the 'early works and design' phase	This project is currently at the early works and design phase, with construction works to occur over a period of 24-30 months. There is the potential for cumulative impacts to traffic along the proposed transport route from the Port of Newcastle, involving the use of OSOM vehicles.
Valley of the Winds Wind Farm	SSD-10461	Warrumbungle	Assessment	24-42 months; construction initially anticipated to commence from Q1 2023	The EIS for this project identifies that construction was initially expected to commence in Q1 2023 over a period of 24-42 months. However, given the project is still currently under assessment, there is the potential for the construction phases of both projects to overlap. Cumulative traffic impacts are also possible along the proposed transport route from the Port of Newcastle along the Golden Highway, involving the use of OSOM vehicles.
Yanco Delta Wind Farm	SSD-41743746	Edward River	Determination	Three years. Estimated completion 2028.	Construction periods between the two projects are likely to overlap, however the projects do not share common transport routes. The approved transport route for the Yanco Delta Wind Farm project includes transport of WTG components from the Port of Geelong. There is a potential overlap for portions of the Sturt Highway, however, results of the traffic capacity analysis in Section 6.5 indicates that there is available capacity along all roads used by the Projects in each direction, which suggests that cumulative construction traffic and transport-related impacts are unlikely and able to be accommodated. No cumulative operational traffic impacts are anticipated. Residual cumulative impacts are considered acceptable with the application of mitigation and management measures presented in Section 7 and Appendix 2 of the Amendment Report

1. Argoon Wind Farm (SSD-64935522), Tchelery Wind Farm (SSD-59701722), Conargo Wind Farm (SSD-70611708) and Booroorban (Saltbush) Wind Farm (SSD-70636459) were identified within the EIS CIA. These projects are at the 'Prepare EIS' stage of the NSW planning approval process, and as such there is limited publicly available information to inform the assessment of potential cumulative traffic and transport-related impact resulting from these projects. Given the difference in project status, it is also expected that peak construction periods for both projects are unlikely to overlap. As such, these projects were not considered further within assessment.

Overall, these findings are generally consistent with those presented in the previous TIA. While there is potential for construction traffic interactions to occur along the Port to Hay Transport Routes, these potential conflicts can be appropriately managed through ongoing consultation with key stakeholders (including TfNSW) and the development of a detailed Traffic Management Plan. Additionally, it is noted that the inclusion of Port Adelaide Route Options in the Amended Project may assist in mitigating cumulative impacts, by providing an alternative in the event that traffic congestion from the Port of Newcastle becomes an issue.

6.4.2 Local Transport Route

As identified in Section 3.7, there are several solar and wind farms either proposed, approved or under construction in the vicinity of the Project. Most are proposed with limited or no publicly available information regarding traffic generation or the timing of peak construction periods.

Due to the proximity and number of these proposed projects, there is expected to be some potential overlap of construction traffic particularly along the Sturt Highway and the towns of Hay and Deniliquin.

In addition, the Pottinger Solar Farm, Pottinger Wind Farm, the Plains Wind Farm and the Plains Solar Farm are expected to have their primary transport route along Cobb Highway during the construction period:

- Pottinger Wind Farm (commencing 2026) is expected to generate a peak of 675 vehicles per hour over a 28 month peak construction period
- the Plains Wind Farm (commencing 2025) is expected to generate a peak of 206 vehicles per hour over a two (2) year peak construction period
- The Plains Solar Farm (commencing 2026) is expected to generate a peak of 82 vehicles per hour over a (1) year peak construction period.

Furthermore, the cumulative assessment presented in Table 6.5 is a worst-case assessment for the Project and assumes that all Project traffic (i.e., that associated with Bullawah Wind Farm) will use a particular route to and from the site. Hence a mitigation measure for the Project and other nearby projects would include distributing project traffic to multiple routes thereby reducing the demand along one particular route.

The three projects identified above have had their peak traffic added in the cumulative assessment, using the traffic report to determine the distribution of traffic during the AM and PM peak. It is noted that traffic generation for the weekend was not assessed for any of the three sites within their respective traffic reports so the cumulative assessment for the weekend could not be conducted. Additionally, the peaks of all three projects are not expected to occur simultaneously so the assessment of all project peaks occurring at the same time is an assessment of the worst-case scenario.

Notwithstanding the above there is limited capacity for these projects to connect to the grid via Project EnergyConnect, so whilst there are a number of projects in planning it is envisioned that only a few will be approved and therefore the cumulative impact of traffic is likely to be minimal.

Based on information available within the public domain, the following developments are identified in the vicinity of the Bullawah Project:

- Project EnergyConnect (NSW - Eastern Section)(SSI-9172452) – traversing the Project Area, being the development of a new transmission line connecting Buronga Substation and Wagga Wagga Substation, and construction of the new Dinawan Substation (170 km west of Wagga Wagga) – **Approved Project**
- Pottinger Solar Farm (SSD-59254709) – adjoining, the boundaries touch
- Pottinger Wind Farm (SSD-59235464) – adjoining, the boundaries touch – **Approved Project**
- Dinawan Wind Farm (SSD-50725708) – 16 km from the centre of Bullawah to the closest edge of boundary
- Dinawan Solar Farm (SSD-50725959) – 47.65 km from the centre of Bullawah to the closest edge of boundary
- Argoon Wind Farm (SSD-64935522) – 41.15 km from the centre of Bullawah to the closest edge of boundary
- Yanco Delta Wind Farm (SSD-41743746) – 26.25 km from the centre of Bullawah to the closest edge of boundary – **Approved Project**
- The Plains Solar Farm BESS (SSD-51219280) – 39.68 km from the centre of Bullawah to the closest edge of boundary
- The Plains Wind Farm (SSD-50629707) – 20 km from the centre of Bullawah to the closest edge of boundary
- Conargo Wind Farm (SSD-70611708) – approximately 17 km from the Project Area
- Booroorban (Saltbush) Wind Farm (SSD-70636459) – approximately 19 km from the Project Area
- Romani Solar Farm (SSD-67105475) – 57 km from the centre of Bullawah to the closest edge of boundary
- Tchelery Wind Farm – 78.27 km from the centre of Bullawah to the closest edge of boundary
- Hay Sun Farm – 49.63 km from the centre of Bullawah to the closest edge of boundary
- Hay Solar Farm – 50 km from the centre of Bullawah to the closest edge of boundary – **Approved Project**
- Hay 1A and 2A solar farm – 52.23 km from the centre of Bullawah to the closest edge of boundary.

Of the three (3) Projects that are currently approved:

- Hay Solar Farm is completed
- Yanco Delta Wind Farm construction is likely to overlap with construction for the proposed Project, however, the two (2) projects do not share common transport routes (other than the use of the Sturt Highway) since the Yanco Delta Wind Farm WTG components will be transported from the Port of Geelong.

- Project EnergyConnect construction may overlap with the project, however the traffic generated by Project EnergyConnect within the surveyed project area has been identified to last 6 months and is expected to occur before the construction of the Project.

Of the remaining Projects, which are currently proposed, but not yet approved, limited information is currently available to undertake a detailed assessment of cumulative impacts.

However, Table 6.5 illustrates that all studied roads are expected to operate at LoS A with a Volume to Capacity ratio of less than 0.1 in 2028 with the Project traffic. Therefore, it is not expected that the cumulative traffic generation of the Project and known nearby projects will have any notable impact on the surrounding road network from a capacity and operations perspective.

6.5 Traffic Capacity Analysis Results

The results of the capacity analysis are shown in Table 6.5. The table presents the existing traffic volumes and corresponding Volume to Capacity (V/C) ratio and the forecast traffic volumes and V/C during the construction period.

All traffic capacity analysis has been assessed for the peak of the construction traffic generation where Stage 1 (South) and Stage 2 (North) overlap as shown previously in Table 5.6 of this report.

It is noted that the AM peak has been assessed for a Monday morning when a majority of the workforce arrives, on other days the light vehicle traffic is expected to reduce by up to 90%. In addition, the PM peak has been assessed for Friday afternoon when a majority of the workforce leaves, on other days the light vehicle traffic is expected to reduce by up to 86%.

The existing volumes is the maximum volume recorded on any intersection leg during the peak periods identified in Section 3.5. As evident from the data, all roads currently operate at LoS A with the largest V/C ratio recorded on Stuart Highway and Cobb Highway at 0.10.

After adding the project traffic, all roads will continue to operate at LoS A with a V/C ratio of less than 0.23. After adding the traffic from the nearby developments, all roads will operate at LoS A except Cobb Highway operating at LoS B which is still acceptable.

Table 6.5: Peak Construction Period Generation and V/C Ratio

Road	Period	Direction	Existing Volumes (2024)			With Project Construction Volumes and Background Traffic Growth (2028)*				With Project Construction Volumes, Background Traffic Growth (2028) and Nearby Development Peak Traffic		
			Volume (pcu/hr)	V/C	LoS	Project Generated Traffic (pcu/hr)	Total Future Volume (pcu/hr)	V/C	LoS	Total Future Volume (pcu/hr)	V/C	LoS
Sturt Highway	Morning Peak	Eastbound	138	0.07	A	56	194	0.10	A	246	0.12	A
		Westbound	207	0.11	A	56	263	0.14	A	315	0.15	A
	Evening peak	Eastbound	208	0.11	A	56	264	0.14	A	316	0.16	A
		Westbound	181	0.10	A	56	237	0.12	A	289	0.14	A
	Weekend Peak	Eastbound	174	0.09	A	56	230	0.12	A			
		Westbound	168	0.09	A	56	224	0.12	A			
Cobb Highway	Morning Peak	Northbound	127	0.07	A	56	183	0.10	A	183	0.09	A
		Southbound	161	0.08	A	124	285	0.15	A	820	0.43	B
	Evening Peak	Northbound	184	0.10	A	104	288	0.15	A	823	0.43	B
		Southbound	128	0.07	A	56	184	0.10	A	184	0.09	A
	Weekend Peak	Northbound	160	0.08	A	76	236	0.12	A			
		Southbound	138	0.07	A	56	194	0.10	A			
Jerilderie Road	Morning Peak	Eastbound	6	0.01	A	118	124	0.12	A	332	0.17	A
		Westbound	2	0.00	A	50	52	0.05	A	186	0.10	A
	Evening Peak	Eastbound	11	0.01	A	50	61	0.06	A	195	0.10	A
		Westbound	15	0.01	A	98	113	0.11	A	321	0.17	A
	Weekend Peak	Eastbound	7	0.01	A	50	57	0.06	A			
		Westbound	3	0.00	A	70	73	0.07	A			
Conargo Road	Morning Peak	Northbound	28	0.03	A	50	78	0.08	A	78	0.04	A
		Southbound	37	0.04	A	130	167	0.17	A	226	0.12	A
		Northbound	45	0.04	A	106	151	0.15	A	210	0.11	A

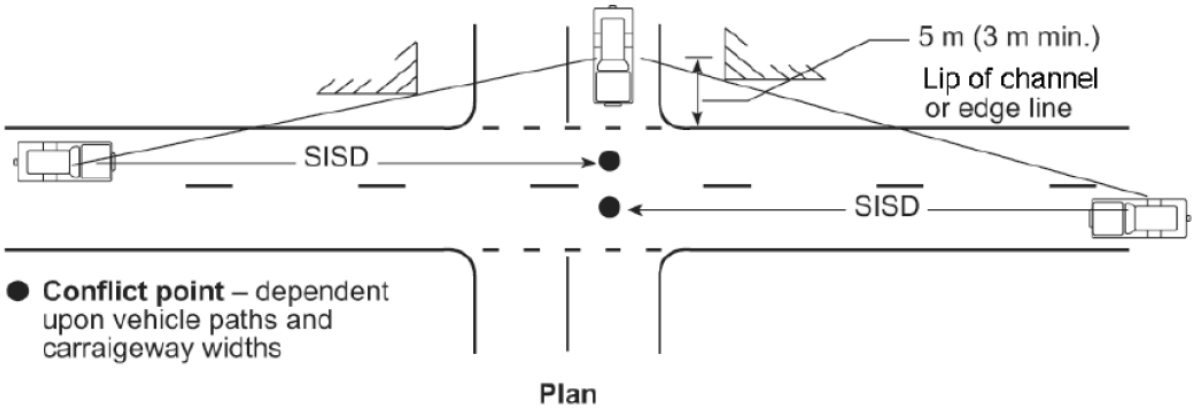
Road	Period	Direction	Existing Volumes (2024)			With Project Construction Volumes and Background Traffic Growth (2028)*				With Project Construction Volumes, Background Traffic Growth (2028) and Nearby Development Peak Traffic		
			Volume (pcu/hr)	V/C	LoS	Project Generated Traffic (pcu/hr)	Total Future Volume (pcu/hr)	V/C	LoS	Total Future Volume (pcu/hr)	V/C	LoS
	Evening Peak	Southbound	28	0.03	A	50	78	0.08	A	78	0.04	A
	Weekend Peak	Northbound	91	0.09	A	74	165	0.17	A			
		Southbound	17	0.02	A	50	67	0.07	A			
North Boundary Road	Morning Peak	Eastbound	5	0.01	A	242	247	0.25	A	247	0.13	A
		Westbound	1	0.00	A	136	137	0.14	A	196	0.10	A
	Evening Peak	Eastbound	11	0.01	A	112	123	0.12	A	182	0.10	A
		Westbound	11	0.01	A	186	197	0.20	A	197	0.10	A
	Weekend Peak	Eastbound	6	0.01	A	80	86	0.09	A			
		Westbound	0	0.00	A	112	112	0.11	A			
Willurah Road	Morning Peak	Northbound	0	0.00	A	174	174	0.17	A	264	0.14	A
		Southbound	1	0.00	A	56	57	0.06	A	72	0.04	A
	Evening Peak	Northbound	1	0.00	A	56	57	0.06	A	72	0.04	A
		Southbound	1	0.00	A	139	140	0.14	A	230	0.12	A
	Weekend Peak	Northbound	0	0.00	A	56	56	0.06	A			
		Southbound	1	0.00	A	91	92	0.09	A			

6.6 Project Site Access Arrangements

6.6.1 Sight Distance Assessment

A review of driver sight distance has been undertaken at each of the proposed site access points for the Project in accordance with Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersection (2021). In assessing the available sight distances at the proposed site access points, the Safe Intersection Sight Distance (SISD) criteria as defined by Austroads has been applied. SISD is the minimum sight distance which should be provided on the major road at any intersection. The method of calculating SISD is shown graphically in Figure 6.1.

Figure 6.1: Safe Intersection Sight Distance (SISD)



Source: Austroads (2023) Guide to Road Design Part 4A: Unsignalised and Signalised Intersections

As shown in the extract from Austroads (see Figure 6.2), the SISD requirement increases with increasing design speed of the major road.

Figure 6.2: Available Driver Sight Distances at Potential Site Access Locations

Design speed (km/h)	Based on safe intersection sight distance for cars[1] h_1 = 1.1; h_2 = 1.25, d = 0.36[2]; Observation time = 3 sec					
	R_T = 1.5 sec[3]		R_T = 2.0 sec		R_T = 2.5 sec	
	SISD (m)	K	SISD (m)	K	SISD (m)	K
40	67	4.9	73	6	–	–
50	90	8.6	97	10	–	–
60	114	14	123	16	–	–
70	141	22	151	25	–	–
80	170	31	181	35	–	–
90	201	43	214	49	226	55
100	234	59	248	66	262	74
110	–	–	285	87	300	97
120	–	–	324	112	341	124
130	–	–	365	143	383	157

Source: Austroads (2023) Guide to Road Design Part 4A: Unsignalised and Signalised Intersections

For the proposed site access points on Jerilderie Road and North Boundary Road, the appropriate design speed is 110 km/h which is the posted speed limit plus 10 km/h.

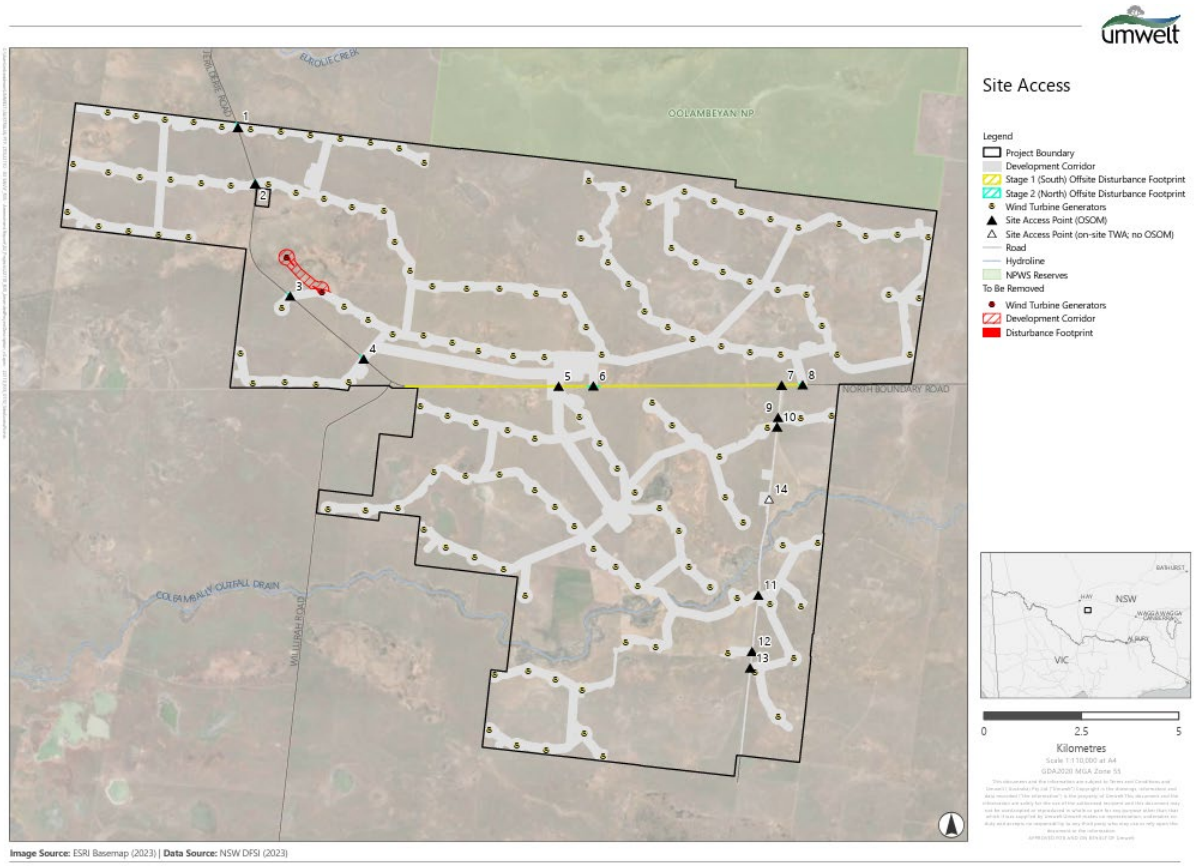
Based on Figure 6.2, the SISD requirements for vehicles travelling along Cobb Highway, Conargo Road/Carrathool Road or Willurah Road approaching the proposed site accesses is 300 m.

It is noted that at each site access where site related vehicles will be turning, there is flat terrain and straight alignment of the frontage roads, with limited vegetation surrounding the proposed site access driveways. Therefore, the available sight distances at all these locations should exceed 300 m and therefore complies with Austroads SISD requirements. As part of future site access construction planning, this sight distance requirement should be considered in the maintenance of the access and any nearby trees or shrubs.

Bullewah Road was not specifically surveyed, however given that it is a straight road on flat terrain with a similar road environment to the surveyed roads (limited vegetation and excellent visibility), site distance is likely to be sufficient.

A map of the proposed site accesses is shown in Figure 6.3. It is noted that site access point 7 will be the primary access for light vehicles to and from the TWA camp.

Figure 6.3: Site Access



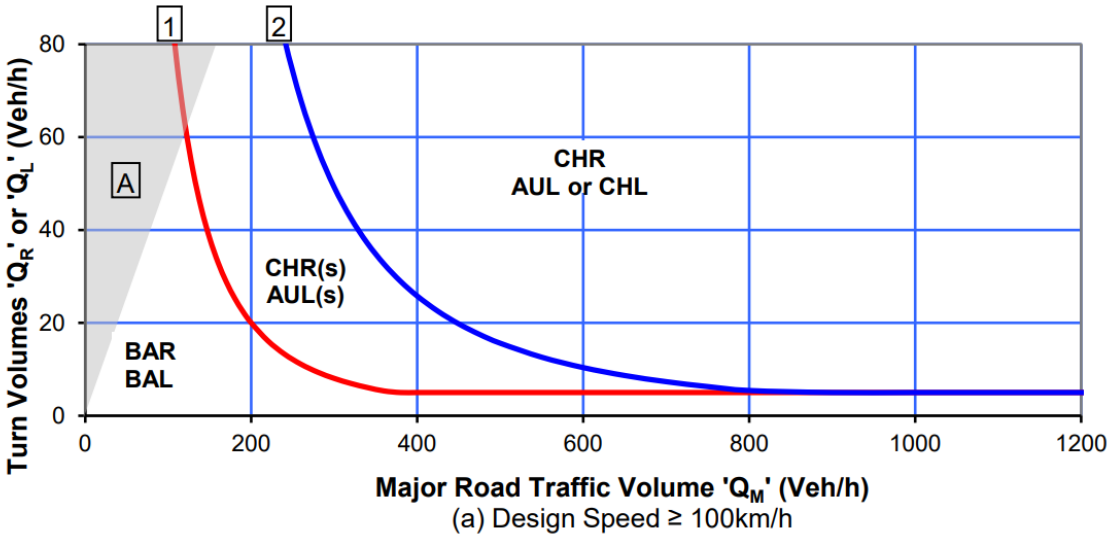
6.7 Site Access Intersection Design – Turn Warrants

An assessment of the turn treatments required for site access has been undertaken in accordance with *Austroads Guide to Road Design (AGRD) Part 4* (2017 and 2021) and *Austroads Guide to Traffic Management (AGTM) Part 6 (2020)*.

The turn treatment warrants are based on the major road traffic volumes 'Q_M', and the volume of turning movements generated by the development and existing traffic, 'Q_R' and 'Q_L'.

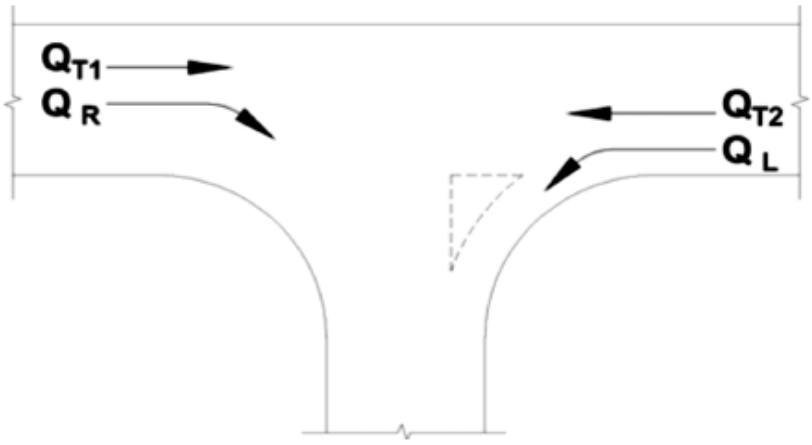
The graph used for the selection of turn treatments on roads with a design speed greater than 100 km/hr is shown in Figure 6.2, and the calculation method for major road traffic volumes is presented in Figure 6.5 and Table 6.6.

Figure 6.4: Warrants for Turn Treatments on Major Roads at Unsignalised Intersections



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

Figure 6.5: Calculation of the Major Road Traffic Volume Q_M



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

Table 6.6: Calculation of the Major Road Traffic Volume Q_M

Unsignalised Intersection	Turn Type	Q_M (veh/h)
Two-Lane two-way	Right	$= Q_{T1} + Q_{T2} + Q_L$
	Left	$= Q_{T2}$

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

Turn warrant assessments have been undertaken for the peak period of construction traffic generation (including overlap of Stage 1 (South) and Stage 2 (North) as shown in Table 5.6) to determine whether project traffic would require a higher-order turn treatment. Each intersection has been conservatively assessed using the peak volume of traffic during either the weekday AM and PM peak whilst adding the background traffic growth up until 2028 and the cumulative traffic from the projects identified in Section 6.4.

The intersections have been assessed on the left turn, right turn or both depending on if the project generated traffic contributes to either turning movement. In addition, the site access to the temporary workforce accommodation has been assessed as this is the site access that will receive a majority of the site's generated traffic.

The other accesses would be expected to be used primarily for heavy vehicles which accounts for a minimal amount of the Project generated traffic. Stage 1 is expected to generate a maximum of 30 heavy vehicle trips per hour whilst Stage 2 is expected to generate 28 heavy vehicle trips per hour. Given that the trips will be split 50:50 between inbound and outbound trips and the inbound trips will be split into left-in movements and right-in movements, the total turn movements into the site either left in or right in is expected to be less than ten (10) total vehicles.

This heavy vehicle traffic would be expected to be spread over these accesses resulting in less than ten (10) vehicles turning either left or right into a particular access. Furthermore, it is envisioned that the already minimal heavy vehicle traffic turning into the site would be split between all proposed site access points, and therefore not warranting an upgrade of the existing roadway.

It is noted that turn warrant assessments have been undertaken for intersections along the approaches to the Project Area only. This includes the Local Transport Route, and other secondary approaches via Willurah Road and Conargo Road. Turn warrant assessments have not been undertaken for the full Port to Hay Transport Routes as the only Project-related traffic extending all the way back to the Port(s) will be OSOM movements. The Project will generate a maximum of 14 OSOM trips per day during peak construction, which is insufficient to require a higher order turn treatment.

Similarly, for quarry traffic, truck movements from the quarry to the State road network are already authorised under the respective quarry approvals (refer to Section 5.3.2) and no higher order turn treatments are required.

For all other Project-related traffic, including the construction workforce and other non-OSOM deliveries), vehicle trips could originate from anywhere across NSW or interstate, and cannot therefore be meaningfully assessed. However, these trips will be dispersed spatially and

temporally, meaning that impacts to broader road network would not necessitate higher order turn treatments.

The results of the of the turn warrant calculations are presented in Table 6.7, with the results plotted in Figure 6.6.

Table 6.7: Warrants for Unsignalised Intersections AM Peak

Unsignalised Intersection	AM Peak		PM Peak		Recommended Treatment
	Q_M (veh/h)	Q_T (veh/h)	Q_M (veh/h)	Q_T (veh/h)	
Cobb Highway and Jerilderie Road – Left Turn (Project Only)					
Existing Case	23	3	18	0	Existing (left turn) requires conversion to BAL, noting that BWF has proposed an AUL(s)
Project Traffic	0	96	0	28	
Total (including background traffic growth)	23	99	18	28	
Cobb Highway and Jerilderie Road – Left Turn (Nearby Developments)					
Existing Case	23	3	18	0	Existing (left turn) requires conversion AUL/CHL due to Pottinger Wind Farm project
Project Traffic	0	96	0	28	
Nearby Developments	288	194	0	0	
Total (including background traffic growth)	312	293	19	28	
Sturt Highway and Conargo Road – Left Turn					
Existing Case	53	3	45	1	AUL(s) requires no upgrade
Project Traffic	0	28	0	28	
Nearby Developments	0	0	0	0	
Total (including background traffic growth)	59	31	50	29	
Conargo Road and North Boundary – Right Turn					
Existing Case	1	1	2	5	BAR requires no upgrade.
Project Traffic	0	108	0	28	
Nearby Developments	0	52	0	0	
Total (including background traffic growth)	1	161	2	33	
Jerilderie Road, Willurah Road and North Boundary Road – Left Turn					
Existing Case	0	0	7	0	

Unsignalised Intersection	AM Peak		PM Peak		Recommended Treatment
	Q_M (veh/h)	Q_T (veh/h)	Q_M (veh/h)	Q_T (veh/h)	
Project Traffic	28	0	78	87	BAL requires no upgrade.
Nearby Developments	37	15	0	0	
Total (including background traffic growth)	65	15	85	87	
Temporary Workforce Accommodation Site Access (#14) – Left Turn					
Existing Case	0	0	7	0	Project specific upgrade agreed to with Council.
Project Traffic	28	80	28	0	
Nearby Developments	52	0	0	0	
Total (including background traffic growth)	80	80	35	0	
Temporary Workforce Accommodation Site Access (#14) – Right Turn					
Existing Case	4	0	13	0	Project specific upgrade agreed to with Council.
Project Traffic	28	186	28	0	
Nearby Developments	52	0	52	0	
Total (including background traffic growth)	84	186	93	0	

The turn warrant assessment indicates that existing turn treatments are sufficient for the existing and proposed scenarios for the Conargo Road and North Boundary intersection and Sturt Highway and Conargo Road intersection.

The left-turn movements from Cobb Highway onto Jerilderie Road exceeds the threshold for an AUL/CHL (Auxiliary Left Turn treatment/Channelised Left Turn treatment) during the Weekday AM peak hour period.

This result, however, is primarily influenced by traffic generated by the Pottinger Wind Farm project, that also proposes to utilise this existing intersection. When Pottinger Wind Farm traffic generation is excluded from the analysis, this movement no longer warrants an AUL/CHL as summarised in Table 6.7 above and detailed for various cases in Table 6.8 and Figure 6.6. The following four (4) cases have been assessed:

- **Case 1**: Existing Case
- **Case 2**: Existing Case plus background traffic growth and Project traffic
- **Case 3**: Existing Case plus background traffic growth and Pottinger Wind Farm traffic
- **Case 4**: Existing Case plus background traffic growth, Project and Pottinger Wind Farm traffic

Table 6.8: Turn Warrants Assessment Cobb Highway and Jerilderie Road – Left Turn

Scenario	Weekday AM Peak		Weekday PM Peak		Recommended Treatment
	Q_M (veh/h)	Q_T (veh/h)	Q_M (veh/h)	Q_T (veh/h)	
Case 1 (Existing)	23	3	18	0	Existing requires conversion to BAL[1]
Case 2 (Existing + background growth + Project)	24	99	19	28	Existing requires conversion to BAL[2]
Case 3 (Existing + background growth + Pottinger Wind Farm) i.e., no Project traffic	312	197	19	0	Existing requires conversion to AUL/CHL[3]
Case 4 (Existing + background growth + Pottinger Wind Farm + Project)	312	293	19	28	Existing requires conversion to AUL/CHL[3]

Note 1: as per *Austroads (2020) Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management*, noting that it is beyond the scope of this report to suggest that a roads authority upgrade this intersection for this existing case. However, it identifies that per Figure 6.4 a BAL would be required.

Note 2: BWF has proposed an AUL(s), being above the minimum treatment requirements defined by Figure 6.4.

Note 3: required as a result of the Pottinger Wind Farm project.

Figure 6.6: Warrants for Turn Treatments on Major Roads at Unsignalised Intersections – Plotted

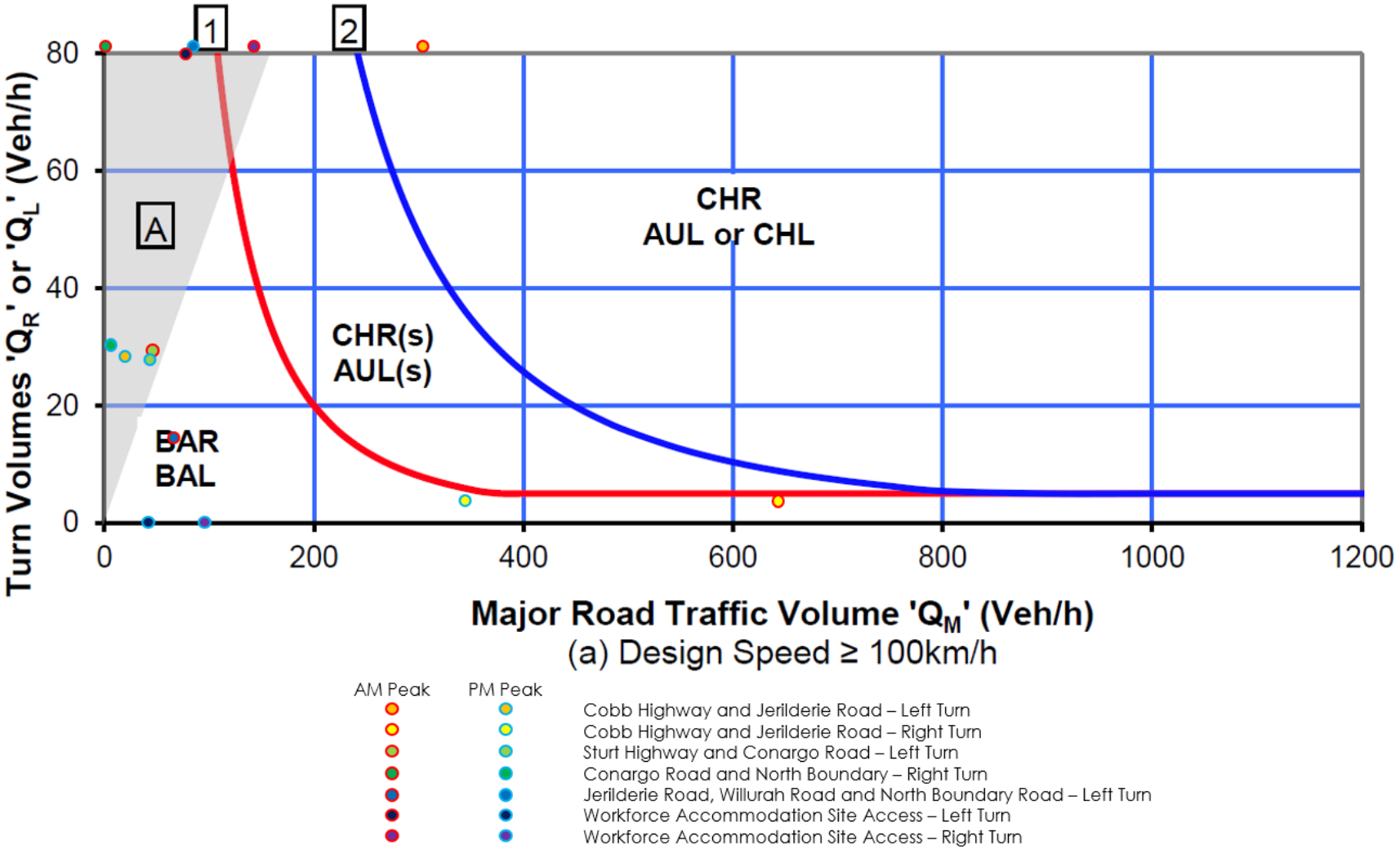
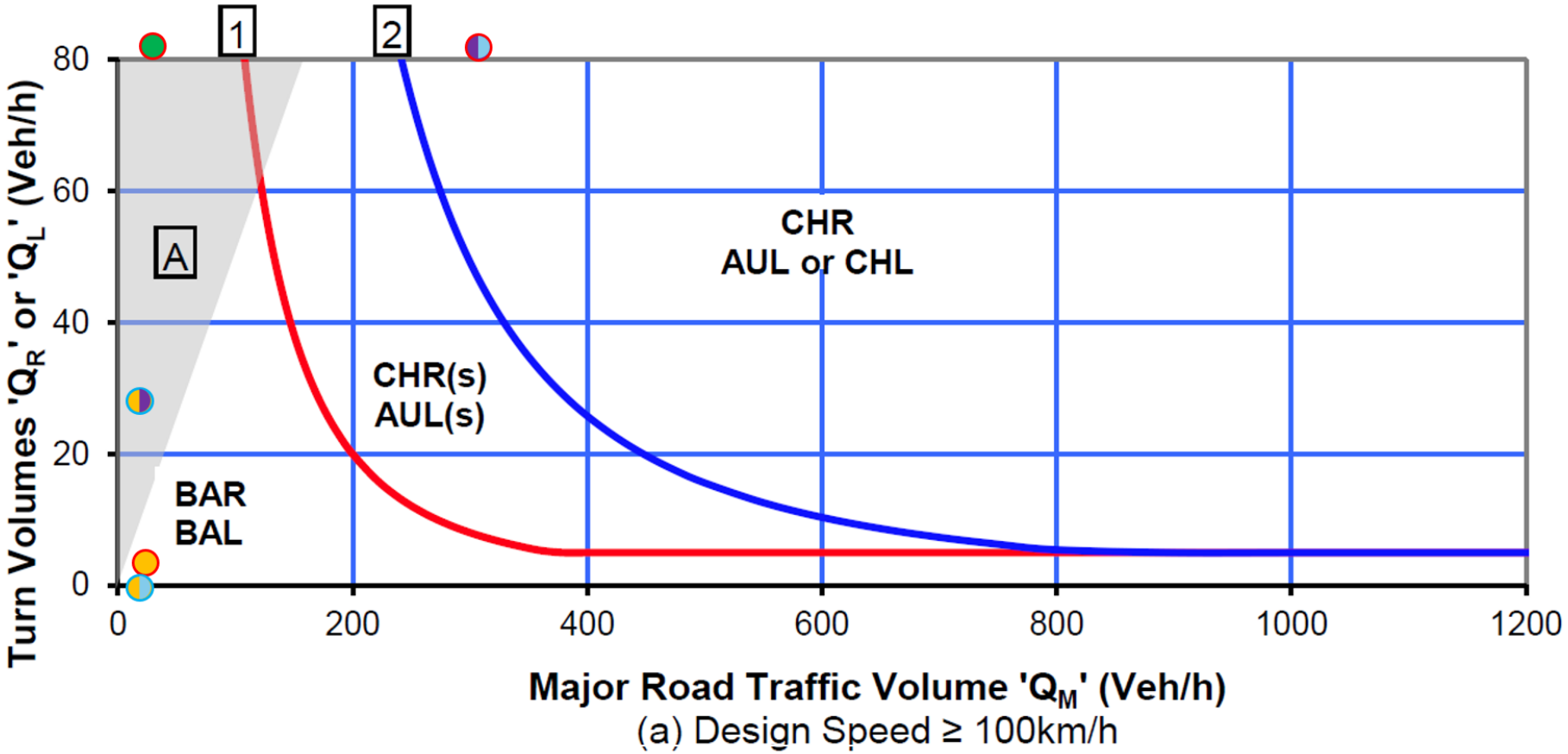


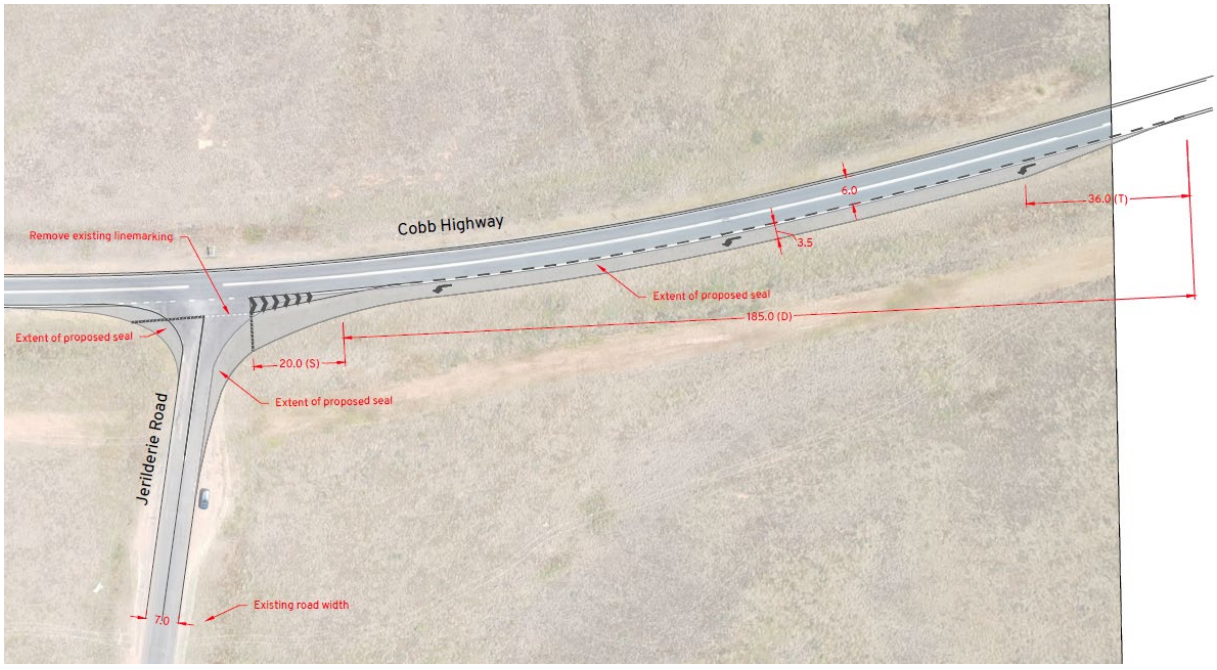
Figure 6.7: Turn Warrants Assessment Cobb Highway and Jerilderie Road Intersection – Plotted



AM Peak	PM Peak	
		Case 1: Existing Case
		Case 2: Existing Case plus background traffic growth and Bullawah Wind Farm traffic
		Case 3: Existing Case plus background traffic growth and Pottinger Wind Farm traffic
		Case 4: Existing Case plus background traffic growth, Bullawah Wind Farm and Pottinger Wind Farm traffic

It is noted that a CHL upgrade was identified in the Pottinger Wind Farm Traffic Impact Assessment (Amber Organisation, 2025) with plans for the upgrade prepared as shown below in Figure 6.6.

Figure 6.8: Cobb Highway / Jerilderie Road Strategic Design – CHL



Source: Pottinger Wind Farm Traffic Impact Assessment - Appendix J

The intersection of Cobb Highway and Jerilderie Road will require an upgrade of the existing condition to a BAL without the Pottinger Wind Farm, noting that BWF has proposed an AUL(s), which is beyond the minimum requirements identified in accordance with Austroads (2020) Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management. A concept design plan for this upgrade has been included as part of the consolidated set of concept designs (GHD, 2025) provided within the detailed response to RFI#2.

The temporary workforce accommodation site access (#14) meets the requirements for a CHR(s) upgrade from the existing scenario. However, it is noted that these requirements are only just met, and this upgrade would only be applicable for the Monday morning AM peak. Furthermore, the estimation of the traffic is extremely conservative, using the peak construction traffic volumes for the site and the Pottinger Wind Farm and assuming all workers arrive in the same hour. The peak traffic generated is expected to be lower than anticipated, and the criteria for this upgrade will not be met. Therefore, it has been determined that the upgrade is not necessary at this time.

Access to the Project via Kidman Way and Four Corners Road will be restricted to a limited number of light vehicles associated with construction personnel. This route will be used only by workers not housed in the TWA, which accommodates a maximum of 35 workers. Of these, approximately 30% (i.e. 11 workers) are expected to travel from Coleambally.

This results in 11 light vehicle trips during both the AM and PM peak periods. The only movement with potential to meet turn warrant thresholds is the right turn from Kidman Way onto Four Corners Road during the AM peak. The PM peak left turn out of Four Corners Road onto Kidman Way is not applicable for a warrant upgrade.

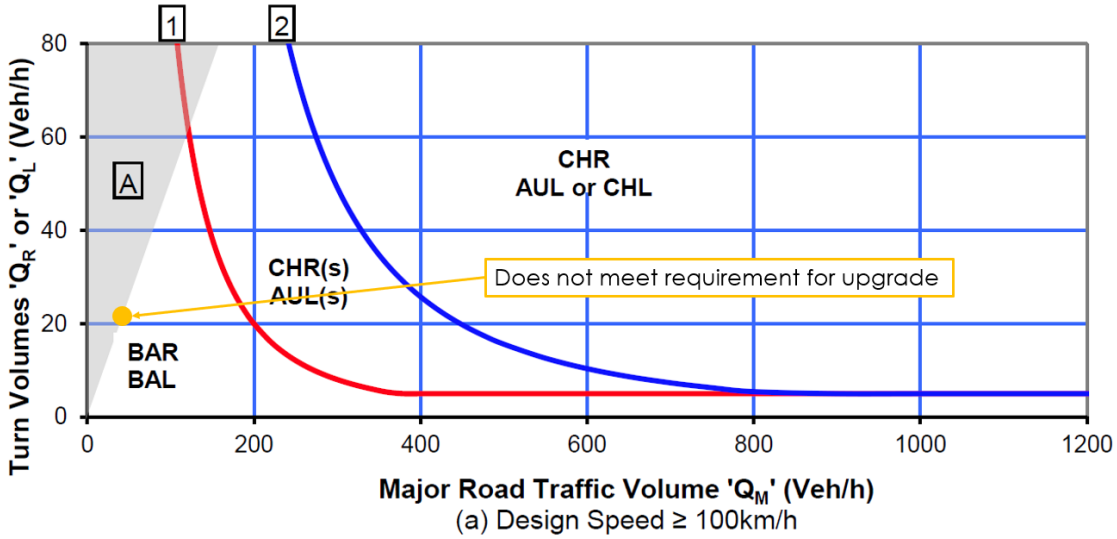
Although this intersection was not included in the original TIA surveys, it is noted that the intersection currently provides a BAR treatment. Reference is made to traffic surveys undertaken for the Yanco Delta Wind Farm on Wednesday 4 May 2022, which recorded the following results on Kidman Way during the AM Peak:

- 16 northbound vehicles
- 11 southbound vehicles

Applying a growth rate of 1.2% on Kidman Way based on TfNSW Traffic volume Viewer data, this results in an additional vehicle in either direction for the expected project peak. Additionally, surveys for the Project Energy Connect project identified 10 vehicles per hour on Four Corners Road during peak times.

Assuming conservatively that all westbound vehicles on Four Corners Road turn right and adding the project-generated 11 right-turning vehicles (21 total vehicles), the plotted turn warrant analysis in Figure 6.9 demonstrates that the threshold for a CHR (Channelised Right Turn treatment) is not met. As such, no upgrade to the existing BAR treatment is required.

Figure 6.9: Turn Warrants Assessment Four Corners Road and Kidman Way – Plotted



The two turning movements for Option B that may trigger a turn warrant is the left turn from Carrathool Road onto Willurah Road, and the right turn from Riverina Highway onto Wanderer Street. The Riverina Highway and Wanderer Street right turn has already been upgraded to a channelised right turn so no further upgrade would be required.

Traffic counts were obtained from Edward Rivers Council along Willurah Road and Carrathool Road, displayed in Table 6.9.

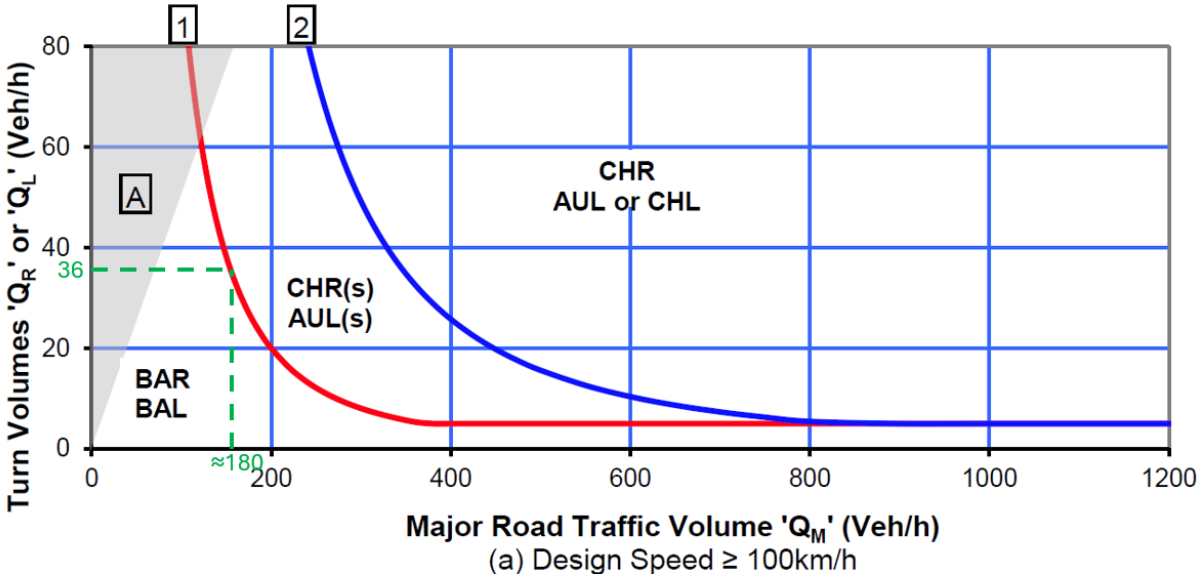
Table 6.9: Traffic Count Data

Road	Location	Annual Daily Traffic	Heavy Vehicles %	Year - Data Captured
Willurah Road	1km from Carrathool Road intersection	22	16	2024
Carrathool Road	On Bitumen section at CH 6.30, after the Willurah Road intersection	120	11	2024
Carrathool Road	0.5 Km from Conargo town	137	10.5	2010

It is proposed to add up to 25 additional left-turn movements from Carrathool Road onto Willurah Road. Applying a highly conservative assumption—that all traffic on Willurah Road originates from a left turn at Carrathool Road, and that 50% of the daily traffic occurs during the peak hour—this would result in approximately 36 peak hour left-turn movements (11 existing plus 25 proposed).

To trigger the threshold for a higher-order intersection treatment, Carrathool Road would need to carry at least 180 eastbound vehicles during the peak hour, as shown in Figure 6.7.

Figure 6.10: Turn Warrants Assessment Carrathool Road and Willurah Road



As evident from the traffic data in Table 6.9, Carrathool Road recorded an average daily traffic (ADT) volume of 120 vehicles east of Willurah Road (2024 count) and 137 vehicles west of Willurah Road (2010 count). After accounting for directional splits and peak hour proportions, the number of eastbound vehicles falls well short of the 180-vehicle threshold. Accordingly, only a Basic Left (BAL) treatment (or other treatment agreed with Council) is warranted.

While it is understood that the existing intersection is in poor condition and will require resurfacing and updated line marking, no road widening is necessary.

6.8 Impacts on Public Transport

Impacts to regional coach or local school bus services are expected to be negligible given the available spare capacity of the road network and the occurrence of peak construction traffic movements outside of typical school travel periods and the timetabled coach services. The construction of the Project would not impact the operation of bus stops.

6.9 Impacts on Pedestrians and Cyclists

As discussed in Section 3.5, there are no pedestrian or cycling facilities located near the Project Area, or along the Local Transport Route.

6.10 Impacts on Parking

Parking for construction vehicles would be provided within the Project Area, or the identified roadside parking areas on Jerilderie Road which have previously been utilised by Hay Shire Council for road maintenance purposes only. Therefore, there will be no impact of parking activities on public roads.

6.11 Impacts on Road Safety

As outlined in Section 3.3, no crashes were reported within 10 km of the Project Area during the five (5) year period between 2018 and 2022. Furthermore, there was no more than one (1) incident at any of the proposed intersections to be used by Project traffic. Additional vehicles using these intersections are unlikely to have an impact on future crash frequency due to overall low construction traffic volumes, and good available sight distances to key intersections in the study area. In addition, the turn warrant assessments (which are based on achieving a specific level of safety performance) indicate that the existing turn treatments would be suitable to accommodate the forecast traffic volumes generated by the Project. Beyond these key intersections, all roads in the study area are expected to have sufficient spare mid-block capacity to accommodate additional traffic volumes generated by the Project without adversely impacting the operation or safety of the existing road network.

To minimise the risks of speeding and fatigue, as well as other road safety risks and contributing factors, appropriate driver induction, training, safety measures and protocols will be detailed in a TMP and Driver Code of Conduct. All construction personnel will be required to adhere to the TMP and Driver Code of Conduct. The Driver Code of Conduct is further discussed in Section 7.3.

Given the relatively low historic rate of crashes in the area, the majority of traffic movements occurring outside of dark lighting conditions and the opportunity to manage contributing factors such as fatigue and speeding, construction of the Project is not expected to have a significant impact on road safety.

All OSOM vehicle movements will be managed under a Transport Management Plan which will identify the potential impacts of OSOM vehicles on road safety and detail the relevant safety measures to be implemented, where required. The TMP would consider OSOM movements for concurrent projects listed in Section 3.7.

7 Mitigation Measures

The following section sets out suggested mitigation measures to manage and/or mitigate the traffic and transport related impacts associated with the Project.

7.1 Information and Communication

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

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

7.2 OSOM Enabling Works

Oversized and over mass (OSOM) vehicles will be governed by a detailed Transport Management Plan (either as part of the TMP or the decommissioning TMP) that should be developed before construction or decommissioning commences. Permits will also be attained separately for OSOM routes by the relevant authorities.

The TMP will include:

- Procedures for escorts of OSOM vehicles.
- Traffic control plans for temporary road closures to allow vehicles to cross to the other side of the carriageway.
- Safe work methods and strategies for working on roadways.
- Dates and times for transporting loads.
- Location and use of rest stops and layovers along the journey.
- Communication strategy to affected communities.
- Notification and consultation of key stakeholders including:
  - Police and emergency services
  - Local Councils along the route

  - Public and School bus operators that may be affected
- Advertising in local newspaper and media releases.
- Contact details of foreman or project manager throughout operations to be shared with emergency services and road authorities.
- Timing of operations and measures to avoid commuter peaks and school peaks through populated areas where practicable.
- Consideration of cumulative impacts of other projects along the route, based on updated information that is available at that time.
- Identification of layby areas for driver breaks and co-ordination of OSOM on site arrivals.

7.3 Driver Code of Conduct

To assist in achieving safe outcomes during construction, a Sample Driver Code of Conduct has been prepared and is included in Appendix C. The Driver Code of Conduct would be finalised as part of the TMP.

The purpose of the Driver Code of Conduct is to minimise the impact of individual driver behaviours on all users of the public roads forming part of the site access routes. The Driver Code of Conduct outlines acceptable behaviour for all vehicle drivers in connection with the Project, including:

- General requirements (e.g. site induction requirements)
- Travelling speeds and safe driving practices, particularly through residential areas and school zones
- Fatigue management
- Adherence to designated transport routes and heavy vehicle noise
- Public complaint resolution and penalties and disciplinary action.

The Sample Driver Code of Conduct included in AppendixC has been prepared to include specific features that area relevant to the Project, such as:

- No right turns permitted from Cobb Highway onto Jerilderie Road.
- The designated routes are to be strictly adhered to.

Prior to involvement in the Project, vehicle drivers will be required to read the Driver Code of Conduct and acknowledge their compliance with it throughout their involvement in the Project. The expectations of the Driver Code of Conduct will be established in the Project induction and will be reiterated through pre-starts. Heavy vehicle haulage routes will be communicated to haulage contractors during the procurement stage and requirements of the Drivers Code of Conduct, route use and compliance included in their contracts.

The Driver Code of Conduct includes an element of fatigue management. This includes the requirements for drivers on the Project to manage their fatigue, be suitably rested and for operators of heavy vehicles to comply with the Chain of Responsibility legal requirements under the National Heavy Vehicle Law (Heavy Vehicle (Adoption of National Law) Act 2013).

The fatigue management standards, including those outlined in the Chain of Responsibility, will be consistent with the standards outlined in the Fatigue Management Plan.

7.4 Emergency Access

The proposed site access points provide good access and egress around the site for emergency services. No additional emergency access points are proposed.

7.5 Off-Site Road Works

As noted in Section 4.1.1, other infrastructure works on the Port to Hay Transport route now form part of the Amended Project. Proposed Port to Hay off-site road works as detailed in the Rex J Andrews reports are provided in Table 7.1.

A summary of the road infrastructure works required on the Local Transport Route for the OSOM deliveries as detailed in the Rex J Andrews report is provided in Table 7.2.

A consolidated list of all road upgrades proposed on the State and local road network is provided in Appendix G.

Table 7.1: Required Road Infrastructure Works – Port to Hay Off-Site Road Works

Off-site Road Work Area Number	Relevant Port	Location	Description of Proposed Modification	Chainage (km from Port)
Work Area 1	Adelaide	Murray Valley Highway onto Sturt Highway at Euston, NSW.	Additional hardstand and associated fill required to bring new hardstand area level with the highway. Sign to be relocated.	546 km (Route 1)
Work Area 2	Adelaide	Right hand bend on Sturt Highway at Balranald, NSW.	Option 1: Hardstand will be required on inside of corner along with the removal of trees, light poles and numerous signs. Median strips to be made trafficable/replaced with painted lines. The Project has received landowner consent from the property owner at the inside of the corner. Option 2: Hardstand will be required on the outside of corner along with the removal of vegetation, light poles and numerous signs. Median strips to be made trafficable/replaced with painted lines. The proposed road upgrades are contained within the TfNSW road reserve. *Note: both options are presented in the Port Adelaide to Bullawah Wind Farm Route Study (refer to Appendix A, pages 30 and 31)*	623.7 km (Route 1)
Work Area 3	Adelaide	Roundabout on Sturt Highway at Hay, NSW onto Cobb Highway.	Several light poles and signs to be removed or relocated. Hardstand to be installed on exit of corner.	750 km (Route 1)
Work Area 4	Newcastle	John Renshaw Drive onto the M1 at Beresfield	Sign to be relocated or lowered.	18.4 km (Route 1)
Work Area 5	Newcastle	Wagga Wagga – Roundabout at the corner of Edward Street Pearson Street.	Existing apron on the roundabout to be traversed by the transporter. Centre of roundabout to be made trafficable. Sign to be made removable or relocated.	614.6 km (Route 1)
Work Area 6	Newcastle	Wagga Wagga – Roundabout at the corner of Mason Street and Hammond Ave.	Existing apron on the roundabout to be traversed by the transporter. Centre of roundabout to be made trafficable. Sign to be made removable or relocated.	617.3 km (Route 1)

Work Area 7	Newcastle	Wagga Wagga – Roundabout at the corner of Koorigal Road and Hammond Ave.	Existing apron on the roundabout to be traversed by the transporter. Centre of roundabout to be made trafficable. Sign to be made removable or relocated.	618.4 km (Route 1)
Work Area 8	Newcastle	Wagga Wagga – Roundabout at the corner of Tasman Road and Hammond Ave.	Existing apron on the roundabout to be traversed by the transporter. Centre of roundabout to be made trafficable. Sign to be made removable or relocated.	621.5 km (Route 1)
Work Area 9	Newcastle	Left hand bend on the Sturt Highway at Gillenbah, NSW.	Several signs to be relocated or made removable. Light/power pole to be relocated out of swept path. Section of traffic island to be made trafficable. Suitable trailer to be used in order to straddle centre median.	711 km (Route 1)
Work Area 10	Newcastle	Golden Highway through Merriwa, NSW.	Pedestrian kerb crossing/ramp to be removed. Islands to be made trafficable or chevrons lines put in place. Several signs and bollards to be made removable and some vegetation to be trimmed.	224.5 to 224.8 km (Route 2)
Work Area 11	Newcastle	Mitchell Highway onto Derribong Street, Narromine, NSW.	Modifications to the existing hardstand on the outside of the corner to improve safety in all weather conditions.	450 km (Route 2)
Work Area 12	Newcastle	Newell Highway intersection with Dowling Street at Forbes, NSW.	No parking area to be put in place.	590 km (Route 2)
Work Area 13	Newcastle	Newell Highway (Cadell St) at Narrandera, NSW.	Trees to be trimmed.	824-827 km (Route 2)
Work Area 14	Newcastle	Newell Highway onto Sturt Highway at Narrandera, NSW.	Sign to be relocated or made removable.	829 km (Route 2)

Table 7.2: Required Road Infrastructure Works – Local Transport Route

Location	Description of Proposed Modification	Timing
Cobb Highway onto Jerilderie Road	Additional hardstand to be installed	Pre-construction works for Stage 2 (North)
North Boundary Road	Widening of road pavement	Pre-construction works for Stage 2 (North)
Jerilderie Road and North Boundary Road	Hardstands to be installed, fence and gates to be modified	Pre-construction works for Stage 1 (South) or Stage 2 (North), as relevant

7.6 On-Site Mitigation Measures

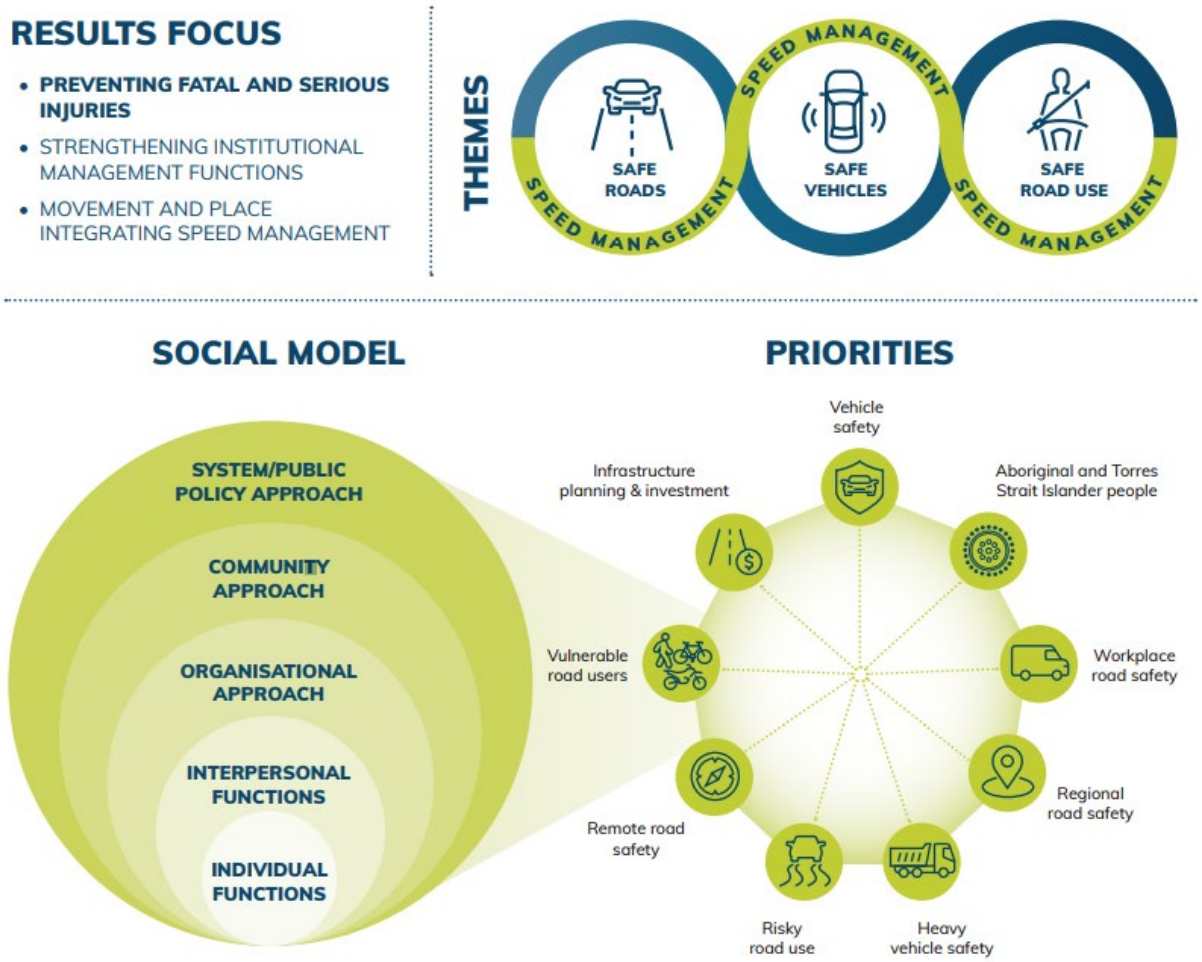
On-site mitigation measures targeted at safety and reducing the impact of on-site transport would include:

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

7.7 Road Safety

Under the safe systems approach road safety is generally improved by focussing on Safe Roads, Safe People, Safe Vehicles and Speed Management. The safe systems approach is summarised in Figure 7.1.

Figure 7.1: Safe Systems Approach



Source: National Road Safety Strategy, 2021-30

7.7.1 Safe Road Use

Safe Road Use can be achieved by education of workers and communicating policies of the work site. Worker site induction should include driver education of the local road conditions and an adoption of a "drivers code of conduct".

This should include:

- Driving to the conditions on unsealed roads.
- Avoid speeding and other dangerous behaviour.
- Identification and communication of known road crash cluster locations.
- Identification and warning of when roads may be affected by black ice, road damage (potholes) and incidents.
- A drug and alcohol policy to reduce incidents of drunk and drug driving.
- Additional caution of wildlife when driving at dawn and dusk.
- Measures to reduce the risk of workers driving while tired.

- Training drivers to respect private property and farm gates.

The use of shuttle bus services would reduce the number of workers driving from the site when tired, and the provision of these services for off-site workers will be investigated by BWF. However, as off-site workers (approximately 9% off total construction workforce) are likely be dispersed around the surrounding localities, it is likely that some workers will need to travel to site independently.

7.7.2 Safe Vehicles

Contractors are to ensure that all vehicles used are road worthy and in good working condition with lights, brakes, tire pressure etc.

7.7.3 Safe Speeds

As part of managing the Project, workers would be required to drive to the conditions, respect speed limits, and abide by the Code of Conduct.

7.7.4 Sensitive Land Uses

It is recognised that the Project may have an impact on sensitive land uses such as schools and residential precincts within townships along material delivery routes.

To minimise the impacts on schools it is recommended that temporary road closures for OSOM movements should be avoided during school peaks. To this end vehicle layovers should be identified to allow vehicles to wait until appropriate times for travel.

7.7.5 Adverse Weather

Speed reductions, use of fog lights during periods of low visibility, cessation of work and site shutdowns will be implemented as required during periods of adverse weather.

7.8 Dilapidation Survey

Dilapidation surveys covering the pavement, drainage, and bridge structures will be undertaken in consultation with TfNSW and local Councils for the Local Transport Route and the existing bridge crossing of Coleambally Outfall Drain on Bullewah Road before and after construction. Regular inspections and consultation with local Councils and proponents would be developed. It is expected that any damage resulting from construction traffic, except normal wear and tear, would be repaired.

7.9 Pre-Construction Works

To ensure the suitability of the intersections and roads during pre-construction works, the following mitigation measures will be implemented:

- Intersection upgrades: The required treatment at Cobb Highway / Jerilderie Road will be completed at the start of pre-construction works to accommodate incoming heavy vehicles, noting that BWF has proposed an AUL(s) that is beyond the minimum BAL

requirement identified in accordance with Austroads (2020) Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management

- Restricted routes: All project-related vehicles will be restricted to the approved haulage and access routes outlined in Section 5.4 of the report.
- Traffic Management Plan (TMP): A TMP will be developed to manage vehicle movements, ensure compliance with designated access points, and minimise disruption to the broader road network.
- Driver Code of Conduct: All drivers accessing the site will be inducted and issued a route-specific Driver Code of Conduct to ensure adherence to approved movements and designated times.
- Staggered delivery times: Traffic will be spread throughout the day, avoiding peak periods and reducing the potential for congestion at intersections (where feasible and reasonable to do so).
- Traffic control (if required): Temporary traffic control or signage will be deployed at intersections if warranted.

In summary, the intersections identified for use during the pre-construction period are appropriate for the expected traffic volumes and vehicle types. Necessary upgrades will be delivered in advance, and management measures will ensure safe and efficient operation throughout the phase.

7.10 Carpooling

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

- Incentives or benefits to encourage the use of carpooling.
- A roster system to rotate the carpooling drivers.
- Regular toolbox meeting sessions identifying method of travel to work and facilitating cooperation between workers.
- Identifying the drop off/pick up locations for participating vehicles.
- Allocating a team member to be responsible for enforcement and management of the carpooling program.
- Identifying mechanisms to be put in place if an average light vehicle occupancy of two (2) people per vehicle is not achieved across the workforce

To support compliance, the project will implement targeted monitoring and enforcement measures. These include entry gate checks by site personnel to confirm vehicle occupancy, random audits to verify compliance with the carpooling policy, and the use of sign-in sheets or digital records that capture occupant numbers per vehicle. If the average light vehicle occupancy falls below the target of two (2) people per vehicle, escalation measures will be implemented. These may include mandatory carpooling registration, staggered start times to reduce single-occupancy vehicle pressure during peak hours, and possible restrictions on site access for non-compliant workers or contractors.

These actions will be further detailed and formalised within the CTMP, which will outline roles, responsibilities, reporting procedures, and corrective actions to ensure the carpooling target is maintained throughout the construction period.

7.11 Traffic and Route Management

In response to the specific operational concerns raised by TfNSW regarding quarry movements and peak hour restrictions, the following mitigation and enforcement strategies will be implemented to ensure compliance throughout the construction period.

Daily traffic volumes associated with both workforce and heavy vehicle movements will be staggered throughout the day (where feasible and reasonable to do so) to minimise pressure on the surrounding road network during peak periods. Construction scheduling will be used to distribute inbound and outbound movements across broader windows, and vehicle bookings and site access controls will assist in managing this distribution in practice.

For quarry traffic using Route Option A, which avoids the right turn from Cobb Highway into Jerilderie Road, enforcement will be achieved through a combination of operational controls and physical monitoring. All haulage drivers will receive a detailed route map and instructions during site inductions, supported by a project-specific Driver Code of Conduct that outlines approved access paths. A Sample Driver Code of Conduct is provided in Appendix C of this report. The required U-turn at the Cobb Highway/Sturt Highway roundabout, which forms part of this route, will be clearly communicated and enforced. Compliance will be monitored through GPS tracking, with periodic audits undertaken by the haulage contractor. CCTV surveillance at the Jerilderie Road/Cobb Highway intersection will supplement this monitoring to identify any unauthorised right-turn movements, and non-compliance will be addressed through established escalation pathways. BWF anticipates using battery or solar powered CCTV surveillance cameras, noting that their specific position at the Jerilderie Road/Cobb Highway intersection will be selected during preparation of the TMP.

Restrictions on project-related turning movements during AM and PM peak periods, including the left turn from Kidman Way onto Four Corners Way and the right turn from Sturt Highway into Conargo Road, will be managed operationally. All relevant drivers will be briefed on these restrictions during induction, and signage will be installed at appropriate locations to reinforce compliance. These restrictions will also be incorporated into the transport contractor's management plan and tracked using GPS monitoring, with geo-fencing alerts used to detect unauthorised movements. Project personnel responsible for logistics and compliance will review vehicle data regularly to ensure adherence.

A comprehensive Traffic Management Plan (TMP) will be prepared and submitted prior to construction. The TMP will provide further detail on all enforcement and compliance measures outlined above and serve as the primary operational framework to manage and monitor traffic impacts during all stages of the project.

Together, these measures provide a robust framework for managing project traffic impacts during sensitive time periods and at constrained locations, and reflect a proactive approach to meeting TfNSW's safety and operational expectations.

7.12 Road Authority Approvals for OSOM Vehicles

OSOM vehicles would require permits from the National Heavy Vehicle Regulator (NHVR). This replaces the approvals that were previously granted from TfNSW and councils. Applications are to be submitted to the NHVR.

8 Road Authority Consultation

Consultation in relation to the Project, the Route Study and this TIA has been undertaken by the Proponent, supported by Umwelt where required. The list of key stakeholders, and any feedback relevant to this TIA is summarised below.

8.1 EIS Phase

8.1.1 TfNSW

- Briefing held 31 August 2023 to discuss the following:
- Noted EnergyCo Port to Place studies have been based on max 85 m blade length - further assessment required for longer blade length. The Route Study for the Project considers 100 m blade length, however, minor works required along the Port to Hay Transport Routes do not form part of the Project.
- Potential traffic issues in the vicinity of the Port to Hay Transport Routes, including in the Upper Hunter and Dubbo Areas. Noted, however, the Port to Hay Transport Routes do not form part of the Project.
- Preference for any upgrade works is for permanent hardstand (not aggregate). BWF will continue to consult with TfNSW in this regard.
- TfNSW key issues/learnings based on other TIAs:
    - Background volumes - ensure accuracy of AM & PM peaks – noted.
    - Provide background data for traffic surveys & SIDRA analysis.
    - Safe Intersection Site Distance – if proponents seek to apply different reaction times, then a robust 7-day analysis of traffic counts is required in order for this to be considered) – Not applicable (not seeking to apply different reaction times).
    - Adequacy of existing road treatments to be considered – refer to section 6.11.
    - Any changes to be designed and presented as per TfNSW Strategic design requirements for DAs factsheet (link in SEARs) – noted.
    - Explain how shuttle buses for workforce would work (pick up/drop off arrangements, how will this be enforced etc) - shuttle buses not currently proposed for AM/PM construction peaks, as the majority of the workforce would be housed on site, and the remainder would be dispersed throughout the surrounding localities.
    - Identify realistic start points for trips – noted and incorporated.
    - TfNSW does not support reduced speed zones – noted.
- Confirmed use of standard Route Study software (AutoCAD) is acceptable. Data will be provided to TfNSW.
- TfNSW does not review route assessments outside NSW, but proponent should talk to relevant State authority if a route outside NSW was proposed. EIS should address impacts

from NSW border to site. Other approvals and permits may apply outside NSW, beyond TfNSW consideration – Not applicable.

- Confirmed CTMP considerations are relevant to post-consent phase, not EIS. Draft CTMP not required with EIS.

8.1.2 Hay Shire Council

- Meeting took place on the 8th of September 2023 along Jerilderie Road with the Operations Manager to discuss the following:
- The project and access routes for construction.
- Discussed the condition (previous road works occurring, lessons learned and the existing use of Jerilderie Road
- The potential use of existing areas on road reserve for storage of material for upgrade works along Jerilderie Road.
- Dilapidation survey to be carried out prior to construction and after construction
- B Double permits required to travel on Jerilderie Road.
- Traffic data was requested via email and supplied.

8.1.3 Murrumbidgee Council

- Email correspondence to outline the access points for the construction traffic and request to confirm if Murrumbidgee Council carried out the maintenance of North Boundary Road.
- Traffic data requested via email but no data available.

8.1.4 Edward River Council

- Email correspondence to outline the access points for the construction traffic and request to confirm if Edward River council carried out maintenance of North Boundary Road.
- Traffic data requested via email and supplied.
- Phone conversations and email correspondence outlining the below:
- Requirements for a minimum 6% grade on the pavement design and indicative pavement design shared with council.
- Dilapidation survey to be carried out prior to construction and after construction
- Site access points need to comply with road opening permits and also have adequate design to allow for culverts.

8.2 Additional Consultation

In addition to the above-mentioned stakeholders, the Proponent has engaged with all Councils along the Port to Hay Transport Route where the Route Study identifies that modifications are required (shaded red in Appendix A) as a priority. The list of key stakeholders, and any feedback relevant to this TIA is summarised below:

- Letter sent to City of Newcastle LGA outlining the work required to local and state roads within their LGA. No response received.
- Letter sent to Wagga Wagga Council outlining the works required to state roads within their LGA. Email response and phone call received that TfNSW is the road authority for Sturt highway and NVHR application will be required.
- Letter sent to Narrandera Council outlining the works required to state roads within their LGA. No response received.
- Meeting with TfNSW on 20 February 2025 to discuss the updated route options report and how the project has addressed their submission. The updated route options reports were sent to TfNSW for comment but no comments have been received. Also, BWF requested bridge and culvert assessment in which TfNSW have confirmed all TfNSW managed structures are approved for the various requested loads as outlined in the Rex J Andrews report (Appendix A) on the Port to Hay Transport Routes.
- Consultation carried out with Transurban on the use of North Connex tunnel and Hills M2 Motorway. No specific concerns raised as blades have travelled through previously. Transurban have requested for the NVHR Application, TMP and swept path analysis for endorsement when the time comes before transportation of the components.
- Consultation carried out with UGL and ARTC on bridge and culvert assessments. ARTC have confirmed they will assess any risks to infrastructure closer to the time of the movement. UGL are currently assessing their infrastructure and BWF is still awaiting a response.
- Email sent to Upper Hunter Shire Council on the proposed works at Merriwa but no response received.
- Consultation with Hay Shire Council on proposed works at Hay roundabout.
- Consultation (email) with all councils along the Port to Hay Transport Routes. Requested Councils to provide any detail of planned works that may be impacted by or will impact OSOM movements along the proposed transport route. Also requested they provide any raise any additional concerns and offered further consultation. No councils have raised additional projects or any additional concerns.

8.2.1 Submissions and Amendment Report Consultation

Following submission of the Submissions Report and Amendment Report (Umwelt, 2025) that included prior versions of this Amended TIA, BWF has undertaken following consultation with support from TTPP and Umwelt as required:

- Direct consultation with TfNSW in response to preliminary queries raised, as documented in the 30 May 2025 letter prepared by Umwelt, refer to Appendix B.
- Consultation with DPHI in relation to the formal TfNSW agency advice received (reference: REN25/00037/003 & REN25/00037/004) as part of RFI#2, the approach to addressing all matters and outcomes of that work.
- Direct consultation with TfNSW on key matters raised in its agency advice and addressed in this Amended TIA, or in the revised OSOM Route Assessments (Rex J Andrews P/L) (refer

Appendix A of this report), and new and revised concept designs GHD, 2025). These GHD concept designs, that consolidate upgrades and treatments defined by both this Amended TIA and OSOM Route Assessments, are provided in Appendix E of the response to RFI #2 (Umwelt, August 2025).

- Direct consultation with Councils listed by TfNSW in its formal response, and then consultation with all the relevant road authorities in regard to proposed road upgrades. This included the provision of a revised consolidated table of road upgrades proposed on the State and local network, including the site access points, developed in consultation and agreed upon with the relevant road authority and including the information on type of the treatment proposed, at the request of DPHI.
- Direct consultation with off-site quarry operators that may supply materials to the Project as per the BWF response to this matter within RFI#2, at the request of DPHI.

9 Conclusion

Based on the analysis and discussions presented within this report, the following summary and conclusions are made:

- Construction activities, which are the highest traffic generating activities by the Project, are expected to generate up to 56 heavy vehicle trips and 265 light vehicles trips per hour in the road network peak periods and up to 528 heavy vehicle trips, 530 light vehicle trips and 14 OSOM trips daily during peak construction.
- An assessment of existing and future with development mid-block road capacity assessment suggests that roads within the study area will operate well at Level of Service (LoS) A.
- It is expected that the proposed site access points will meet the minimum sight distance required to comply with Austroads requirements.
- The operation, construction and decommissioning phases of the Project are expected to generate only a minor impact on the surrounding road network in the peak periods.
- The anticipated construction vehicle traffic volumes would not trigger the need for any upgrades to intersection turning provisions with existing basic turning treatments sufficient.
- When considering nearby developments and background traffic growth, the development-generated traffic would result in negligible impacts to the operation of nearby intersections.

Overall, the future conditions of the surrounding road network would be acceptable, and no additional road upgrades and infrastructure works (aside from the off site road works proposed by BWF and described in Section 4.1.2) would be required as part of the development.

Appendix A

OSOM Route Assessments – Rex J Andrews P/L

REX J ANDREWS
ENGINEERED TRANSPORTATION

ROUTE STUDY

PROJECT: BULLAWAH WINDFARM
EX NEWCASTLE (MAYFIELD #4)
TURBINE TYPE: NORDEX, N163

31/07/2025 REV 04

Rev.	Date	Change	Responsible	Checked
00	04/12/24	Report compiled	W Andrews	✓
00	18/12/24	Report completed	W Andrews	✓
01	10/01/25	Edits	W Andrews	✓
02	07/02/25	Edits	W Andrews	✓
03	28/03/25	Edits	W Andrews	✓
04	31/07/25	Edits	W Andrews	✓

Index

1.0 INTRODUCTION 3
2.0 PROJECT DATA 4
3.0 BULLAWAH WINDFARM SITE LOCATION 5
4.0 PORT OF IMPORT 6
5.0 ROUTE SELECTION AND EVALUATION 8
6.0 TRANSPORT SUMMARY 10
7.0 ROUTE 1 STUDY: NEWCASTLE TO BULLAWAH WINDFARM 11
8.0 ROUTE 1: RAIL CROSSING CONFLICTS 37
9.0 ROUTE 1: REST AREAS 38
10.0 ROUTE 1: CONCLUSION 49
11.0 ROUTE 2 STUDY: NEWCASTLE TO BULLAWAH WINDFARM (HIGH LOAD ROUTE) 52
12.0 ROUTE 2: RAIL CROSSING CONFLICTS 85
13.0 ROUTE 2 CONCLUSION 88
14.0 ROUTE 3 STUDY: NEWCASTLE TO BULLAWAH WINDFARM 91
15.0 ROUTE 3: RAIL CROSSING CONFLICTS 95
16.0 ROUTE 3 CONCLUSION 96
17.0 TRANSPORT APPROVALS REQUIRED 98
18.0 ROADWORKS: POTENTIAL CONFLICTS WITH TFNSW PROJECTS 99
19.0 PORT TO REZ (P2R) UPGRADES 102
20.0 DRAFT DELIVERY SCHEDULE 104
21.0 REFERENCES 105
22.0 APPENDIX 1 – TRANSPORT COMBINATIONS 106
23.0 APPENDIX 2 – TRANSPORT COMBINATION DRAWINGS 108

1.0 Introduction

Bullawah Wind Farm Pty Ltd are in the early stages of investigating a potential windfarm in the Hay region of Southwest NSW.

This study has been prepared to provide an understanding of the transport route constraints for the proposed components as listed in the report and provide route options in order to assist in planning of the project.

This document utilises observations and data gained from route surveys (including obstacle height and width measurements), as well as previous experience on route and outlines the requirements for the transport of wind turbine equipment from Newcastle port to Bullawah Windfarm.

This study is based on an N163 wind turbine with an 80 Metre blade and a 148-metre tower.

This Route survey took place on the 04/12/2024.

2.0 Project Data

Date of latest Route Study. 04/12/2024
Survey undertaken by. Rex J Andrews Engineered Transportation P/L
Project name. Bullawah Windfarm
Port of import. Newcastle (NSW)
Project location. South Hay (NSW)

Turbine types undertaken in the study:

- Nordex N163 with an 80 Metre blade, on a 3x8-3x8 Blade transporter.
- Tower type: Nordex 148 metre tower.

3.0 Bullawah Windfarm Site Location

The proposed Bullawah wind farm near Hay in NSW will have an installed capacity of up to 803.7MW that will generate clean green renewable energy to power 500,000 homes. A battery facility on site will allow for the capture and storage of dispatchable energy.

The power generated either direct from the turbines or released from battery storage will feed into the electricity grid via the existing 220kV transmission line (Stage 1) or the new Project EnergyConnect transmission line (Stage 2).

The project includes 141 wind turbines, with a maximum blade-tip height of 300m above the ground.

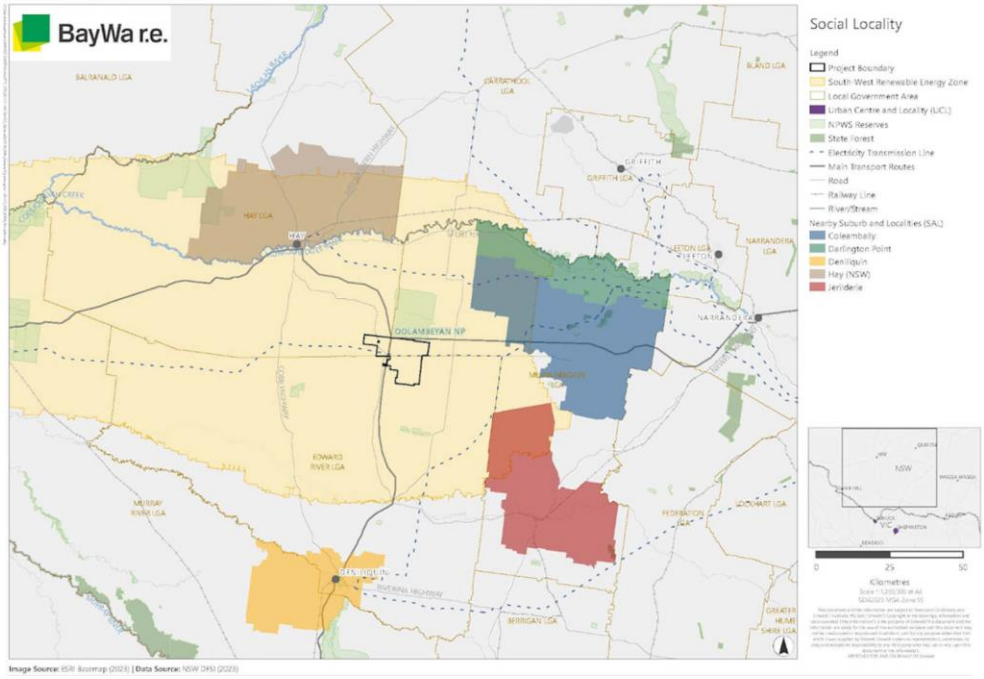


Figure 1 - Site Location

4.0 Port of Import

The wind turbine equipment will be imported from various countries and will arrive on ships into the Port of Newcastle.

The ideal berth for these shipments is the Mayfield No.4 Berth.

This facility has a hardstand storage area of roughly 100,000 s/q meters, adjacent to the berth.

Access from the storage to the public roads is via a port operated road onto Selwyn Street. There will need to be a small amount of road modifications within the port.



Figure 2 – Newcastle Port, Mayfield No. 4 berth



Figure 3 - Mayfield No.4 Port Storage Area

5.0 Route Selection and Evaluation

Assessment of the proposed routes was conducted by Rex J Andrews Engineered Transportation based on onsite route surveys (including height measurements on structures) as well as previous experience on sections of the identified routes and transporting turbine equipment similar to the proposed turbine that is used on various other projects. The assessment was conducted utilising the knowledge, experience and intellectual property of Rex J Andrews Engineered Transportation on purpose-built equipment and is not intended for use by other parties.

The assessment considered the key constraints encountered on the routes and an estimation of the amount of work required to make the route viable based on previous experience. Table 1 shows the evaluation of each route and provides an overall ranking to give guidance on the most suitable route for the development from a transport perspective. The assessment was based on operational factors and equipment capability and does not consider external factors such as regulatory, landholder, environmental, cultural or any other external factors beyond the knowledge or control of Rex J Andrews Engineered Transportation.

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

		Harbour	Road Modification	Road Furnishings	Vegetation	Site Entrance	Bridge Calculations	Overhead utilities	Overall Work Required
Route 1	Blades & Loads under 4.9m High	**2**	**4**	**4**	**2**	**4**	**2**	**2**	**3.5**
Route 2	Towers & Loads up to 6.1m high	**1**	**4**	**3**	**3**	**4**	**4**	**4**	**3.5**
Route 3	Motors & Loads up to 5.3m high	**1**	**1**	**1**	**1**	**4**	**2**	**1**	**2.0**

Table 1 - Route Evaluation

For BWF the largest design vehicles are associated with transportation of WTG blades and towers to site. Our analysis identifies that the largest design vehicles will need to cross into the incorrect lane at select intersections and corners (as indicated by the swept paths). Limiting the largest design vehicles to the correct lane for these intersections and corners would result in unnecessary environmental impacts and encroachment onto private land to accommodate short term OSOM vehicle movements. On this basis BWF proposes to use the complete intersection where needed i.e. the largest design vehicles would cross onto the incorrect side of the

road (as indicated by the swept paths) with local traffic controlled by Police and Pilots etc. Further, and as indicated by the swept paths, the largest design vehicles will remain well within the existing pavement and within existing intersection treatments (where applicable) at the majority of intersections and corners. However, new hardstands are proposed as documented in this Route Options Assessment. The largest design vehicles will remain well within the proposed pavement and intersection treatments (where applicable).

Throughout this report, references to making roundabouts, kerbs, median strips or islands 'trafficable' means physically modifying these structures to allow the truck to drive over them. While the scope of work required in each location will be determined during detailed design, in consultation with the relevant road authority, this may include partial or total removal of these structures and reconstruction or replacement with painted lines.

6.0 Transport Summary

The study is based on the turbine components and imported towers entering Australia via the Port of Newcastle. The study details the likely routes for these components, and the constraints that they may encounter on the proposed routes.
Route 1 - **Maximum loaded height of 4.9m** for blades to use North Connex tunnel
Route 2 - **Maximum loaded height of 6.1m** for towers
Route 3 - **Maximum loaded height of 5.3m** for all remaining loads via Pennant Hills Road.

ROUTE 1: Newcastle to Bullawah Windfarm

COMPONENTS: Blades (**Max loaded height 4.9m**)

DISTANCE: 955 kilometres
GPS LINK: https://maps.app.goo.gl/XL7pU97DAjyE59dn9
ROUTE: Selwyn Street, George Street, Industrial Drive, Maitland Road, New England Highway, John Renshaw Drive, M1, NorthConnex tunnel, M2, M7, M5, Hume Highway, Sturt Hwy, Cobb Highway, Jerilderie Road.

ROUTE 2: Newcastle to Bullawah (High load route)

COMPONENTS: Towers (**Max loaded height 6.1m)**

DISTANCE: 1,071 kilometres
GPS LINK: https://maps.app.goo.gl/MrGnDrvSF8jjgSNT8
ROUTE: Selwyn street, George Street, Industrial Drive, Maitland Road, New England Highway, John Renshaw Drive, Hunter Expressway, New England Highway, Golden Highway, Denman Road, Bengalla Road, Wybong Road, Golden Highway, Boothenba Road,Troy Bridge Road, Bunglegumbie Road, Mitchell Highway, Manildra Street, Derribing Avenue, Algalah Street, Tomingley Road, Newell Highway, Thomas Street, Moulden Street, Henry Parkes Way, Westlime Road, Hartigan Avenue, Newell Highway, Compton Road, Showground Road, Newell Highway, Sturt Highway, Cobb Highway, Jerilderie Road.

ROUTE 3: Newcastle to Bullawah Windfarm

COMPONENTS: Nacelles, Generators, Drive Trains, Hubs and smaller components (**Max loaded height 5.3m**)

DISTANCE: 956 kilometres

GPS LINK: https://maps.app.goo.gl/i6qzUDBbDJKUZM4s7

ROUTE: Quayside Close, Selwyn Street, George Street, Industrial Drive, Maitland Road, New England Highway, John Renshaw Drive, M1, Pennant Hills Road, M2, M7, Hume Motorway, Hume Highway, Sturt Highway, Cobb Highway, Jerilderie Road.

7.0 Route 1 Study: Newcastle to Bullawah Windfarm

COMPONENTS: Blades (**Max loaded height 4.9m**)
DISTANCE: 955 kilometres
GPS LINK: https://maps.app.goo.gl/XL7pU97DAjyE59dn9
ROUTE: Selwyn Street, George Street, Industrial Drive, Maitland Road, New England Highway, John Renshaw Drive, M1, NorthConnex tunnel, M2, M7, M5, Hume Highway, Sturt Hwy, Cobb Highway, Jerilderie Road.



Figure 4 - Route 1

KEY	
MODIFICATIONS REQUIRED	
PINCH POINT	

KM index	Location	Section of road	Current clearance	Procedure	Comments
0.0	Mayfield	Mayfield No.4 berth onto Selwyn Street https://goo.gl/maps/afLwPYKuNdm	Length: 80.0m Width: 8.0m Fence height: 3.0m	Right hand turn	Blade to oversail fence. Exact height of tip of blade is 3.2m. Spotter to assist at this pinchpoint.
0.4	Mayfield	Selwyn Street rail crossing https://goo.gl/maps/864FhMSaF9P2	Width: 9.0m	Travel directly ahead	Loads to travel over the crossing in the center of the road. Approval required crossing this line, likely cross with caution.
1.3	Mayfield	Selwyn Street onto Industrial Drive via George Street https://goo.gl/maps/brPRAckLr572	Length: 80.0m Width: 8.0m	Right hand turn	Sign to be removed and replaced for each blade movement. Spotter to assist at this pinchpoint.
4.9	Mayfield	Industrial Drive under traffic signals https://goo.gl/maps/5DpD3b7KnT72	Clearance: Height: 5.4m	Travel directly ahead	No problems with this section of road.
5.5	Mayfield West	Industrial Drive onto Pacific Hwy https://goo.gl/maps/Kn49dhWG2qG2	Length: 80.0m Width: 8.0m	Right hand turn	The blades will need to cross to the incorrect side of the intersection 200 metres prior, before crossing back over to the correct side 120 metres to the north of the intersection. Transporter to travel over the existing centre island.
14.2	Tarro	Gantry on New England Highway https://maps.app.goo.gl/LkhLdicHHeJE6gPo8	Clearance: Height: 6.2	Travel directly ahead	No problems with this section of road.
14.8	Tarro	Bend on New England Highway https://goo.gl/maps/hkKqsZMfdVJncRdu6	Length: 100.0m Width: 12.0m	Left hand bend	No problems with this section of road.
15.4	Tarro	New England Highway under Tarro interchange https://maps.app.goo.gl/JaXPAxHGozGs8GR17	Clearance: Height: 6.14	Travel directly ahead	No problems with this section of road.
17.4	Tarro	New England Highway onto John Renshaw Drive https://goo.gl/maps/SRDr5JigkBp	Length: 120.0m Width: 12.0m	Left hand merge	No problems with this section of road.
18.4	Beresfield	John Renshaw Drive onto the M1 https://goo.gl/maps/A34ihxCjM5wfRDdq6	Length: 100.0m Width: 8.0m	Left hand bend	Sign to be relocated or lowered.
113.0	Mt White	M1 Motorway under Mt White overpass https://goo.gl/maps/K3fPPe4fNx63xB3j7	Height clearances: Left Lane: 5.38m Centre Lane: 5.35m Right Lane: 5.37ms	Travel directly ahead	Loads that exceed 5.3 metres high are not to travel under this structure. Loads over 5.2 metres high are to travel under the bridge in the far-right lane, and at a speed of no more than 5 km's per hour. Spotter to guide load through this section of road.
146.0	Wahroonga	M1 Motorway onto M11 Motorway (Northconnex) https://goo.gl/maps/bskC8kD4CdW9xmwYA	Length: 110.0m Width: 8.0m	Merge to left and proceed towards the M11 tunnel	Approval required from Northconnex to travel through the tunnel. Maximum loaded height of 4.9 metres is allowable through the tunnel.

KM index	Location	Section of road	Current clearance	Procedure	Comments
154.0	West Pennant Hills	M11 Motorway (Northconnex) onto M2 Motorway https://goo.gl/maps/cCsJwSt1NsRi5cSs6	Length: 75.0m Width: 7.0m	Merge to right	No problems with this section of road.
163.0	Winston Hills	M2 Motorway onto M7 Motorway https://goo.gl/maps/PC96cBq2xqtW85vG7	Width: 10.0m	Travel directly ahead	No problems with this section of road.
238.0	Wilton	Hume Highway under Fairway Drive overpass https://goo.gl/maps/2ZsVqYJ9j9gPTGqa9	Height clearances: Left Lane: 5.4m Right Lane: 5.3m	Travel directly ahead	Loads that exceed 5.3 metres high are not to travel under this structure. Loads over 5.2 metres high are to travel under the bridge in the left lane, and at a speed of no more than 5 km's per hour. Spotter to guide load through this section of road.
353.0	Goulburn	Windellama/Bungonia Road Overpass GPS Link: Windellama Rd OP	5.44 Metres clearance	Travel directly ahead	No problems with this section of road
573.70	Tarcutta	Hume Hwy onto Sturt Hwy GPS Link: https://goo.gl/maps/ruqNDSw5vanJDd4x5	200m long	Left Hand Merge	Merge left to left lane to exit Hume Hwy, follow road right onto overpass onto Sturt Hwy. No problems with this section of road.
614.6	Wagga Wagga	Sturt Hwy GPS Link: https://goo.gl/maps/7VDWUyW8KnUhCEdd7	80m long	Second Exit on Round-about	Existing apron on the roundabout to be traversed by the transporter. Centre of roundabout to be made trafficable. Sign to be made removable or relocated.
617.3	Wagga Wagga	Sturt Hwy GPS Link: https://goo.gl/maps/VeavHs6e4AjLaqqDA	80m long	Second Exit on Round-about	Existing apron on the roundabout to be traversed by the transporter. Centre of roundabout to be made trafficable. Sign to be made removable or relocated.
618.4	Wagga Wagga	Sturt Hwy GPS Link: https://goo.gl/maps/dBrte59BvHyvcGSr5	80m long	Second Exit on Round-about	Existing apron on the roundabout to be traversed by the transporter. Centre of roundabout to be made trafficable. Sign to be made removable or relocated.
618.75	Wagga Wagga	Sturt Hwy under rail overpass GPS Link: https://goo.gl/maps/JPkJBAyzJuMAiHUz8	Height clearances: 5.570m	Travel under rail overpass	The assessment shows that the blade can fit under this structure.
621.5	Wagga Wagga	Sturt Hwy GPS Link: https://goo.gl/maps/fx398veUAjbykiyPA	80m long	Second Exit on Round-about	Existing apron on the roundabout to be traversed by the transporter. Centre of roundabout to be made trafficable. Sign to be made removable or relocated.
711.0	Gillenbah	Sturt Hwy GPS Link: https://goo.gl/maps/C7gJ8ouDVdpcH5Rz7	80m long	Left Hand Turn	A lightpole will need to be relocated. Several signs to be relocated or made removable. Traffic island to be made trafficable or removed and replaced with chevrons.
882.0	Hay South	Sturt Hwy onto Cobb Hwy https://goo.gl/maps/5N5YDKoTzaRtbv7Q9	95.0 metres long 5.0 metres wide	Take the first exit onto Cobb Hwy	Use slip lane on Roundabout
889.0	Hay South	Cobb Hwy onto Jerilderie Road GPS Link: https://goo.gl/maps/HYSt1h5MQfK9iie76	35.0 metres long 6.5 metres wide	Turn left onto Jerilderie Road	Hardstand to be installed on inside of corner.

KM index	Location	Section of road	Current clearance	Procedure	Comments
929.0	Hay South	Windfarm Entry # 1 GPS Link: https://goo.gl/maps/tawfeFCo4jdCYgpF7	30.0 metres long 4.5 metres wide	Turn right into site entry.	Hardstand to be installed, fence and gate to be modified.
935.4	Hay South	Windfarm Entry # 5 GPS Link: https://goo.gl/maps/V8ARPnJdpALJ6Kfm9	30.0 metres long 4.5 metres wide	Turn right into site.	Hardstand to be installed, fence and gate to be modified.
937.2	Hay South	Windfarm Entry # 6 GPS Link: https://goo.gl/maps/hbR3EvWS7ZNm3Yhm9	30.0 metres long 4.5 metres wide	Turn right into site.	Hardstand to be installed, fence and gate to be modified.
939.8	Hay South	Windfarm Entry # 7 GPS Link: https://goo.gl/maps/jhpwVAAKmBFWt67E6	30.0 metres long 4.5 metres wide	Turn left into site.	Hardstand to be installed.
945.0	Hay South	Windfarm Entry # 8 GPS Link: https://goo.gl/maps/X2kT4i9ZrhYZQBMv5	30.0 metres long 4.5 metres wide	Turn left or right into site	Hardstand to be installed, fences and gates to be modified.
950.7	Hay South	Windfarm Entry # 10 GPS Link: https://goo.gl/maps/iJ9HgH2MAAGqSqKrT7	30.0 metres long 4.5 metres wide	Turn right into site.	Hardstand to be installed, fences and gates to be modified.
955.0	Hay South	Windfarm Entry # 11 GPS Link: https://goo.gl/maps/kty5wETQgv1F9ARi9	30.0 metres long 4.5 metres wide	Turn left into site.	Hardstand to be installed, fences and gates to be modified.

0.0 Km's: Mayfield No.4 berth onto Selwyn Street at Tighes Hill

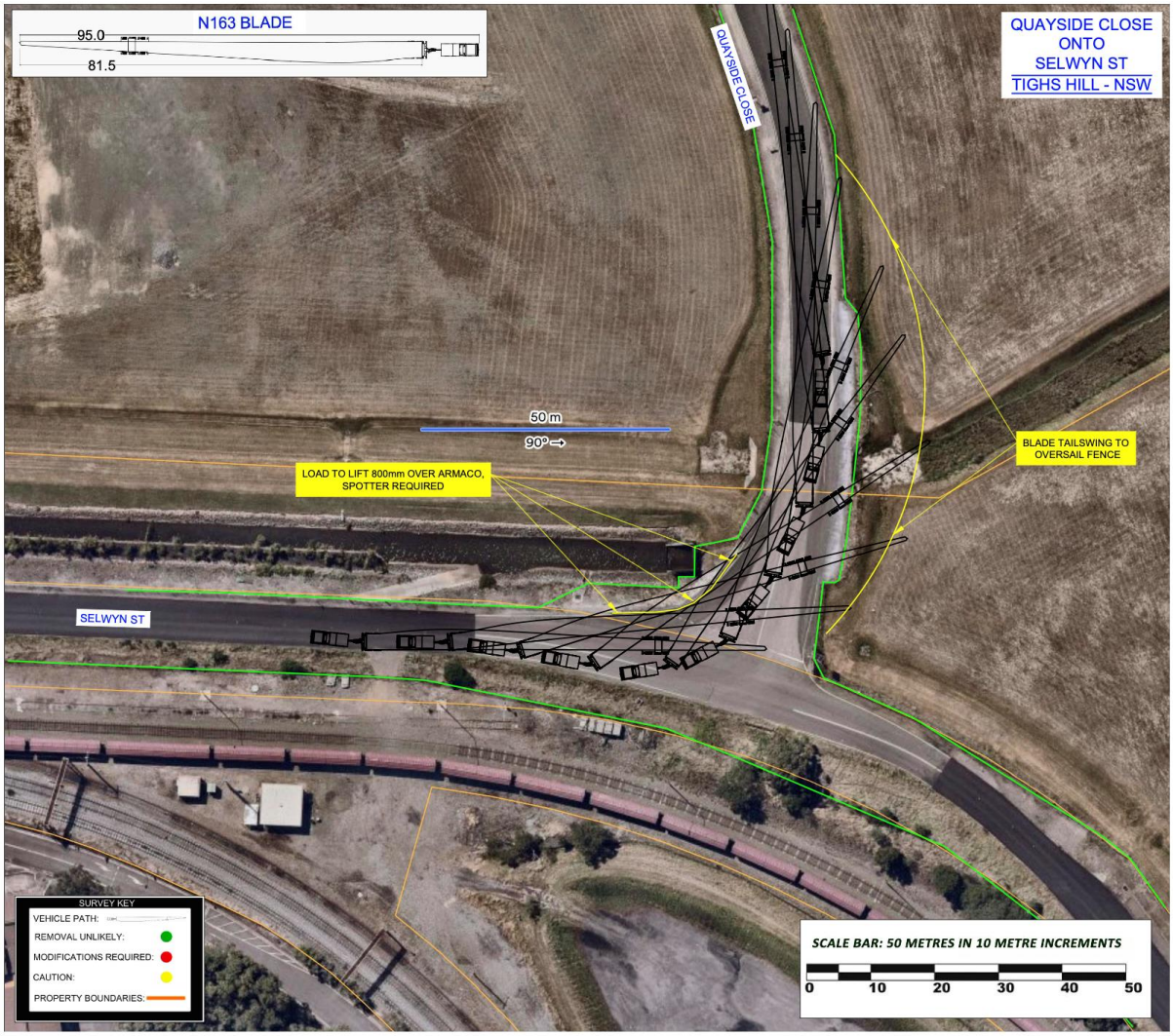


Figure 5 - Mayfield No.4 berth onto Selwyn Street

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/afLwPYKuNdm
PROCEDURE: Right hand turn. Police to control traffic, pilots to warn all traffic.
Blade to oversail 3.0 metre high fence. Blade tip height is 3.2m.
Spotter to assist the load through this pinchpoint.
ROAD MODIFICATIONS: Nil.

1.3 Km's: Selwyn Street onto Industrial Drive via George Street at Mayfield North

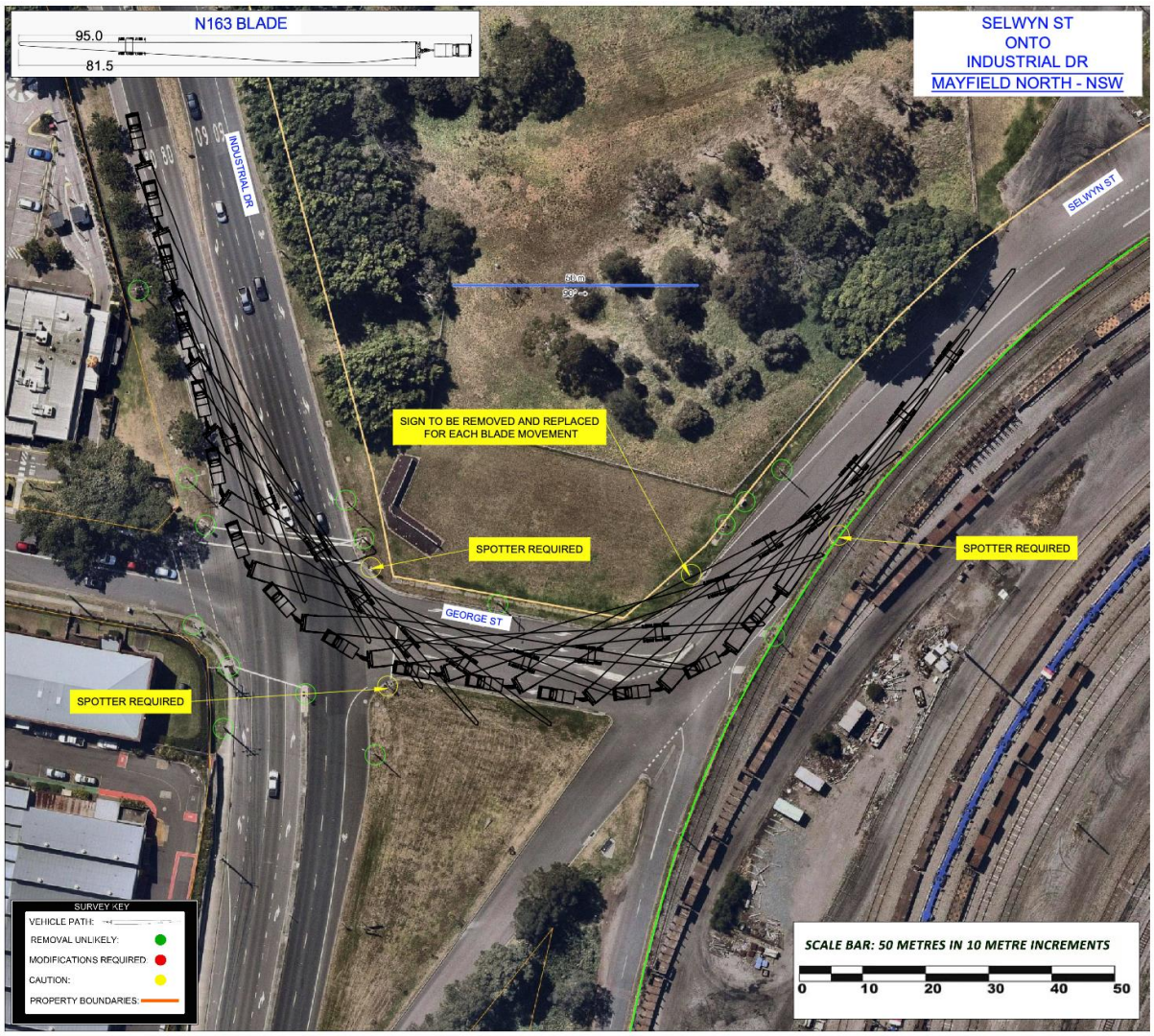


Figure 6 - Selwyn Street onto Industrial Drive via George Street

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/brPRAckLr572

PROCEDURE: Right hand turn. Police to control traffic, pilots to warn all traffic. Sign to be removed and replaced for each blade movement. Spotter to assist the load through this pinchpoint.

ROAD MODIFICATIONS: Nil.

5.5 Km's: Industrial Drive onto Pacific Highway at Mayfield West

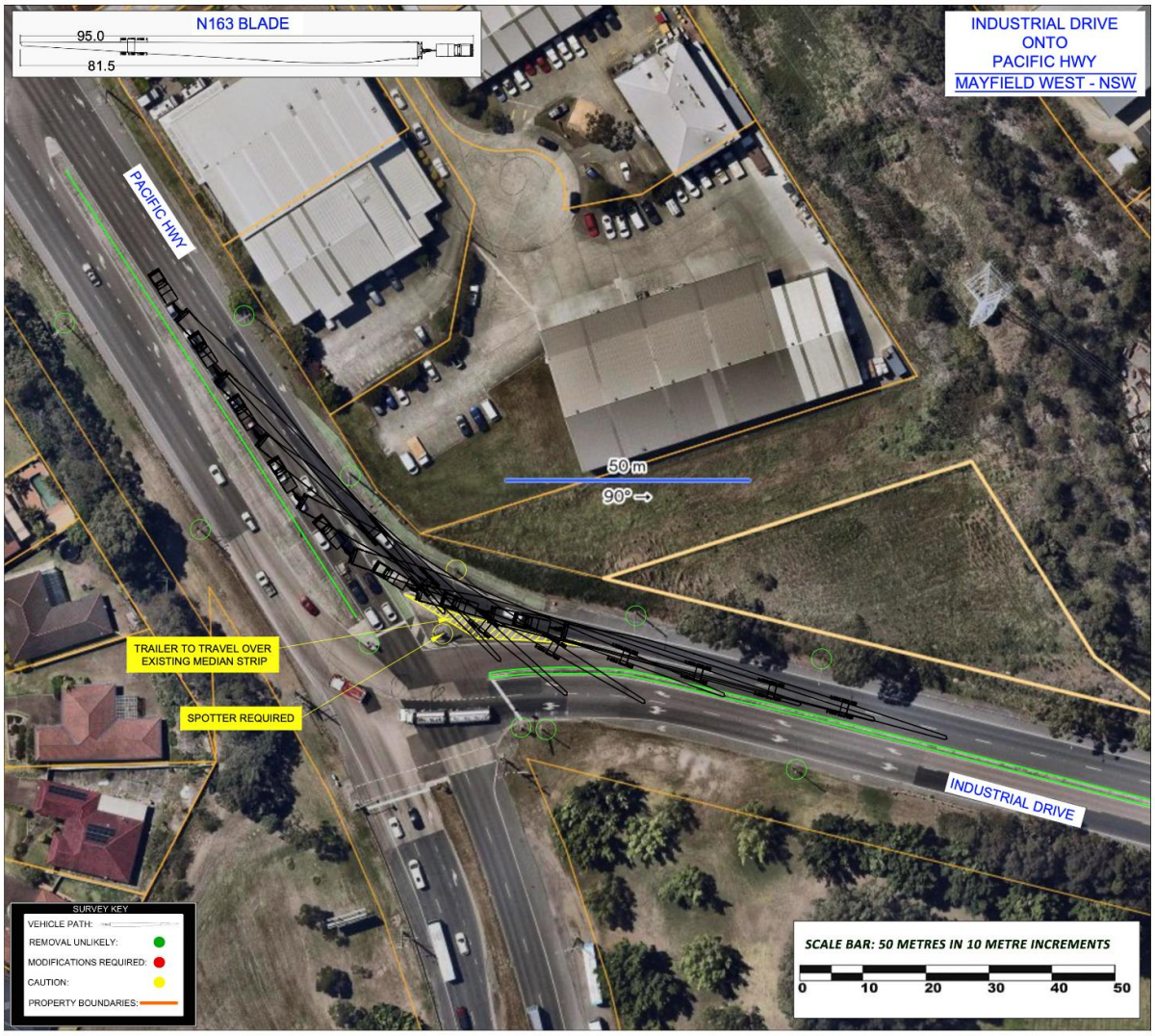


Figure 7 - Industrial Drive onto Pacific Hwy

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/Kn49dhWG2qG2

PROCEDURE: Right hand turn. The blades will need to cross to the incorrect side of the intersection 200 metres prior, before crossing back over to the correct side 120 metres to the north of the intersection. Transporter to traverse the existing median strip. Police to control traffic, pilots to warn all traffic. Spotter to assist the load through this pinchpoint.

ROAD MODIFICATIONS: Nil.

14.8 Km's: Bend on New England Highway at Tarro



Figure 8 - Bend on New England Highway

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/hkKgsZMfdVJncRdu6
PROCEDURE: Left hand bend.
ROAD MODIFICATIONS: No problems with this section of road.

18.4 Km's: John Renshaw Drive onto the M1 at Beresfield

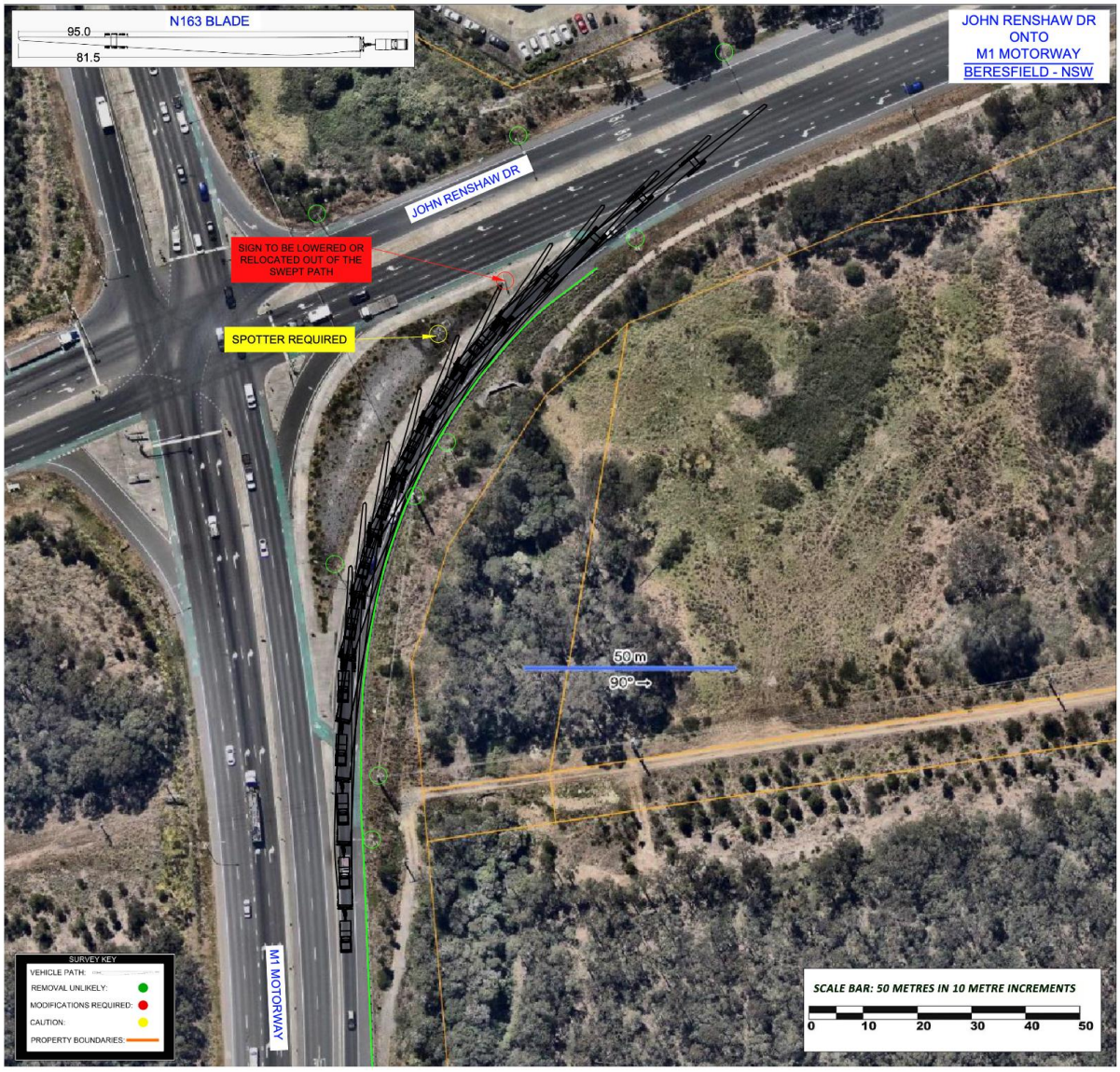


Figure 9 - John Renshaw Drive onto the M1

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/A34ihxCjM5wfRDdq6

PROCEDURE: Left hand bend via slip lane. Police to control traffic, pilots to warn all traffic. Spotter to assist the load through this pinchpoint.

ROAD MODIFICATIONS: Sign to be relocated or lowered.

146.1 – 155.9 Km's: M1 Motorway onto M2 Motorway Through the North Connex Tunnel

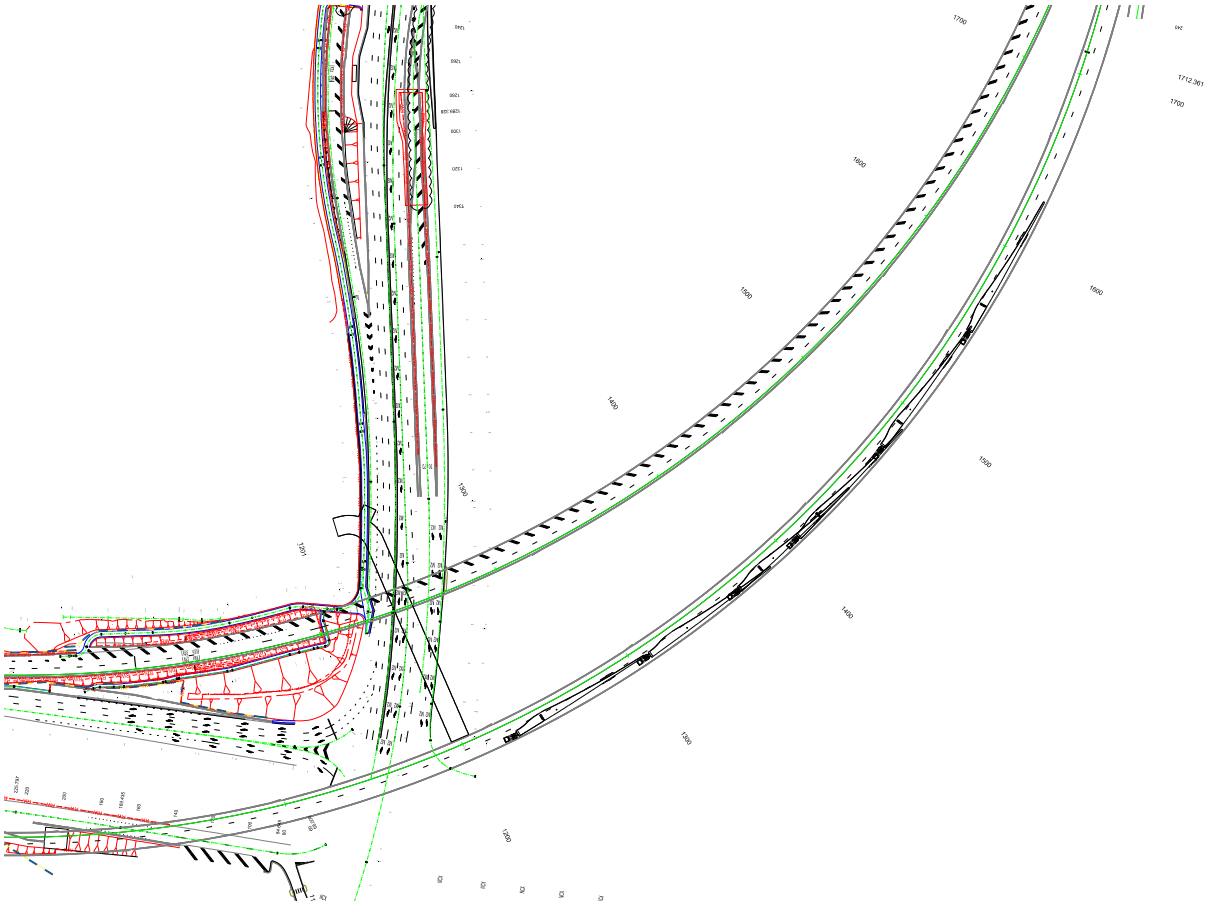


Figure 10 - M2 Motorway Through the North Connex Tunnel

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/BZaXJ5V6CmT2Pt8v8
PROCEDURE: Travel through the North Connex tunnel.
COMMENTS: The tunnel has very large radius corners that will be no issues for the blades. The tightest section is shown above.
Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic. Maximum height of 4.9 metres.
ROAD MODIFICATIONS: No works are required.

614.6 Km's: 1st Roundabout on the Sturt Highway at Wagga Wagga

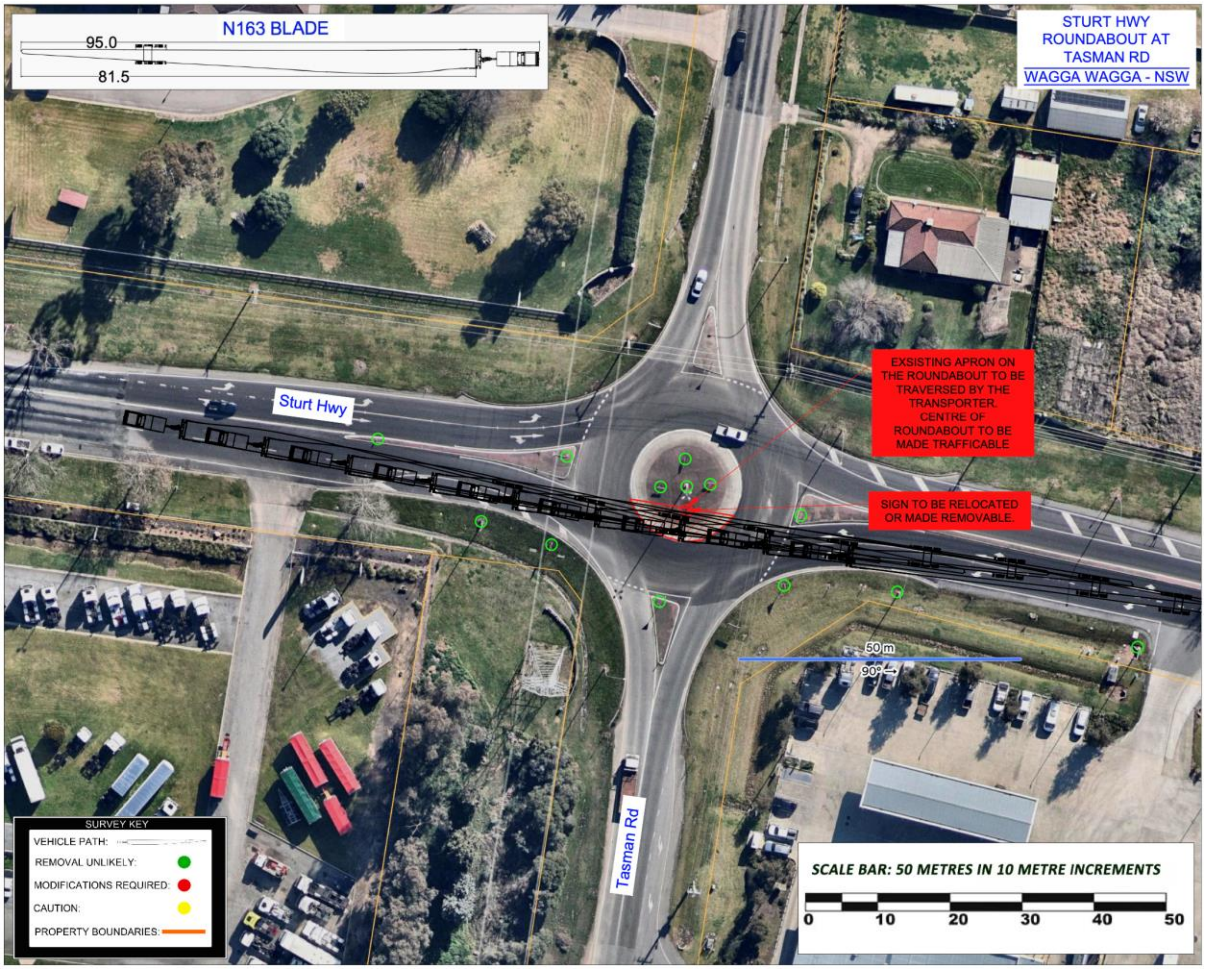


Figure 11 - Sturt Hwy Roundabout at Tasman Rd

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/7VDWUyW8KnUhCEdd7
PROCEDURE: Continue straight ahead. The truck will need to cut across the centre of the roundabout using the existing mountable kerb. Police to control traffic, pilots to warn all traffic. Spotter to assist the load through this pinchpoint.
ROAD MODIFICATIONS: Sign to be removed in the middle of the roundabout. Inside of roundabout to be made trafficable.

617.3 Km's: 2nd Roundabout on the Sturt Highway at Wagga Wagga

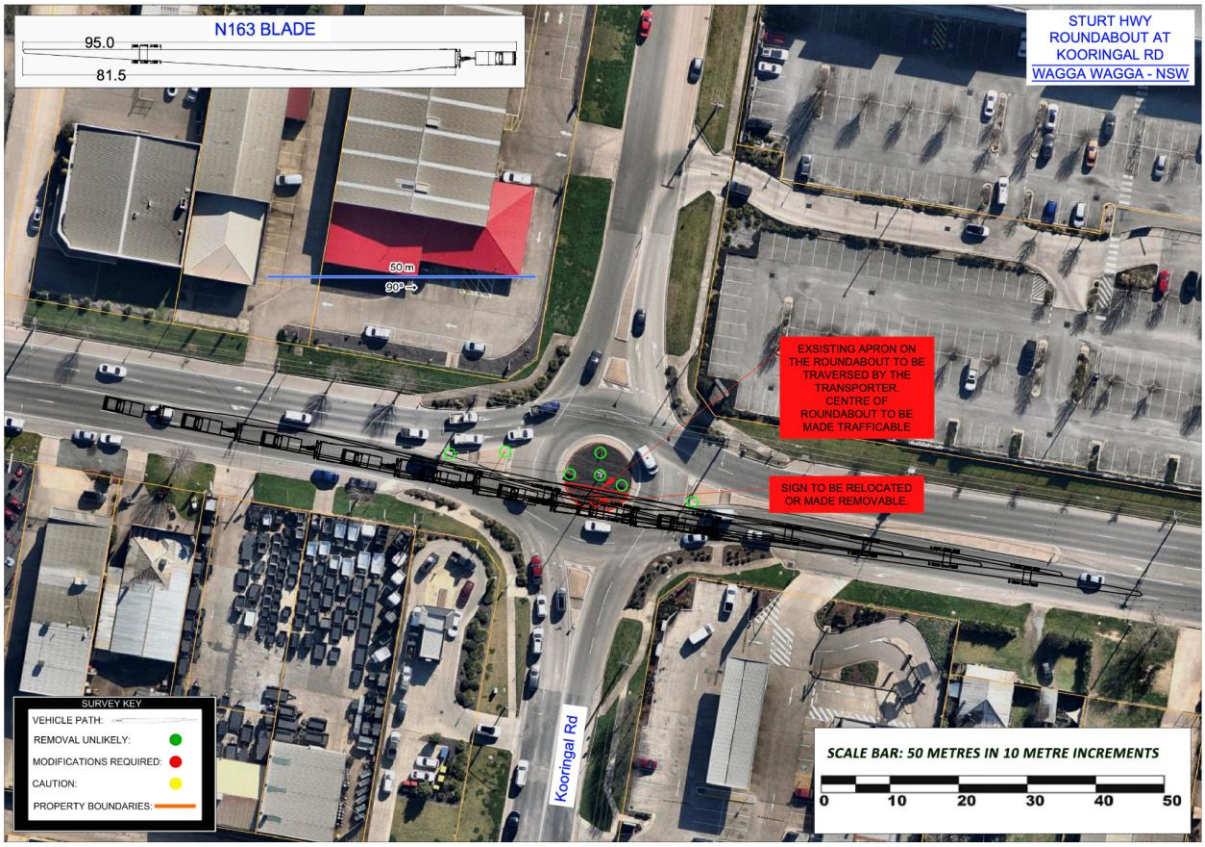


Figure 12 - Sturt Hwy Roundabout at Kooringal Rd

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/VeavHs6e4AjLagqDA
PROCEDURE: Continue straight ahead. The truck will need to cut across the centre of the roundabout using the existing mountable kerb. Police to control traffic, pilots to warn all traffic. Spotter to assist the load through this pinchpoint.
ROAD MODIFICATIONS: Sign to be removed in the middle of the roundabout. Inside of roundabout to be made trafficable.

618.4 Km's: 3rd Roundabout on the Sturt Highway at Wagga Wagga



Figure 13 - Sturt Hwy Roundabout at Norton St

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/dBrte59BvHyvcGSr5
PROCEDURE: Continue straight ahead. The truck will need to cut across the centre of the roundabout using the existing mountable kerb. Police to control traffic, pilots to warn all traffic. Spotter to assist the load through this pinchpoint.
ROAD MODIFICATIONS: Sign to be removed in the middle of the roundabout. Inside of roundabout to be made trafficable.

618.75 Km's: Sturt Highway under Edward Street Rail Bridge

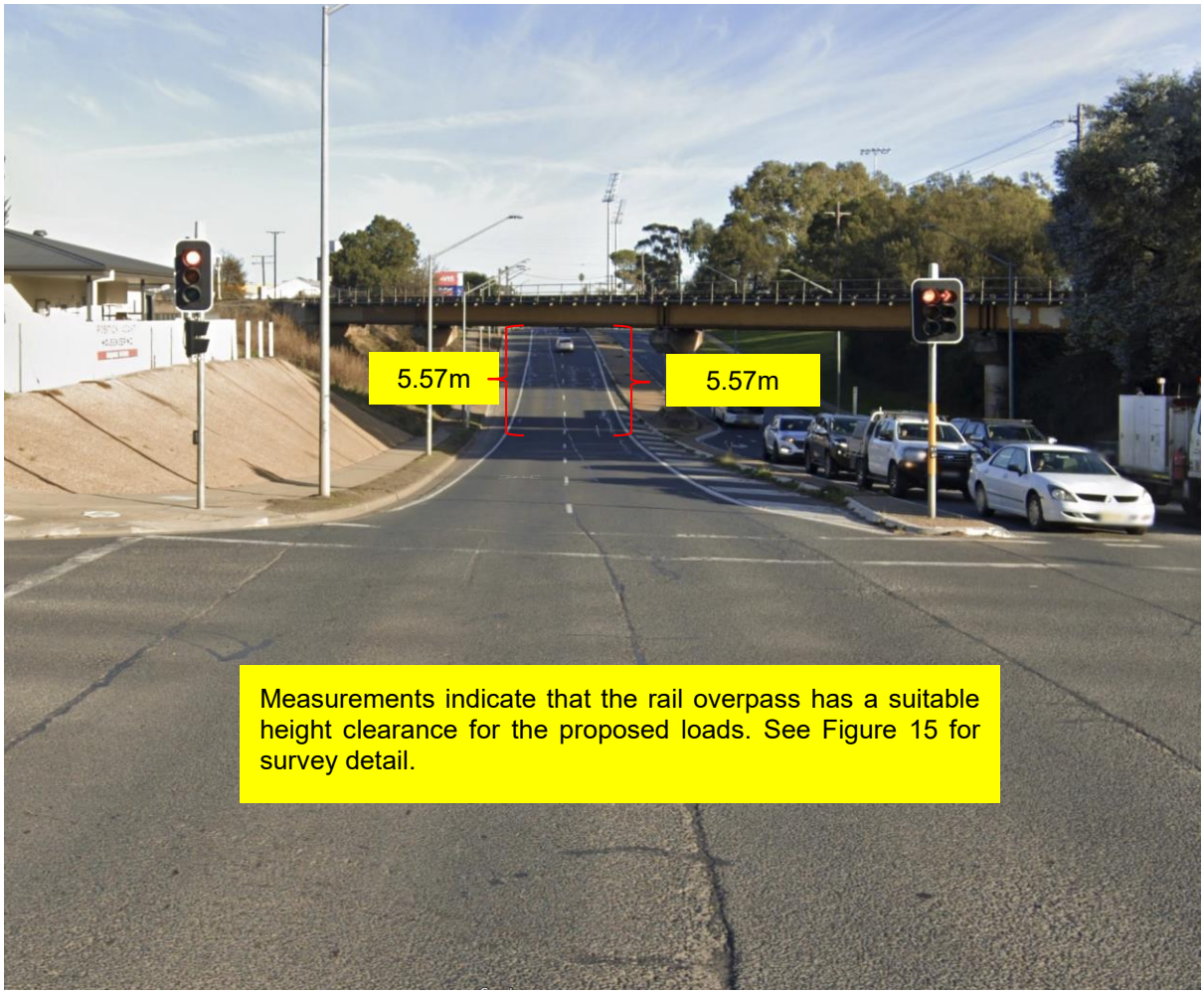


Figure 14 - Sturt Highway under Edward St Rail Bridge

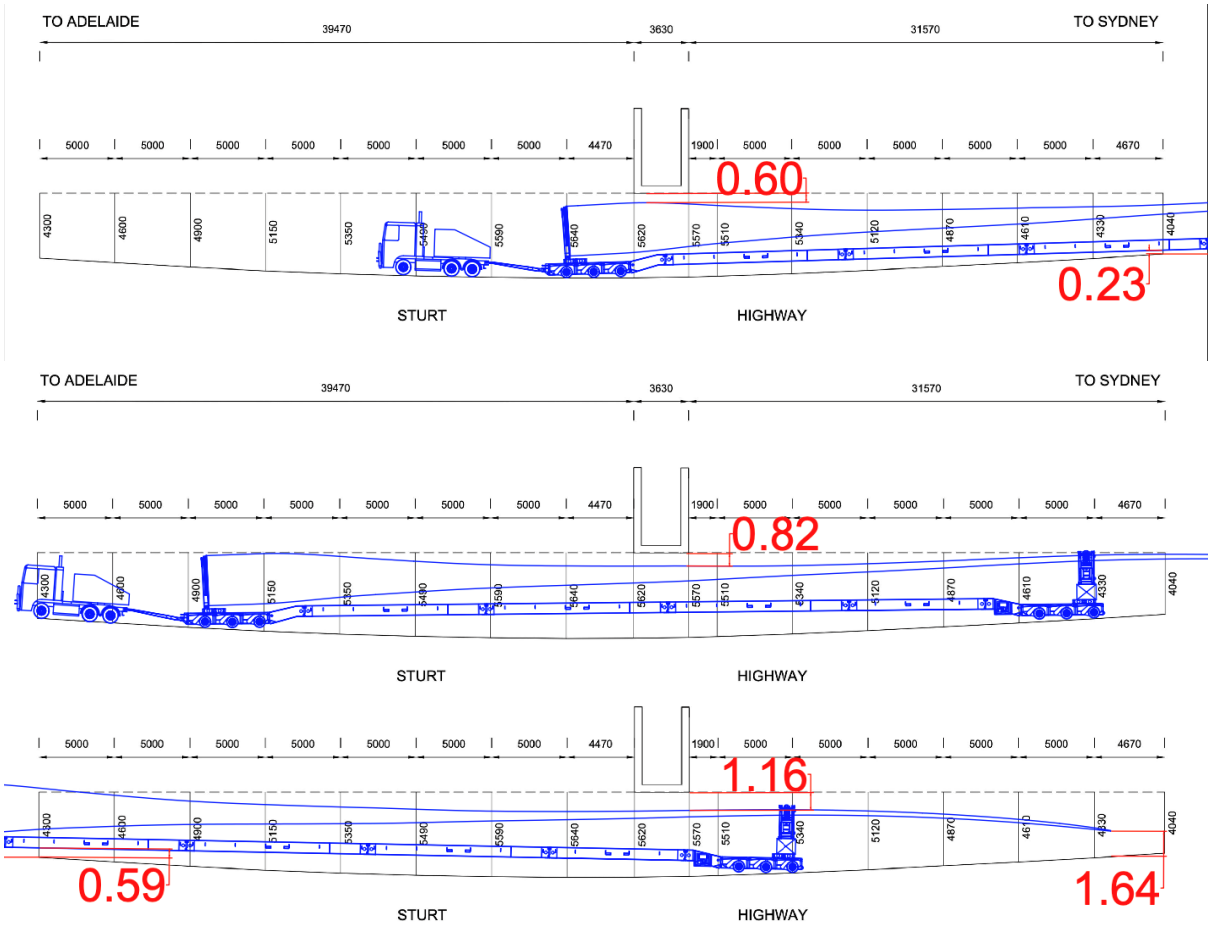


Figure 15 - Sturt Highway under Edward St Rail Bridge with N163 blade

Note: the unit of measurements in Figure 15 are in millimetres (mm)

A lidar study took place on Wagga Wagga rail bridge on the 13/03/2025 by Rivland surveyors. The results were presented as per the images that are shown in the report.

621.5 Km's: 4th Roundabout on the Sturt Highway at Wagga Wagga



Figure 16 - Sturt Hwy Roundabout at Pearson St

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/fx388veUAjbykiyPA
PROCEDURE: Continue straight ahead. The truck will need to cut across the centre of the roundabout using the existing mountable kerb. Police to control traffic, pilots to warn all traffic. Spotter to assist the load through this pinchpoint.
ROAD MODIFICATIONS: Sign to be removed in the middle of the roundabout. Inside of roundabout to be made trafficable.

711.0 Km's: Left Hand Bend on the Sturt Highway at Gillenbah

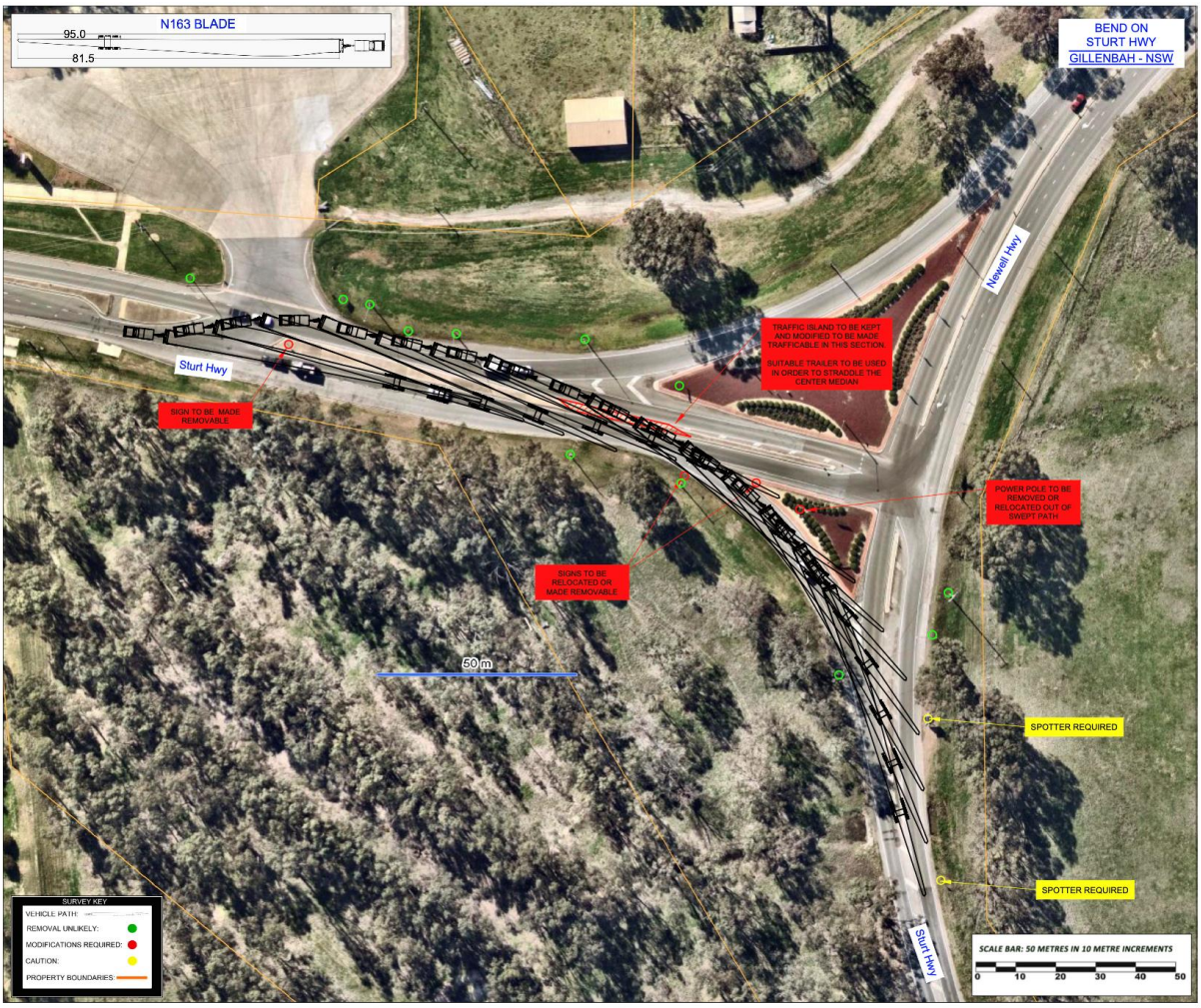


Figure 17 - Left hand bend to stay on the Sturt Highway at Gillenbah

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/C7gJ8ouDVdpcH5Rz7

PROCEDURE: Left hand Turn. The truck will need to cross onto the incorrect side of the road for about 100m by cutting across the medium strip and having the trailer straddle the centre island.

COMMENTS: Spotter to guide the load throughout the intersection.

ROAD MODIFICATIONS: Several signs to be relocated or made removable. Light/Power pole to be relocated out of swept path. Vegetation to be removed or trimmed for blade oversail. Section of traffic island to be made trafficable. Suitable trailer to be used in order to straddle centre median.

882.0 Km's: Roundabout on Sturt Highway at Hay onto Cobb Highway

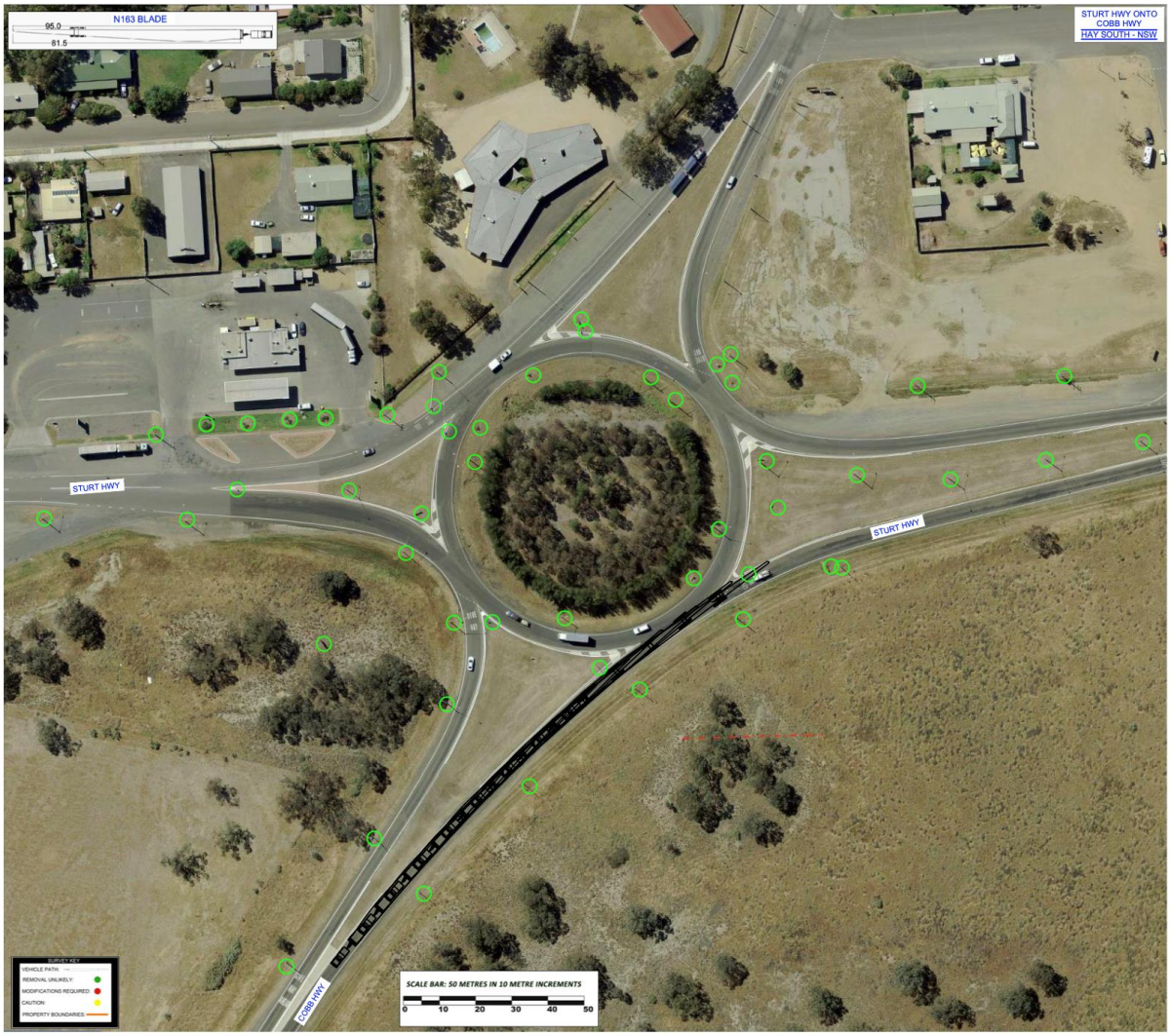


Figure 18: Sturt Highway onto Cobb Highway at Hay

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/9VAYyvhup29NtSPE6
PROCEDURE: Load to use the sliplane to the left and travel onto the Cobb Hwy.
COMMENTS: Spotter to guide the load throughout the intersection.
ROAD MODIFICATIONS: No works required.

889.0 Km's: Cobb Highway onto Jerilderie Road

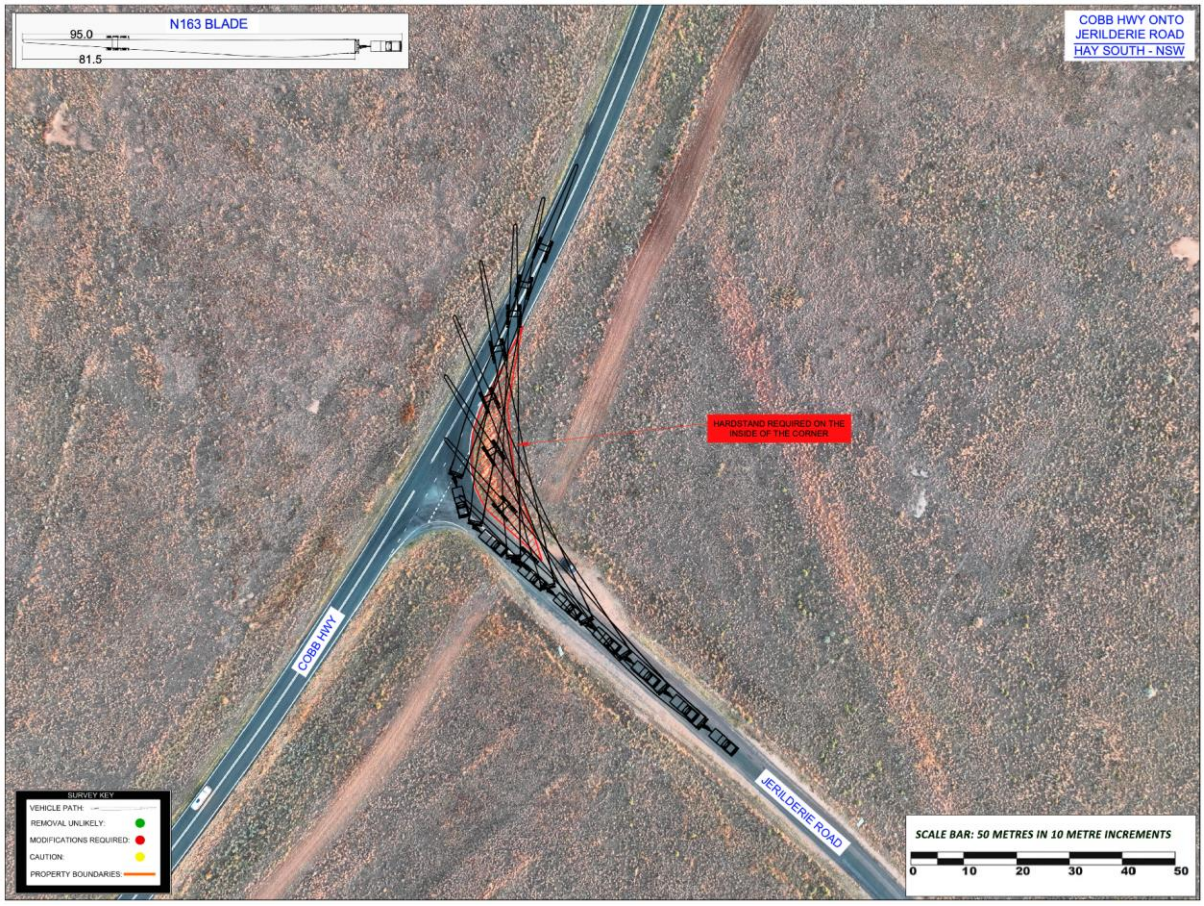


Figure 19: Cobb Highway onto Jeriderie Road

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/HYSt1h5MQfK9iie76

PROCEDURE: Turn left onto Jerilderie Road.

COMMENTS:

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

ROAD MODIFICATIONS: Yes, Hardstand to be installed on inside of corner.

929.0 Km's: Windfarm Entry # 1

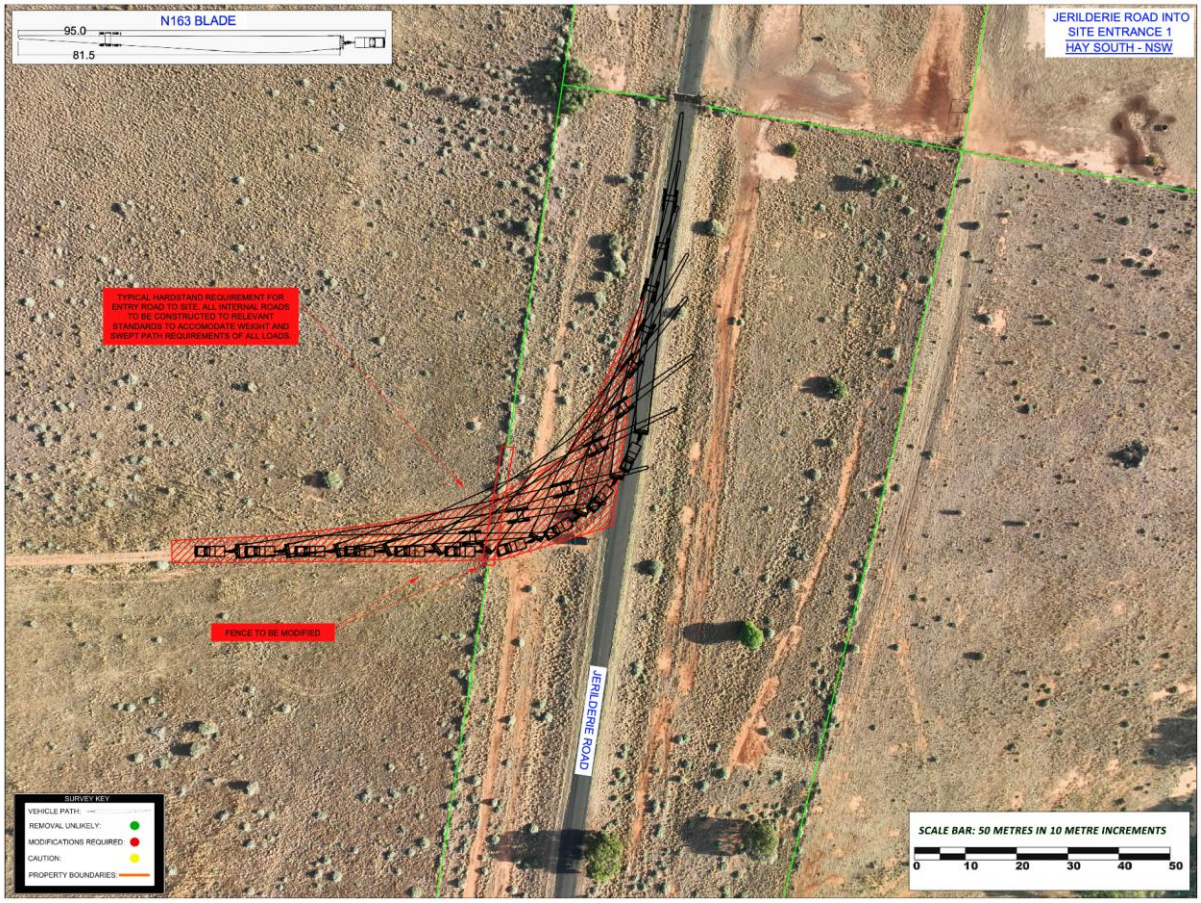


Figure 20: Jerilderie Road into Site entrance #1

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/tawfeFCo4jdCYgpF7

PROCEDURE: Turn right into site entry.

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

ROAD MODIFICATIONS: Yes, Hardstand to be installed, fence and gate to be modified.

935.4 Km's: Windfarm Entry # 5

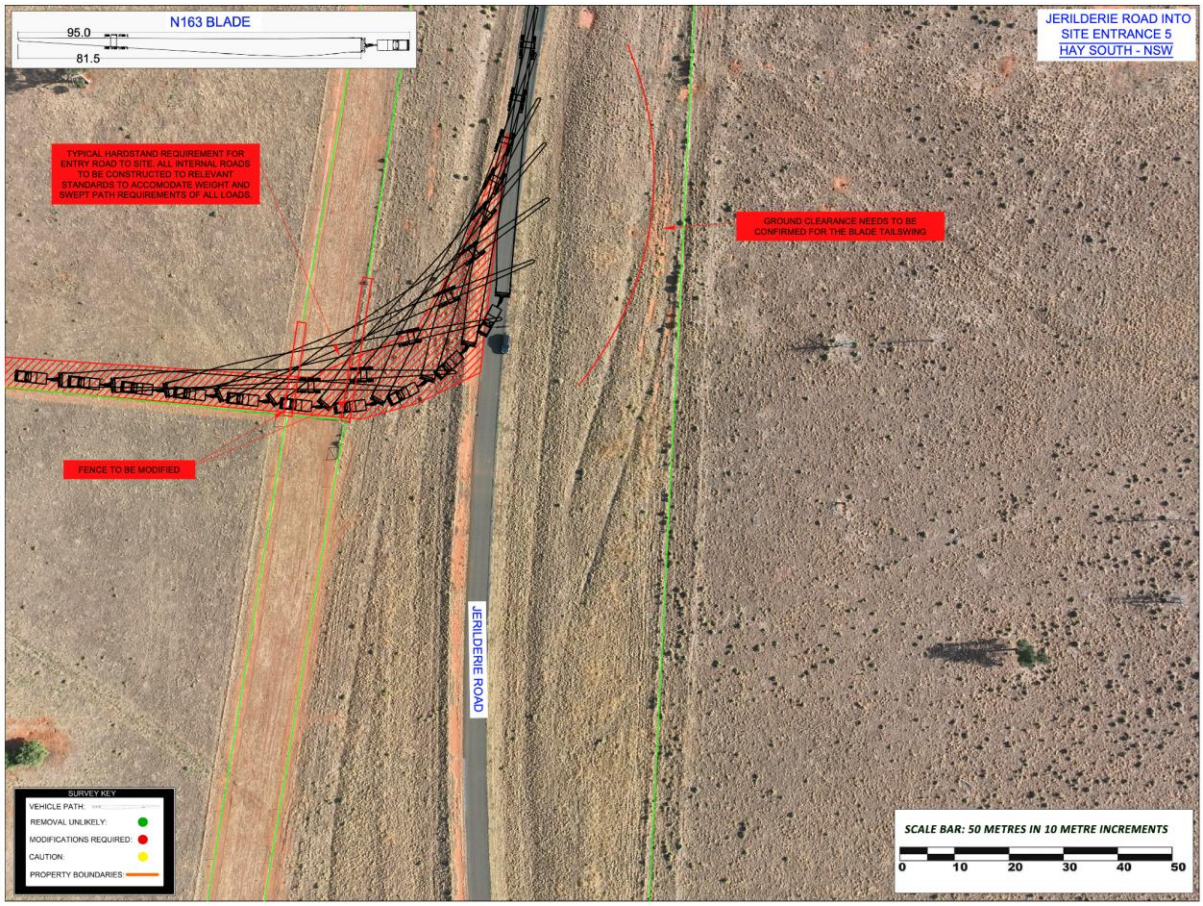


Figure 21: Jerilderie Road into Site entrance #5

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/V8ARPnJdpALJ5Kfm9

PROCEDURE: Turn right into site.

COMMENTS: Ground clearance to be confirmed for blade oversail. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warm all traffic.

ROAD MODIFICATIONS: Yes. Hardstand to be installed, fence and gate to be modified.

937.2 Km's: Windfarm Entry # 6

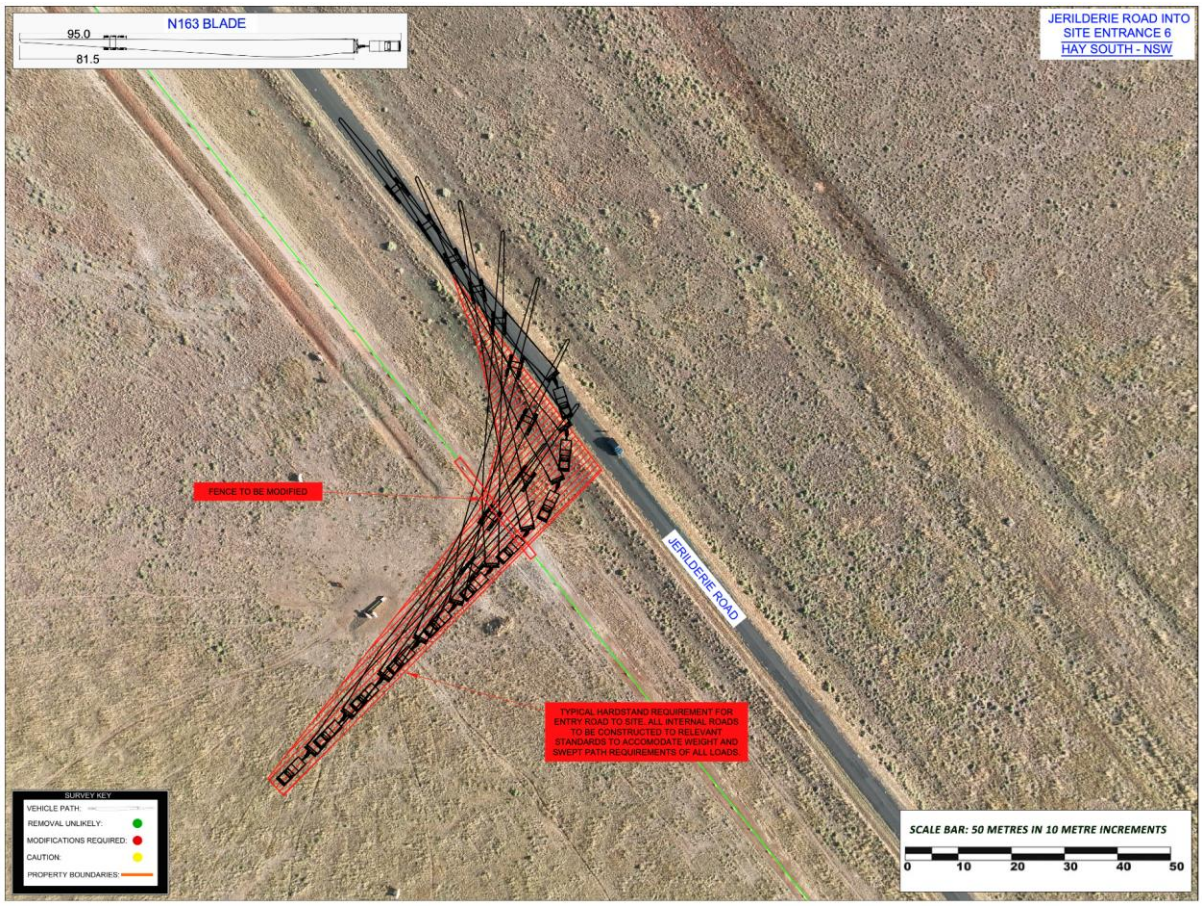


Figure 22: Jerilderie Road into Site entrance #6

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/hbR3EvWS7ZNm3Yhm9

PROCEDURE: Turn right into site.

COMMENTS:

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

ROAD MODIFICATIONS: Yes. Hardstand to be installed, fence and gate to be modified.

939.8 Km's: Windfarm Entry # 7

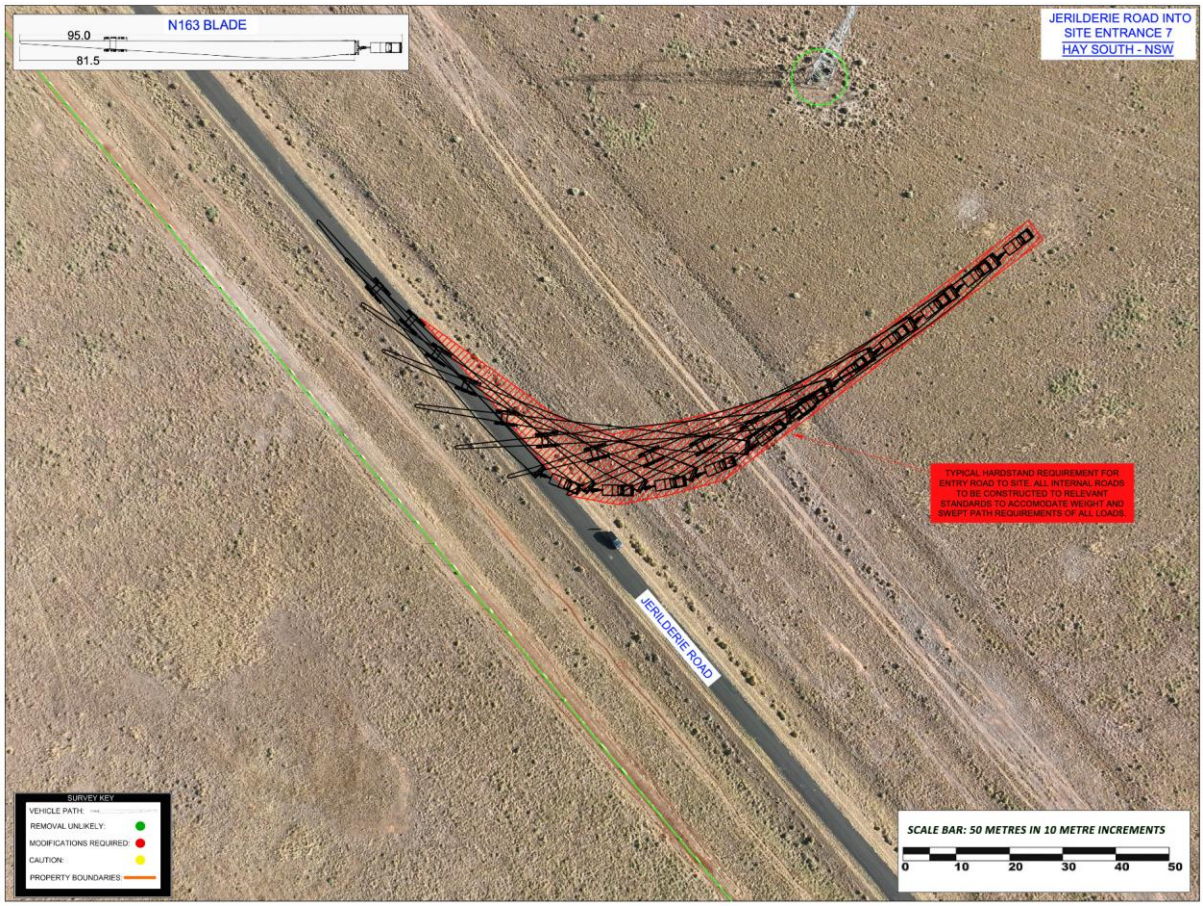


Figure 23: Jerilderie Road into Site entrance #7

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/jhpwVAAKmBFWt67E6

PROCEDURE: Turn left into site.

COMMENTS:

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

ROAD MODIFICATIONS: Yes. Hardstand to be installed.

945.0 Km's: Windfarm Entry # 8

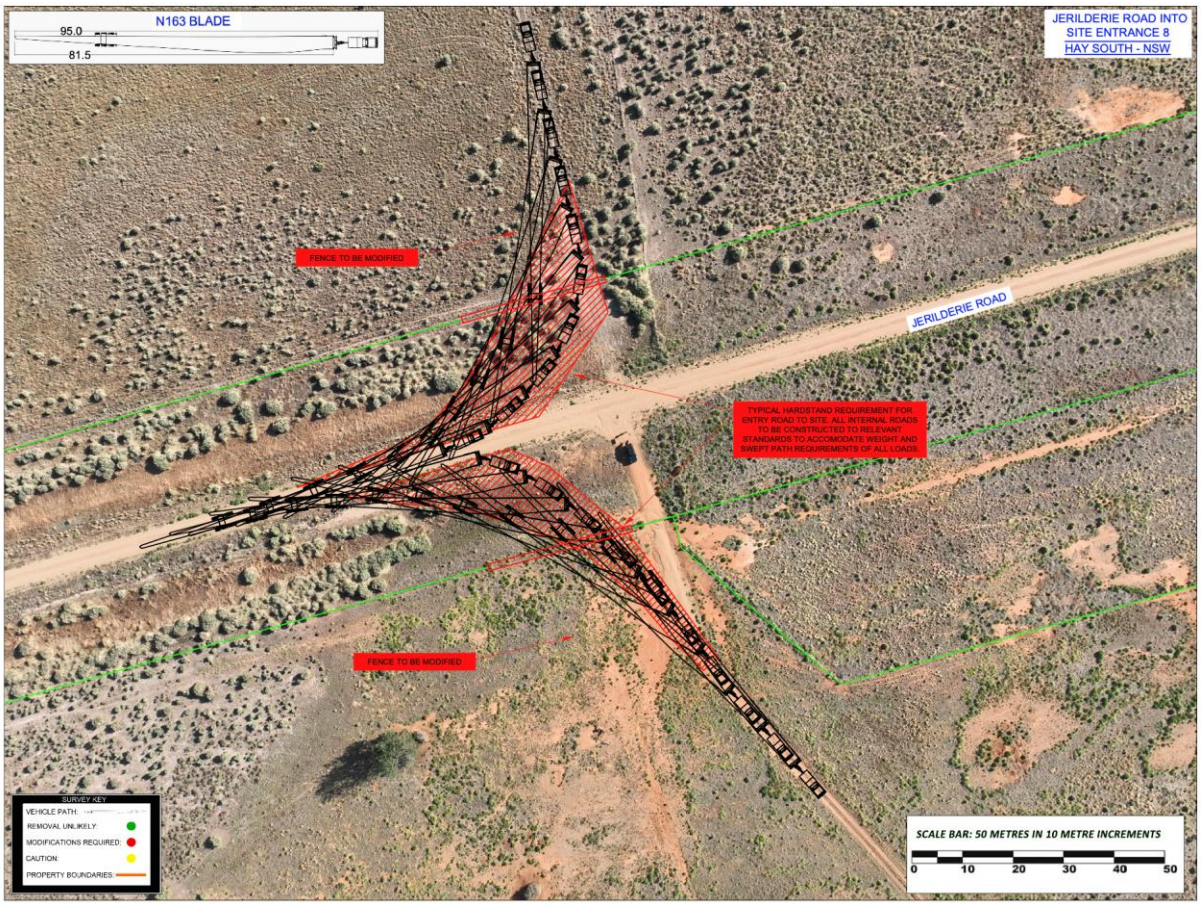


Figure 24: Jerilderie Road into Site entrance #8

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/X2kT4i9ZrhYZQBMv5

PROCEDURE: Turn left or right into site

COMMENTS:

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

ROAD MODIFICATIONS: Yes. Hardstand to be installed, fences and gates to be modified.

950.7 Km's: Windfarm Entry # 10

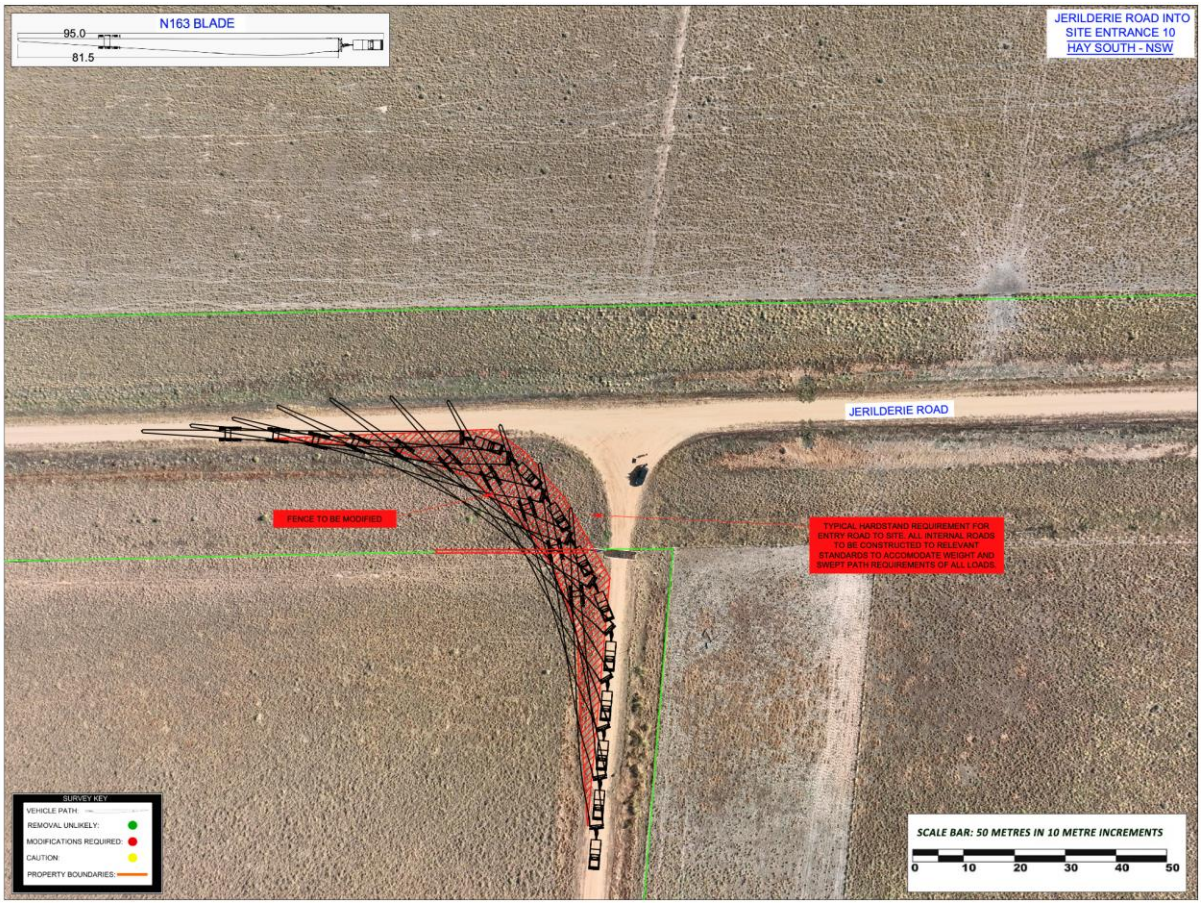


Figure 25: Jerilderie Road into Site entrance #10

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/U9HgH2MAAGqSqKrT7

PROCEDURE: Turn right into site.

COMMENTS:

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

ROAD MODIFICATIONS: Yes. Hardstand to be installed, fences and gates to be modified.

956.0 Km's: Windfarm Entry # 11

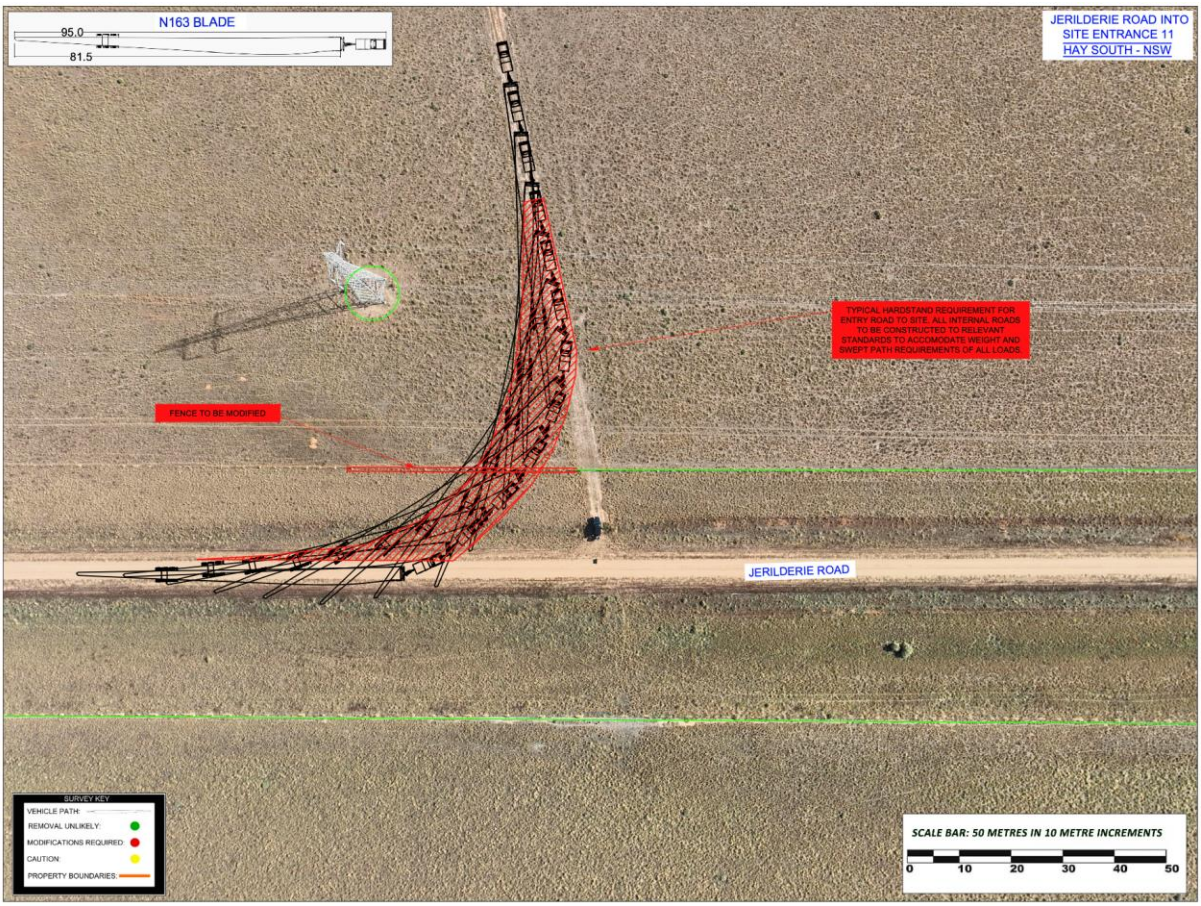


Figure 26: Jerilderie Road into Site entrance #11

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/kty5wETQgv1F9ARi9

PROCEDURE: Turn left into site.

COMMENTS:

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

ROAD MODIFICATIONS: Yes. Hardstand to be installed, fences and gates to be modified.

8.0 Route 1: Rail crossing conflicts

01 Selwyn St, Mayfield North
GPS: https://goo.gl/maps/AmohE54hKSz
Type: Level crossing
Asset Owner: Private, but managed by ARTC
Line: Port Waratah – BHP Lines
Maximum width clearance: 11.5 Metres
Conflict: Non



Assessment of Rail Crossings advised by TFNSW

Rail Corridor	Condition	Interaction
Sturt Highway route crossing from Narrandera to Tocumwal rail corridor at Narrandera	Not operational	The route has no interaction with this rail crossing as it is a redundant railway line.
Hume Highway route crossing from Cootamundra to Gilmore rail corridor at Tumblong	Not operational	The route has no interaction with this rail crossing as it is a redundant line which ends at the embankment of the motorway.
Hume Highway route crossing from Cootamundra to Gilmore rail corridor at Coolac	Not operational	The route has no interaction with this rail crossing as it is a redundant line which ends at the embankment of the motorway.

9.0 Route 1: Rest Areas

The following outlines rest areas along the proposed route that have sufficient existing length and width to accommodate the assessed OSOM (Over Size Over Mass) vehicles. Based on prior experience transporting similar turbine equipment along sections of the routes, it is considered unlikely that additional rest areas will be required to ensure the safe passage of OSOM movements (accounting for potential timing issues or challenges at identified pinch points). The final selection of rest areas to be used during OSOM transport will be confirmed following project approval, as part of detailed design and development of the Traffic Management Plan.

KEY	
MODIFICATIONS REQUIRED	
EMERGENCY PARKING	

KM index	Location	Section of road	Rest area dimensions	Procedure	Comments
120.0	Mooney Mooney	Hawkesbury South rest area on the M1 motorway. https://maps.app.goo.gl/hvhanShRnZ3ArbjS9	Length: 125.0m Width: 6.7m	Merge to left	Emergency use only
236.0	Wilton	Hume Highway Parking area https://maps.app.goo.gl/2Hog6eA9598NGAWA6	Length: 210.0m Width: 9.0m	Merge to left	Can be used for overnight parking or fatigue breaks.
300.0	Sutton Forest	Hume Highway Parking area https://goo.gl/maps/uT1ubtSuawS2	Length: 175.0m Width: 12.5m	Merge to left	Large parking area. Sutton Forest.
372.0	Breadalbane	Mystery Boulders rest area on the Hume Highway https://goo.gl/maps/UWjx3XndLejWG1UD9	Length: 140.0m Width: 14.0m	Merge to left	Large parking area. Mystery Boulders.
480.0	Berremangra	Reddy Creek rest area on the Hume Highway https://maps.app.goo.gl/mEr4gYsCmXciynSu8	Length: 180.0m Width: 10.0m	Merge to left	Large parking area. Reddy Creek.
508.0	Jugiong	Mungi Mungi Hill rest area on the Hume Highway https://goo.gl/maps/QzzfyAAnixQn3nwx8	Length: 140.0m Width: 14.0m	Merge to left	Large parking area. Mungi Mungi Hill.
541.0	South Gundagai	Big Ben rest area on the Hume Highway https://maps.app.goo.gl/hExjVM75QHiRZmSG7	Length: 150.0m Width: 12.0m	Merge to left	Large parking area. Big Ben Creek.
574.0	Tarcutta	Sturt Hwy Parking area https://maps.app.goo.gl/95cwTYQy6ztpBaEL9	Length: 210.0m Width: 7.5m	Merge to left	Large parking area. Hume Highway exit stopping bay.
679.0	Galore	Kywong rest area on the Sturt Hwy https://maps.app.goo.gl/3YJccdx7avFJ2io96	Length: 110.0m Width: 18.0m	Merge to left	Large parking area.
712.0	Gillenbah	Sturt Hwy Parking area GPS Link: https://maps.app.goo.gl/Foiprojj1VwfiFox7	Length: 140.0m Width: 11.5m	Merge to right and onto the incorrect side of the road	Large parking area. Gillenbah at Newell Highway.

120.0 Km's: Hawkesbury rest area southbound at Mooney Mooney



Figure 27 – Hawkesbury River Rest Area

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/hvhanShRnZ3ArbjS9
PROCEDURE: Merge to left
COMMENTS: To be used in emergencies only. Police and pilots to control all traffic.
ROAD MODIFICATIONS: Nil.

236.0 Km's: Hume Highway rest area at Wilton



Figure 28 – Wilton rest area

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/2Hog6eA9598NGAWA6

PROCEDURE: Merge to left

COMMENTS: Can be used for overnight parking or fatigue breaks. Police and pilots to control all traffic.

ROAD MODIFICATIONS: Nil.

300.0 Km's: Hume Highway rest area at Sutton Forest.

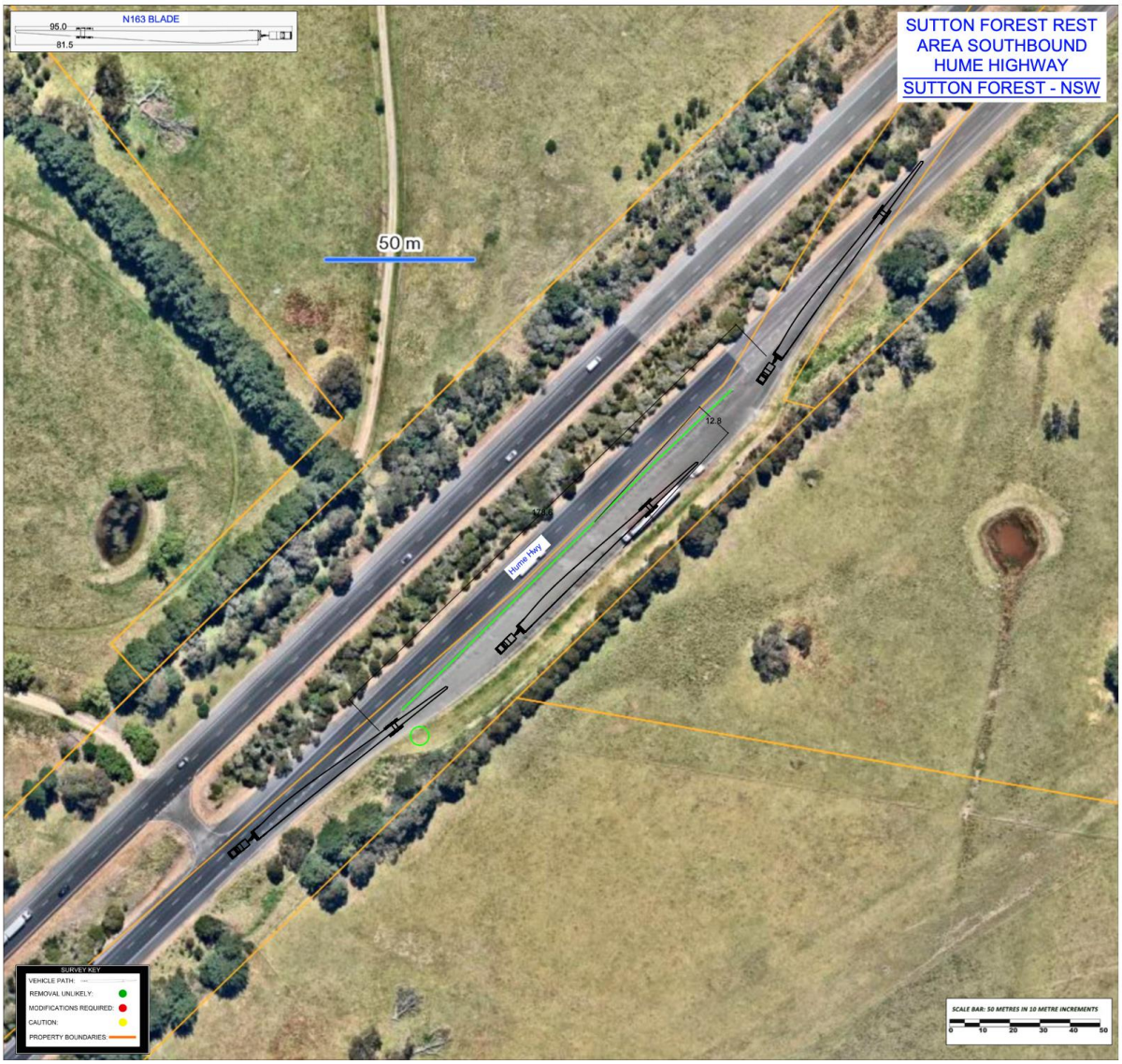


Figure 29 – Sutton Forest rest area

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/uT1ubtSuawS2

PROCEDURE: Merge to left

COMMENTS: Can be used for overnight parking or fatigue breaks. Sutton Forest Rest Area. Police and pilots to control all traffic.

ROAD MODIFICATIONS: Nil.

372.0 Km's: Hume Highway rest area at Parkesbourne



Figure 30 – Mystery Boulders rest area

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/UWjx3XndLejWG1UD9
PROCEDURE: Merge to left
COMMENTS: Can be used for overnight parking or fatigue breaks. Mystery Boulders Rest area. Police and pilots to control all traffic.
ROAD MODIFICATIONS: Nil.

480.0 Km's: Hume Highway rest area at Berremangra



Figure 31 – Reedy Creek rest area

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/mEr4gYsCmXciynSu8

PROCEDURE: Merge to left

COMMENTS: Can be used for overnight parking or fatigue breaks. Reddy Creek Rest Area. Police and pilots to control all traffic.

ROAD MODIFICATIONS: Nil.

508.0 Km's: Hume Highway rest area at Coolac



Figure 32 – Mungi Mungi Hill rest area

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/QzzfyAAnixQn3nwx8

PROCEDURE: Merge to left

COMMENTS: Can be used for overnight parking or fatigue breaks. Mungi Mungi Hill Rest Area. Police and pilots to control all traffic.

ROAD MODIFICATIONS: Nil.

541.0 Km's: Hume Highway rest area at South Gundagai



Figure 33 – Big Ben Creek Rest area

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/hExjVM75QHiRZmSG7

PROCEDURE: Merge to left

COMMENTS: Can be used for overnight parking or fatigue breaks. Big Ben Creek Rest Area. Police and pilots to control all traffic.

ROAD MODIFICATIONS: Nil.

574.0 Km's: Sturt Highway rest area at Tarcutta



Figure 34 - Sturt Highway rest area Tarcutta

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/95cwTYQy6ztpBaEL9

PROCEDURE: Merge to left

COMMENTS: Can be used for overnight parking or fatigue breaks. Sturt Highway stopping bay. Police and pilots to control all traffic.

ROAD MODIFICATIONS: Nil.

679.0 Km's: Sturt Highway rest area at Galore



Figure 35 – Kywong rest area

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/3YJccdx7avFJ2io96

PROCEDURE: Merge to left

COMMENTS: Can be used for overnight parking or fatigue breaks. Kywong Rest Area. Police and pilots to control all traffic.

ROAD MODIFICATIONS: Nil.

711.5 Km's: Sturt Highway rest area at Gillenbah

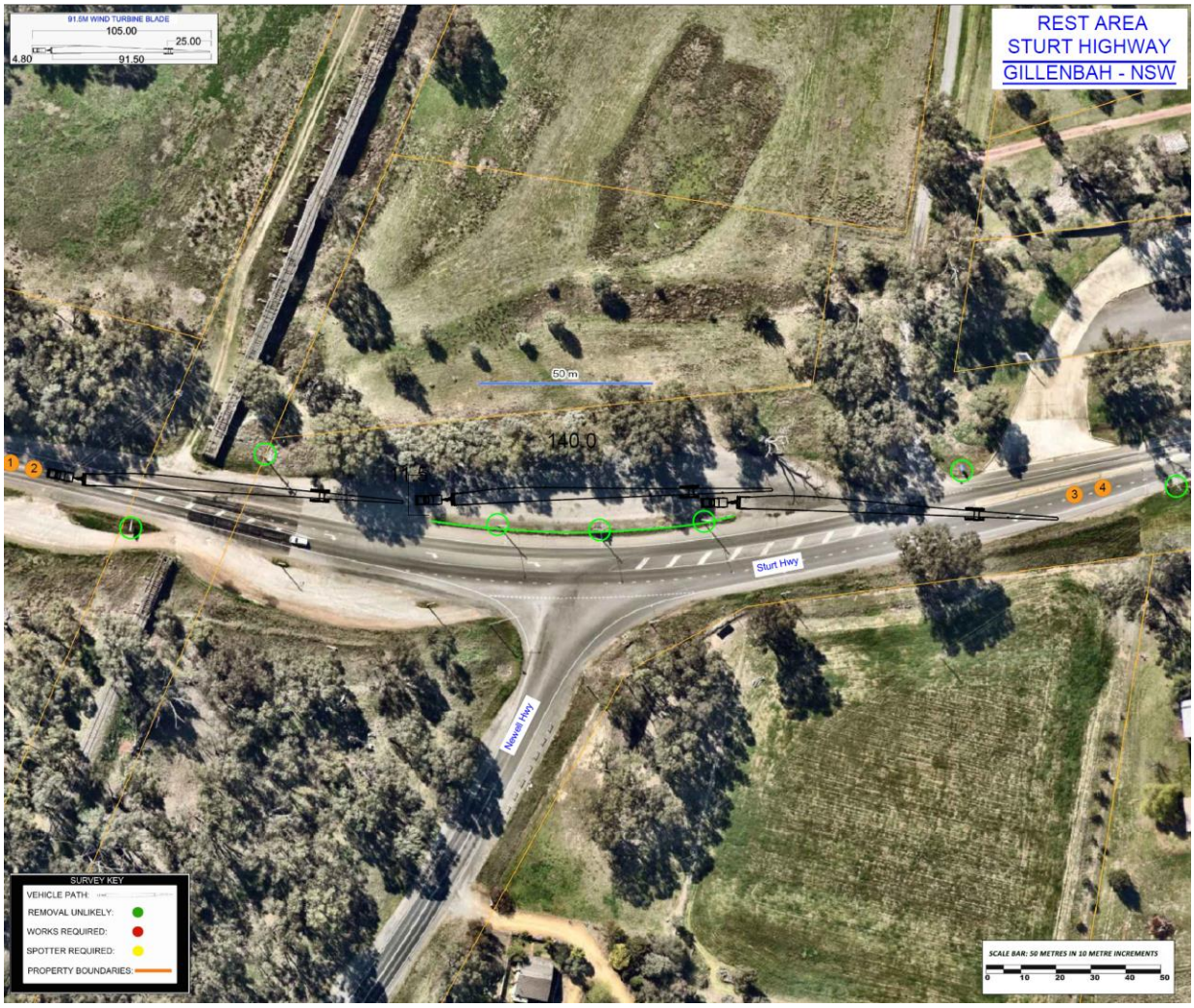


Figure 36 - Sturt Highway rest area at Gillenbah

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/Foiprojj1VwfiFox7

PROCEDURE: Merge to right

COMMENTS: Can be used for overnight parking or fatigue breaks. Gillenbah at Newell Highway. Incorrect side of road. Police and pilots to control all traffic.

ROAD MODIFICATIONS: Nil.

10.0 Route 1: Conclusion

After studying all options and undertaking a route study, the route in its current condition will require a moderate amount of upgrading 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 will require a moderate amount of work in order to accommodate the proposed blade size.
- The pinchpoints that have been identified in the report as requiring work should be investigated early in the planning stages to avoid delays or rejections.
- It is expected that the modifications that are required for this project be kept in place for the lifespan of the project, in case of the need for replacement blades.

VERTICAL CURVE:

- Vertical curves were checked for the entire route and only 1 location required further investigating. This is the Wagga Wagga rail underpass on the Sturt Highway.
- Measurements of the rail underpass on the Sturt Highway at Wagga Wagga indicate it has a suitable clearance.

OVERHEAD STRUCTURES: (4.9 Maximum loaded height)

- The lowest structure on this route is the M11 (North Connex) tunnel in Sydney. This structure has a maximum safe clearance of 4.9 Metres.
- The blade transporter listed in this report can travel along this route at 4.88 metres in height.
- The Wagga Wagga rail underpass on the Sturt Highway has had a ground survey undertaken by Rivland surveyors and the results show that the blade will be able to pass through this pinchpoint with more than the required 300mm clearance.

OVERHEAD UTILITIES:

- This route will need to be checked by an authorised scoping company. It is likely that this route will require at least a 4.9 metres loaded height clearance.

BRIDGES:

- Majority of the bridges have been used previously for similar loads so it is expected they will be ok. Bridge assessments will still be required for the entire route. Bridge assessments have been carried out by TfNSW which have concluded all TfNSW managed structures are approved for the various requested loads on the respective requested routes except for the transformer which is currently being assessed. The assessment for the transformer will be completed post approval.

RAIL ASSETS:

- There are a number of rail overbridges and one crossing on route that will require approval from authorities before loads can access the routes. It is advised that the rail stakeholders are notified and pre approval given for the loads listed to use this route.
- The rail crossing was checked for conflicts, taking into account the width and vertical curve, and is suitable for the loads using this route that are listed in this report.

VEGETATION:

- The route requires a moderate amount of vegetation clearing at various locations as listed in this report.

PAVEMENT:

- Pavement on the route is of highway standard up to Jerilderie Road.
- Jerilderie Road and North Boundary Road are 4.6 metre wide tar roads but not of a highway standard. It is likely that this road will wear throughout the deliveries and may require regular maintenance.
- Bypasses or modifications will be required at several corners as shown in the swept path survey and are to be constructed to suitable standards and maintained for the duration of deliveries if not sealed.
- All site access roads to be constructed to appropriate standards in order to accommodate the weight, height and swept path of all proposed loads. Roads to be maintained for the duration of deliveries if not sealed.

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.

SITE ACCESS ROADS:

- All site access roads to be constructed to appropriate standards in order to accommodate the height, weight, vertical curves and swept path of all proposed roads.
- Roads to be made all weather and maintained for the duration of deliveries.

POSSIBLE ALTERNATE ROUTE FOR BLADES AT NEWCASTLE:

- With 2 current road projects taking place at Hexham, Energy Co and TfNSW are currently constructing an alternate route from Newcastle Port through to the M1 Motorway and Hunter Expressway to take pressure off these 2 projects. This alternate route would exit Route 1 off Maitland Road at Sandgate and resume Route 1 at the M1 Motorway or Hunter Expressway at Cameron Park.
- The alternate route would use the following roads: Maitland Road, Newcastle inner City bypass, Newcastle Road, Thomas Road, Newcastle Link Road, M1 Motorway or Hunter Expressway.
- The Newcastle City Inner Bypass project is currently being designed. Once the information is publicly available, the Project will undertake an overlay of the upgrades with the blade listed in this report to confirm if the Project blade can use this route. BWF is seeking the flexibility to use the Newcastle City Inner Bypass should the works be undertaken by the NSW Government or a third party and accommodate the transportation of the Project blades.

11.0 Route 2 Study: Newcastle to Bullawah Windfarm (High Load Route)

COMPONENTS: Towers (**Max loaded height 6.1m)**
DISTANCE: 1,071 kilometres
GPS LINK: https://maps.app.goo.gl/MrGnDrvSF8jjgSNT8
ROUTE: Selwyn street, George Street, Industrial Drive, Maitland Road, New England Highway, John Renshaw Drive, Hunter Expressway, New England Highway, Golden Highway, Denman Road, Bengalla Road, Wybong Road, Golden Highway, Boothenba Road,Troy Bridge Road, Bunglegumbie Road, Mitchell Highway, Manildra Street, Derribing Avenue, Algalah Street, Tomingley Road, Newell Highway, Thomas Street, Moulden Street, Henry Parkes Way, Westlime Road, Hartigan Avenue, Newell Highway, Compton Road, Showground Road, Newell Highway, Sturt Highway, Cobb Highway, Jerilderie Road.

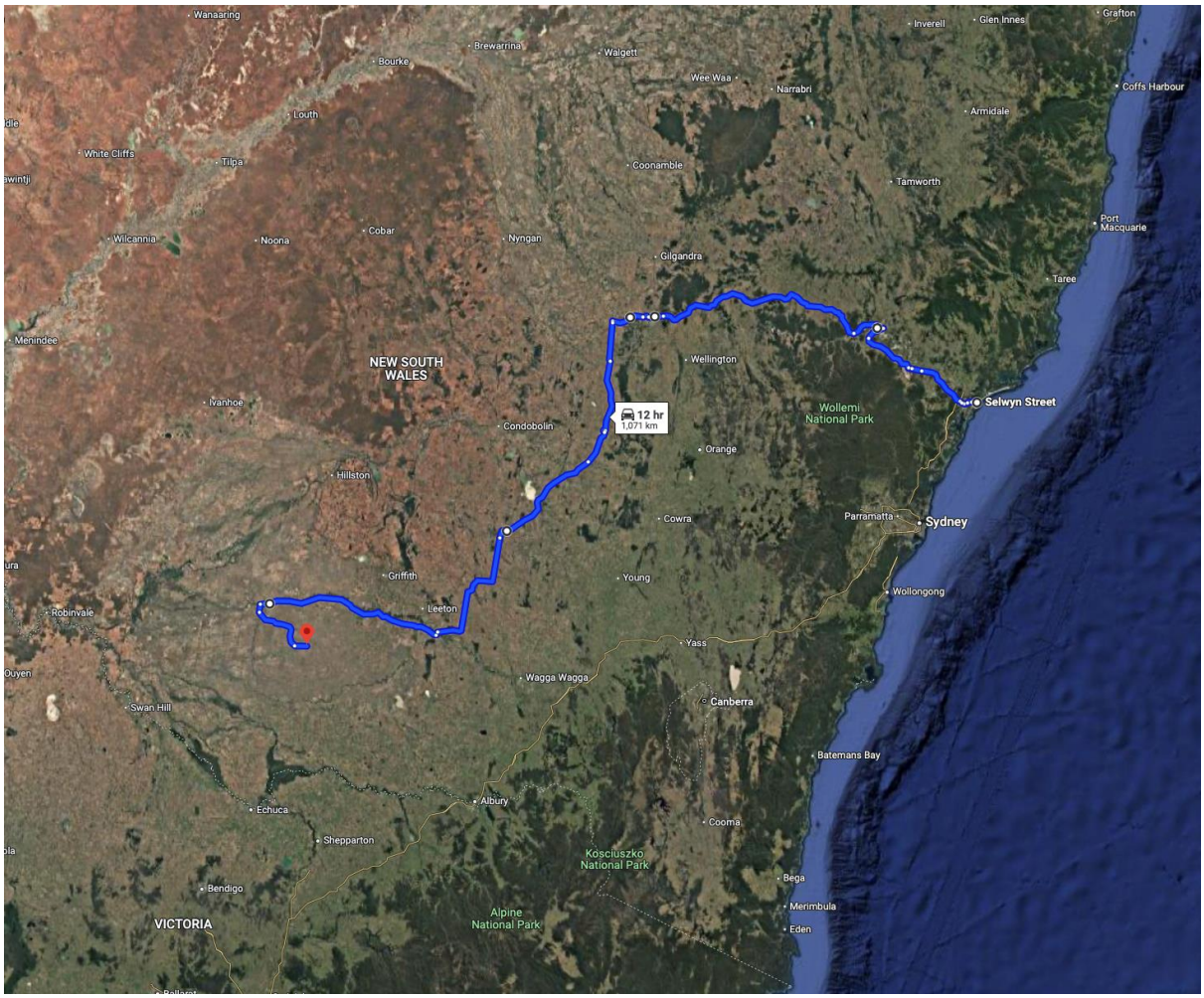


Figure 37 - Route 2

KEY	
MODIFICATIONS REQUIRED	
PINCH POINT	
EMERGENCY PARKING	

KM index	Location	Section of road	Current clearance	Procedure	Notes
0.0	Mayfield	Mayfield No.4 berth onto Selwyn Street https://goo.gl/maps/afLwPYKuNdm	Length: 70.0 Mtrs Width: 8.0 Mtrs	Right hand turn	No problems with the towers on this section of road.
0.4	Mayfield	Selwyn Street over rail crossing https://goo.gl/maps/AmohE54hKSz	Length: 90 metres Width: 9.0 Metres	Travel directly ahead	Loads to travel over the crossing in the center of the road. Approval required for crossing this line.
1.3	Mayfield	Selwyn Street onto George Street https://goo.gl/maps/gXeHvBtCp4D2	Length: 40.0 Mtrs Width: 8.0 Mtrs	Right hand turn	No problems with the towers on this section of road.
1.4	Mayfield	George Street onto Industrial Drive https://goo.gl/maps/s4ayrsuoAsD2	Length: 40.0 Mtrs Width: 8.0 Mtrs	Right hand turn	No problems with the towers on this section of road.
4.9	Mayfield	Industrial Drive under traffic signals https://goo.gl/maps/YmqhiS2iR582	Height: 5.4 metres	Travel directly ahead in the far right lane.	The lowest traffic signal on route is at the intersection of Steel River Blvd. Trucks that exceed 5.3 metres will need to travel in the right-hand lane. Clearance in the right end lane is 6.1 metres.
5.5	Mayfield West	Industrial Drive onto Maitland Road https://goo.gl/maps/Kn49dhWG2qG2	Length: 40.0 Mtrs Width: 7.0 Mtrs	Right hand turn	No problems with the towers on this section of road.
6.4	Sandgate	Maitland Road over rail bridge https://goo.gl/maps/W2JWWjhfqv5UMviB7	Length: 90 metres Width: 9.0 Metres	Travel directly ahead in the right-hand lane	Approval from Rail company required to cross this structure. Travel over this structure may have specific conditions.
13.9	Hexham	New England Highway under gantry https://goo.gl/maps/YTMoFe7Aick	Height: 6.2 metres	Travel directly ahead on the far left side of road	This is the lowest structure on route. There is no bypass around the gantry. A maximum loaded height of 6.2 metres should not be exceeded. Loads to lower to 6.1m and travel under gantry on the far left side of the road.
15.0	Tarro	Bend on New England Hwy https://maps.app.goo.gl/63RTZynpTRLjkSJf9	Width: 7.5 Metres	Left hand bend	No problems with the towers on this section of road.
15.1	Tarro	New England Highway over rail bridge https://goo.gl/maps/tTnWLwQC2hzSPhAp6	Width: 9.0 Metres	Travel directly ahead	Approval from Rail company required to cross this structure. Travel over this structure may have specific conditions.
15.2	Tarro	New England Highway under Tarro interchange	Height: 6.2 metres	Travel directly ahead on the far left side of road	This is the lowest structure on route. There is no bypass around the bridge. A maximum loaded height of 6.2 metres should not be exceeded. Loads to lower to 6.1m and travel under gantry on the far left side of the road.

KM index	Location	Section of road	Current clearance	Procedure	Notes
17.4	Tarro	New England Highway onto John Renshaw Drive https://goo.gl/maps/SRDr5JigkBp	Length: 100.0 Mtrs Width: 12.0 Mtrs	Left hand merge	No problems with the towers on this section of road.
18.4	Beresfield	John Renshaw Drive https://goo.gl/maps/N19vJih1Fgr	Height: 5.5 Mtrs Width: 14.0 Mtrs	Keep to right hand turn lanes to avoid overhanging traffic signal.	Trucks that exceed 5.4 metres will need to travel in the right-hand turn lanes. Clearance in the right-hand lane is 6.1 metres.
28.7	Buchanan	John Renshaw Drive onto the Hunter Expressway https://goo.gl/maps/1STJ1PfQt9E2	Length: 65.0 Mtrs Width: 7.0 Mtrs	Right hand turn around roundabout	No problems with the towers on this section of road.
58.9	Branxton	The Hunter Expressway onto The New England Highway https://goo.gl/maps/7rauNuxzqjq	Length: 100.0 Mtrs Width: 12.0 Mtrs	Travel directly ahead	No problems with the towers on this section of road.
67.3	Whittingham	New England Highway onto the Golden Highway https://goo.gl/maps/nAnfkYfeUn42	Length: 70.0 Mtrs Width: 8.0 Mtrs	Left Hand turn than travel directly ahead through the roundabout.	No problems with the towers on this section of road.
67.4	Whittingham	Golden Highway https://goo.gl/maps/R86RFuPnmFU2	115.0 x 9.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
67.5	Whittingham	Roundabout on Golden Highway https://maps.app.goo.gl/92r3wt9cTYRQRShm8	Length: 50.0 Mtrs Width: 7.5 Mtrs	Travel directly ahead	Transporters will travel over the edge of the mountable kerb on the roundabout.
68.0	Whittingham	Golden Highway over rail bridge https://goo.gl/maps/5NwDQofandvvMKfY9	Length: 90 metres Width: 9.0 Metres	Travel directly ahead in the centre of the road.	Approval from Rail company required to cross this structure. Travel over this structure may have specific conditions.
77.3	Mount Thorley	Golden Highway over rail bridge https://goo.gl/maps/qTxSbkxPu87L5hx4A	Length: 90 metres Width: 9.0 Metres	Travel directly ahead in the centre of the road.	Approval from Rail company required to cross this structure. Travel over this structure may have specific conditions.
77.4	Mount Thorley	Golden Highway intersection with the Putty Road https://goo.gl/maps/7hQdEmK1EgE2	Length: 65 metres Width: 6.0 Metres	Left hand turn	No problems with the towers on this section of road.
77.5	Mount Thorley	Golden Highway https://goo.gl/maps/zGvdupDuixx	100.0 x 10.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
80.6	Mount Thorley	Golden Highway over rail bridge https://goo.gl/maps/ipGU4USXmWZ8GkJs6	Length: 90 metres Width: 9.0 Metres Height: 5.2 metres	Travel directly ahead in the centre of the road.	Approval from Rail company required to cross this structure. Travel over this structure may have specific conditions.
80.8	Mount Thorley	Putty Road under Mt Thorley Road https://goo.gl/maps/SMzSLP1kvQYDMqa86	Heights: Left: 6.6 metres Centre: 6.3 Metres Right: 6.3 metres	Travel under the bridge in the left lane	Mt Thorley underpass is 6.3 metres in the centre of the road. Towers to pass under this structure on the correct side.
80.8	Mount Thorley	Golden Highway intersection with the Putty Road https://goo.gl/maps/QS9quvSyHYWaFHoX9	Length: 45 metres Width: 6.0 Metres	Right hand turn	No problems with the towers on this section of road.
98.0	Warkworth	Golden Highway https://goo.gl/maps/Y6V6EXaCwxq	100.0 x 8.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
107.0	Jerrys Plains	Golden Highway through Jerrys Plains village https://goo.gl/maps/WgSCRsJ9ZGt	Length: 60 metres Width: 6.0 Metres	Left hand than right hand turn	No problems with the towers on this section of road.

KM index	Location	Section of road	Current clearance	Procedure	Notes
126.0	Ogilvy	Golden Highway https://goo.gl/maps/58Tj9ojs7CC2	6% gradient	Travel directly ahead	This section of road has a steep mountain range that will require additional pull trucks to assists loads that exceed 80T gross weight.
131.9	Denman	Golden Highway onto Denman Road https://goo.gl/maps/sf4PNnycxB32	Length: 55 metres Width: 6.0 Metres	Right hand turn	No problems with the towers on this section of road.
137.9	Muswellbrook	Denman Road onto Bengalla Road https://goo.gl/maps/3sK4m6YSHNHqkqn68	Length: 60 metres Width: 8.0 Metres	Left hand turn	No problems with the towers on this section of road.
149.0	Bengalla	Bengalla Road onto Wybong Road https://goo.gl/maps/zfDyG4GQq6G37imB9	Length: 90 metres Width: 8.0 Metres	Left hand bend	No problems with this section of road.
158.0 to 183.0	Bengalla	Wybong Road https://goo.gl/maps/ekGZA5wFFK55Mvmc7	Length: 60 metres Width: 8.0 Metres	Travel directly ahead	This road is maintained by Muswellbrook Council. Approval will be required to travel on this section of Road.
169.0	Wybong	Mine Road over Wybong Rd https://maps.app.goo.gl/asumAbcya4cHz4EbA	Height: 6.3meters	Travel directly ahead	Loads are not to exceed 6.3 metres in loaded height while travelling under this structure.
183.0	Sandy Hollow	Wybong Road onto Golden Highway https://goo.gl/maps/5ft3VnWpnPhpeN4u7	Length: 60 metres Width: 8.0 Metres	Right hand turn	No problems with the towers on this section of road.
190.1	Sandy Hollow	Golden highway https://goo.gl/maps/2THBuV165xx	50.0 x 4.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
193.0	Sandy Hollow	Golden Highway under safety Cam https://goo.gl/maps/b7t9zH2ankJcvWpT6	Height: Left: 6.3 metres	Travel directly ahead on the correct side	No problems with the towers on this section of road.
201.0	Gungal	Golden highway https://goo.gl/maps/WDoL2LfeCoP2	70.0 x 6.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
221.0	Merriwa	Golden Highway under safety Cam https://goo.gl/maps/D92rzQ8vnUcYsqj56	Height: Right: 6.4 metres	Travel directly ahead on the correct side	No problems with the towers on this section of road.
224.0	Merriwa	Golden highway https://goo.gl/maps/NqrWzTsRmnt	100.0 x 5.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
224.5 to 224.8	Merriwa	Golden Highway through Merriwa crossings https://maps.app.goo.gl/3uRptDQQqGRVdZbk6	Width: 4.5 metres	Travel directly ahead on the correct side of the road	Islands to be made trafficable or chevrons lines put in place. Several signs and bollards will need to be made removable.
274.0	Cassilis	Golden highway https://goo.gl/maps/vs6YMT6TxCA2	200.0 x 8.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
305.0	Leadville	Golden highway https://goo.gl/maps/ujxMGukhopeFWRhb8	200.0 x 8.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
331.0	Dunedoo	Golden Highway over rail crossing https://goo.gl/maps/wsyNKfcoAij3SosY9	Length: 90 metres Width: 7.0 Metres	Travel directly ahead	Loads to travel over the crossing in the center of the road. Approval required for crossing this line.
331.1	Dunedoo	Golden Highway intersection with Wargundy Street https://goo.gl/maps/WzACUHey3jYadj1K7	Length: 60 metres Width: 6.0 Metres	Right hand bend	No problems with the towers on this section of road.
384.0	Ballimore	Golden Highway https://goo.gl/maps/RuKKrfHarw1Mjy5E9	150.0 x 8.0 metres	Parking Bay	Suitable parking for Fatigue breaks.

KM index	Location	Section of road	Current clearance	Procedure	Notes
392.0	Ballimore	Golden Highway over rail crossing https://goo.gl/maps/yb15Kz6R2r3E69fj6	Length: 90 metres Width: 7.0 Metres	Travel directly ahead	Loads to travel over the crossing in the center of the road. Approval required for crossing this line.
400.0	Dubbo	Golden Highway onto Boothenba Road https://goo.gl/maps/TJLi5W4ir11ejgtb6	Length: 50 metres Width: 6.5 Metres	Right hand turn	No problems with the towers on this section of road.
411.0	Dubbo	Boothenba Road over rail crossing https://goo.gl/maps/72ageimPLqPWYY7M9	Length: 90 metres Width: 6.5 Metres	Travel directly ahead	Loads to travel over the crossing in the center of the road. Approval required for crossing this line.
411.1	Dubbo	Boothenba Road onto Troy Bridge Road https://goo.gl/maps/2u5uRf2BvKxseoFm9	Length: 90 metres Width: 6.5 Metres	Travel directly ahead	No problems with the towers on this section of road.
414.0	Dubbo	Troy Bridge Road onto Bunglegumbie road https://goo.gl/maps/6Uke9jwPypNYVPux5	Length: 90 metres Width: 6.5 Metres	Travel directly ahead	No problems with the towers on this section of road.
420.0	Dubbo	Bunglegumbie road onto the Mitchell Highway https://goo.gl/maps/jCWqmaQsd3fChp837	Length: 50 metres Width: 6.5 Metres	Right hand turn	No problems with the towers on this section of road.
450.0	Narromine	Mitchell Highway onto Manildra Street https://goo.gl/maps/hFG648tcSMUHxJ8h6	Length: 40 metres Width: 6.5 Metres	Left hand turn	Existing shoulder on entry to be made trafficable.
450.1	Narromine	Manildra Street over rail crossing https://goo.gl/maps/4s2HYJJfJQ5pGbKg7	Length: 60 metres Width: 7.0 Metres	Travel directly ahead	Loads to travel over the crossing in the center of the road. Approval required for crossing this line.
450.2	Narromine	Manildra Street onto Derribong Avenue https://goo.gl/maps/776aPaxgsFTWi6qL6	Length: 40 metres Width: 6.5 Metres	Left hand turn	No problems with the towers on this section of road.
450.5	Narromine	Derribong Avenue onto Algalah Street https://goo.gl/maps/9s8cb8G4T2c75t1V8	Length: 40 metres Width: 6.5 Metres	Left hand turn	No problems with the towers on this section of road.
452.0	Narromine	Algalah Street onto Tomingley Road https://goo.gl/maps/EWfZYo3Xos6T3J8A8	Length: 60 metres Width: 7.0 Metres	Travel directly ahead	No problems with the towers on this section of road.
487.5	Tomingley	Tomingley Road onto the Newell Highway https://goo.gl/maps/NJtXmHCFHxaiMaq39	Length: 60 metres Width: 7.0 Metres	Right hand turn	Loads are to cross to the incorrect side of the road while travelling around this corner.
488.0	Tomingley	Newell Highway https://goo.gl/maps/ADMke5At2A1Uy1z4A	200.0 x 15.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
489.0	Tomingley	Newell Highway under safety Cam https://goo.gl/maps/9Vqu9xXxRwhHt4Uk6	Height: Right: 6.8 metres	Travel directly ahead on the correct side	No problems with this section of road.
490.0	South Tomingley	Newell Highway https://goo.gl/maps/1q8f6HJ2zsZSxup66	150.0 x 7.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
502.0	Peak Hill	Newell Highway https://goo.gl/maps/orKTBB8wobK6exsc6	90.0 x 7.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
503.0	Peak Hill	Newell Highway under safety Cam https://goo.gl/maps/sAbh8zwZzZVMriD2A	Height: Right: 6.3 metres	Travel directly ahead on the correct side	No problems with this section of road.
526.0	Alectown	Newell Highway https://goo.gl/maps/GMGbEJHAEkeWuRyz5	90.0 x 7.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
546.0	Parkes	Parkes Bypass Under Construction Entry from existing Newell Hwy https://maps.app.goo.gl/khsedEk64JgX131y7	TBD	TBD	New bypass planned for completion early 2025 and to be used for this project.

KM index	Location	Section of road	Current clearance	Procedure	Notes
547.8	Parkes	Victoria St Underpass https://maps.app.goo.gl/PomRMQj9H41fVgAPA	6.1m	TBD	Transport for New South Wales have confirmed with BayWa r.e. the height will be 6.1m
548.0	Parkes	Roundabout at Henry Parkes Way https://maps.app.goo.gl/tAoi9DCdjBykgHXw6	TBD	TBD	Swept path completed and no problems with this section of road.
563.0	Parkes	Parkes Bypass Under Construction Return to existing Newel Hwy https://maps.app.goo.gl/S3CBh6fVnpXw6YqZ6	TBD	TBD	New bypass planned for completion early 2025
569.0	Tichborne	Newell Highway over rail crossing https://goo.gl/maps/qxYUZLLe3jsCEJgD7	Length: 60 metres Width: 7.0 Metres	Travel directly ahead	Loads to travel over the crossing in the center of the road. Approval required for crossing this line.
576.0	Daroobalgie rest area	Newell Highway https://goo.gl/maps/swec16PWh1N8ZbUR7	200.0 x 7.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
590.0	Forbes	Newell Highway intersection with Dowling Street https://goo.gl/maps/DqkvxH4qtWnXvLJ26	Length: 45 metres Width: 6.0 Metres	Left hand turn	Left hand turn from incorrect side of the road onto incorrect side of the road. No parking area to be put in place. Spotter to assist at this pinchpoint.
590.2	Forbes	Newell Highway https://goo.gl/maps/Hsmjs9pqvZ5UYFAH7	100.0 x 6.5 metres	Parking Bay	Suitable parking for Fatigue breaks.
595.5	Forbes	Newell Highway under safety Cam https://goo.gl/maps/hUdv6YJunC9yfoxF7	Height: Right: 6.4 metres	Travel directly ahead on the correct side	No problems with this section of road.
658.0	Marsden	Newell Highway under safety Cam https://goo.gl/maps/fRpjbRoXfup29Swx6	Height: Right: 6.9 metres	Travel directly ahead on the correct side	No problems with this section of road.
659.0	Marsden rest area	Newell Highway https://goo.gl/maps/AfAfr2wuNTjQMdKT8	200.0 x 7.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
689.0	Wyalong	Newell Highway under safety Cam https://goo.gl/maps/sudP4qYXPWbDB6sL6	Height: Centre: 6.2 metres	Travel directly ahead on the correct side	No problems with this section of road.
698.0	West Wyalong	Newell Highway onto Compton Road https://goo.gl/maps/PeM4uWg5hLiyZiPd8	Length: 55 metres Width: 6.5 Metres	Left hand turn	Load to turn left from the Newell Highway onto Compton Road while crossing onto the incorrect side of the road. Spotter to assist at this pinchpoint.
700.5	West Wyalong	Compton Road onto Showground Road https://goo.gl/maps/hts5qARMMWZcvW7R7	Length: 50 metres Width: 6.5 Metres	left hand turn	No problems with this section of road.
701.0	West Wyalong	Compton Road over rail crossing https://goo.gl/maps/KQwsqDkEDASMpB9r8	Length: 50 metres Width: 6.0 Metres	Travel directly ahead	Loads to travel over the crossing in the center of the road. Approval required for crossing this line.
702.5	West Wyalong	Showground Road https://goo.gl/maps/C8GevkguVtpkHjkFA	150.0 x 7.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
703.0	West Wyalong	Showground Road onto the Newell Highway https://goo.gl/maps/yAyBdrZcocEeTBnz6	Length: 50 metres Width: 6.5 Metres	Left hand turn	Load to turn left from Showground Road onto the Newell Highway while crossing onto the incorrect side of the road. Spotter to assist at this pinchpoint.

KM index	Location	Section of road	Current clearance	Procedure	Notes
721.0	Allena	Newell Highway over rail crossing https://goo.gl/maps/GMHsd5ynEFwzjmnXA	Length: 50 metres Width: 7.0 Metres	Travel directly ahead	Loads to travel over the crossing in the center of the road. Approval required for crossing this line.
749.0	Mirrool	Newell Highway over rail crossing https://goo.gl/maps/kFkwMBL9nfKgL954A	Length: 50 metres Width: 6.5 Metres	Travel directly ahead	Loads to travel over the crossing in the center of the road. Approval required for crossing this line.
784.0	Ardlethan rest area	Newell Highway https://goo.gl/maps/Na3rzBt25sMnsBya6	200.0 x 7.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
810.0	Grong Grong rest area	Newell Highway https://goo.gl/maps/vBTyD3zJVMcbn6wy9	200.0 x 7.0 metres	Parking Bay	Suitable parking for Fatigue breaks.
823.0	Narrandera	Newell Highway over rail bridge https://goo.gl/maps/YBWuYYyVoZfSUTJ37	Length: 50 metres Width: 7.0 Metres	Travel directly ahead	Loads to travel over the crossing in the center of the road. Approval required for crossing this line.
824.0	Narrandera	Newell Highway at Whitton Street https://goo.gl/maps/EXcuuBeMsXdhVDtm8	Length: 50 metres Width: 7.5 Metres	Left hand turn	Spotter to assist at this pinchpoint.
824 to 827	Narrandera	Newell Highway (Cadell St) https://goo.gl/maps/Z3ptasM9sGGtaB5A8	Length: 50 metres Width: 7.5 Metres	Travel directly ahead	Trees to be trimmed
829.0	Narrandera	Newell Highway onto Sturt Highway https://goo.gl/maps/uFiCyhp9uF147Wie8	Length: 80 metres Width: 7.5 Metres	Right hand turn.	Sign to be relocated or made removable. Spotter to assist at this pinchpoint.
833.2	Gillenbah	Sturt Hwy GPS Link: https://goo.gl/maps/w4bRo2oaCsWADQcA7	100.0 metres long 5.0 metres wide	Merge to Left	Emergency parking
1002.0	Hay South	Sturt Hwy onto Cobb Hwy https://goo.gl/maps/5N5YDKoTzaRtbv7Q9	95.0 metres long 5.0 metres wide	Take the first exit onto Cobb Hwy	Use slip lane on roundabout
1009.0	Hay South	Cobb Hwy onto Jerilderie Road	35.0 metres long 6.5 metres wide	Turn left onto Jerilderie Road	Hardstand to be installed on inside of corner
1048.6	Hay South	Cobb Highway onto Jerilderie Road GPS Link: https://goo.gl/maps/HYSt1h5MQfK9iie76	Length: 50m Width: 7.5m	Turn left onto Jerilderie Road.	Tower to use Route 1 modification at this location.
1055.0	Hay South	Windfarm Entry # 1 GPS Link: https://goo.gl/maps/tawfeFCo4jdCYgpF7	N/A	Turn right into site entry.	Tower to use Route 1 modification at this location.
1056.8	Hay South	Windfarm Entry # 5 GPS Link: https://goo.gl/maps/V8ARPnJdpALJ5Kfm9	N/A	Turn right into site.	Tower to use Route 1 modification at this location.
1059.4	Hay South	Windfarm Entry # 6 GPS Link: https://goo.gl/maps/hbR3EvWS7ZNm3Yhm9	N/A	Turn right into site.	Tower to use Route 1 modification at this location.
1064.6	Hay South	Windfarm Entry # 7 GPS Link: https://goo.gl/maps/hpwVAAKmBFWt67E6	N/A	Turn left into site.	Tower to use Route 1 modification at this location.
1070.3	Hay South	Windfarm Entry # 8 GPS Link: https://goo.gl/maps/X2kT4j9ZrbYZQBMv5	N/A	Turn left or right into site	Tower to use Route 1 modification at this location.

KM index	Location	Section of road	Current clearance	Procedure	Notes
1071.0	Hay South	Windfarm Entry # 10 GPS Link: https://goo.gl/maps/U9HqH2MAAGqSqKrT7	N/A	Turn right into site.	Tower to use Route 1 modification at this location.

0.0 Km's: Mayfield No.4 berth onto Selwyn Street

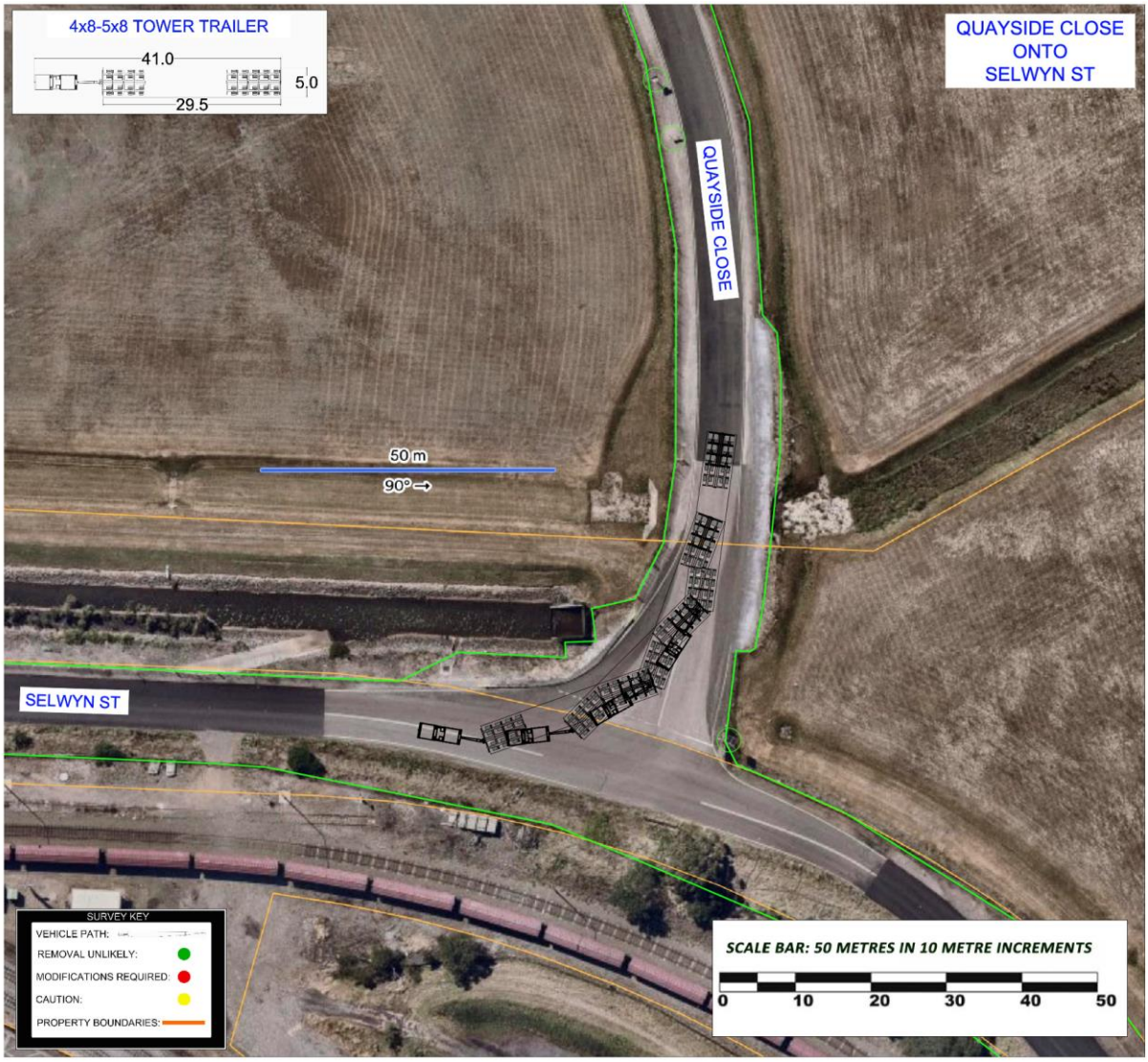


Figure 38 - Mayfield No.4 berth onto Selwyn Street

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/afLwPYKuNdm
PROCEDURE: Right hand turn.
ROAD MODIFICATIONS: No problems with this section of road.

1.3 Km's: Selwyn Street onto Industrial Drive



Figure 39 - Selwyn Street onto Industrial Drive

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/gXeHvBtCp4D2
PROCEDURE: Right hand turn.
ROAD MODIFICATIONS: No problems with this section of road.

5.5 Km's: Industrial Drive onto Pacific Highway at Mayfield West



Figure 40 - Industrial Drive onto Pacific Hwy

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/Kn49dhWG2qG2
PROCEDURE: Right hand turn.
ROAD MODIFICATIONS: No problems with this section of road.

15.0 Km's: Bend on New England Hwy at Tarro

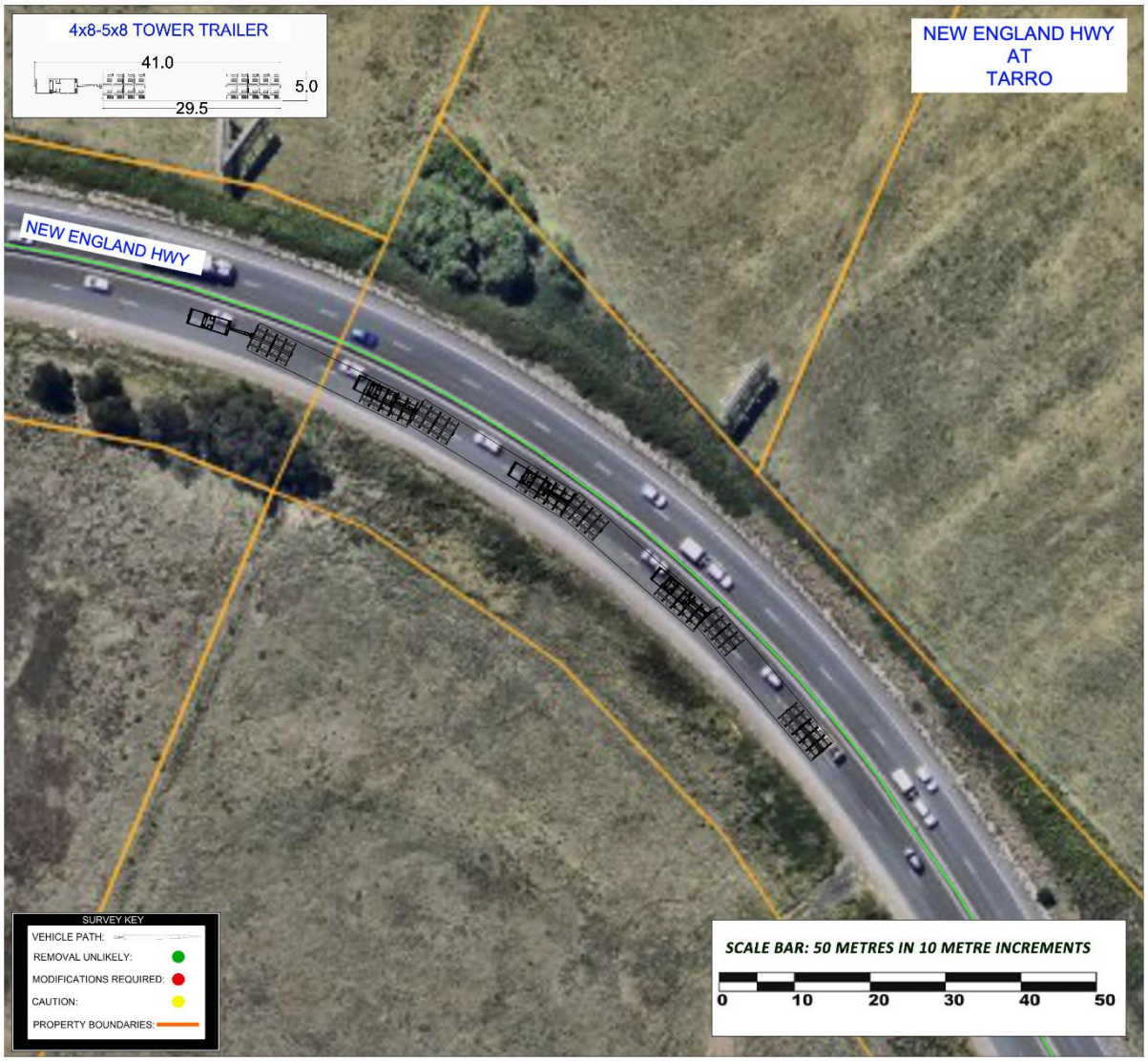


Figure 41 - Bend on New England Hwy at Tarro

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/63RTZynpTRLjkSJf9
PROCEDURE: Left hand bend.
ROAD MODIFICATIONS: No problems with this section of road.

28.7 Km's: John Renshaw Drive onto the Hunter Expressway

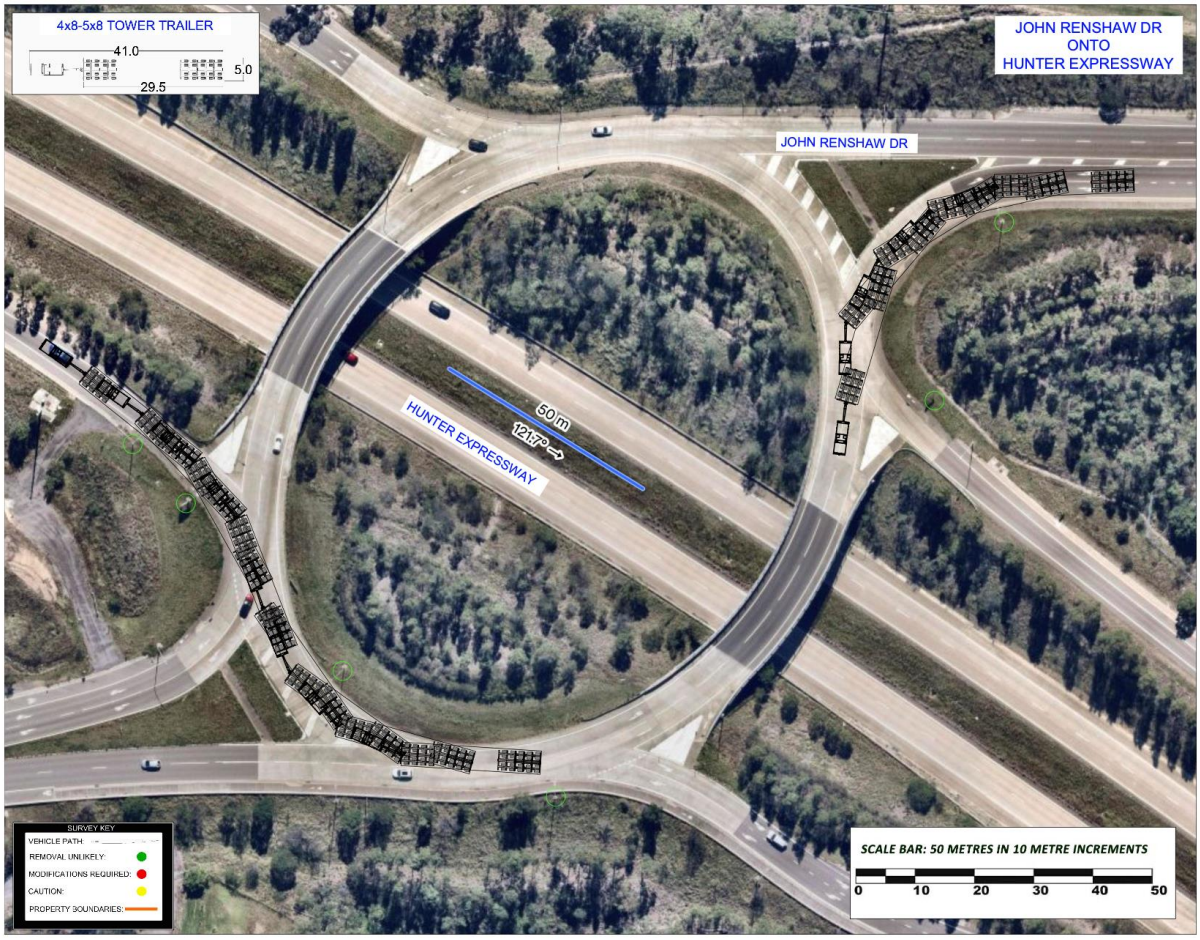


Figure 42 - John Renshaw Drive onto the Hunter Expressway

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/1STJ1PfQt9E2
PROCEDURE: Right hand turn around roundabout.
ROAD MODIFICATIONS: No problems with this section of road.

67.3 Km's: New England Highway onto the Golden Highway

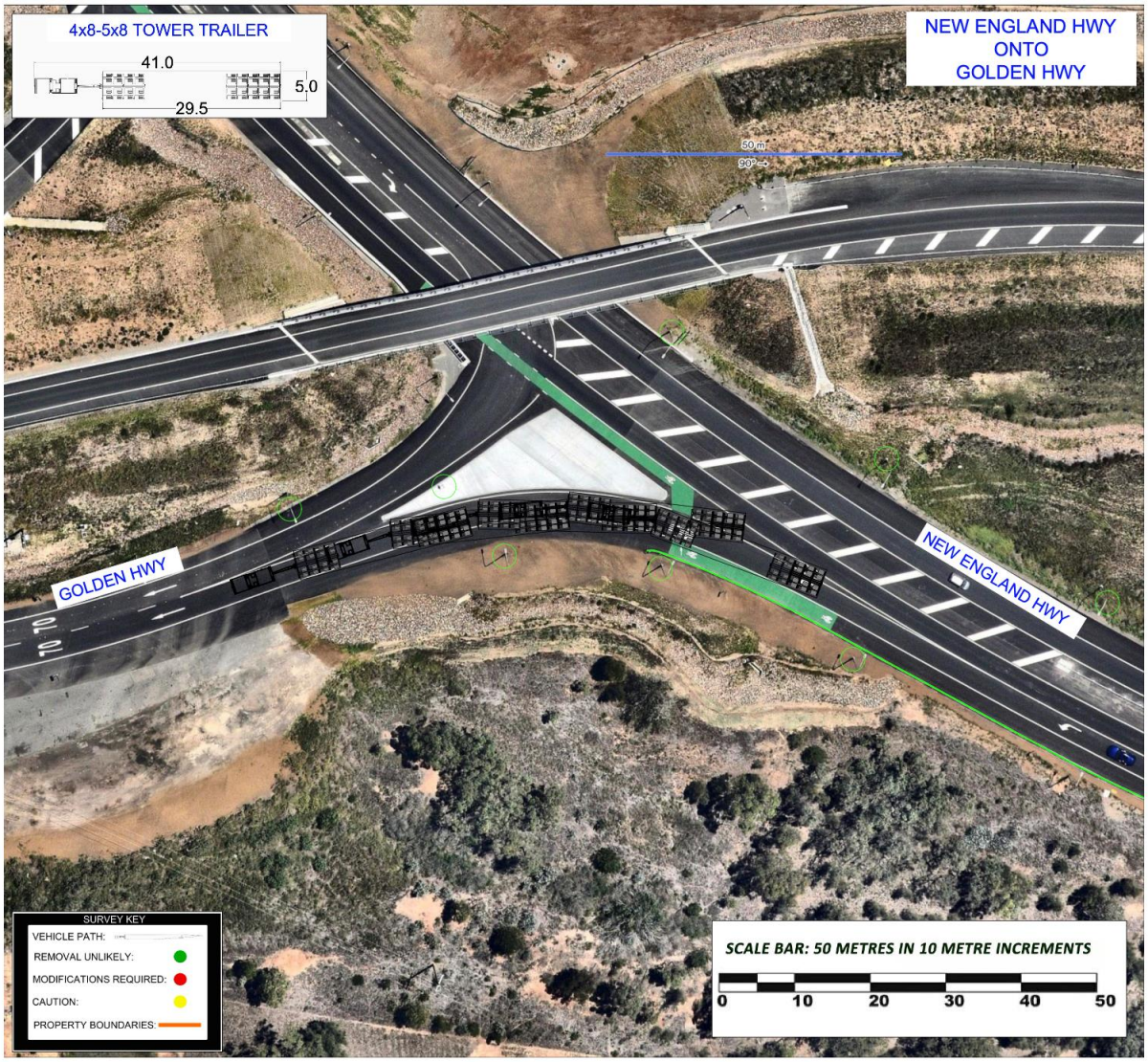


Figure 43 - New England Highway onto the Golden Highway

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/nAnfkYfeUn42
PROCEDURE: Left Hand turn than travel directly ahead through the roundabout.
ROAD MODIFICATIONS: No problems with this section of road.

67.5 Km's: Roundabout on Golden Highway

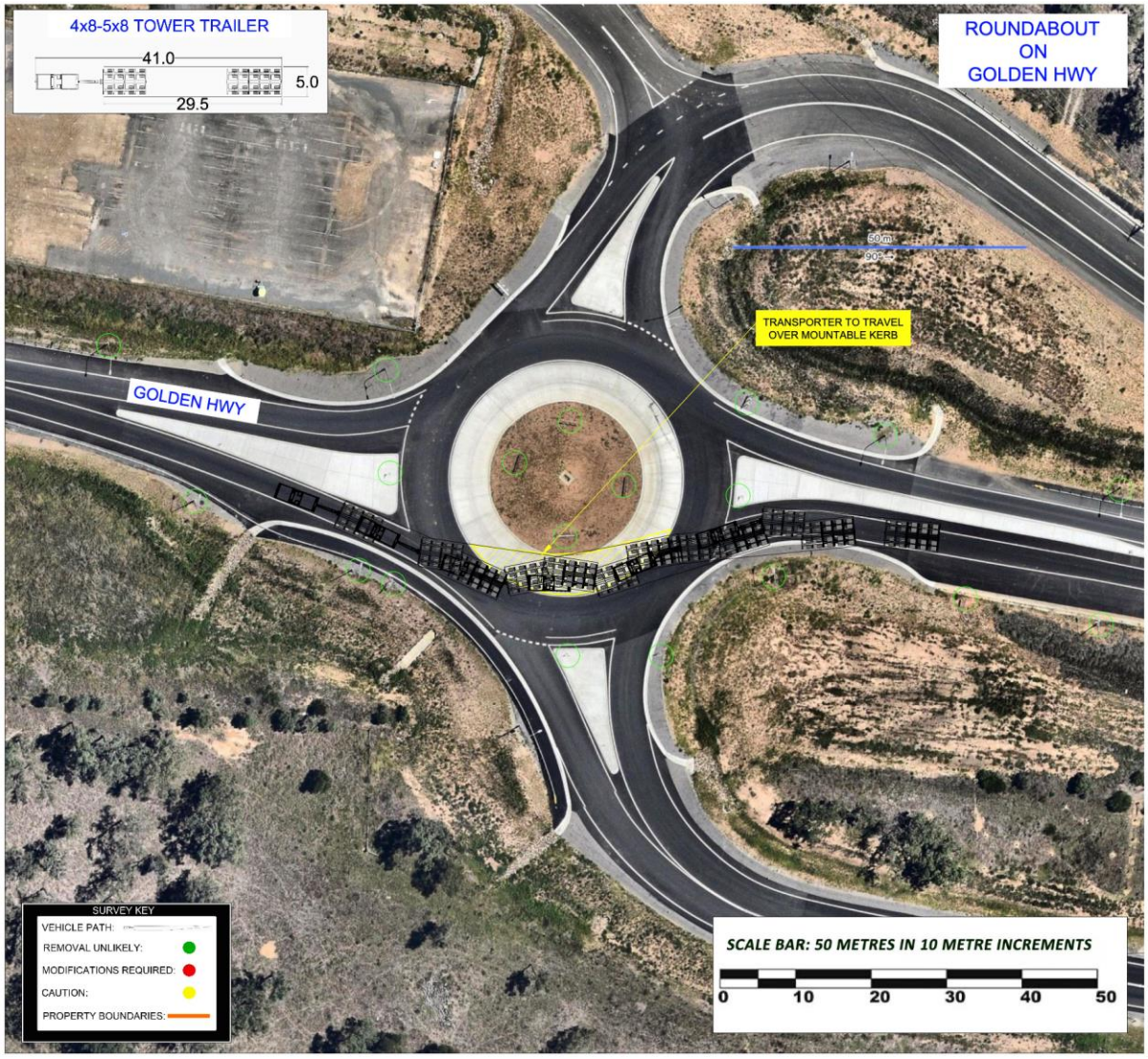


Figure 44 - Roundabout on Golden Highway

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/92r3wt9cTYRQRShm8

PROCEDURE: Travel directly ahead and over the apron on the south side of the roundabout.

ROAD MODIFICATIONS: No problems with this section of road.

77.4 Km's: Golden Highway intersection with the Putty Road

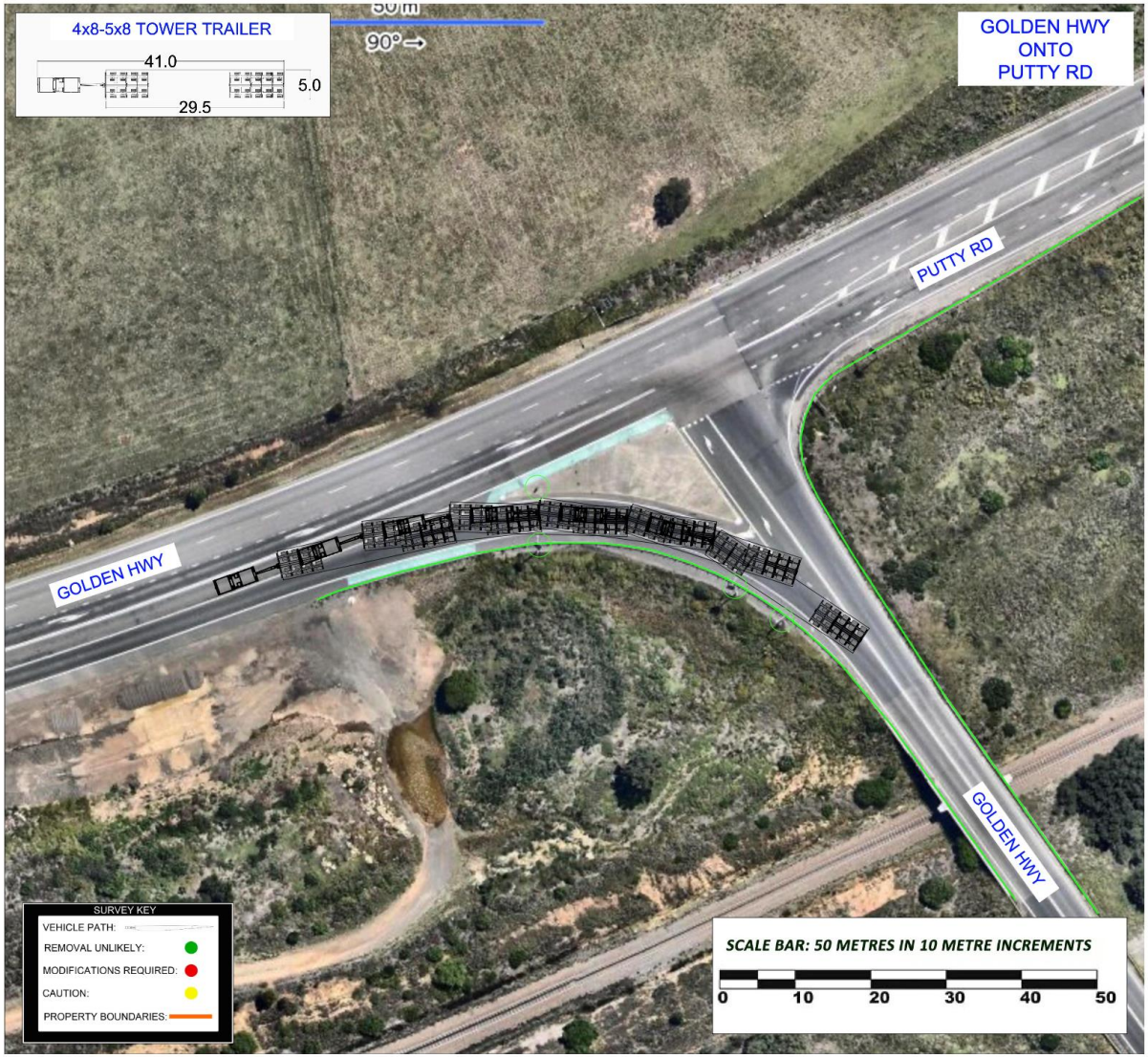


Figure 45 - Golden Highway intersection with the Putty Road

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/7hQdEmK1EgE2
PROCEDURE: Left hand turn.
ROAD MODIFICATIONS: No problems with this section of road.

80.8 Km's: Golden Highway intersection with the Putty Road

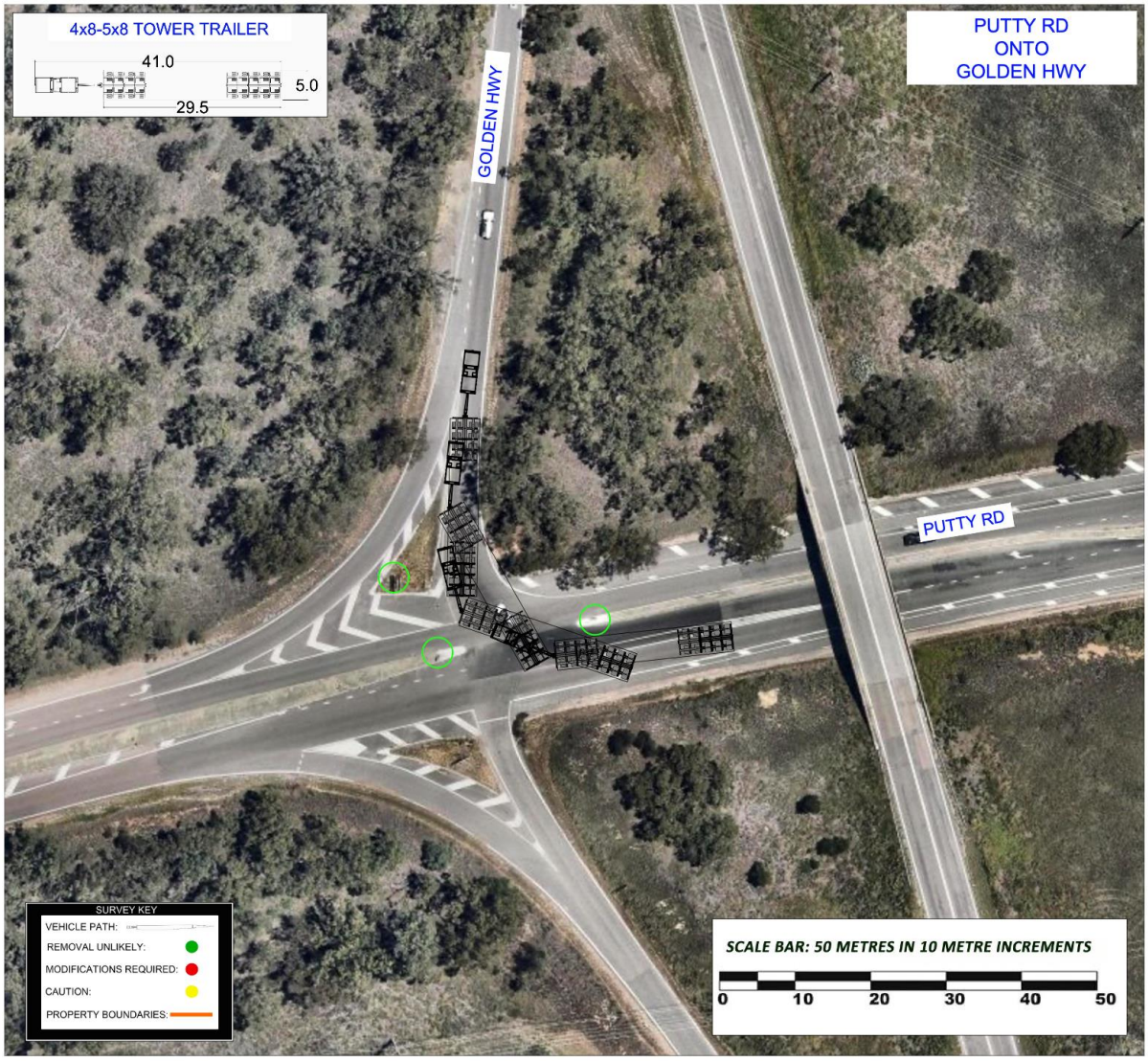


Figure 46 - Golden Highway intersection with the Putty Road

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/QS9quvSyHYWaFHoX9
PROCEDURE: Right hand turn.
ROAD MODIFICATIONS: No problems with the towers on this section of road.

131.9 Km's: Golden Highway onto Denman Road

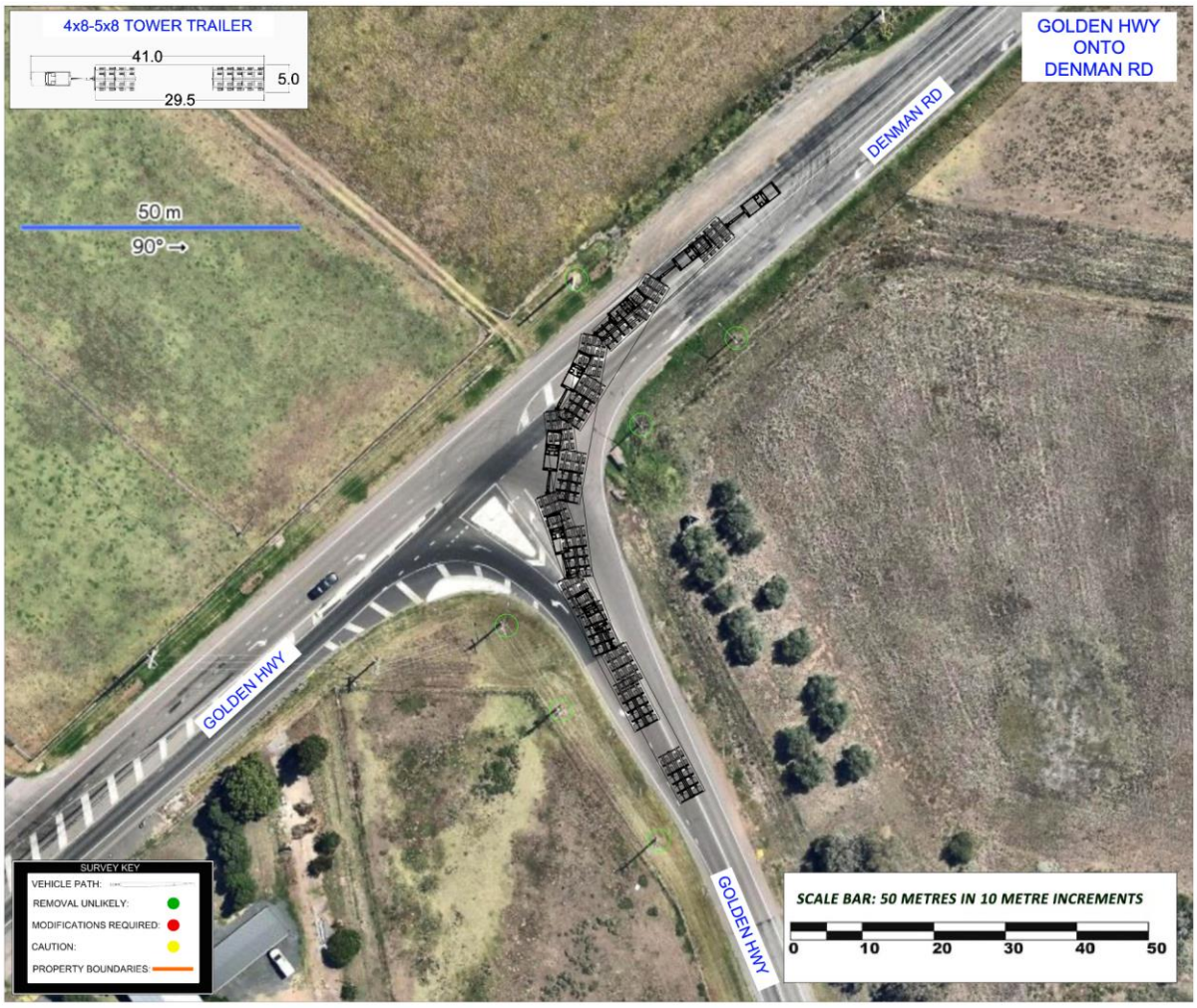


Figure 47 - Golden Highway onto Denman Road

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/sf4PNnycxB32
PROCEDURE: Right hand turn.
ROAD MODIFICATIONS: No problems with this section of road.

137.9 Km's: Denman Road onto Bengalla Road



Figure 48 - Denman Road onto Bengalla Road

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/3sK4m6YSHNHqkqn68
PROCEDURE: Left hand turn.
ROAD MODIFICATIONS: No problems with the towers on this section of road.

183.0 Km's: Wybong Road onto Golden Highway



Figure 49 - Bengalla Road onto Wybong Road

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/5ft3VnWpnPhpeN4u7
PROCEDURE: Right hand turn.
ROAD MODIFICATIONS: No problem with the towers on this section of road.

224.5 Km's: Golden Highway through Merriwa



Figure 50 – Golden Highway through Merriwa

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/3uRptDQQqGRVdZbk6
PROCEDURE: Travel directly ahead on the correct side of the road
ROAD MODIFICATIONS: Islands to be made trafficable or chevrons lines put in place. Several signs and bollards will need to be made removable.

420.0 Km's: Bunglegumbie Road onto the Mitchell Highway

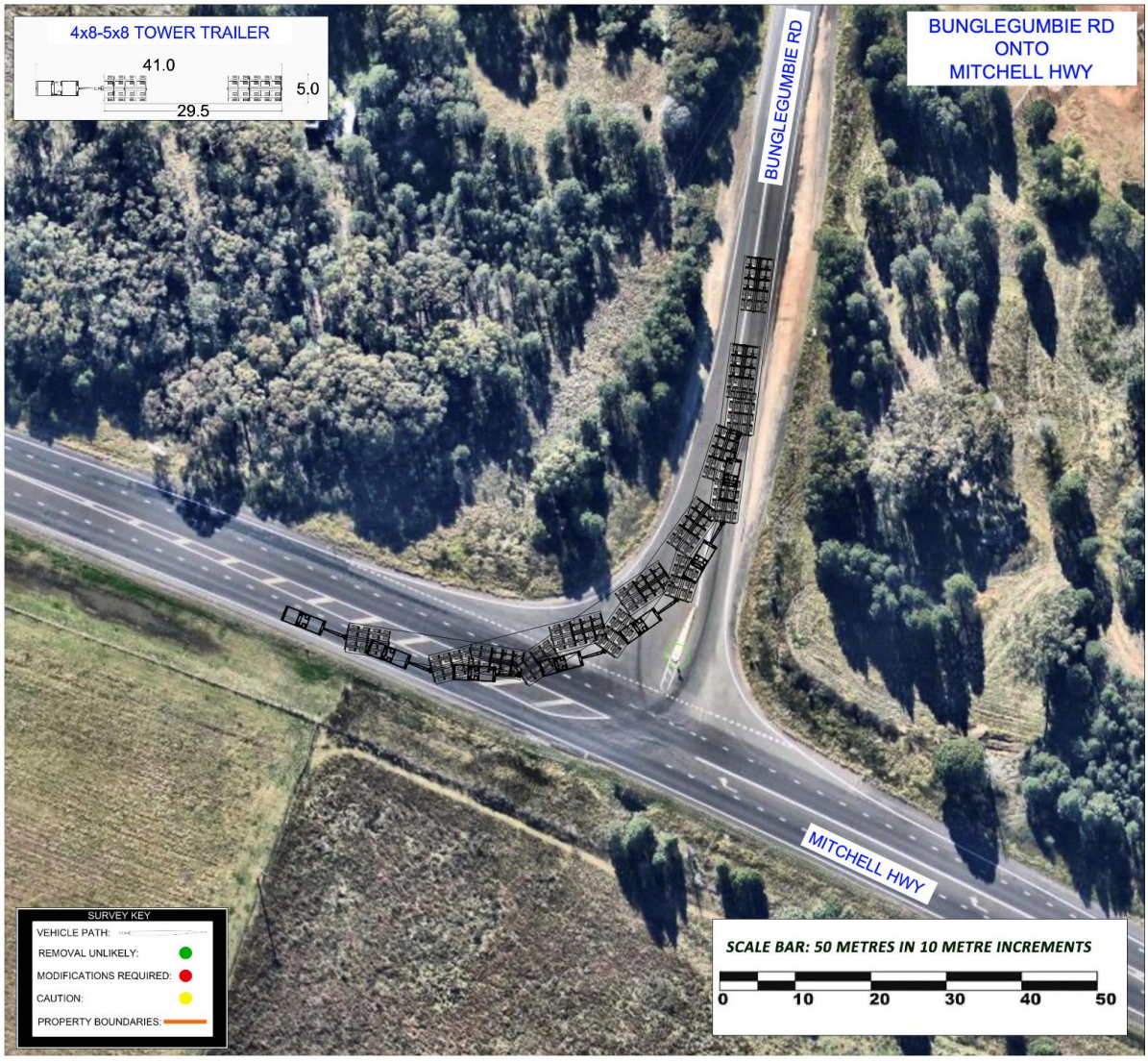


Figure 51 - Bunglegumbie road onto the Mitchell Highway

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/jCWqmaQsd3fChp837
PROCEDURE: Right hand turn.
ROAD MODIFICATIONS: No problems with this section of road.

450.0 Km's: Mitchell Highway onto Derribong Street

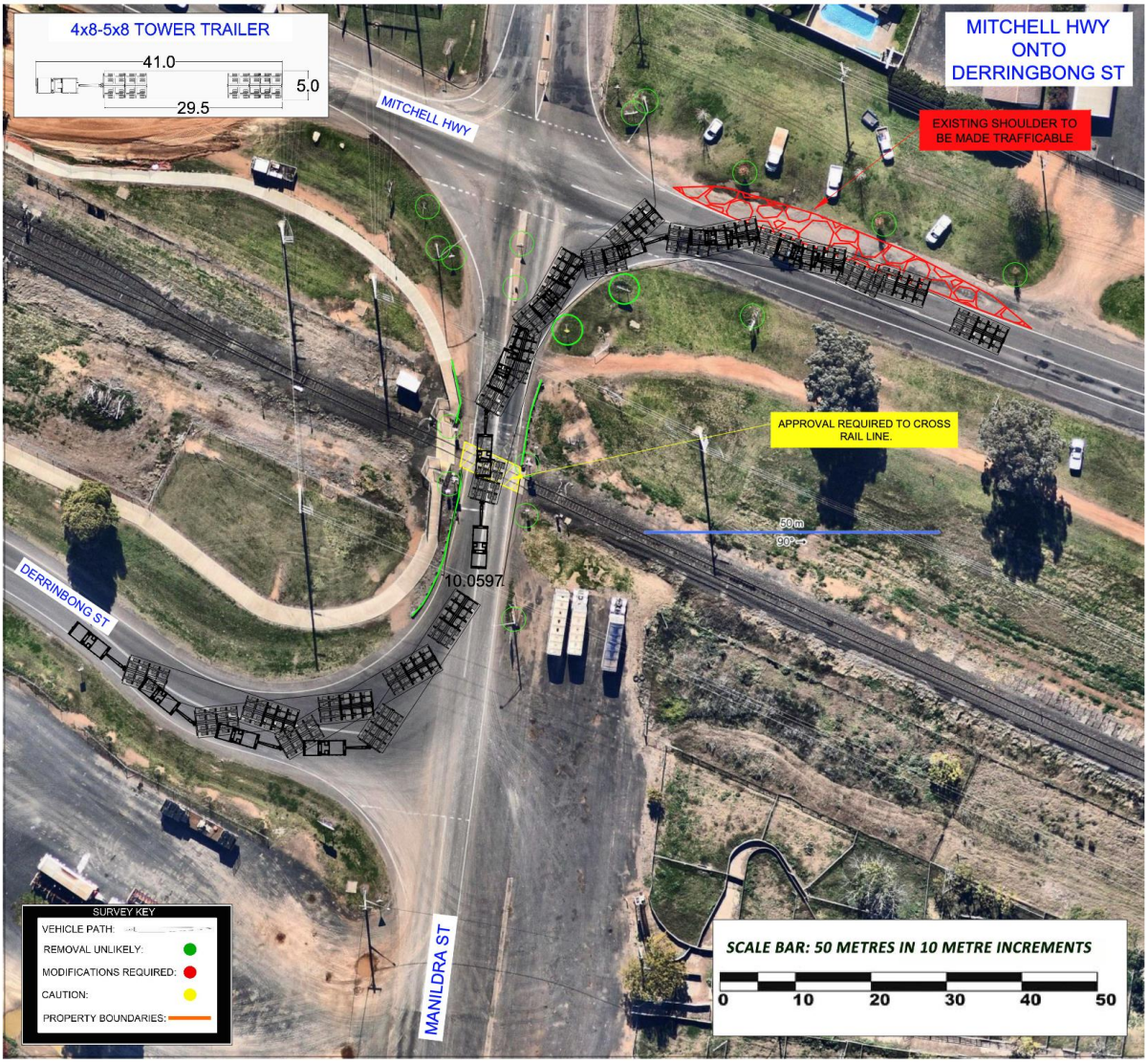


Figure 52 - Mitchell Highway onto Derribong Street

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/hFG648tcSMUHxJ8h6

PROCEDURE: Left hand turn over rail line before turning right. Rail crossing will require approval to cross.

ROAD MODIFICATIONS: The existing hardstand on the outside of the corner will need to be made all weather.

450.5 Km's: Derribong Avenue onto Algalah Street



Figure 53 - Derribong Avenue onto Algalah Street

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/9s8cb8G4T2c75t1V8
PROCEDURE: Left hand turn.
ROAD MODIFICATIONS: No problems with this section of road.

487.5 Km's: Tomingley Road onto the Newell Highway

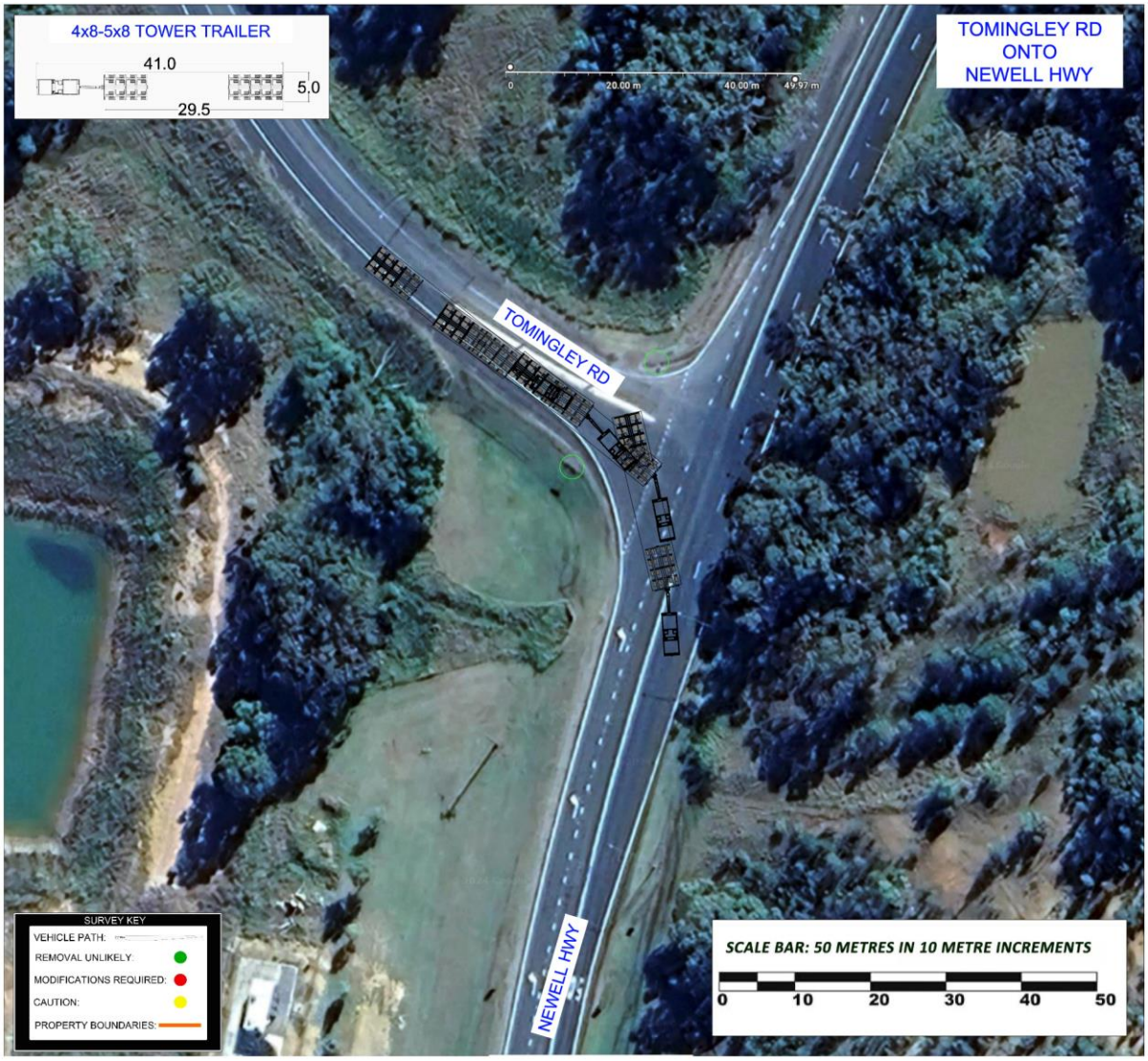


Figure 54 - Tomingley Road onto the Newell Highway

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/NJtXmHCFHxaiMaq39

PROCEDURE: Right hand turn. Loads are to cross the incorrect side of the road while travelling around this corner.

ROAD MODIFICATIONS: No problems with this section of road.

548.0 Km: Roundabout at Henry Parkes Way



Figure 55 - Roundabout at Henry Parkes Way

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/QaRpD869pQ4ks95N7
PROCEDURE: Travel directly ahead through the roundabout.
ROAD MODIFICATIONS: No problems with this section of road.

590.0 Km's: Newell Highway intersection with Dowling Street

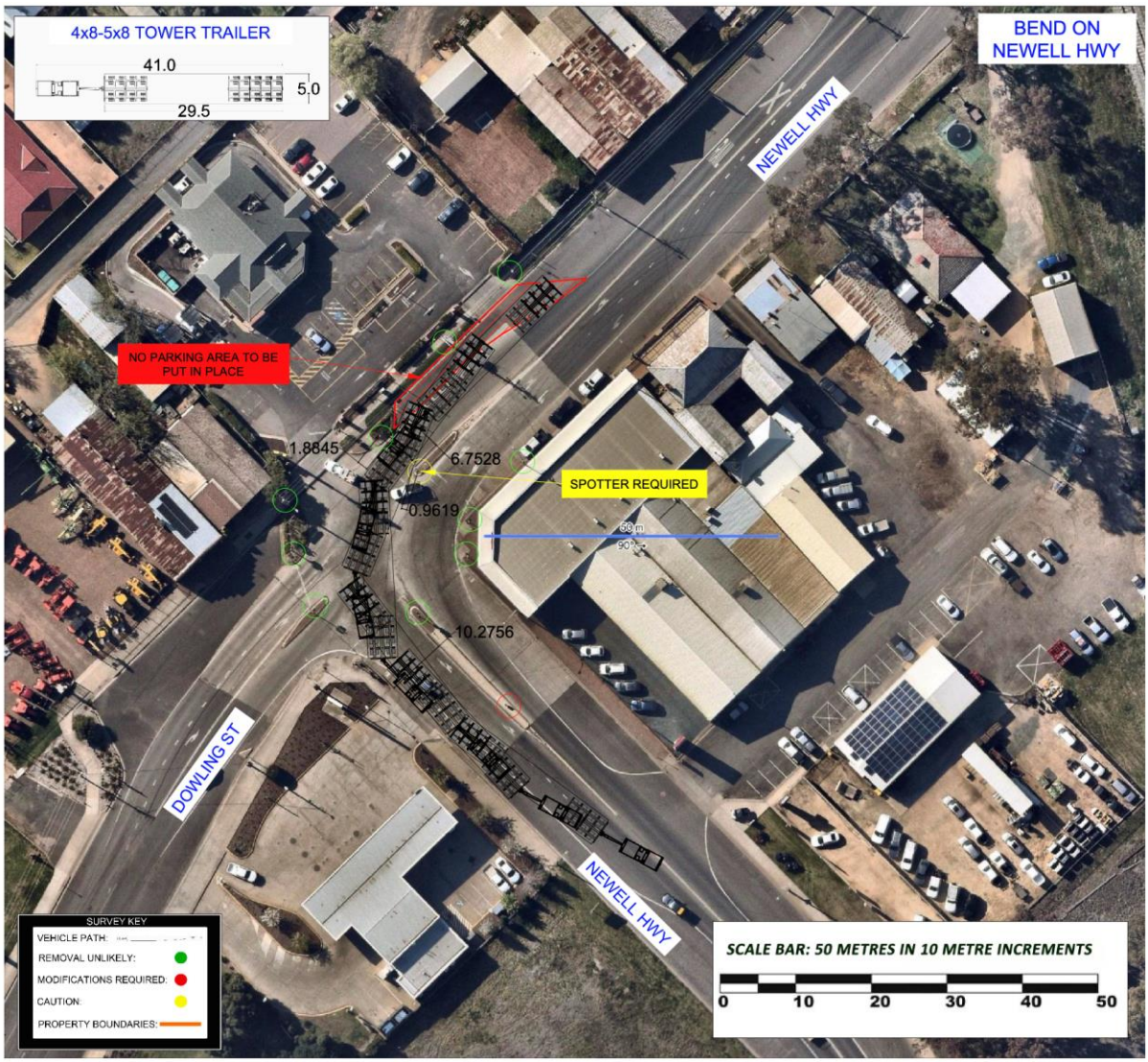


Figure 56 - Newell Highway intersection with Dowling Street

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/DqkvxH4qtWnXvLJ26

PROCEDURE: Left hand turn from incorrect side of the road onto incorrect side of the road. Spotter to guide load through this pinchpoint.

ROAD MODIFICATIONS: No parking area to be put in place.

698.0 Km's: The Newell Highway onto Compton Road at West Wyalong



Figure 57: Newell Highway at Compton Road

GPS LINK FOR SECTION OF ROAD: https://goo.gl/maps/PeM4uWg5hLiyZiPd8

PINCHPOINT PROCEDURE: Load to turn left from the Newell Highway onto Compton Road while crossing onto the incorrect side of the road.

ROAD MODIFICATIONS: Nil.

700.5 Km's: Compton Road onto Showground Road at West Wyalong

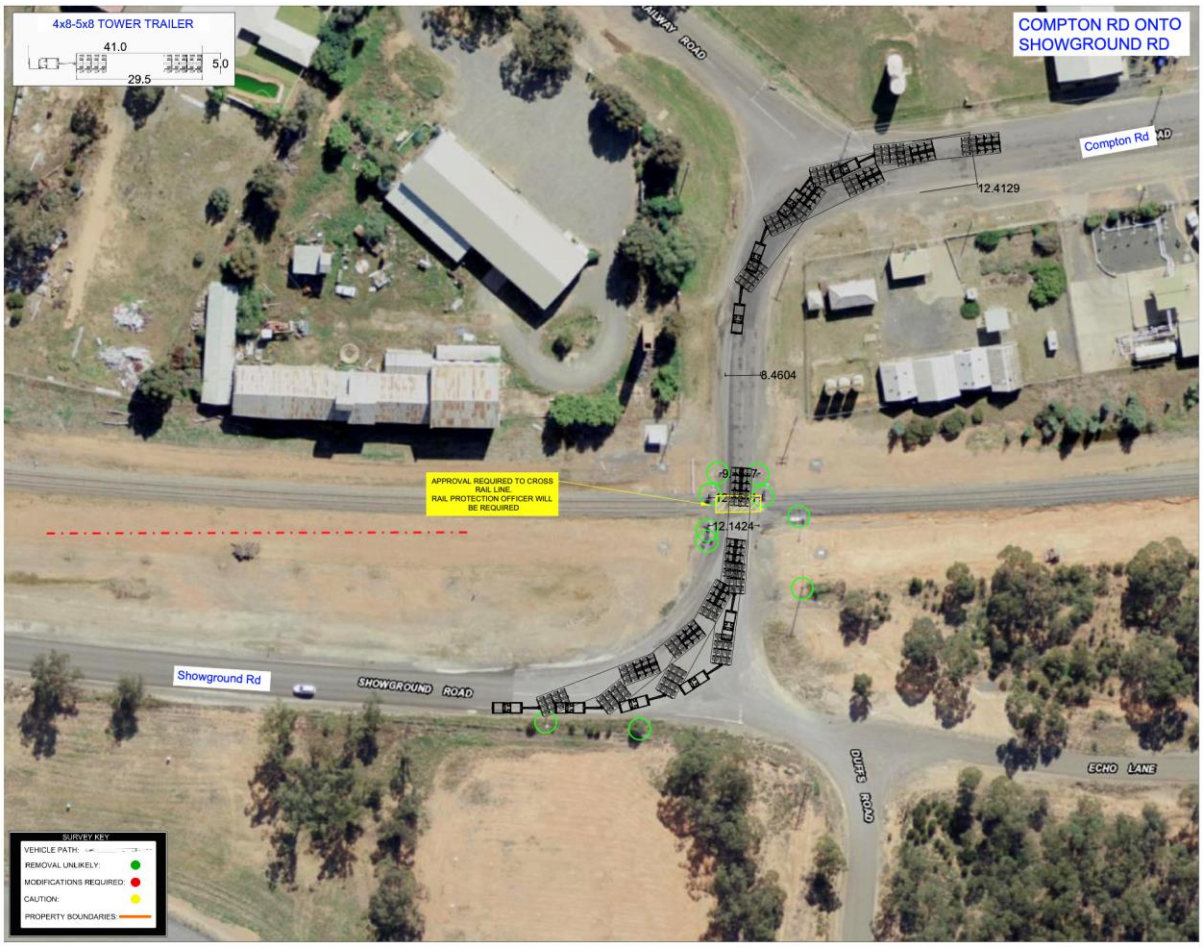


Figure 58: Compton Road onto Showground Road

GPS LINK FOR SECTION OF ROAD: https://goo.gl/maps/hts5qARMMWZcvW7R7

PINCHPOINT PROCEDURE: Dogleg turn from Compton Road onto Showground Road while crossing onto the incorrect side of the road. Rail crossing will require approval to cross.

ROAD MODIFICATIONS: Nil.

703.0 Km's: Showground Road onto the Newell Highway at West Wyalong



Figure 59: Showground Road onto Newell Highway

GPS LINK FOR SECTION OF ROAD: https://goo.gl/maps/yAyBdrZcocEeTBnz6
PINCHPOINT PROCEDURE: Load to turn left from Showground Road onto the Newell Highway while crossing onto the incorrect side of the road.
ROAD MODIFICATIONS: Nil.

824.0 Km's: Whitton Street onto Cadell Street at Narrandera (Newell Highway)



Figure 60: Whitton Street at Cadell Street

GPS LINK FOR SECTION OF ROAD: https://goo.gl/maps/EXcuuBeMsXdhVDtm8
PINCHPOINT PROCEDURE: Load to turn left from Whitton Street onto Caddell Street while staying on the correct side of the road.
ROAD MODIFICATIONS: Nil.

829.0Km's: Left hand bend to stay on the Sturt Highway at Gillenbah



Figure 61 – Right hand turn from the Newell Highway onto the Sturt Highway

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/C7gJ8ouDVdpcH5Rz7
PROCEDURE: Right hand turn.
ROAD MODIFICATIONS: Sign to be relocated or made removable.

1000.2 Km's: Roundabout on Sturt Highway at Hay onto Cobb Highway

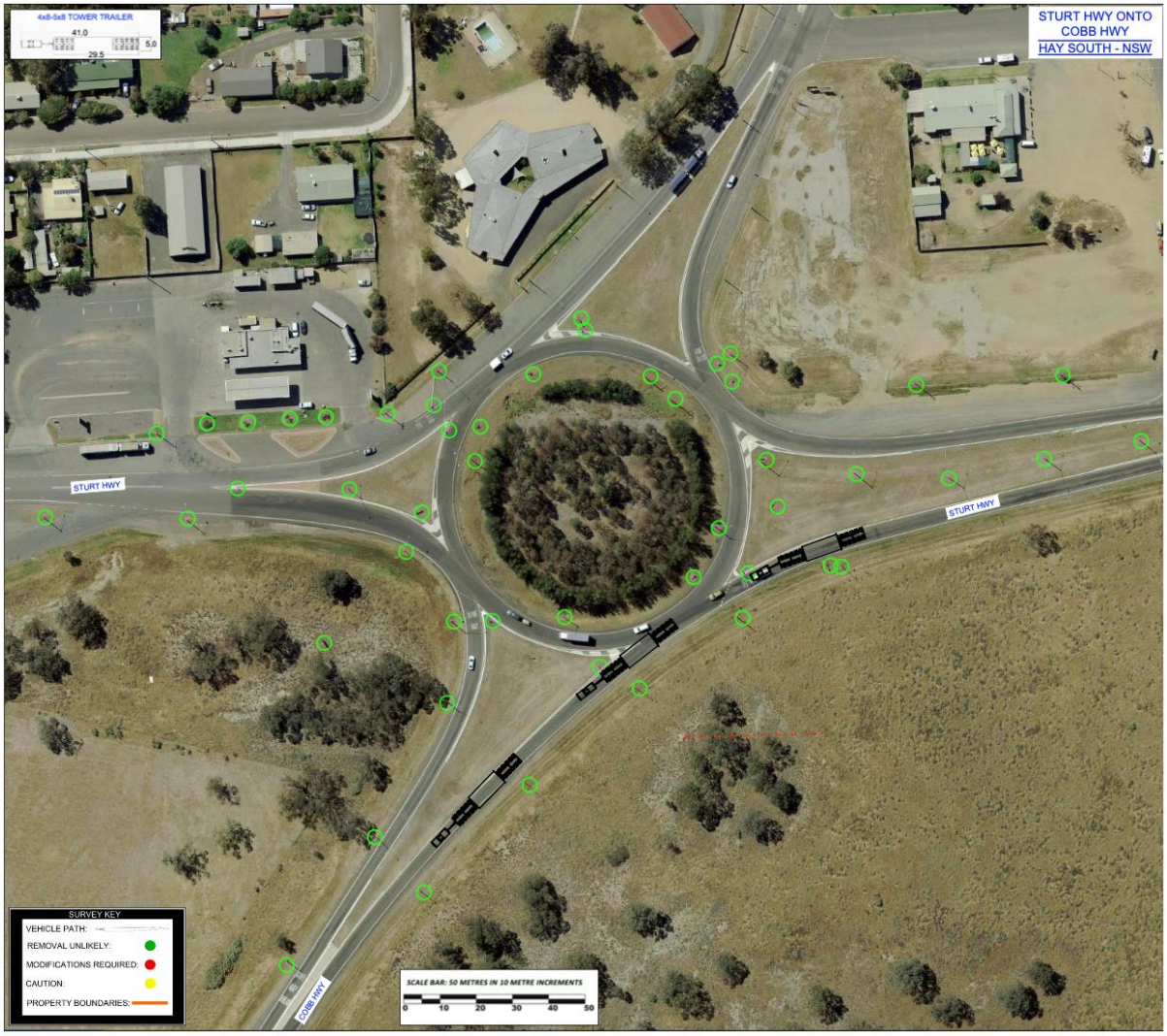


Figure 62: Sturt Highway onto Cobb Highway at Hay

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/9VAYyvhup29NtSPE6
PROCEDURE: Load to use the sliplane to the left and travel onto the Cobb Hwy.
COMMENTS: Spotter to guide the load throughout the intersection.
ROAD MODIFICATIONS: No works required.
NOTE: The remainder of the route will use the Route 1 modifications.

12.0 Route 2: Rail crossing conflicts

01 Selwyn St, Mayfield North
GPS: https://goo.gl/maps/AmohE54hKSz
Type: Level crossing
Asset Owner: Private
Line: Port Waratah – BHP Lines
LXM ID: 1659
Operational: Yes
Maximum width clearance: 11.5 Metres
Conflict: Non



02 Golden Hwy, Denman
GPS: https://goo.gl/maps/r7x7Qc685d82
Type: Level crossing
Asset Owner: ARTC
Line: Ulan
LXM ID: 1285
Operational: Yes
Maximum width clearance: 11.5 Metres
Conflict: Non



03 Golden Hwy, Dunedoo
GPS: https://goo.gl/maps/wsyNKfcoAij3SosY9
Type: Level crossing
Asset Owner: ARTC
Line: Wallerawang – Gwabegar
LXM ID: 1428
Operational: Yes
Maximum width clearance: 11.5 Metres
Conflict: Non



04 Golden Hwy, Beni
GPS: https://goo.gl/maps/yb15Kz6R2r3E69fj6
Type: Level Crossing
Asset Owner: ARTC
Line: Troy Jct – Merrygoen
LXM ID: 1260
Operational: Yes
Maximum width clearance: 11.5 Metres
Conflict: Non



05 Boothenba Rd, Dubbo
GPS: https://goo.gl/maps/72ageimPLqPWYY7M9
Type: Level crossing
Asset Owner: UGL Regional Linx
Line: Dubbo – Coonamble
LXM ID: 1256
Operational: Yes
Maximum width clearance: 11.5 Metres
Conflict: Non



06 Manildra Street, Narromine
GPS: https://goo.gl/maps/yb15Kz6R2r3E69fj6
Type: Level Crossing
Asset Owner: ARTC
Line: Main West
LXM ID: 716
Operational: Yes
Maximum width clearance: 9.0 Metres
Conflict: Non



07 Newell Highway, Tichborne
GPS: https://maps.app.goo.gl/BkyF9ZCq63KA5wQM9
Type: Level crossing
Asset Owner: ARTC
Line: Stockbingal-Parkes
LXM ID: 1164
Operational: Yes
Maximum width clearance: 9.0 Metres
Conflict: Non



08 Newell Highway, Forbes
GPS: https://maps.app.goo.gl/8nEUQgovWXcg4Qmy9
Type: Level crossing
Asset Owner: ARTC
Line: Stockbingal-Parkes
LXM ID: 1161
Operational: Yes
Maximum width clearance: 9.0 Metres
Conflict: Non



09 Showground Road, West Wyalong
GPS: https://maps.app.goo.gl/f7QZvP5NAEt9zKK26
Type: Level crossing
Asset Owner: UGL
Line: Temora-Lake Cargelligo
LXM ID: 1193
Operational: Yes
Maximum width clearance: 8.0 Metres
Conflict: Non



10 Newell Highway, Mirrool
GPS: https://maps.app.goo.gl/E2y1kPhadcnziZ716
Type: Level crossing
Asset Owner: UGL
Line: Cootamundra-Griffith
LXM ID: 227
Operational: Yes
Maximum width clearance: 14.0 Metres
Conflict: Non



Assessment of Rail Crossings advised by TFNSW

Rail Corridor	Condition	Interaction
Sturt Highway route crossing from Narrandera to Tocumwal rail corridor at Narrandera	Non operational	The route has no interaction with this rail crossing as it is a redundant line which ends at the embankment of the motorway.
Crossing Overbridge and operational rail corridor from Junee to Narrandera at Narrandera.	Non operational	The route will be crossing the overbridge. Bridge assessment will be required.
Hume Highway route crossing from Cootamundra to Gilmore rail corridor at Coolac	Non operational	The route has no interaction with this rail crossing as it is a redundant line which ends at the embankment of the motorway.
Newell Highway crossing public level crossing and non-operational Barmedman to Rankins rail corridor at Alleena.	Non operational	The route has no interaction with this rail crossing as it is a redundant line which ends at the embankment of the motorway.
Vehicle and Pedestrian Level Crossing on CRN operational rail corridor from Molong to Parkes at Parkes.	Operational	Route 2 proposes to use Parkes Bypass which is to be completed by early 2025.
Crossing non-operational rail corridor from Sandy Hollow to Merriwa near Maitland Street Gungal.	Non operational	The route has no interaction with this rail crossing as it is a redundant line which ends at the embankment of the motorway.

13.0 Route 2 conclusion

After studying all the options and undertaking a route survey, the route in its current condition will require a large 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 several sections along the route that will require upgrading in order to accommodate the proposed tower size.
- The Parkes bypass is currently nearing finalisation and is planned to be open in early 2025. We have assumed that this will be the main route now through Parkes. The swept path assessment has been completed and demonstrates that the tower can use the bypass with no upgrades required.
- The corners that have been identified in the report as requiring work should be investigated early in the planning stages to avoid delays or rejections.

OVERHEAD STRUCTURES: (6.1m Maximum loaded height)

- The lowest Bridge structure on the route is the Tarro overpass on the New England Highway at Tarro which has a 6.2 metre clearance. The loads must not exceed 6.1 metres in overall height and must pass under this structure in the far-left breakdown lane.
- The lowest gantry/sign on the route are along the Newell Highway and are 6.2 metres at their lowest. Again, the loads must not exceed 6.1 metres in overall height at these locations.
- There are two overhanging traffic signals that will require the loads to pass on the right side. They are located on Industrial Drive at Mayfield and John Renshaw Drive at Beresfield.

OVERHEAD UTILITIES:

- Although the highest loads have a maximum loaded height of 6.1 metres the travel height of the towers along rural roads would need to be set higher once the loads are clear of the bridge structures. We would recommend a travel height of up to 6.2 metres when trailers are at travelling height.
- This route will need to be checked by an authorised scoping company for a loaded height of 6.2 metres.
- Given the length of the route and large tower size there will likely be a significant amount of overhead utility lifting/relocation required. It is advised that the project starts discussions with all authorities that have utilities overhanging the corridor.

BRIDGES:

- Bridge assessments have been completed for all TfNSW bridge and culvert structures by TfNSW and have been approved for the requested loads on the respective routes except for the transformer which is currently being assessed. The assessment for the transformer will be completed post approval.

RAIL ASSETS:

- There are a number of rail overbridges and 10 x rail crossings on route that will require approval from authorities before loads can access the routes.
- All rail crossings were checked for conflicts, taking into account the width and vertical curve, and all crossings are suitable for the loads using this route that are listed in this report.

VEGETATION:

- The route requires a moderate amount of vegetation clearing at several intersection upgrades. The assessment confirms the vegetation that requires clearing.

PAVEMENT:

- Pavement on the route is of highway standard up to Jerilderie Road. Bypasses or modifications will be required at several corners and are to be constructed to suitable standards and maintained for the duration of deliveries if not sealed.
- Jerilderie Road and North Boundary Road is a 4.6 metre wide tar road but not of a highway standard. It is likely that this road will wear throughout the deliveries and may require regular maintenance.
- All site access roads to be constructed to appropriate standards in order to accommodate the weight, height and swept path of all proposed loads. Roads to be maintained for the duration of deliveries if not sealed.

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.

SITE ACCESS ROADS:

- All site access roads to be constructed to appropriate standards in order to accommodate the height, weight, vertical curves and swept path of all proposed roads.
- Roads to be made all weather and maintained for the duration of deliveries.

14.0 Route 3 Study: Newcastle to Bullawah Windfarm

COMPONENTS: Nacelles, Generators, Drive Trains, Hubs and smaller components (**Max loaded height 5.3m**)

DISTANCE: 956 kilometres

GPS LINK: https://maps.app.goo.gl/i6qzUDBbDJKUZM4s7

ROUTE: Quayside Close, Selwyn Street, George Street, Industrial Drive, Maitland Road, New England Highway, John Renshaw Drive, M1, Pennant Hills Road, M2, M7, Hume Motorway, Hume Highway, Sturt Highway, Cobb Highway, Jerilderie Road.

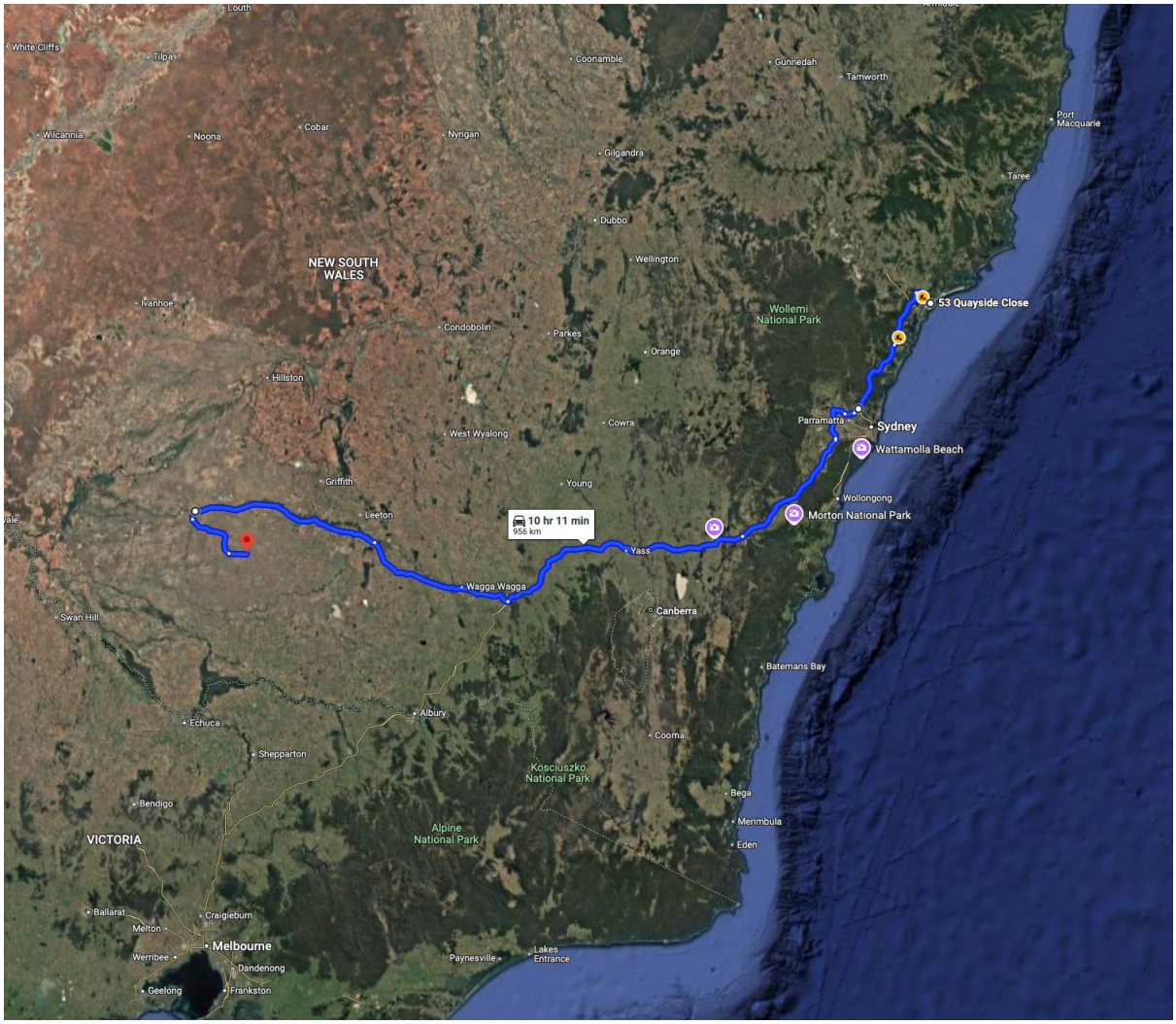


Figure 63 - Route 3

KEY	
MODIFICATIONS REQUIRED	
PINCH POINT	
EMERGENCY PARKING	

KM index	Location	Section of road	Current clearance	Procedure	Comments
0.0	Mayfield	Mayfield No.4 berth onto Selwyn Street https://goo.gl/maps/afLwPYKuNdm	Length: 80.0m Width: 8.0m	Right hand turn	No problems with this section of road.
0.4	Mayfield	Selwyn Street rail crossing https://goo.gl/maps/864FhMSaF9P2	Width: 9.0m	Travel directly ahead	Loads to travel over the crossing in the center of the road. Approval required crossing this line, likely cross with caution.
1.3	Mayfield	Selwyn Street onto Industrial Drive via George Street https://goo.gl/maps/brPRAckLr572	Length: 80.0m Width: 8.0m	Right hand turn	No problems with this section of road.
4.9	Mayfield	Industrial Drive under traffic signals https://goo.gl/maps/5DpD3b7KnT72	Clearance: Height: 5.4m	Travel directly ahead	No problems with this section of road.
5.5	Mayfield West	Industrial Drive onto Pacific Hwy https://goo.gl/maps/Kn49dhWG2qG2	Length: 80.0m Width: 8.0m	Right hand turn	No problems with this section of road.
14.2	Tarro	Gantry on New England Highway https://maps.app.goo.gl/LkhLdicHHeJE6gPo8	Clearance: Height: 6.2	Travel directly ahead	No problems with this section of road.
14.8	Tarro	Bend on New England Highway https://goo.gl/maps/hkKqsZMfdVJncRdu6	Length: 100.0m Width: 12.0m	Left hand bend	No problems with this section of road.
15.4	Tarro	New England Highway under Tarro interchange https://maps.app.goo.gl/JaXPAxHGozGs8GR17	Clearance: Height: 6.14	Travel directly ahead	No problems with this section of road.
17.4	Tarro	New England Highway onto John Renshaw Drive https://goo.gl/maps/SRDr5JigkBp	Length: 120.0m Width: 12.0m	Left hand merge	No problems with this section of road.
18.4	Beresfield	John Renshaw Drive onto the M1 https://goo.gl/maps/A34ihxCjM5wfRDdq6	Length: 100.0m Width: 8.0m	Left hand bend	No problems with this section of road.
113.0	Mt White	M1 Motorway under Mt White overpass https://goo.gl/maps/K3fPPe4fNx63xB3j7	Height clearances: L: 5.38m C: 5.35m R: 5.37ms	Travel directly ahead	Loads that exceed 5.3 metres high are not to travel under this structure. Loads over 5.2 metres high are to travel under the bridge in the far-right lane, and at a speed of no more than 5 km's per hour. Spotter to guide load through this section of road.
146.0	Wahroonga	M1 onto Pennant Hills Rd https://goo.gl/maps/bskC8kD4CdW9xmwYA	Length: 75.0m Width: 8.0m	Left hand turn	No problems with this section of road.
147.0	Normanhurst	Pennant Hills Road under Pedestrian overpass https://goo.gl/maps/nYbjkf5AJ9D2xvUt7	Height clearances: L: 5.38m C: 5.5m R: 5.7m	Travel directly ahead	Loads that exceed 5.3 metres high are not to travel under this structure. Loads over 5.2 metres high are to travel under the bridge in the far-right lane, and at a speed of no more than 5 km's per hour. Spotter to guide load through this section of road.

KM index	Location	Section of road	Current clearance	Procedure	Comments
151.0	Beecroft	Pennant Hills Road under Pedestrian overpass https://goo.gl/maps/sjnLQqYRudUSKqTQ8	Height clearances: L: 5.3m C: 5.4m R: 5.5m	Travel directly ahead	Loads that exceed 5.3 metres high are not to travel under this structure and are to travel via route B. Loads over 5.2 metres high are to travel under the bridge in the centre lane, and at a speed of no more than 5 km's per hour. Spotter to guide load through this section of road.
154.0	West Pennant Hills	Pennant Hills Rd onto M2 Motorway https://goo.gl/maps/cCsJwSt1NsRi5cSs6	Length: 75.0m Width: 7.0m	Right hand turn	No problems with this section of road.
163.0	Winston Hills	M2 Motorway onto M7 Motorway https://goo.gl/maps/PC96cBq2xqtW85vG7	Width: 10.0m	Travel directly ahead	No problems with this section of road.
238.0	Wilton	Hume Highway under Farm access overpass https://goo.gl/maps/2ZsVqYJ9j9gPTGqa9	Height clearances: L: 5.5 mtrs C: 5.4 mtrs R: 5.3 mtrs	Travel directly ahead	Loads that exceed 5.3 metres high are not to travel under this structure. Loads over 5.2 metres high are to travel under the bridge in the left lane, and at a speed of no more than 5 km's per hour. Spotter to guide load through this section of road.
300.0	Sutton Forest	Hume Highway Parking https://goo.gl/maps/uT1ubtSuawS2	150.0 long x 10.0 wide	Merge to left	Large parking area. Sutton Forest.
356.0	Goulburn	Hume Highway under Windellama Road https://maps.app.goo.gl/etrZffriDzaudEeC9	Height clearances: L: 5.5 mtrs C: 5.4 mtrs R: 5.4 mtrs	Travel directly ahead	Loads that exceed 5.3 metres high are not to travel under this structure.
372.0	Breadalbane	Hume Highway Parking https://goo.gl/maps/UWjx3XndLejWG1UD9	140.0 long x 14.0 wide	Merge to left	Large parking area. Mystery Boulders.
480.0	Berremangra	Hume Highway Parking https://maps.app.goo.gl/mEr4gYsCmXciynSu8	180.0 long x 10.0 wide	Merge to left	Large parking area. Reddy Creek.
508.0	Jugiong	Hume Highway Parking https://goo.gl/maps/QzzfyAAnixQn3nwx8	140.0 long x 14.0 wide	Merge to left	Large parking area. Mungi Mungi Hill.
541.0	South Gundagai	Hume Highway Parking https://maps.app.goo.gl/hExjVM75QHiRZmSG7	150.0 long x 12.0 wide	Merge to left	Large parking area. Big Ben Creek.
573.70	Tarcutta	Hume Hwy onto Sturt Hwy GPS Link: https://goo.gl/maps/ruqNDSw5vanJDd4x5	200m long	Left Hand Merge	No problems with this section of road.
574.0	Tarcutta	Sturt Hwy Parking https://maps.app.goo.gl/95cwTYQy6ztpBaEL9	210.0 long x 7.5 wide	Merge to left	Large parking area. Hume Highway exit stopping bay.
614.6	Wagga Wagga	Sturt Hwy GPS Link: https://goo.gl/maps/7VDWUyW8KnUhCEdd7	80m long	Second Exit on Round-about	No problems with this section of road.
617.3	Wagga Wagga	Sturt Hwy GPS Link: https://goo.gl/maps/VeavHs6e4AjLaggDA	80m long	Second Exit on Round-about	No problems with this section of road.
618.4	Wagga Wagga	Sturt Hwy GPS Link: https://goo.gl/maps/dBrte59BvHyvcGSr5	80m long	Second Exit on Round-about	No problems with this section of road.

KM index	Location	Section of road	Current clearance	Procedure	Comments
618.75	Wagga Wagga	Sturt Hwy under rail overpass GPS Link: https://goo.gl/maps/JPkJBAyzJuMAiHUz8	Height clearances: 5.57m	Travel under rail overpass	No problems with this section of road.
621.5	Wagga Wagga	Sturt Hwy GPS Link: https://goo.gl/maps/fx388veUAjbykiyPA	80m long	Second Exit on Round-about	No problems with this section of road.
679.0	Galore	Sturt Hwy Parking https://maps.app.goo.gl/3YJccdx7avFJ2io96	110.0 metres long 18.0 metres wide	Merge to left	Large parking area. Kywong.
711.0	Gillenbah	Sturt Hwy GPS Link: https://goo.gl/maps/C7gJ8ouDVdpcH5Rz7	80m long	Left Hand Turn	No problems with this section of road.
711.5	Gillenbah	Sturt Hwy Parking GPS Link: https://maps.app.goo.gl/Foiprojj1VwfiFox7	140.0 metres long 11.5 metres wide	Merge to right	Large parking area. Gillenbah at Newell Highway. Incorrect side of road.
882.0	Hay South	Sturt Hwy onto Cobb Hwy https://goo.gl/maps/5N5YDKoTzaRtbv7Q9	95.0 metres long 5.0 metres wide	Take the first exit onto Cobb Hwy	Use slip lane on roundabout
890.0	Hay South	Cobb Highway onto Jerilderie Road GPS Link: https://goo.gl/maps/HYSt1h5MQfK9ile76	Length: 50m Width: 7.5m	Turn left onto Jerilderie Road.	Tower to use Route 1 modification at this location.
940.0	Hay South	Windfarm Entry # 1 GPS Link: https://goo.gl/maps/tawfeFCo4jdCYgpF7	N/A	Turn right into site entry.	Tower to use Route 1 modification at this location.
941.8	Hay South	Windfarm Entry # 5 GPS Link: https://goo.gl/maps/V8ARPnJdpALJ5Kfm9	N/A	Turn right into site.	Tower to use Route 1 modification at this location.
944.4	Hay South	Windfarm Entry # 6 GPS Link: https://goo.gl/maps/hbR3EvWS7ZNm3Yhm9	N/A	Turn right into site.	Tower to use Route 1 modification at this location.
949.50	Hay South	Windfarm Entry # 7 GPS Link: https://goo.gl/maps/jhpwVAAKmBFWt67E6	N/A	Turn left into site.	Tower to use Route 1 modification at this location.
955.3	Hay South	Windfarm Entry # 8 GPS Link: https://goo.gl/maps/X2kT4i9ZrhYZQBMv5	N/A	Turn left or right into site	Tower to use Route 1 modification at this location.
956.0	Hay South	Windfarm Entry # 10 GPS Link: https://goo.gl/maps/U9HqH2MAAGqSqKrT7	N/A	Turn right into site.	Tower to use Route 1 modification at this location.

15.0 Route 3: Rail crossing conflicts

01 Selwyn St, Mayfield North
GPS: https://goo.gl/maps/AmohE54hKSz
Type: Level crossing
Asset Owner: Private, but managed by ARTC
Line: Port Waratah – BHP Lines
Maximum width clearance: 11.5 Metres
Conflict: Non



16.0 Route 3 conclusion

After studying all options and undertaking a route survey, the route in its current condition is suitable for the loads listed to use this route, as long as they do not exceed 5.3 metres in loaded height.

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

SWEPT PATH:

- No issues for the loads listed to use this route.

OVERHEAD STRUCTURES: (5.3 Maximum loaded height)

- The lowest structures on this route are along the M1 Motorway, Pennant Hills Road and the Hume Highway. The loads cannot exceed 5.3 metres in overall height. The route index shows these locations and their heights.

OVERHEAD UTILITIES:

- This route will need to be checked by an authorised scoping company. It is likely that a route of 5.3 metres loaded height is required for this project.

BRIDGES:

- This route has accommodated loads of this weight in the past, however it is recommended that assessments are undertaken for any load that would not be covered under the Gazette. https://www.nhvr.gov.au/law-policies/notices-and-permit-based-schemes/state-notices/new-south-wales.
- Bridge assessments have been completed for all TfNSW bridge and culvert structures by TfNSW and have been approved for the requested loads on the respective routes except for the transformer which is currently being assessed. The assessment for the transformer will be completed post approval.

RAIL ASSETS:

- There are a number of rail overbridges and one crossing on route that will require approval from authorities before loads can access the routes. It is advised that discussions start with the rail asset managers on this route.
- The rail crossing was checked for conflicts, taking into account the width and vertical curve, and is suitable for the loads using this route that are listed in this report.

VEGETATION:

- No issues for the loads listed to use this route.

PAVEMENT:

- Pavement on the route is of highway standard up to the site entry. Bypasses or modifications will be required at several corners and are to be constructed to suitable standards and maintained for the duration of deliveries if not sealed.
- All site access roads to be constructed to appropriate standards in order to accommodate the weight, height and swept path of all proposed loads. Roads to be maintained for the duration of deliveries if not sealed.

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.

SITE ACCESS ROADS:

- All site access roads to be constructed to appropriate standards in order to accommodate the height, weight, vertical curves and swept path of all proposed roads.
- Roads to be made all weather and maintained for the duration of deliveries.

17.0 Transport Approvals Required

Approvals will need to be sought from the following stakeholders.

- NHVR
- TfNSW
- NSW Police
- Local councils
- Motorways and private infrastructure operators
- Energy & telecommunication infrastructure owners/managers
- Rail Managers/Owners

18.0 Roadworks: Potential Conflicts with TfNSW Projects

The Bullawah windfarm project is currently planning to deliver the OSOM loads along the proposed routes between 2026 and 2027. There are several road projects that may conflict with our movements during this period. Several of these projects are known and are listed below. If new projects come to light, then they will be added to the list once known.

Transport operations are to check with these worksites daily to manage the transport movements through each of the worksites.

TfNSW Project	Project's Website:	Other relevant Weblink/s:	Project Overview:	Implications for the Bullawah Wind Farm	Recommended Mitigation Measures
Hexham Straight Widening Project*(HSW)*	Project Website link here https://www.transport.nsw.gov.au/projects/current-projects/pacific-highway-improvements-at-hexham	Project's interactive portal link here https://caportal.com.au/tfnsw/hexham-straight	The HSW Project involves the addition of an extra lane in both directions, removal of the existing bridges and construction of two new bridges at Ironbark Creek, adjustments to connecting roads as well as significant utility relocation. The Ironbark Creek/Toohrnbing is now open. The remainder of the Project is expected to be open to traffic in 2026.	Relevant for Routes 1 and 3. WTG deliveries are anticipated to commence in mid-2026, which may overlap with the final stages of HSW construction. The majority of proposed OSOM movements will occur in 2027/2028 after HSW works are completed	Monitor Project's interactive portal and consult with TfNSW during detailed design to minimise potential interactions TfNSW has advised operators of OSOM vehicles to contact the HSW Project team at least one day prior to transport to avoid delays. Note: Further consultation is required with TfNSW to address the Ironbark Bridge upgrade, which has changed from this available plan set.
M1 to Raymond Terrace Project *(M12RT)*	Project Website link here https://www.transport.nsw.gov.au/projects/current-projects/m1-pacific-motorway-extension-to-raymond-terrace	Project's interactive portal link here https://caportal.com.au/tfnsw/m1rt	The M12RT project includes 15 km of dual carriageway and provides motorway access from the existing road network from four new interchanges at Black Hill, Tarro, Tomago and Raymond Terrace. The project also includes a 2.6 km viaduct over the Hunter River and floodplain, the Main North Rail Line, and the New England Highway. It will also provide new bridge crossings over local	Relevant for Routes 1 and 3. Potential for disruption and delays, particularly during widening of the New England Highway at Tarro and construction of new and modified ramps. Once completed, the upgrades would have a beneficial impact for the Project.	Monitor Project's interactive portal and consult with TfNSW during detailed design to minimise potential interactions, particularly in relation to the New England Highway upgrade at Tarro.

			waterways at Tarro and Raymond Terrace, and an overpass for Masonite Road at Heatherbrae. Construction is underway and is expected to be completed in 2028.		
Singleton Bypass Project	Project Website link here https://www.transport.nsw.gov.au/projects/current-projects/singleton-bypass-new-england-highway	Project's interactive portal link here https://caportal.com.au/rms/singleton-bypass	Construction of a new bypass on the New England Highway, running south of Singleton and Singleton Heights.	N/A – Route 2 avoids Singleton, and runs south along the Golden Highway via Mount Thorley, Warkworth and Jerrys Plains.	N/A
Belford to Golden Highway Project *(B2GH)*	Project Website link here https://www.transport.nsw.gov.au/projects/current-projects/belford-to-golden-highway-new-england-highway	Project's interactive portal link here https://www.transport.nsw.gov.au/sites/default/files/media/documents/rww/projects/01documents/new-england-highway/belford-golden-highway/neh-upgrade-belford-golden-hwy-project-overview-diagram.pdf	The B2GH Project included widening the New England Highway to provide two lanes in each direction between Belford and the Golden Highway, replacing the existing right turn movement from the Golden Highway to the New England Highway with a flyover and a new a roundabout on the Golden Highway with a connection to the New England Highway. Work was completed in January 2024.	N/A – work now complete.	N/A
Golden Highway upgrades	Project Website link here https://www.transport.nsw.gov.au/projects/current-projects/golden-highway-upgrades	Project's interactive portal link here Golden Highway upgrades overview map	Upgrades include acceleration lanes on the Golden Highway at Putty Road and Mt Thorley, overtaking lanes at Ogilvies Hill and Winery Hill, the establishment of heavy vehicle parking bays, a rail level crossing upgrade at Denman, and flood immunity work at Uarbry Creek and Mudies Creek.	N/A – works complete with the exception of Mudies Creek flood immunity work.	N/A
Marshall's Creek Bridge Replacement	Project Website link here Marshalls Creek Bridge replacement | Transport for NSW		Upgrades include widening the Sturt Highway to four lanes over Marshalls Creek Bridge. The upgrade will	Relevant for Route 1. Works may occur at same time as OSOM movements along Route 1	Monitor Project's wesbsite and consult with TfNSW during detailed design to minimise potential interactions.

			improve safety and ease congestion on the highway through Wagga Wagga.		

19.0 Port to REZ (P2R) Upgrades

The Port to REZ (P2R) upgrades have been designed to accommodate OSOM (Over Size Over Mass) vehicle movements up to 85–100 metres in length and up to 6.2 metres in width. The OSOM transport requirements for the proposed Bullawah Wind Farm, as assessed in this report, fall within these parameters. Therefore, it is assumed that all OSOM movements associated with the Bullawah Wind Farm will be able to utilise the P2R-upgraded routes without additional modifications. As such, new swept path assessments are not required and the existing P2R assessments can be relied upon.

Location	Port to REZ Works	Bullawah Windfarm Works (as outlined in this Route Study	Generally Consistent
Quayside Close/Selwyn Street, Mayfield North	New asphalt hardstand, new 'no parking' sign, realignment of existing fence and realignment of existing open drain	No works proposed	Yes
Selwyn Street/George Street/Industrial Drive, Mayfield North	New asphalt hardstand, tree and sign removal, new 'no parking' sign, relocation of 'no stopping' sign	Sign to be removed and replaced for each blade movement (note this sign is not identified on P2R plan and is located within proposed hardstand area).	Yes
Industrial Drive/Pacific Highway, Mayfield West	New traffic island with mountable kerb, sign removal and relocation	No works proposed – following completion of P2R works, truck can travel over mountable kerb rather than mounting existing median strip	Yes
John Renshaw Drive onto Hunter Expressway, Buchanan	New asphalt hardstand, tree and sign removal and sign relocation	No works proposed	Yes
New England Highway/Mitchell Line of Road (Golden Highway), Whittingham	Road widening within roundabout central island, sign removal and relocation	No works proposed	Yes
Golden Highway (Mitchell Line of Road)/Putty Road, Mount Thorley	Sign removal and relocation	No works proposed	Yes
Jerrys Plains Road/Putty Road, Mount Thorley	Sign removal and relocation	No works proposed	Yes
Golden Highway/Lonsdale Street and Pringle Street, Jerrys Plains	New asphalt hardstands and retaining wall, tree removal and pruning, new 'no stopping' signs, local driveway upgrades	No works proposed	Yes
Jerrys Plains Road (Golden Highway)/Denman Road, Denman	New asphalt hardstands, sign removal and relocation, tree removal and new fenceline	No works proposed	Yes
Wybong Road/Golden Highway, Sandy Hollow	New asphalt hardstand, sign removal and relocation	No works proposed	Yes
Golden Highway/Vinegaroy Road, Cassilis	Proposed dedicated right turn lane and new embankment, sign removal and relocation, tree removal and pruning and batter regrading	No works proposed	Yes
Golden Highway/Black Stump Way, Leadville	New asphalt hardstand, tree removal, sign removal and relocation	No works proposed	Yes
Golden Highway/Castlereagh Highway, Dunedoo	New asphalt hardstand, sign removal and relocation	No works proposed	Yes
Castlereagh Highway/Barneys Reek Road, Birriwa	New dedicated left and right turn lane, tree removal, sign relocation and removal	Not part of proposed transport route (no works proposed)	-

Golden Highway/Bolaro Street, Dunedoo	New asphalt hardstand, footpath and kerb ramp, new ‘no parking’ and ‘give way’ signs	No works proposed	Yes
Golden Highway/Spring Ridge Road, Cobbora	New asphalt hardstand, sign removal and relocation	No works proposed	Yes
Golden Highway/Saxa Road, Elong Elong	New asphalt hardstand, extension of culvert and replacement of headwall, new open drain, sign removal and relocation and tree pruning	No works proposed	Yes

20.0 Draft delivery schedule

WEEKLY SCHEDULE								
Component	Transport combo	DATE:TBC Sun	DATE:TBC Mon	DATE:TBC Tues	DATE:TBC Wed	DATE:TBC Thurs	DATE:TBC Fri	DATE:TBC Sat
BLADE 1	2X4-3X8 BLADE TRANSPORTER	PILOTS: 4 POLICE: 2 DRIVER: TBC						
TOWER 6	4X8-3X8 DOLLY AND JINKER	PILOTS: 3 POLICE: N/A DRIVER: TBC						
NAC	2X8-4X8 DOLLY AND LOW LOADER		PILOTS: 2 THAN 1 POLICE: N/A DRIVER: TBC					
HUB	2X8-3X8 DOLLY AND LOW LOADER		PILOTS: 2 POLICE: N/A DRIVER: TBC					
BLADE 2	2X4-3X8 BLADE TRANSPORTER			PILOTS: 4 POLICE: 2 DRIVER: TBC				
T5	4X8-5X8 EXTENDING PLATFORM TRAILER			PILOTS: 3 POLICE: N/A DRIVER: TBC				
T4	4X8-5X8 EXTENDING PLATFORM TRAILER			PILOTS: 3 POLICE: N/A DRIVER: TBC				
DRIVE TRAIN	6X8 PLATFORM			PILOTS: 2 THAN 1 POLICE: N/A DRIVER: TBC				
T1	10X8 PLATFORM TRAILER				PILOTS: 2 POLICE: N/A DRIVER: TBC			
T2	4X8-5X8 EXTENDING PLATFORM TRAILER				PILOTS: 3 POLICE: N/A DRIVER: TBC			
BLADE 3	2X4-3X8 BLADE TRANSPORTER					PILOTS: 4 POLICE: 2 DRIVER: TBC		
T3	4X8-5X8 EXTENDING PLATFORM TRAILER					PILOTS: 3 POLICE: N/A DRIVER: TBC		
Containers	SIDE LOADER	DRIVER: TBC		DRIVER: TBC		DRIVER: TBC		

21.0 References

Rex J Andrews P/L Route survey # 378 REV02
BayWa
Google Earth/Maps
Nearmaps
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.

22.0 Appendix 1 – Transport Combinations

N163 5.X TS148 WIND TURBINE GENERATOR:

Nacelles (12.8l x 4.3w x 4.1h x 67T)
Configuration. Prime mover with 2x8-4x8 Low loader
Overall dimensions: 30.0l x 4.4w x 5.2h x 104.5T
Route: 3

Drive trains (6.8l x 3.4w x 3.25h x 75.0T)
Configuration. Prime mover with 6x8 Platform trailer
Overall dimensions: 30.0l x 4.2w x 4.8h x 124.5T
Route: 3

Hubs (5.3l x 4.7w x 4.0h x 50.0T)
Configuration. Prime mover with 2x8-3x8 Low loader
Overall dimensions: 30.0l x 4.4w x 5.2h x 85.5T
Route: 3

Blades (80.5l x 4.7w x 4.2h x 31T)
Configuration. Prime mover with 3x8-3x8 Blade Trailer
Overall dimension: 90.0l x 4.8w x 5.0h x 86.5T
Route: 1

Tower T1 (13.4l x 5.0 x 5.0 x 91T)
Configuration. Prime mover with 10x8 Platform Trailer
Overall dimension: 29.6l x 5.0w x 6.1h x 160.5T
Route: 2

Tower T2 (19.3l x 5.0 x 5.0 x 89T)
Configuration. Prime mover with 4x8-5x8 Extending Platform Trailer
Overall dimension: 34.0l x 5.0w x 6.1h x 158.5T
Route: 2

Tower T3 (23.4l x 5.0 x 5.0 x 88T)
Configuration. Prime mover with 4x8-5x8 Extending Platform Trailer
Overall dimension: 36.0l x 5.0w x 6.1h x 158.5T
Route: 2

Tower T4 (29. 9l x 5.0 x 5.0 x 88T)
Configuration. Prime mover with 4x8-5x8 Extending Platform Trailer
Overall dimension: 41.5l x 5.0w x 6.1h x 159.5T
Route: 2

Tower T5 (29.9l x 5.0 x 4.1 x 89T)
Configuration. Prime mover with 4x8-5x8 Extending Platform Trailer
Overall dimension: 41.5l x 5.0w x 6.1h x 139.5T
Route: 2

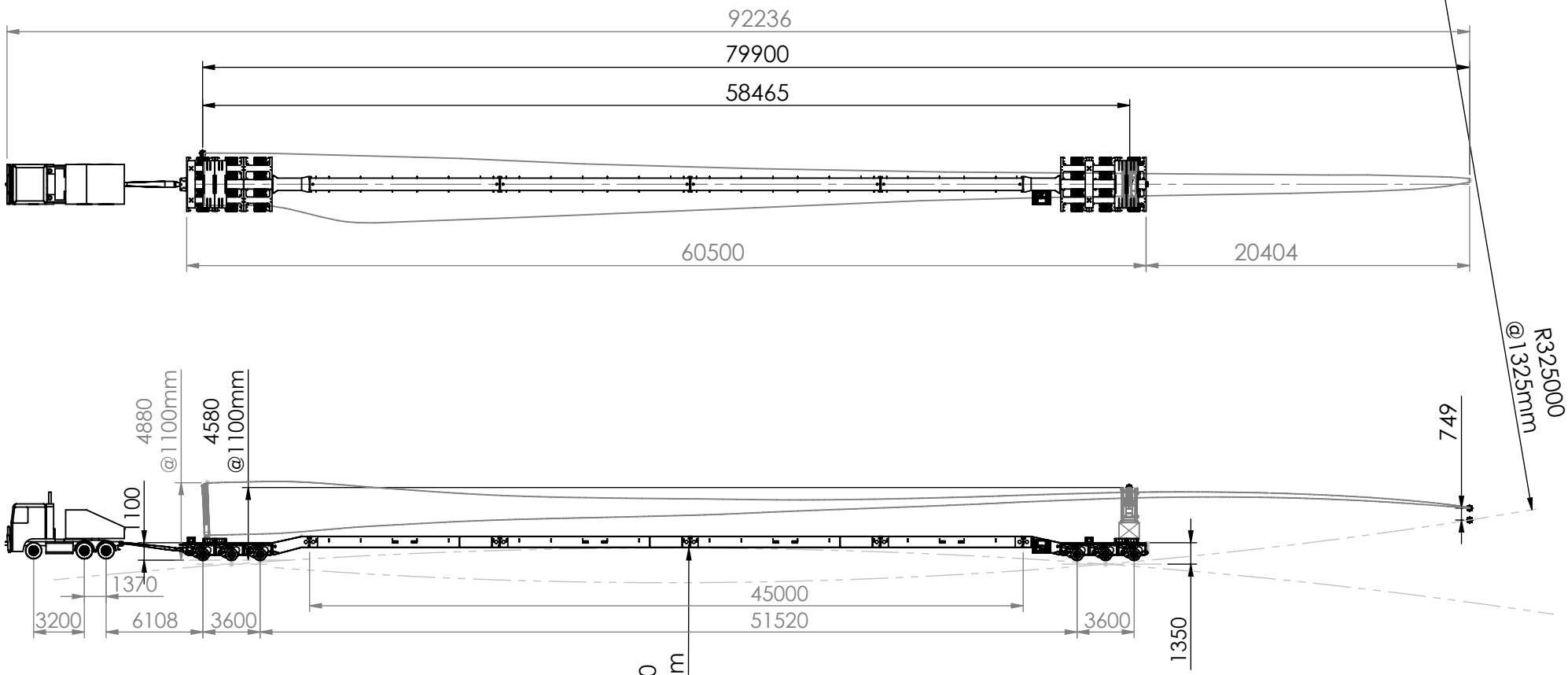
Tower T6 (29.3l x 4.1 x 3.3 x 50.8T)
Configuration: Prime mover with 4x8 Dolly 3x8 Jinker
Overall dimension: 39.1l x 4.3w x 5.2h x 89.5T
Route: 2

ERECTION CRANES:
Crane carrier (19.2l x 3.0 x 4.0 x 100T)
Configuration. Prime mover with 10x8 Platform trailer + Backup truck
Overall dimensions: 36.0l x 4.2w x 5.2h x 164.5T + Backup truck
Route: 3

TRANSFORMER:
Transformer size (10.5l x 4.2 x 4.2 x 150T)
Configuration. Prime mover with 14x8 Platform trailer + 1 x Backup trucks
Overall dimensions: 49.0l x 4.2w x 5.2h x 249.5T
Route: 3
NOTE: Transformer swept path is less than the blades, and all mods completed for the blades are adequate for this load.

SWITCHROOM:
The largest switchroom size that is recommended for this site would be as follows.
Switchroom dimensions: 30.0l x 5.0w x 4.4h x 90.0T
Overall dimensions: 45.0l x 5.0w x 5.4h x 156.5T
Route: 2
NOTE: Switchroom swept path is less than the T1 tower, and all mods completed for the T1 tower are adequate for this load.

23.0 Appendix 2 – Transport Combination Drawings



11R22.5x2	11R22.5x8 @2.5m	3x8 215/75R17.5 @3.4m
T: 9.0T	T: 18.0T	T: 20.0T
P: 0.0T	P: 0.0T	P: 16.0T
G: 6.0T	G: 18.0T	G: 36.0T (12.0T/ROW)

3x8 215/75R17.5 @3.4m
T: 20.0T
P: 16.0T
G: 36.0T (12.0T/ROW)

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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 2.0

REV		DATE	DRN	CKD	APP
0	ISSUED FOR APPROVAL	17/06/2024	J.S	H.A	R.A
R	ISSUED FOR REVIEW	17/06/2024	J.S	H.A	

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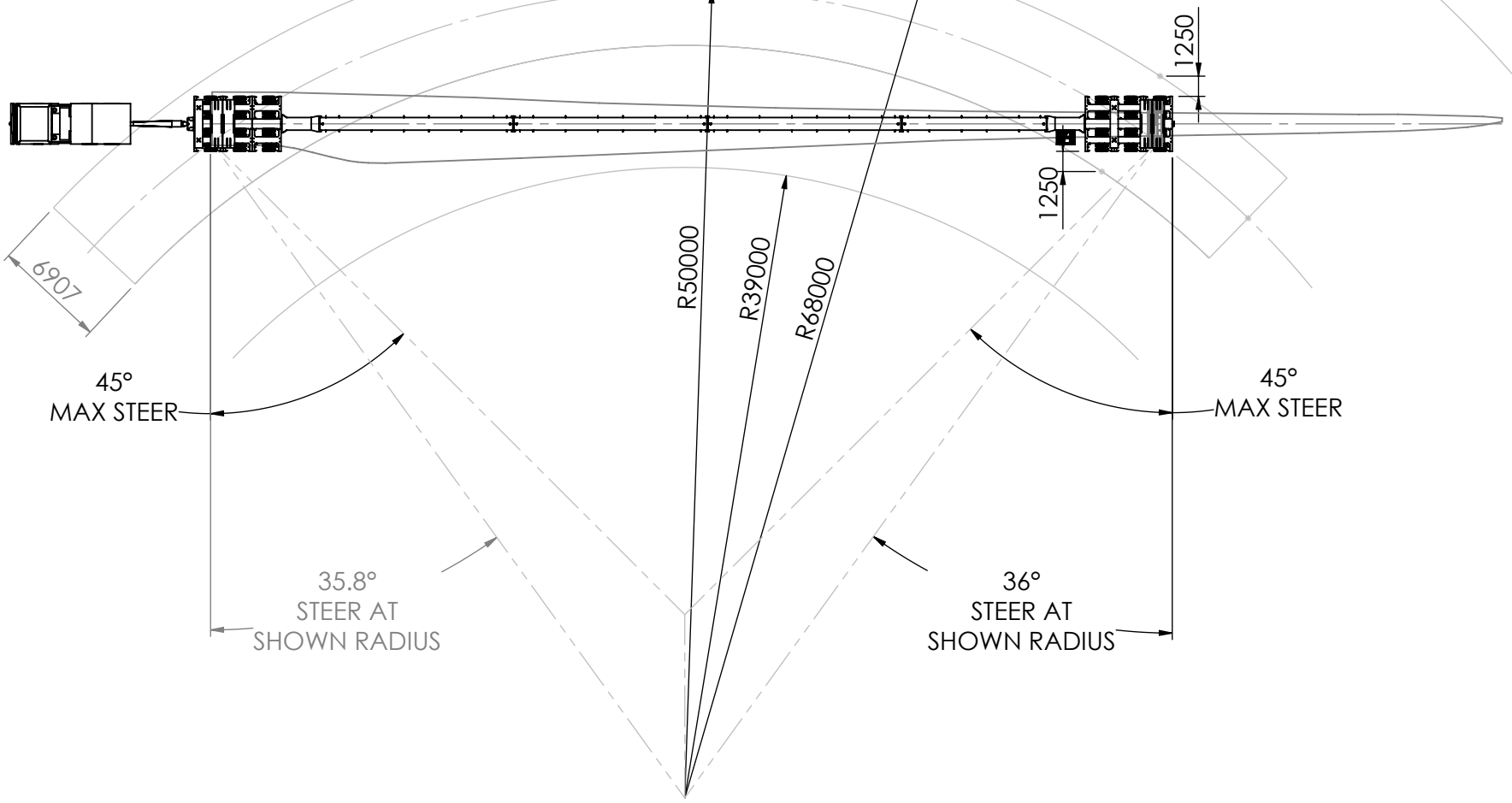
NORDEX N163 BLADE
79.9m

A4

DO NOT SCALE

NORD_N163_BLADE_79_9m_730_3x8_3x8

\\SERVER\Volume_1\Sworks\Projects\Blade transporters\Nordex\Nordex Blades\NORD_N163_BLADE_79_9m_730_3x8_3x8



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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 2.0

REV		DATE	DRN	CKD	APP
0	ISSUED FOR APPROVAL	17/06/2024	J.S	H.A	R.A
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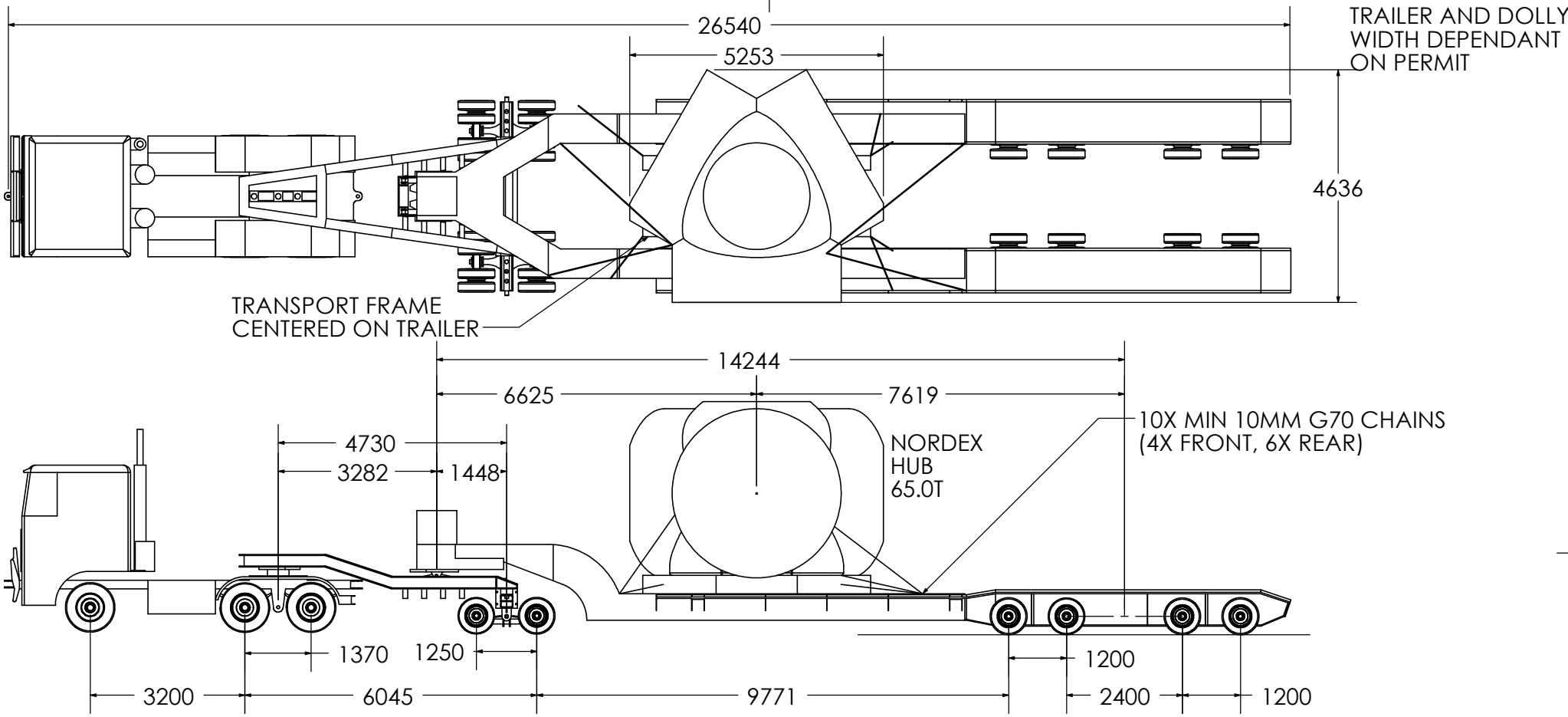
NORDEX N163 BLADE
79.9m

A4

DO NOT SCALE

NORD_N163_BLADE_79_9m_730_3x8_3x8

\\SERVER\Volume_1\Sworks\Projects\Blade transporters\Nordex\Nordex Blades\NORD_N163_BLADE_79_9m_730_3x8_3x8



11R22.5 T 6.25T P 0.0T G 6.25T	11R22.5@2.4M T 7.0T P 10.5T G 17.5T	215/75R17.5 @ 3.7M T 5.0T P 24.0T G 29.0T (14.5T/ROW)

215/75R17.5 @ 4.2M T 15.0T P 30.5T G 45.5T (11.4T/ROW)

ALL LOAD RESTRAINT 10MM G70
MIN 6.3T SHACKLE WHERE USED
DOUBLE UP CHAINS WHERE AVAILABLE
TO INCREASE SYSTEM STRENGTH

LOAD MUST BE PLACED ON DRY RUBBER
OR OTHER MATERIAL ACHEIVING
MIN COF OF 0.4 AT ALL CONTACT POINTS

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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

REV		DATE	DRN	CKD	APP
2	VARIOUS UPDATES	15/07/2020	C.E	H.A	R.A
1	VARIOUS UPDATES	19/05/2020	C.E	H.A	R.A
0	ISSUED FOR APPROVAL	14/11/2018	H.A	H.A	R.A
R	ISSUED FOR REVIEW	14/11/2018	H.A	H.A	

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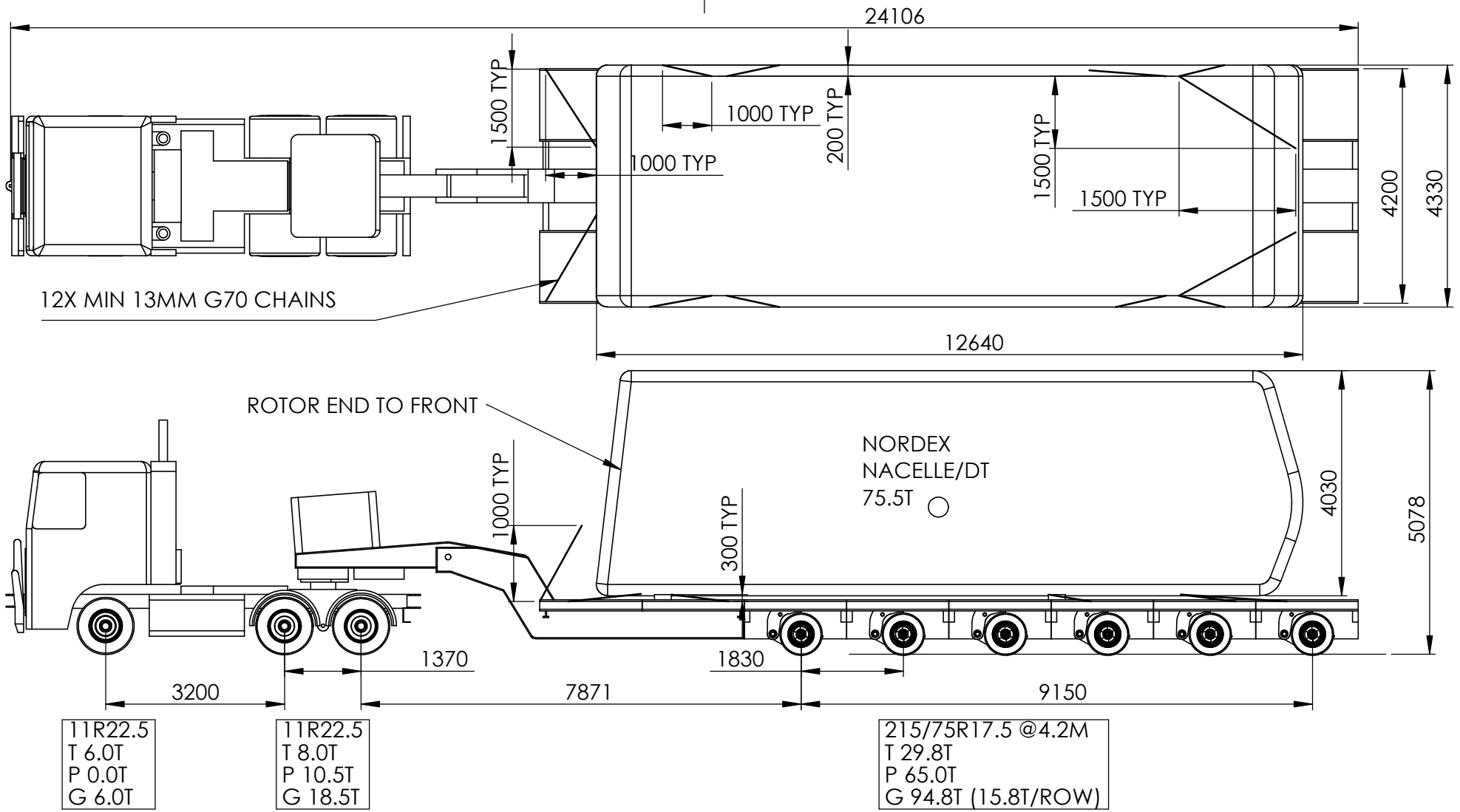
TRANSPORT PROPOSAL

NORDEX HUB
65T HUB

DO NOT SCALE

DRG NO:
NORD_MCWF_HUB01

A4



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- DRY RUBBER BTWEEN ALL METAL SURFACES
- ALL RESTRAINTS 10MM G70 WITH RATCHET RURNBUCKLES
- DOUBLE CHAINS WHERE POSSIBLE

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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

REV		DATE	DRN	CKD	APP
2	RESTRAINT UPDATED	20/08/2020	C.E	H.A	W.A
1	LOAD RESTRAINT ADDED	1/06/2020	C.E	H.A	W.A
0	ISSUED FOR APPROVAL	19/08/2019	C.E	H.A	W.A
R	ISSUED FOR REVIEW	19/08/2019	C.E	H.A	

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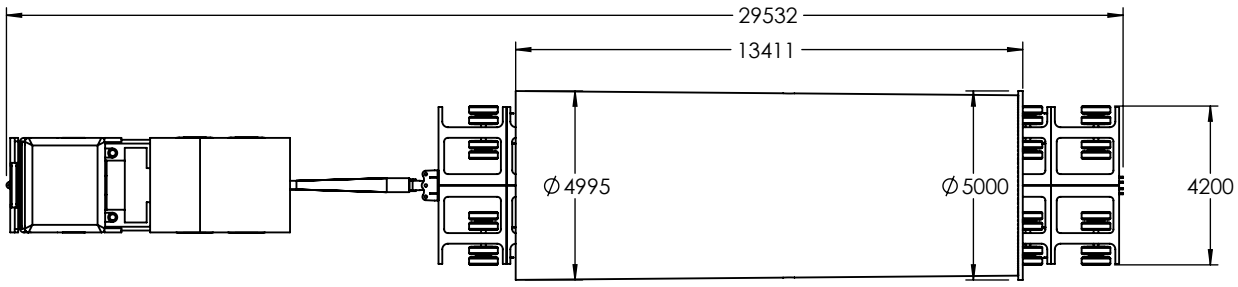
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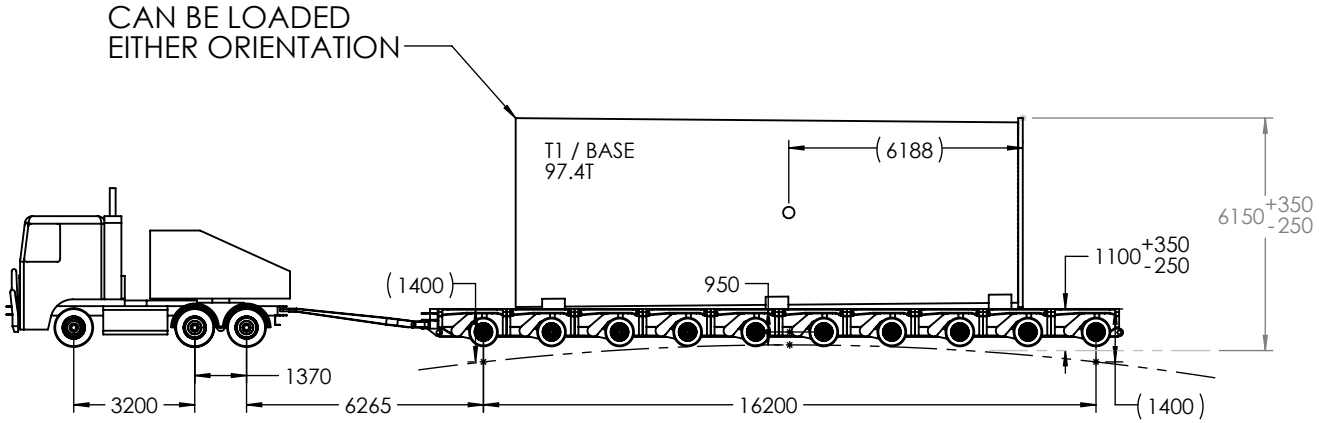
NORDEX
NACELLE 6X8 - 75.5T

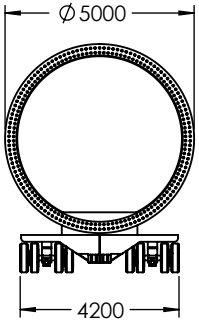
DO NOT SCALE

DRG NO: NORD_MCWF_NAC01

A4







11R22.5	11R22.5@2.5m	10x8 215/75R17.5 @4.2m
T 6.25T	T 18.5T	T 37.25T
P 0.0T	P 0T	P 97.4T
G 6.25T	G 18.5T	G 135.64T (13.5T/ROW)

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TARE	62.0T
GVM	159.4T

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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

REV		DATE	DRN	CKD	APP
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R	ISSUED FOR REVIEW	29/08/2024	J.S	W.A	

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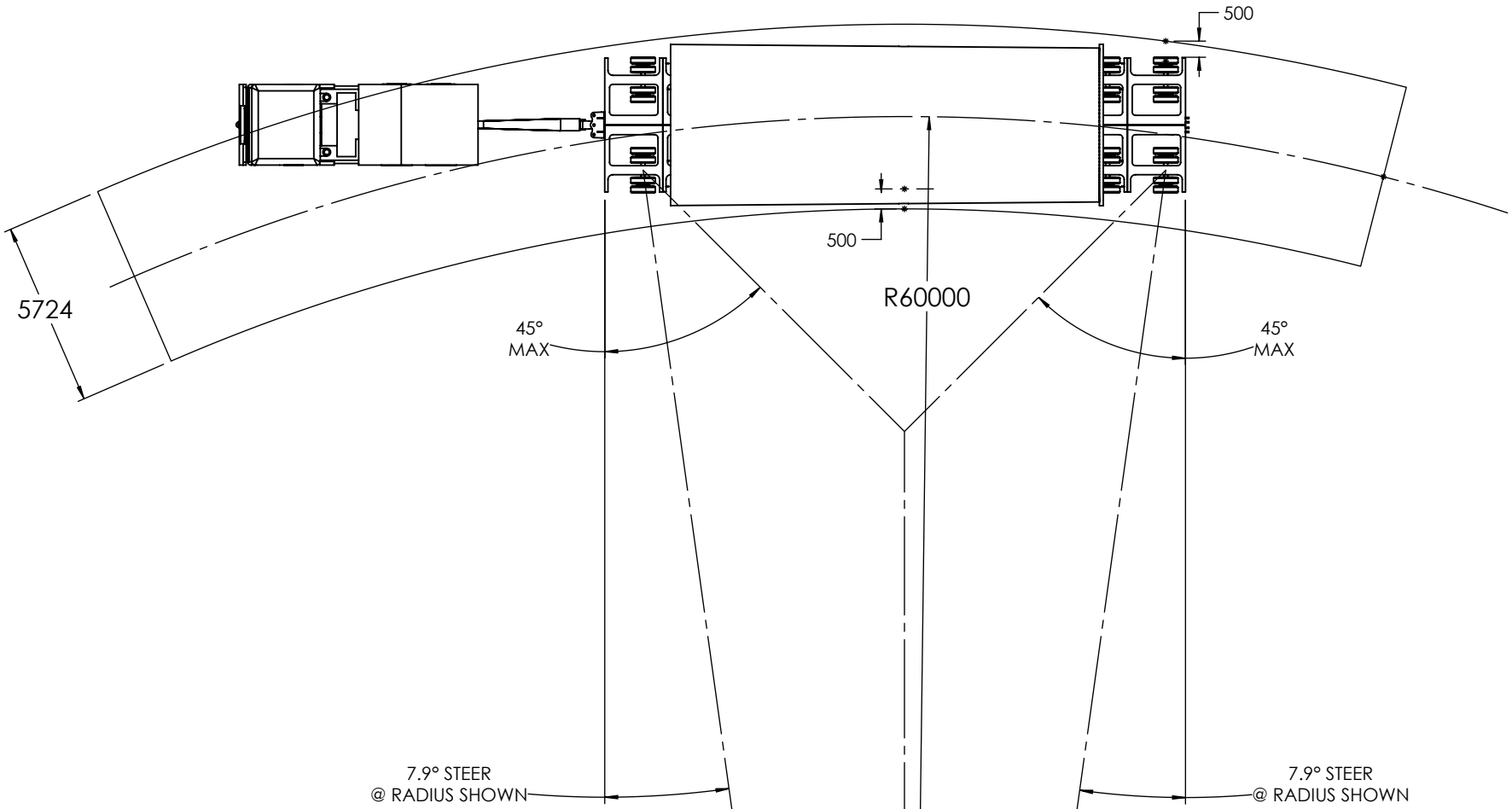
TRANSPORT PROPOSAL

TS148
T1 TOWER 97.4T

DO NOT SCALE

DRG NO: NORD_TS148_T01A

A4



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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

REV		DATE	DRN	CKD	APP
0	ISSUED FOR APPROVAL	29/08/2024	J.S	W.A	W.A
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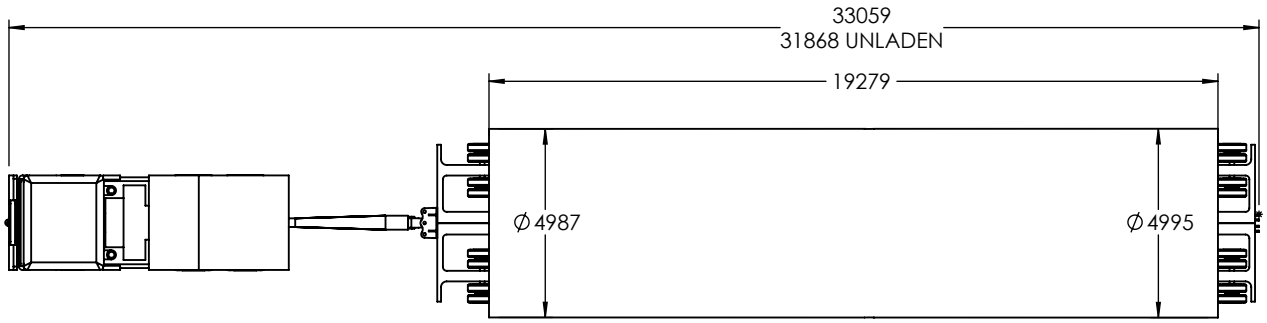
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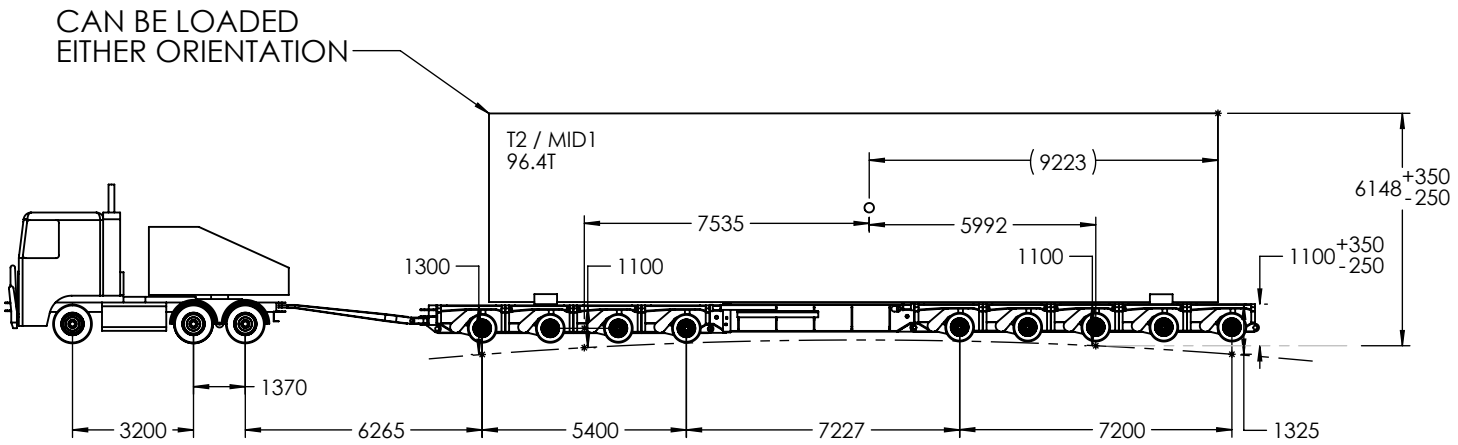
TS148
T1 TOWER 97.4T

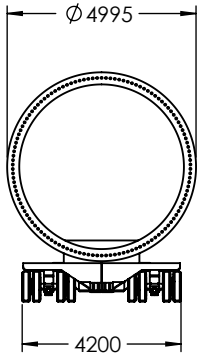
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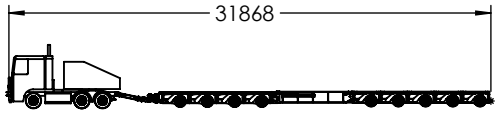
A4







11R22.5	11R22.5@2.5m	4x8 215/75R17.5 @4.2m	5x8 215/75R17.5 @4.2m
T 6.25T	T 18.5T	T 16.9T	T 20.5T
P 0.0T	P 0T	P 42.7T	P 53.7T
G 6.25T	G 18.5T	G 59.6T (14.9T/ROW)	G 74.2T (14.84T/ROW)



TARE	62.15T
GVM	158.55T

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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

REV		DATE	DRN	CKD	APP
0	ISSUED FOR APPROVAL	29/08/2024	J.S	W.A	W.A
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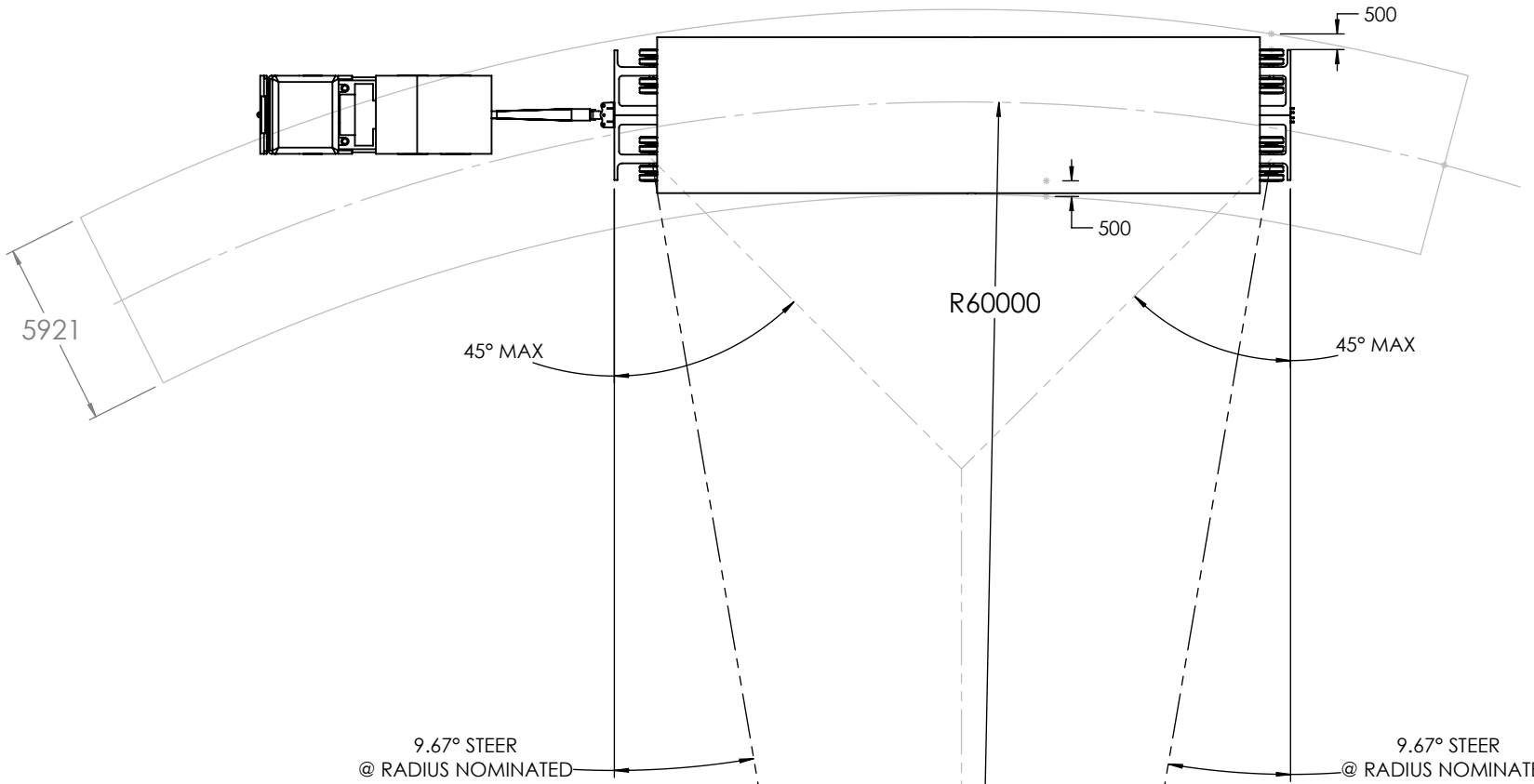
TRANSPORT PROPOSAL

TS148
T2 TOWER 96.4T

DO NOT SCALE

DRG NO: NORD_TS148_T02A

A4



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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

REV		DATE	DRN	CKD	APP
0	ISSUED FOR APPROVAL	29/08/2024	J.S	W.A	W.A
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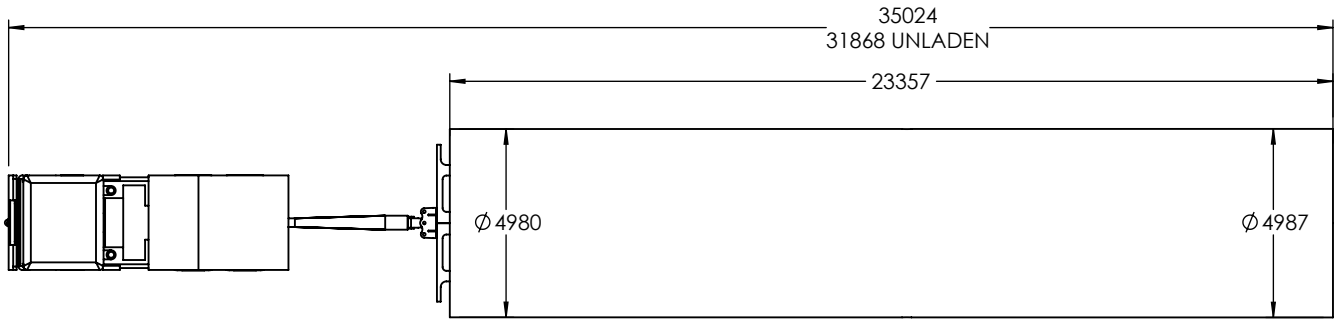
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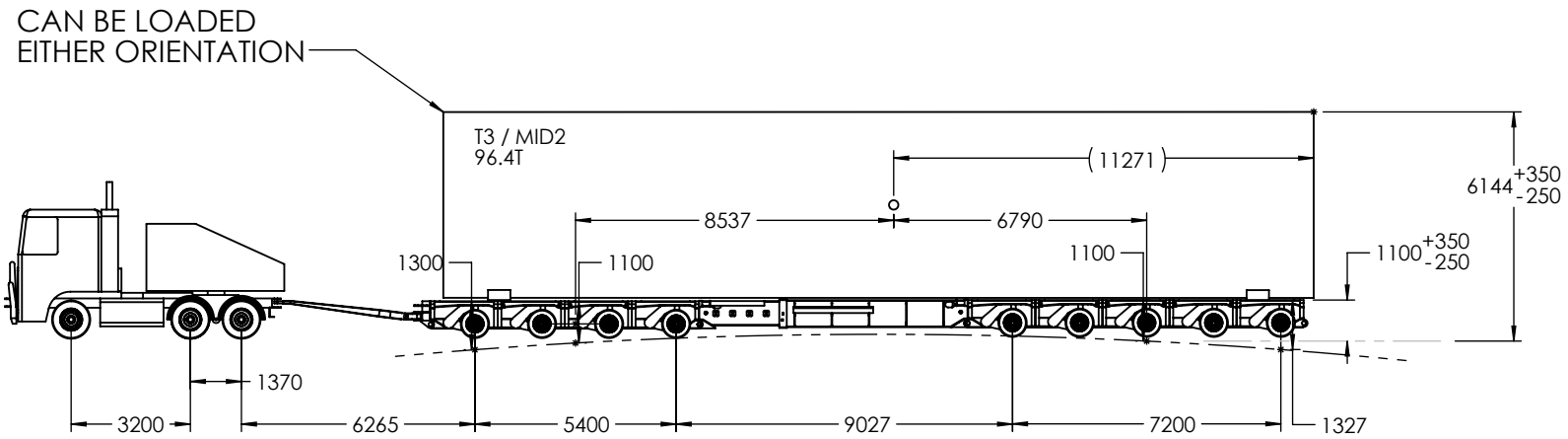
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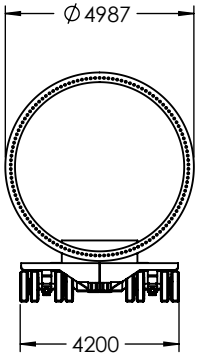
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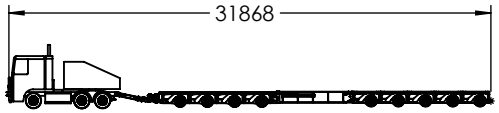
A4







11R22.5 T 6.25T P 0.0T G 6.25T	11R22.5@2.5m T 18.5T P 0T G 18.5T	4x8 215/75R17.5 @4.2m T 16.9T P 42.7T G 59.6T (14.9T/ROW)	5x8 215/75R17.5 @4.2m T 20.5T P 53.7T G 74.2T (14.84T/ROW)



TARE	62.15T
GVM	158.55T

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DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

REV		DATE	DRN	CKD	APP
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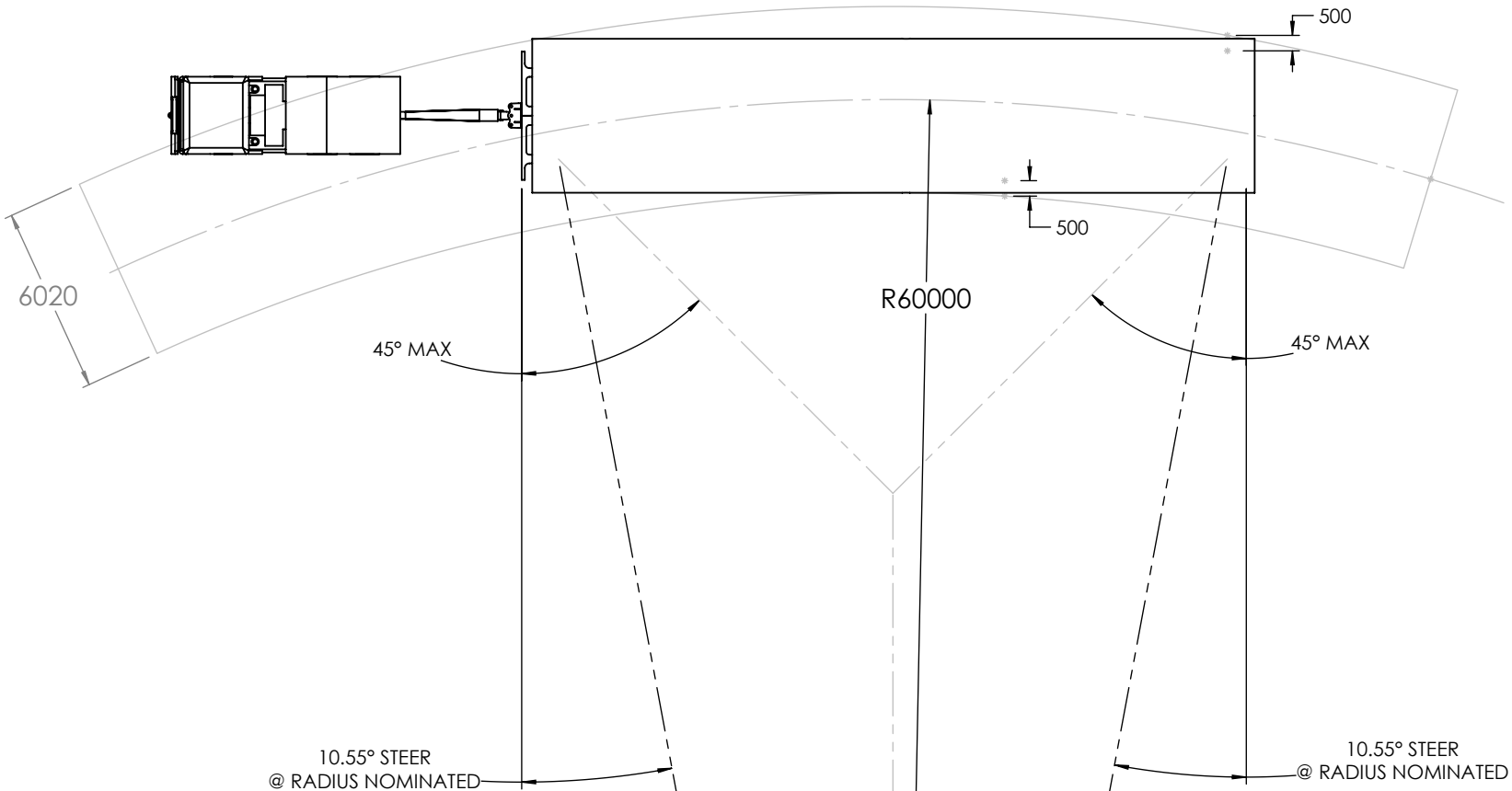
TRANSPORT PROPOSAL

TS148
T3 TOWER 96.4T

DO NOT SCALE

DRG NO:
NORD_TS148_T03A

A4



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DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

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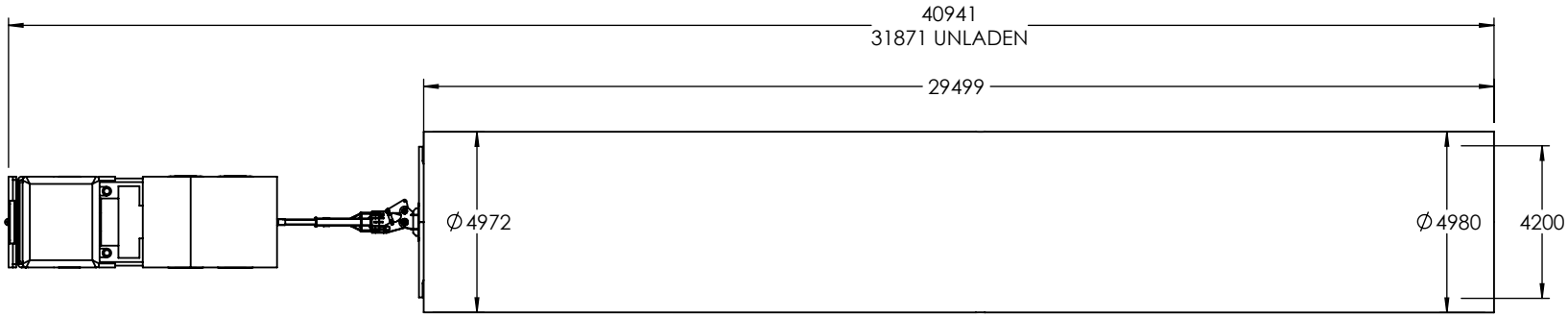
TRANSPORT PROPOSAL

TS148
T3 TOWER 96.4T

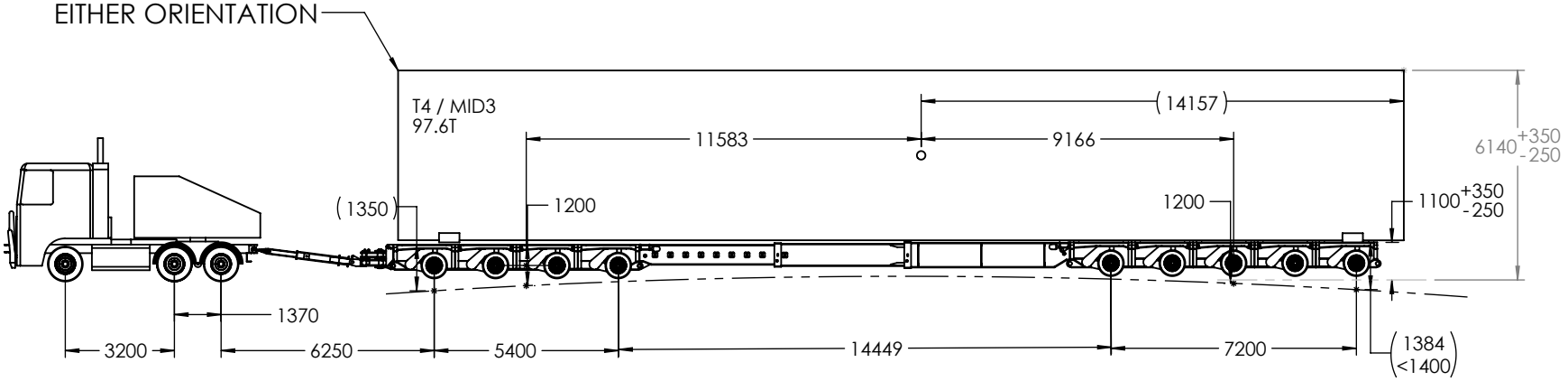
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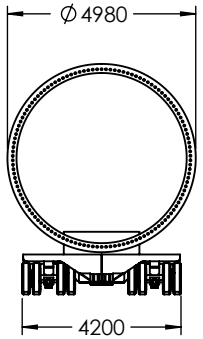
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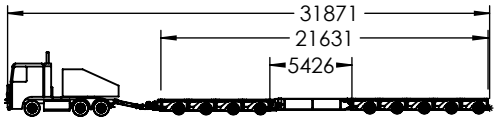


CAN BE LOADED
EITHER ORIENTATION





11R22.5	11R22.5@2.5m	4x8 215/75R17.5 @4.2m	5x8 215/75R17.5 @4.2m
T 6.25T	T 18.5T	T 17.1T	T 20.7T
P 0.0T	P 0T	P 43.1T	P 54.5T
G 6.25T	G 18.5T	G 60.2T (15.05T/ROW)	G 75.2T (15.04T/ROW)



TARE	62.55T
GVM	160.75T

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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

REV		DATE	DRN	CKD	APP
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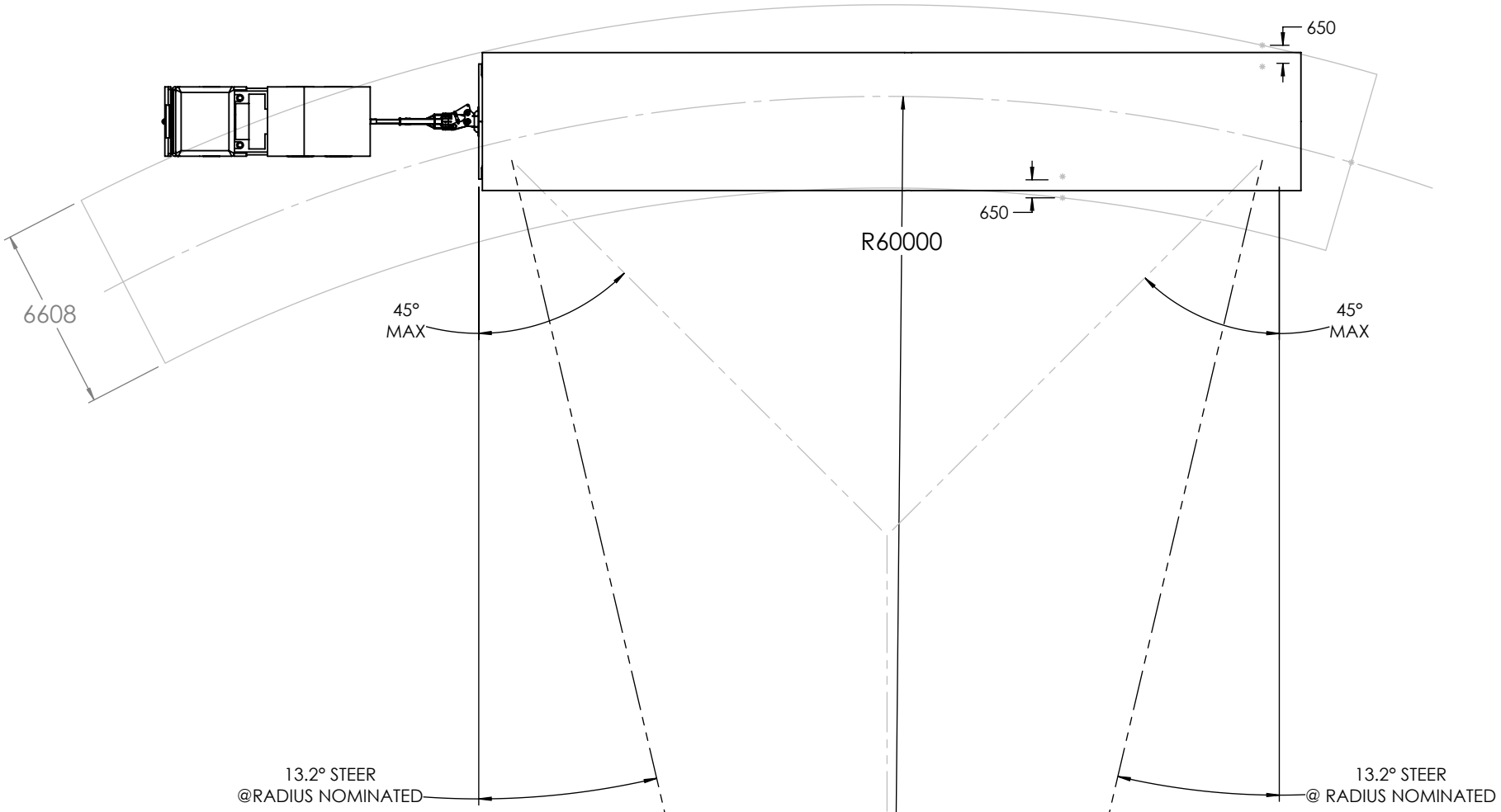
TRANSPORT PROPOSAL

TS148
T4 TOWER 97.6T

DO NOT SCALE

DRG NO: NORD_TS148_T04A

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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

REV		DATE	DRN	CKD	APP
0	ISSUED FOR APPROVAL	29/08/2024	J.S	W.A	W.A
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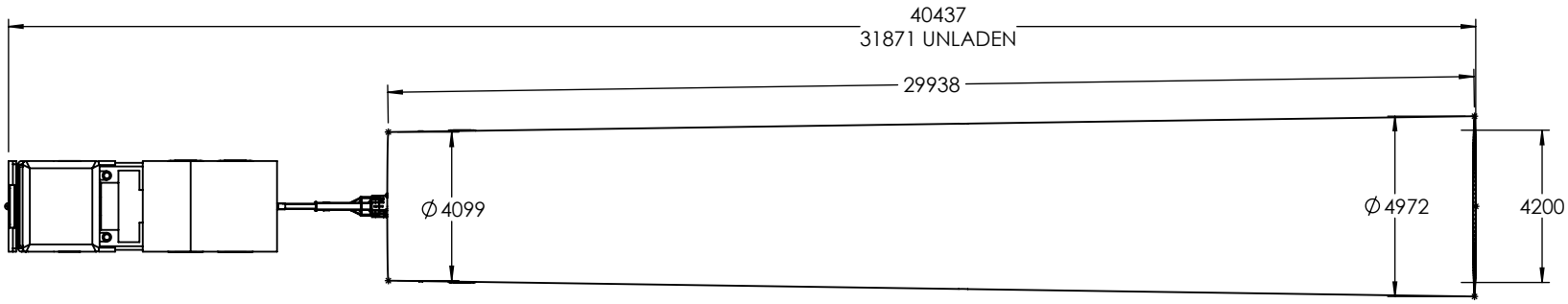
TRANSPORT PROPOSAL

TS148
T4 TOWER 97.6T

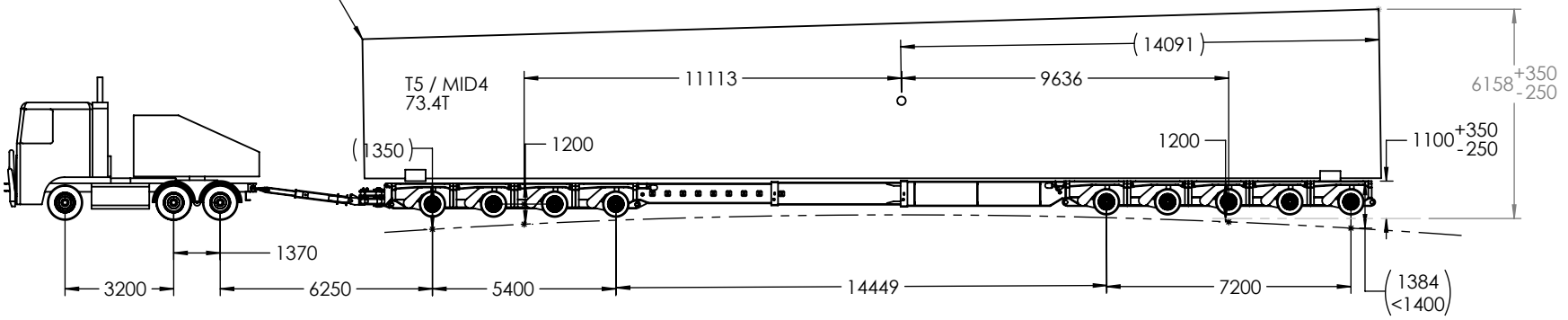
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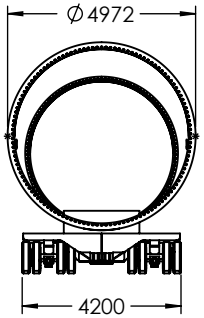
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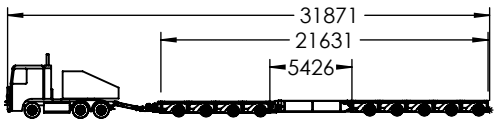


CAN BE LOADED
EITHER ORIENTATION





11R22.5	11R22.5@2.5m	4x8 215/75R17.5 @4.2m	5x8 215/75R17.5 @4.2m
T 6.25T	T 18.5T	T 17.1T	T 20.7T
P 0.0T	P 0T	P 34.1T	P 39.3T
G 6.25T	G 18.5T	G 51.2T (12.8T/ROW)	G 60.0T (12.0T/ROW)



TARE	62.55T
GVM	135.95T

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DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

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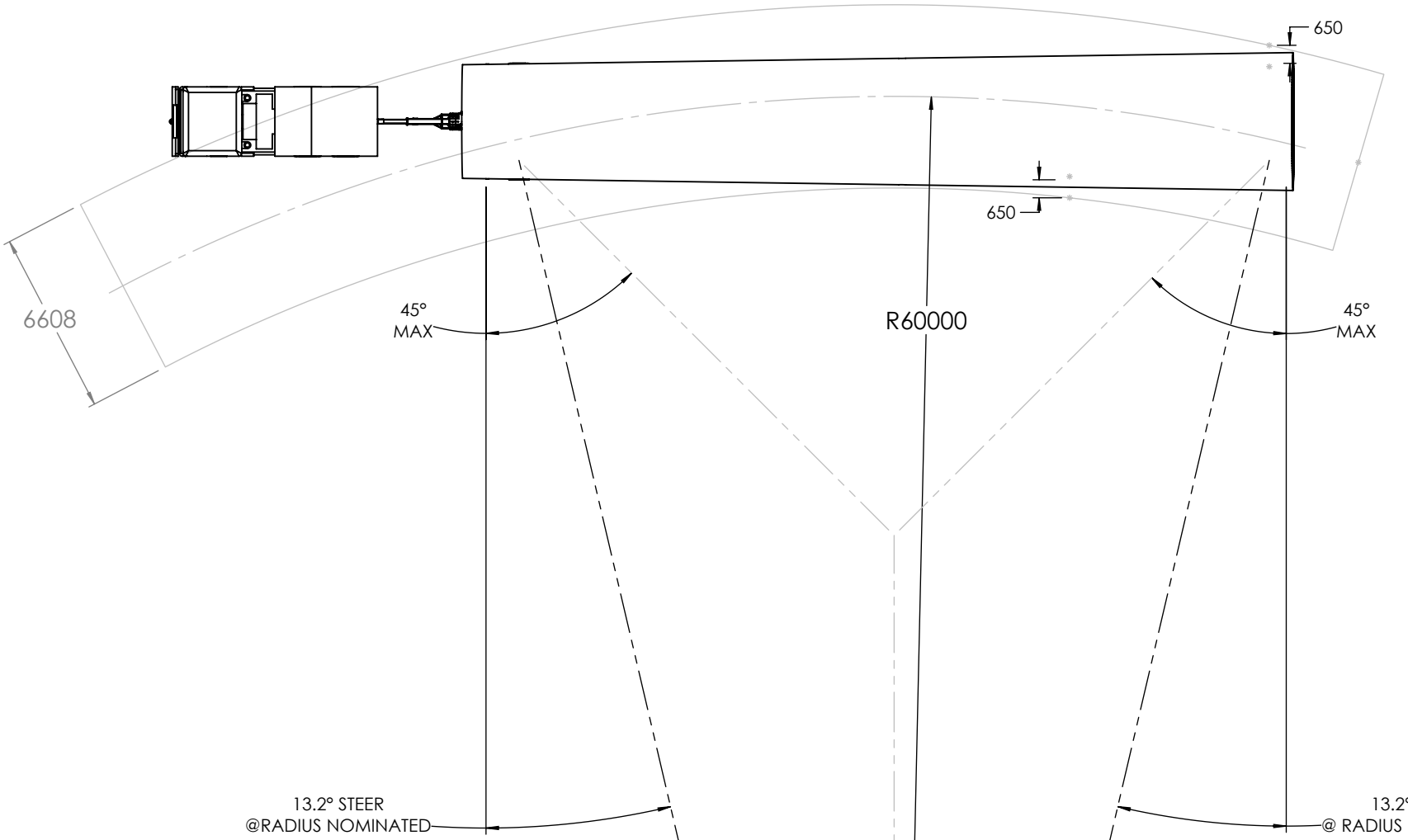
TRANSPORT PROPOSAL

TS148
T5 TOWER 73.4T

DO NOT SCALE

DRG NO:
NORD_TS148_T05A

A4



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TS148
T5 TOWER 73.4T

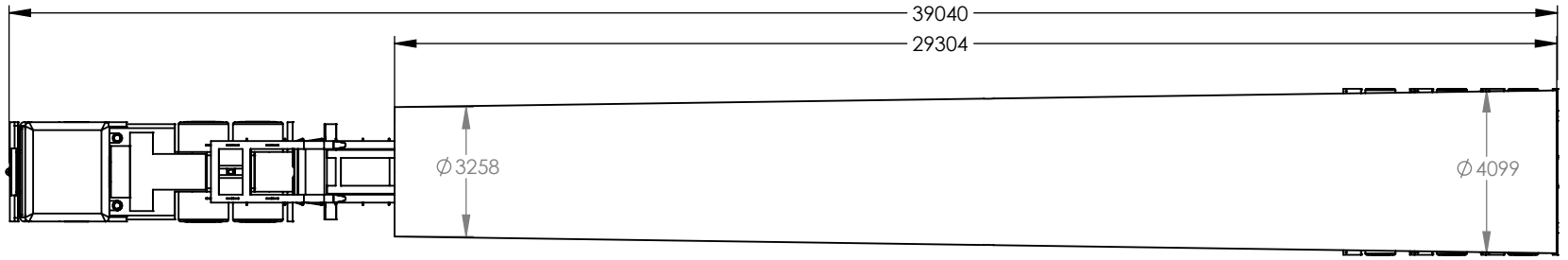
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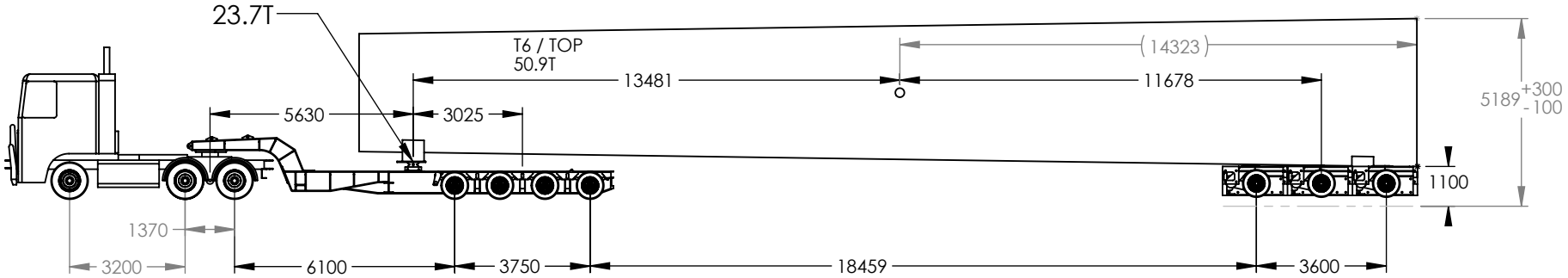
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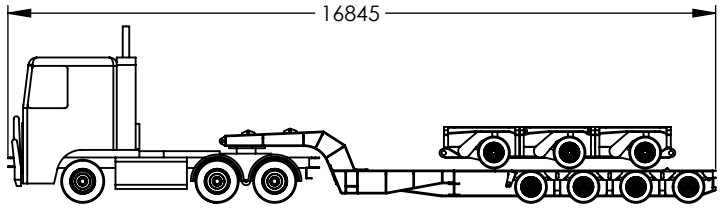
-EVENLY SPACE CRADLES ALONG TRAILER
-CRADLE MUST HAVE DRY RUBBER UNDER
-CRADLE MUST BE RESTRAINED TO TRAILERTO RESIST MOVEMENT SIDEWAYS

-DRY RUBBER THEN 3MM CLEARANTI MARKING PLASTIC BETWEEN TOWER AND CRADLE
-ALL RESTRAINTS 10MM G70 WITH RATCHET TURNBUCKLES
-DOUBLE UP IF AVAILABLE, USE BOLTED ADAPTER TO TOWER NEVER PASS CHAIN THROUGHHOLES





11R22.5x2	11R22.5x8	4x4 215/75R17.5 @2.4m	3x8 215/75R17.5 @4.2m
T 6.25T	T 9.0T	T 8.0T	T 14.5T
P 0.0T	P 8.3T	P 15.4T	P 27.23T
G 6.25T	G 17.3T	G 23.4T	G 41.73T (13.91T/ROW)



TARE	37.75T
GVM	88.65T

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DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 2.0

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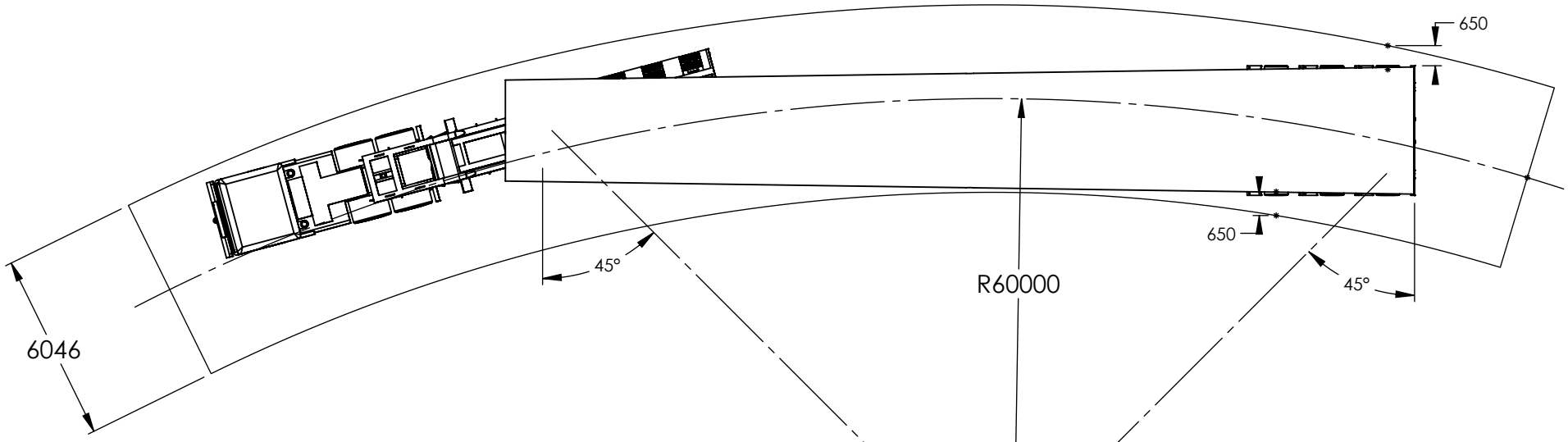
TS148
T6 TOWER 50.9T

A4

DO NOT SCALE

DWG:
NORD_TS148_T06A

\\SERVER\Volume_1\Sworks\Projects\Blade transporters\Nordex\Nordex Towers\NORD_TS148_T06A_4x4_3x8



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TOLERANCES
- LINEAR ± 2.0

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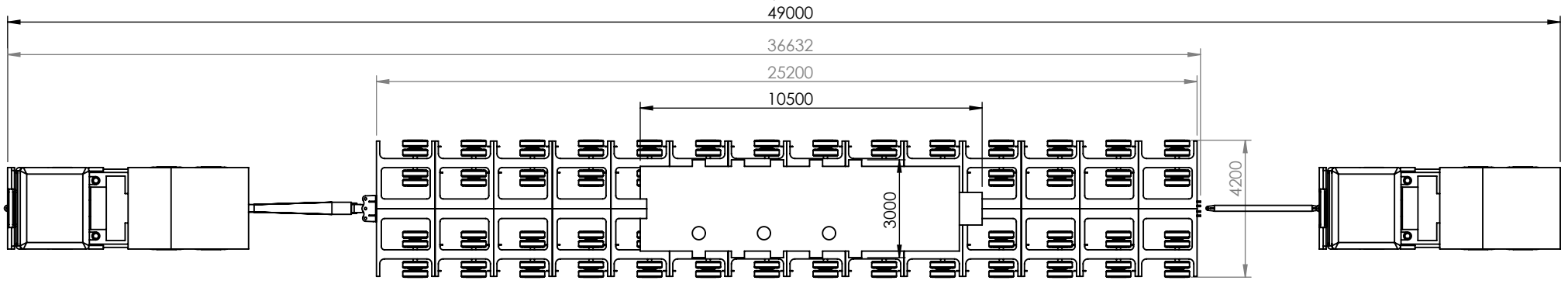
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T6 TOWER 50.9T

A4

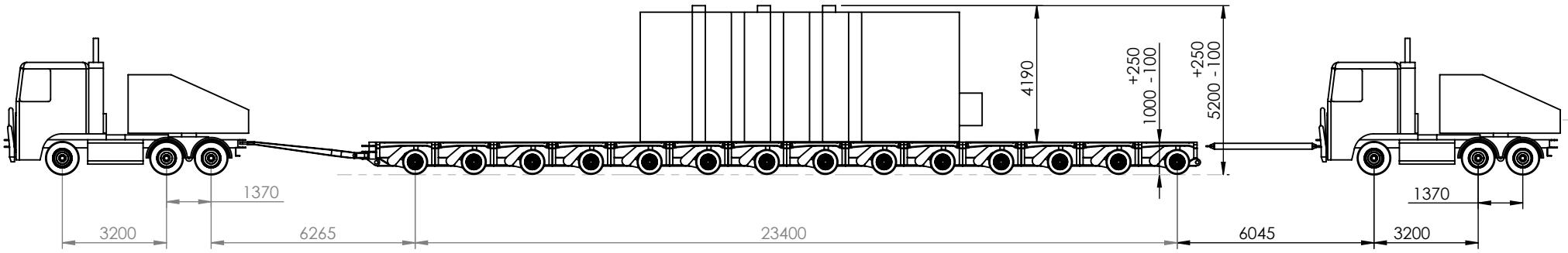
DO NOT SCALE

DWG:
NORD_TS148_T06A

\\SERVER\Volume_1\Sworks\Projects\Blade transporters\Nordex\Nordex Towers\NORD_TS148_T06A_4x4_3x8



150T TRANSFORMER



11R22.5	11R22.5	14x8 215/75R17.5 @4.2m	11R22.5	11R22.5
T 6.0T	T 18.5T	T 50.4T	T 6.0T	T 18.5T
P 0.0T	P 0.0T	P 150.0T	P 0.0T	P 0.0T
G 6.0T	G 18.5T	G 200.4T (14.3T/ROW)	G 6.0T	G 18.5T

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TRUCKS	1	2
TARE	74.9T	224.9T
GVM	224.9T	249.4T

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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 2.0

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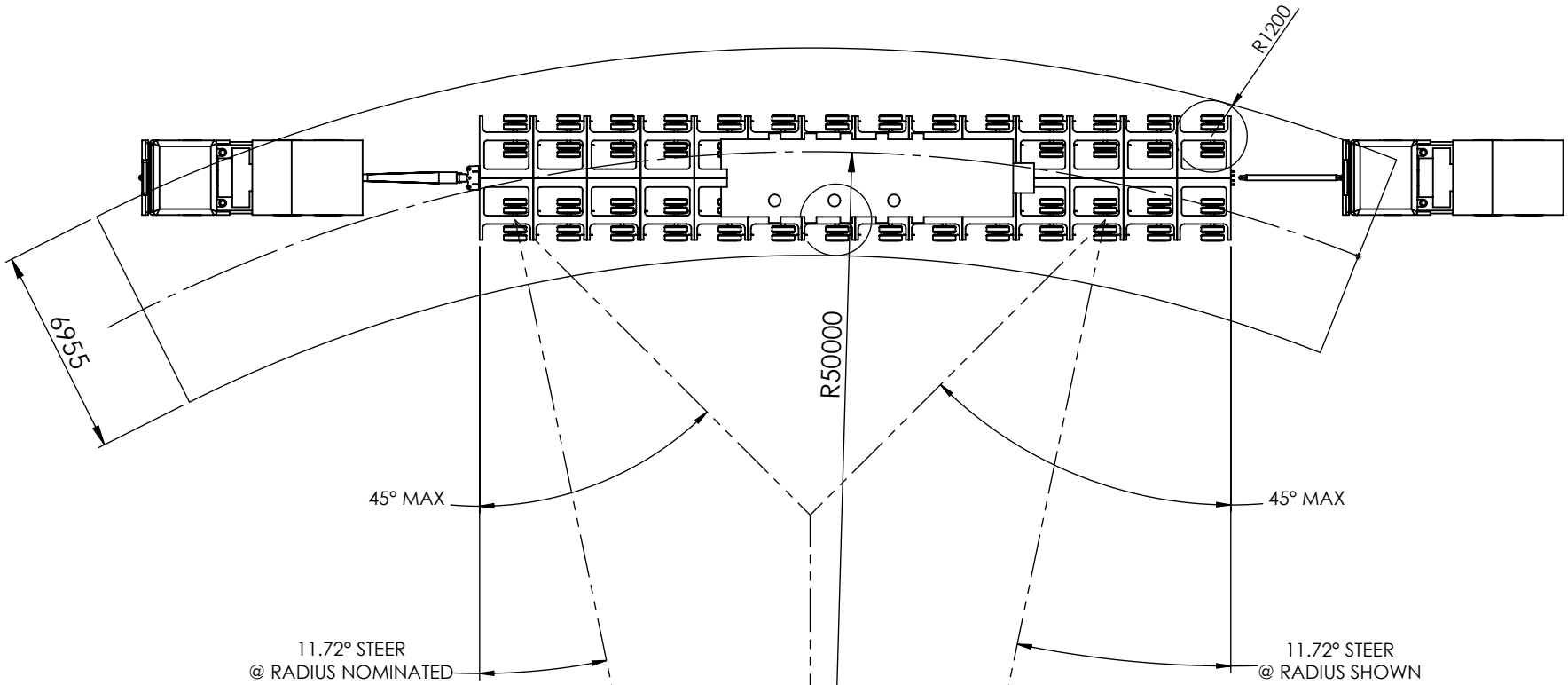
ENERGYCO
TRANSFORMER
150T 14x8

A4

DO NOT SCALE

DWG: ENCO_TRANS_150T_14x8

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DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 2.0

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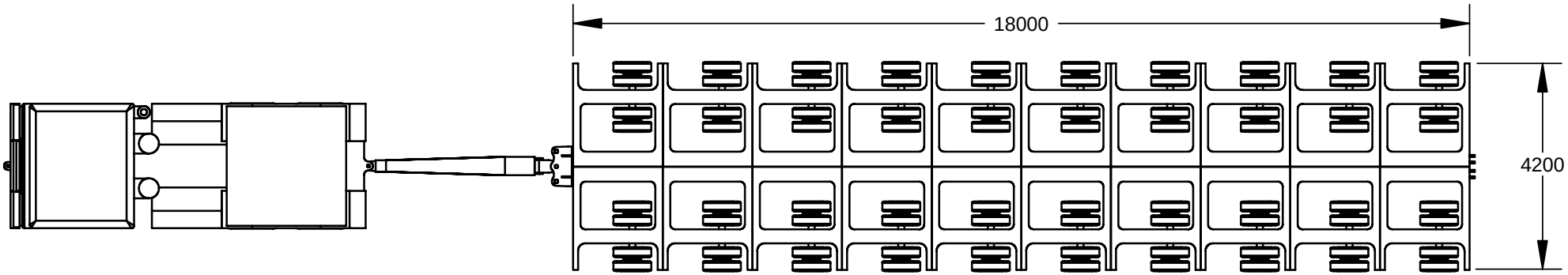
ENERGYCO
TRANSFORMER
150T 14x8

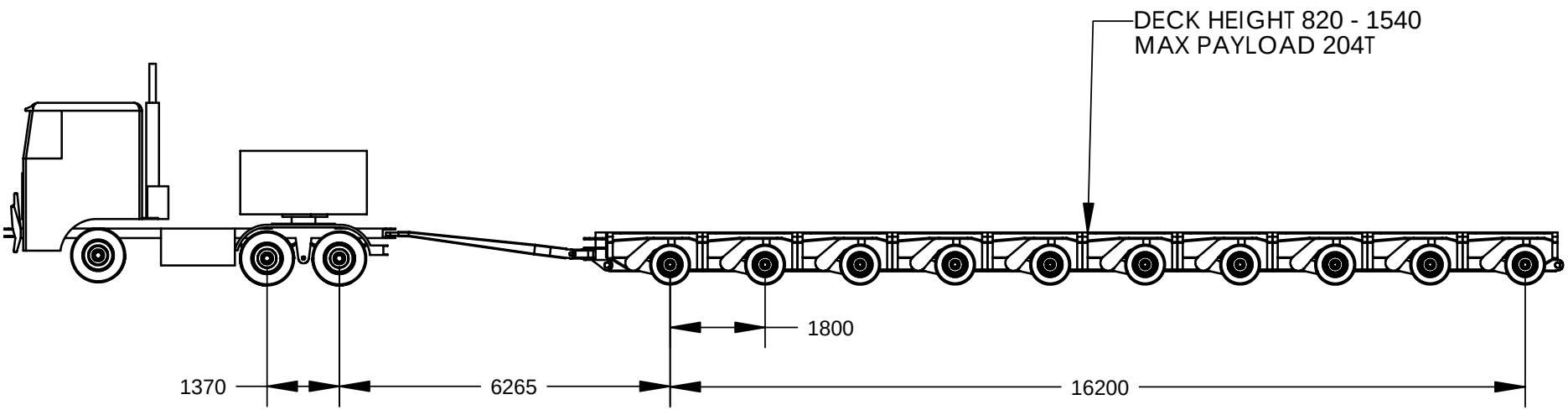
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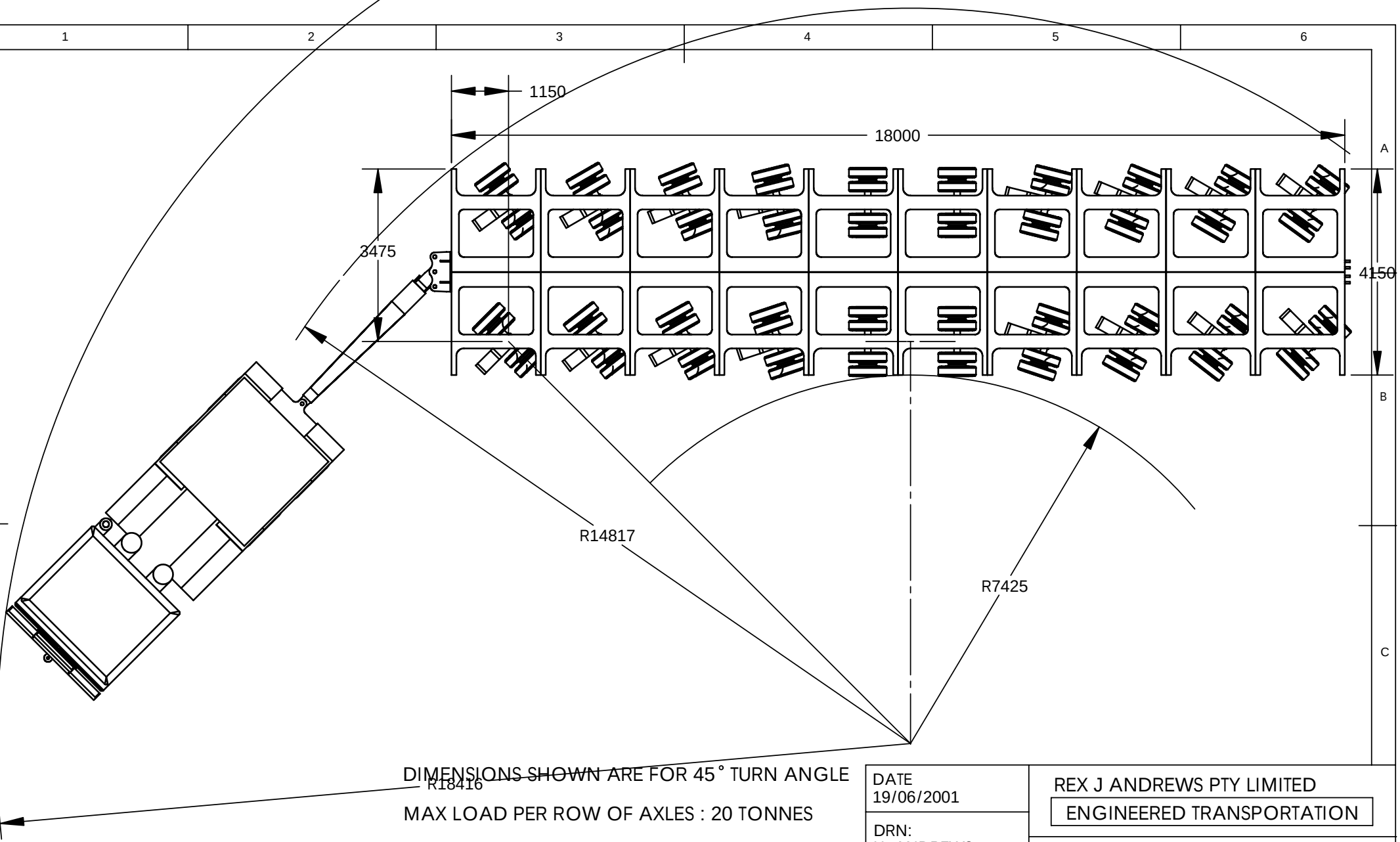
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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES (UNLESS OTHERWISE STATED)
- LINEAR ± 2.0
- RADIAL ± 0.2

DATE 30/08/2001	REX J ANDREWS PTY LIMITED ENGINEERED TRANSPORTATION
DRN: H. ANDREWS	GENERAL ARRANGEMENT
APPROVED:	960 SERIES 10X8 PLATFORM TRAILER
ONLY APPROVED DRAWINGS CAN BE USED FOR MANUFACTURING	DO NOT SCALE / DRG NO: 10X8_02 / A4



DIMENSIONS SHOWN ARE FOR 45° TURN ANGLE

MAX LOAD PER ROW OF AXLES : 20 TONNES

MAX GROSS LOAD : 200 TONNES
MAX PAYLOAD : 160 TONNES

TYRE TYPE 215/75 R17.5 J
TRAILER LIFT:
MIN : 820MM
MAX : 1520MM

DATE 19/06/2001	REX J ANDREWS PTY LIMITED ENGINEERED TRANSPORTATION
DRN: H. ANDREWS	MAXIMUM TURN ANGLE
APPROVED:	10X8 960 SERIES PLATFORM TRAILER
ONLY APPROVED DRAWINGS CAN BE USED FOR MANUFACTURING	DO NOT SCALE / DRG NO: 10X8_01 / A4

REX J ANDREWS
ENGINEERED TRANSPORTATION

ROUTE STUDY:

PROJECT: BULLAWAH WINDFARM

EX PORT ADELAIDE

TURBINE TYPE: NORDEX, N163

16/07/2025 REV 04

Rev.	Date	Change	Responsible	Checked
00	04/12/24	Report compiled	W Andrews	✓
00	18/12/24	Report completed	W Andrews	✓
01	13/01/25	Edits	W Andrews	✓
02	07/02/25	Edits	W Andrews	✓
03	28/03/25	Edits	W Andrews	✓
04	16/07/2025	Edits	W Andrews	✓

Index:

1.0 Introduction 3
2.0 Project Data 4
3.0 Bullawah Windfarm Site Location 5
4.0 Port of Import 6
5.0 Route Selection and Evaluation 7
6.0 Transport Summary 9
7.0 Route 1 Study: Port Adelaide to Bullawah windfarm 10
8.0 Route 1: Rest Areas 41
9.0 Route 1: Rail crossing conflicts 49
10.0 Route 1: Conclusion 50
11.0 Route 2 Study: Port Adelaide to Bullawah Windfarm 53
12.0 Route 2: Rail crossing conflicts 92
13.0 Route 2: Conclusion 93
14.0 Transport Approvals Required 96
15.0 Draft delivery schedule 97
16.0 References: 98
17.0 Appendix 1 – Transport Combinations (Examples) 99
18.0 Appendix 2 – Transport Combination Drawings 101

1.0 Introduction

Bullawah Wind Farm Pty Ltd are in the early stages of investigating a potential windfarm in the Hay region of Southwest NSW.

This study has been prepared to provide an understanding of the transport route constraints for the proposed components as listed in the report and provide route options in order to assist in planning of the project.

This document utilises observations and data gained from route surveys (including obstacle height and width measurements), as well as previous experience on route and outlines the requirements for the transport of wind turbine equipment from Newcastle port to Bullawah Windfarm.

This study is based on an N163 wind turbine with an 80 Metre blade and a 148-metre tower.

This Route survey took place on the 04/12/2024.

2.0 Project Data

Date of latest Route Study. 04/12/2024
Survey undertaken by. Rex J Andrews Engineered Transportation P/L
Project name. Bullawah Windfarm
Port of import. Port Adelaide (SA)
Project location. South Hay (NSW)

Turbine types undertaken in the study:

- Nordex N163 with an 80 Metre blade, on a 3x8-3x8 Blade transporter.
- Tower type: Nordex 148 metre tower.

3.0 Bullawah Windfarm Site Location

The proposed Bullawah wind farm near Hay in NSW will have an installed capacity of up to 803.7MW that will generate clean green renewable energy to power 500,000 homes. A battery facility on site will allow for the capture and storage of dispatchable energy.

The power generated either direct from the turbines or released from battery storage will feed into the electricity grid via the existing 220kV transmission line (stage 1) or the new proposed Project EnergyConnect transmission line (stage 2).

The project includes 141 wind turbines, with a maximum blade-tip height of 300m above the ground.

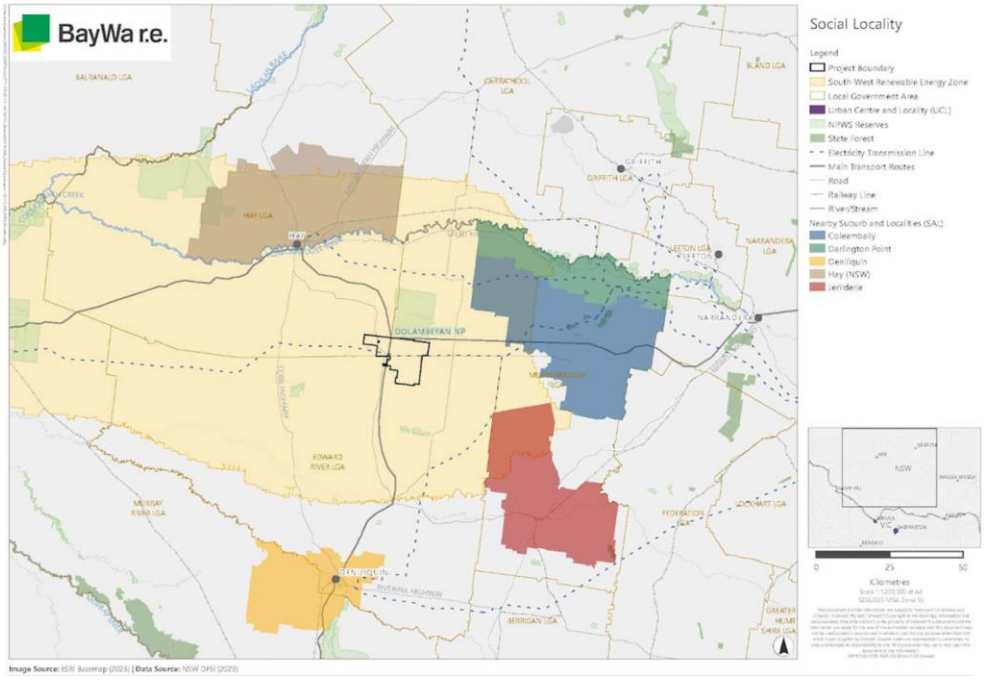


Figure 1 - Site Location

4.0 Port of Import

The wind turbine equipment will be imported from various countries and will arrive on ships into the Port of Adelaide.

The 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. Some upgrades will be required to accommodate the proposed blade size.



Figure 2 – Port of Adelaide and Storage Area

5.0 Route Selection and Evaluation

Assessment of the proposed routes was conducted by Rex J Andrews Engineered Transportation based on onsite route surveys (including height measurements on structures) as well as previous experience on sections of the identified routes and transporting turbine equipment similar to the proposed turbine that is used on various other projects. The assessment was conducted utilising the knowledge, experience and intellectual property of Rex J Andrews Engineered Transportation on purpose-built equipment and is not intended for use by other parties.

The assessment considered the key constraints encountered on the routes and an estimation of the amount of work required to make the route viable based on previous experience. Table 1 shows the evaluation of each route and provides an overall ranking to give guidance on the most suitable route for the development from a transport perspective. The assessment was based on operational factors and equipment capability and does not consider external factors such as regulatory, landholder, environmental, cultural or any other external factors beyond the knowledge or control of Rex J Andrews Engineered Transportation.

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

		Harbour	Road Modification	Road Furnishings	Vegetation	Site Entrance	Bridge Calculations	Overhead utilities	Overall Work Required
Route 1	Blades & Loads under 5.2m High	**N**	**4**	**3**	**3**	**4**	**2**	**2**	**3.0**
Route 2	High Load route up to 6.4m high	**N**	**3**	**3**	**3**	**4**	**4**	**4**	**3.0**

Table 1 - Route Evaluation

For BWF the largest design vehicles are associated with transportation of WTG blades and towers to site. Our analysis identifies that the largest design vehicles will need to cross into the incorrect lane at select intersections and corners (as indicated by the swept paths). Limiting the largest design vehicles to the correct lane for these intersections and corners would result in unnecessary environmental impacts and encroachment onto private land to accommodate short term OSOM vehicle movements. On this basis BWF proposes to use the complete intersection where needed i.e. the largest design vehicles would cross onto the incorrect side of the

road (as indicated by the swept paths) with local traffic controlled by Police and Pilots etc. Further, and as indicated by the swept paths, the largest design vehicles will remain well within the existing pavement and within existing intersection treatments (where applicable) at the majority of intersections and corners. However, new hardstands are proposed as documented in this Route Options Assessment. The largest design vehicles will remain well within the proposed pavement and intersection treatments (where applicable).

Note: Throughout this report, references to making roundabouts, kerbs, median strips or islands 'trafficable' means physically modifying these structures to allow the truck to drive over them. While the scope of work required in each location will be determined during detailed design, in consultation with the relevant road authority, this may include partial or total removal of these structures and reconstruction or replacement with painted lines.

6.0 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.

Route 1 - **Maximum loaded height of 5.2m** for blades, motors and general loads.
Route 2 - **Maximum loaded height of 6.4m** for towers

ROUTE 1: Port Adelaide to Bullawah Windfarm via Robinvale.

COMPONENTS: Blades

DISTANCE: 820 kilometres

MAXIMUM HEIGHT: 5.2 Metres

GPS LINK: https://maps.app.goo.gl/jrKCB8HhXPY9m5197

ROUTE: 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, Cobb Hwy, Jerilderie Rd, North Boundary Road.

ROUTE 2: Port Adelaide to Bullawah Windfarm via Robinvale.

COMPONENTS: Towers and any load exceeding 5.2 metres in loaded height

DISTANCE: 847 kilometres

MAXIMUM HEIGHT: 6.4 Metres

GPS LINK: https://maps.app.goo.gl/xz2VFhaa2GFEgn4D6

ROUTE: 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 Highway, Werrimull N Rd, Millewa Rd, Calder Hwy, Hattah Robinvale Rd, Robinvale-Sea lake Rd, Murray Valley Hwy, Sturt Hwy, Cobb Hwy, Jerilderie Rd, North Boundary Road.

7.0 Route 1 Study: Port Adelaide to Bullawah windfarm

COMPONENTS: Blades

DISTANCE: 820 kilometres

MAXIMUM HEIGHT: 5.2 Metres

GPS LINK: https://maps.app.goo.gl/jrKCB8HhXPY9m5197

ROUTE: 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, Cobb Hwy, Jerilderie Rd, North Boundary Road.

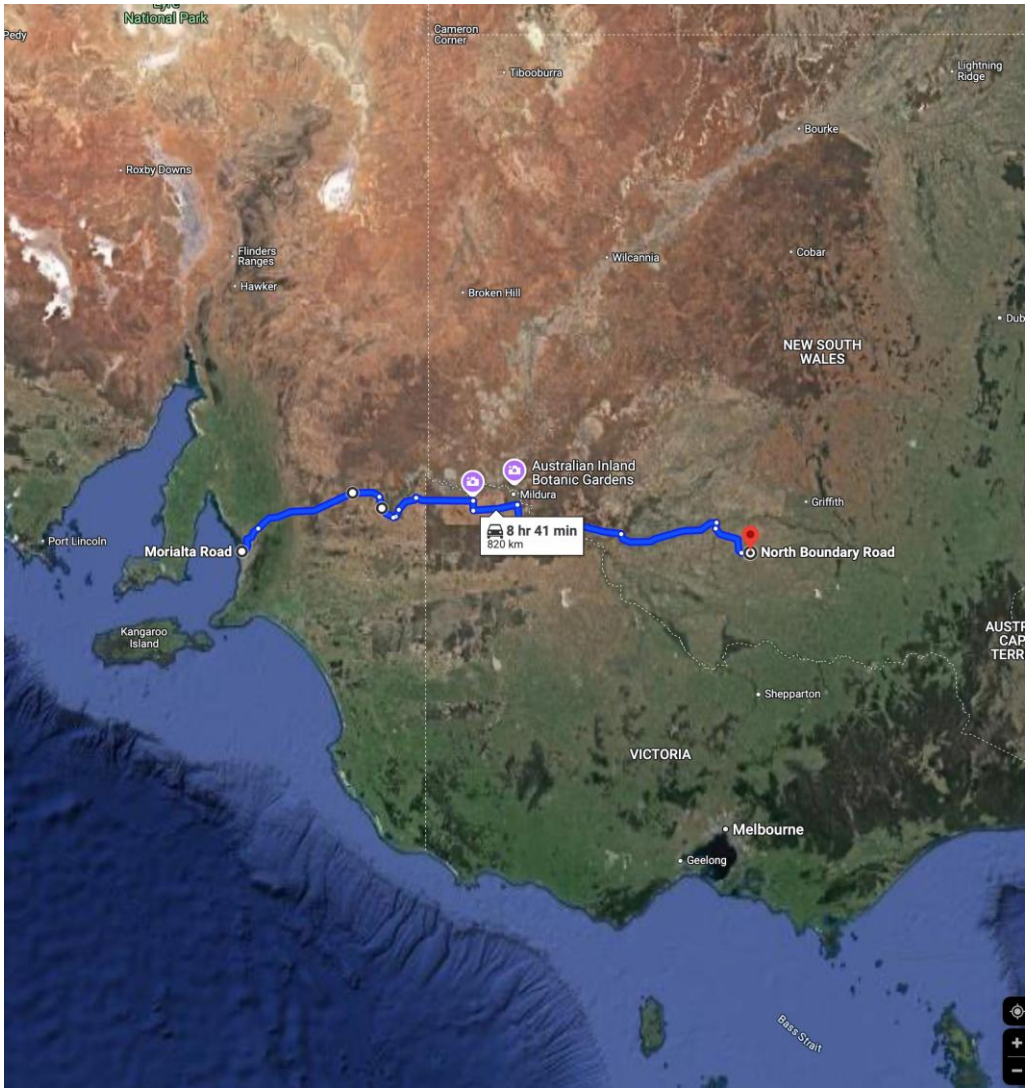


Figure 3 - Route 1

KEY	
MODIFICATIONS REQUIRED	
PINCH POINT	
EMERGENCY PARKING	

KM index	Location	Section of road	Current clearance	Procedure	Comments
0.0	Port Adelaide	Intersection of Ocean Steamers Rd and Eastern Pde GPS Link: https://goo.gl/maps/RMGe61BrvczTbEQR8	Width: 9.9m	Silght right hand turn	The perimeter fence will need to be modified to allow transit. Sign to be made removable.
0.75	Port Adelaide	Eastern Parade onto Port River Expressway GPS Link: https://goo.gl/maps/ora7XGzZgv1zLN3v6	Length: 80m	Left Hand Merge	To enable the blade to make this corner an area of hardstand is also required on the outside of the corner on the Port River on ramp and some signs made removable. A spotter will need to guide the load past the light pole and the traffic signal.
5.65	Dry Creek	Port River Expressway onto North-South Motorway GPS Link: https://goo.gl/maps/tnXSxEvy2zhyWHnLA	Length: 120m	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/23zth7ZxmiDCFotY7	Length: 120m	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/GbEjYZ81FUAdJh4Q7	Height: 5.2m	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/cG4yPULRZKy4V73h9	Length: 120m	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	Height: 5.2m	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.
69.5	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.
132.05	Blanchetown	Sturt Highway GPS Link: https://goo.gl/maps/fQvt31Kceoq	Length: 90m Width: 10.0m	Left hand merge	Fatigue parking all loads other than blades

KM index	Location	Section of road	Current clearance	Procedure	Comments
208.75	Kingston on Murray	Sturt Highway onto Kingston Road GPS Link: https://goo.gl/maps/cvafMBJpqWNRudqp8	Length: 110m	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/QVqcneMAha8ew7Gq9	Length: 120m	Travel directly ahead	No problems with this section of road.
246.45	Loxton	Karoonda Hwy onto Bookpurnong Road roundabout GPS Link: https://goo.gl/maps/gZXFU8r5scZwGxqPA	Length: 80m	Second exit on Roundabout	Hardstand is required on the edge of the roundabout so the blade can cut straight across. Signs to be relocated or made removable.
251.25	Loxton North	Bookpurnong Road GPS Link: https://goo.gl/maps/whYj2TCsTw7U5cDH9	Length: 00m Width: 10.0m	Left hand merge	Fatigue parking all loads other than blades
256.35	Bookpurnong	Bookpurnong Road onto Stanitzki Road GPS Link: https://goo.gl/maps/4D9S2wy8wpSkWqCG8	Length: 120m	Right Hand Turn	Vegetation on the outside of the corner will need to be checked before deliveries commence. Some trimming may be required.
284.45	Pike River	Stanitzki Road onto Sturt Hwy GPS Link: https://goo.gl/maps/QyNogMy3b9zg8MAUA	Length: 60m	Right Hand Turn	Existing shoulder on entry to be made trafficable with hardstand installed. Vegetation on the outside of the corner to be trimmed or removed for blade oversail clearance of 3.2m.
287.40	Yamba	Sturt Hwy GPS Link: https://goo.gl/maps/TAPWrNAcrsWGjXJJ7	Length: 150m Width: 10.0m	Left Hand Merge	Fatigue parking all loads
321.80	Meringur	Sturt Hwy GPS Link: https://goo.gl/maps/Tm7PCDegxcSf6pt5A	Length: 80m Width: 10.0m	Left Hand Merge	Fatigue parking all loads other than blades
355.5	Cullulleraine	Sturt Hwy onto Werrimull N Rd GPS Link: https://goo.gl/maps/mEXbnEwPCDYMM4Fh8	Length: 60m	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. Island and kerbs to be made trafficable/replaced with painted lines and signs relocated or made removable.
368.1	Werrimull	Werrimull N Rd onto Millewa Rd GPS Link: https://goo.gl/maps/ohs9s9RSbbfqj5uN9	Length: 80m	Left Hand Turn	Hardstand to be installed on the entry and inside of the corner. 1x sign to be relocated or made removable. Vegetation to be removed or trimmed for blade oversail clearance of 3.2m.
422.6	Red Cliffs	Bend on Millewa Rd GPS Link: https://goo.gl/maps/4VqMQjQQvY3arG786	Length: 50m	Right Hand Turn	Hardstand to be installed on the outside of corner. Signs will need to be removed and vegetation trimmed as required.
422.7	Red Cliffs	Millewa Rd onto Calder Hwy GPS Link: https://goo.gl/maps/Rm6ZZEukQW5Nmbkc8	Length: 50m	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.
474.2	Hattah	Calder Hwy GPS Link: https://goo.gl/maps/R26CpzXrFJYpJ6TB9	Length: 90m Width: 10.0m	Left Hand Merge	Fatigue parking all loads

KM index	Location	Section of road	Current clearance	Procedure	Comments
474.5	Hattah	Calder Hwy onto Hattah-Robinvale Rd GPS Link: https://goo.gl/maps/Z6zEDLCq71fpPZU27	Length: 50m	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.
527.7	Bannerton	Hattah-Robinvale Rd onto Robinvale-Sea Lake Rd GPS Link: https://goo.gl/maps/4FwG4Lh1Qr95TX1t9	Length: 50m	Left Hand Turn	Hardstand is required on the centre island and signs to be relocated or made removable. Delineators made removable, Vegetation trimmed as required.
540.9	Robinvale	Robinvale-Sea Lake Rd turns into Murray Valley Hwy GPS Link: https://goo.gl/maps/55pknuwKNHsoA1ydA	Length: 120m Width: 10.0m	Continue Straight	No problems with this section of road.
539.0	Robinvale	Murray valley Highway GPS Link: https://maps.app.goo.gl/z3n7r1BdoUM1VWKVA	Length: 95m Width: 12.0m	Left Hand Merge	Fatigue parking all loads
543.6	Robinvale	Murray Valley Highway over the Euston-Robinvale Bridge https://goo.gl/maps/uKnaiBJZG5yVVWJQ9	Width: 10.0m	Continue straight	A sign was noted saying the bridge has a load limit of 21.0t for a tri-axle group. A bridge assessment will be required to check suitability.
546.0	Euston	Murray Valley Hwy onto Sturt Hwy GPS Link: https://goo.gl/maps/rnhvnjnN6VkAWX3eA	Length: 50m	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. Sign to be relocated.
553.0	Euston	Zinder Park rest area, Sturt Highway. GPS Link: https://maps.app.goo.gl/jc9RoePLUapHb3P69	Length: 550m Width: 10.0m	Left Hand Merge	Fatigue parking all loads
619.0	Balranald	Sturt Highway. GPS Link: https://maps.app.goo.gl/N1ykG5V6H8a49Dvk8	Length: 108m Width: 7.7m	Left Hand Merge	Fatigue parking all loads
623.7	Balranald	Sturt Hwy (market st) onto Sturt Hwy GPS Link: https://goo.gl/maps/xye4ZgbuRkqqPvVr7	Length: 50m	Right Hand Turn	**OPTION 1:** Modelling based on assumption that corner property will be acquired by TFNSW. Hardstand will be required on inside of corner along with the removal of trees, light poles and numerous signs. Median strips to be made trafficable/replaced with painted lines. **OPTION 2:** Hardstand will be required on the outside of corner along with the removal of trees, light poles and numerous signs. Median strips to be made trafficable/replaced with painted lines.
625.0	Balranald	Sturt Hwy GPS Link: https://maps.app.goo.gl/YWhKDDuG8iWCezRRA	Length: 120m Width: 7.0m	Left hand Turn	Emergency parking all loads

KM index	Location	Section of road	Current clearance	Procedure	Comments
626.0	Balranald	Safety Cam on the Sturt Hwy GPS Link: https://maps.app.goo.gl/dqSAaqNCWXTnx2wGA	Height: 6.8m	Travel directly ahead	No problems with this section of road.
660.0	Willowvale Rest Area Keri Keri	Sturt Hwy GPS Link: https://goo.gl/maps/JGKFZJpyurnxBhBX9	Length: 180m Width: 10.0m	Left Hand Merge	Fatigue parking all loads
683.0	Ravensworth Truck Parking Maude	Sturt Hwy GPS Link: https://goo.gl/maps/FiimZvvv5rjKFLqy9	Length: 90m Width: 10.0m	Left Hand Merge	Fatigue parking all loads other than blades
749.8	Hay South	Sturt Hwy GPS Link: https://goo.gl/maps/kvaDjV8eHVbgb8sK8	Length: 120m Width: 10.0m	Cross to incorrect side of the road	Fatigue parking all loads
750.0	Hay South	Sturt Hwy onto Cobb Highway GPS Link: https://goo.gl/maps/9VAYyvhup29NtSPE6	Length: 80m Width: 4.5m	Load to use incorrect side of roundabout and installed hardstand to turn right onto Cobb Hwy.	Several light poles and signs to be removed or relocated. Hardstand to be installed on exit of corner.
758.0	Hay South	Cobb Highway onto Jerilderie Road GPS Link: https://goo.gl/maps/HYSt1h5MQfK9iie76	Length: 50m Width: 7.5m	Turn left onto Jerilderie Road.	Hardstand to be installed on inside of corner.
793.0	Hay South	Windfarm Entry # 1 GPS Link: https://goo.gl/maps/tawfeFCo4jdCYqpF7	N/A	Turn right into site entry.	Hardstand to be installed, fence and gate to be modified.
800.0	Hay South	Windfarm Entry # 5 GPS Link: https://goo.gl/maps/V8ARPnJdpALJ5Kfm9	N/A	Turn right into site.	Hardstand to be installed, fence and gate to be modified.
801.0	Hay South	Windfarm Entry # 6 GPS Link: https://goo.gl/maps/hbR3EvWS7ZNm3Yhm9	N/A	Turn right into site.	Hardstand to be installed, fence and gate to be modified.
806.0	Hay South	Windfarm Entry # 7 GPS Link: https://goo.gl/maps/jhpwVAAKmBFWt67E6	N/A	Turn left into site.	Hardstand to be installed.
809.0	Hay South	Windfarm Entry # 8 GPS Link: https://goo.gl/maps/X2kT4i9ZrhYZQBMv5	N/A	Turn left or right into site	Hardstand to be installed, fences and gates to be modified.
815.0	Hay South	Windfarm Entry # 10 GPS Link: https://goo.gl/maps/U9HqH2MAAGqSqKrT7	N/A	Turn right into site.	Hardstand to be installed, fences and gates to be modified.
820.0	Hay South	Windfarm Entry # 11 GPS Link: https://goo.gl/maps/kty5wETQqv1F9ARj9	N/A	Turn left into site.	Hardstand to be installed, fences and gates to be modified.

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

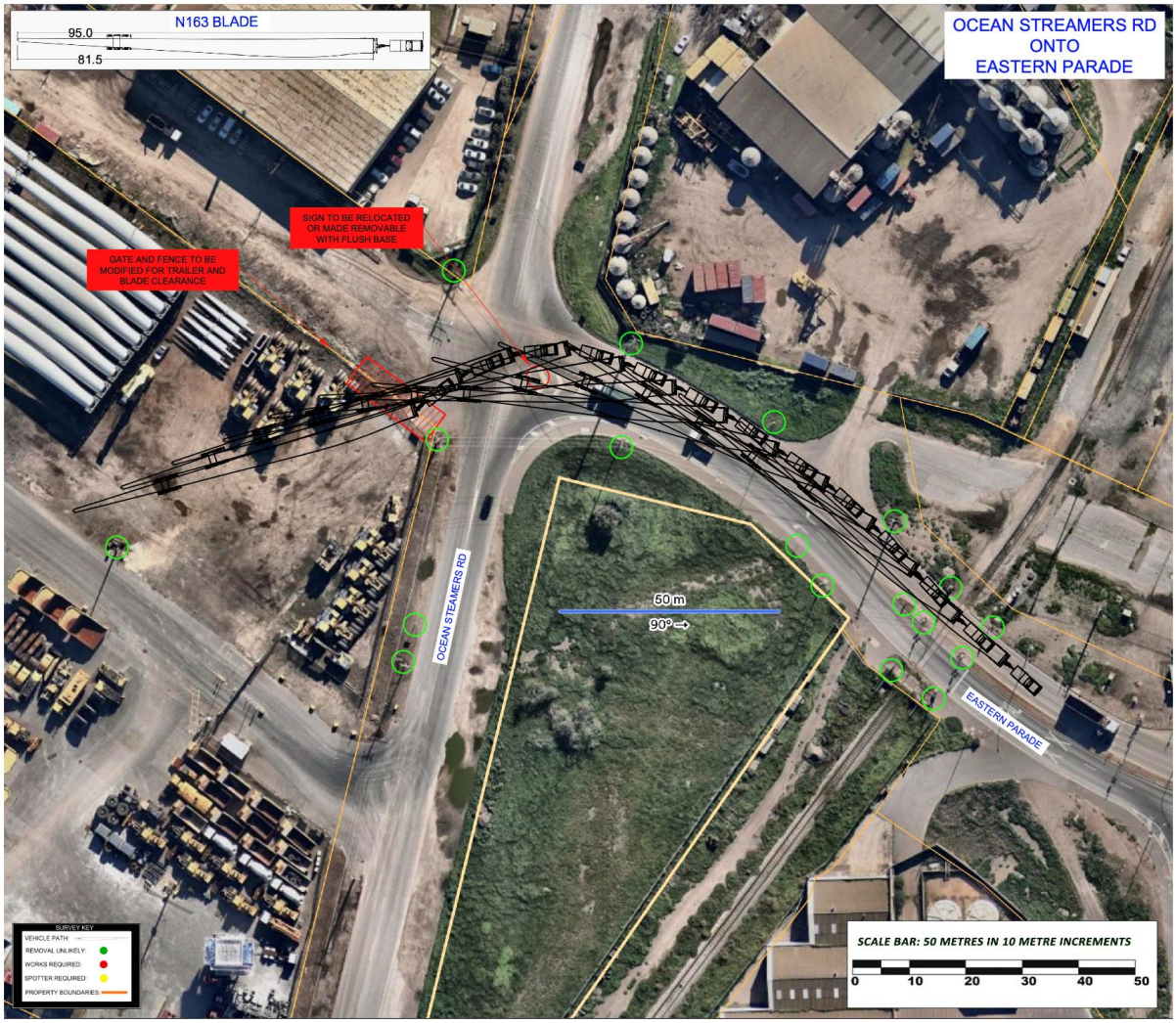


Figure 4 - Exiting the port storage area onto Eastern Parade.

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

PROCEDURE: Right-hand turn.

ROAD MODIFICATIONS: Yes, the perimeter fence will need to be modified to allow transit. Sign to be made removable.

0.75 Km's: Eastern Parade onto Port River Expressway

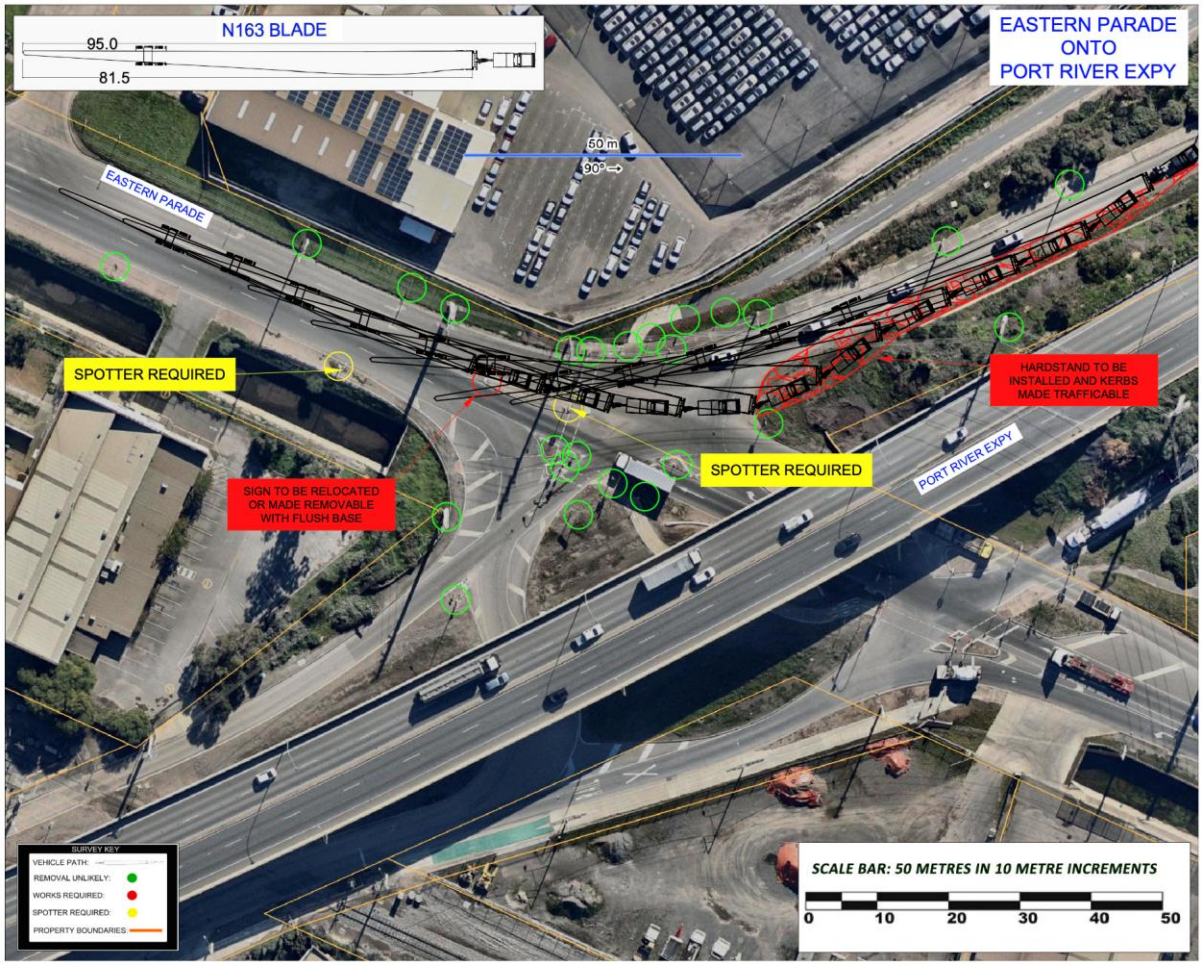


Figure 5 - Eastern Parade onto Port River Expressway.

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

PROCEDURE: Left hand merge onto Port River Expressway.

ROAD MODIFICATIONS: To enable the blade to make this corner an area of hardstand is also required on the outside of the corner on the Port River on ramp and some signs made removable.

A spotter will need to guide the load past the light pole and the traffic signal.

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

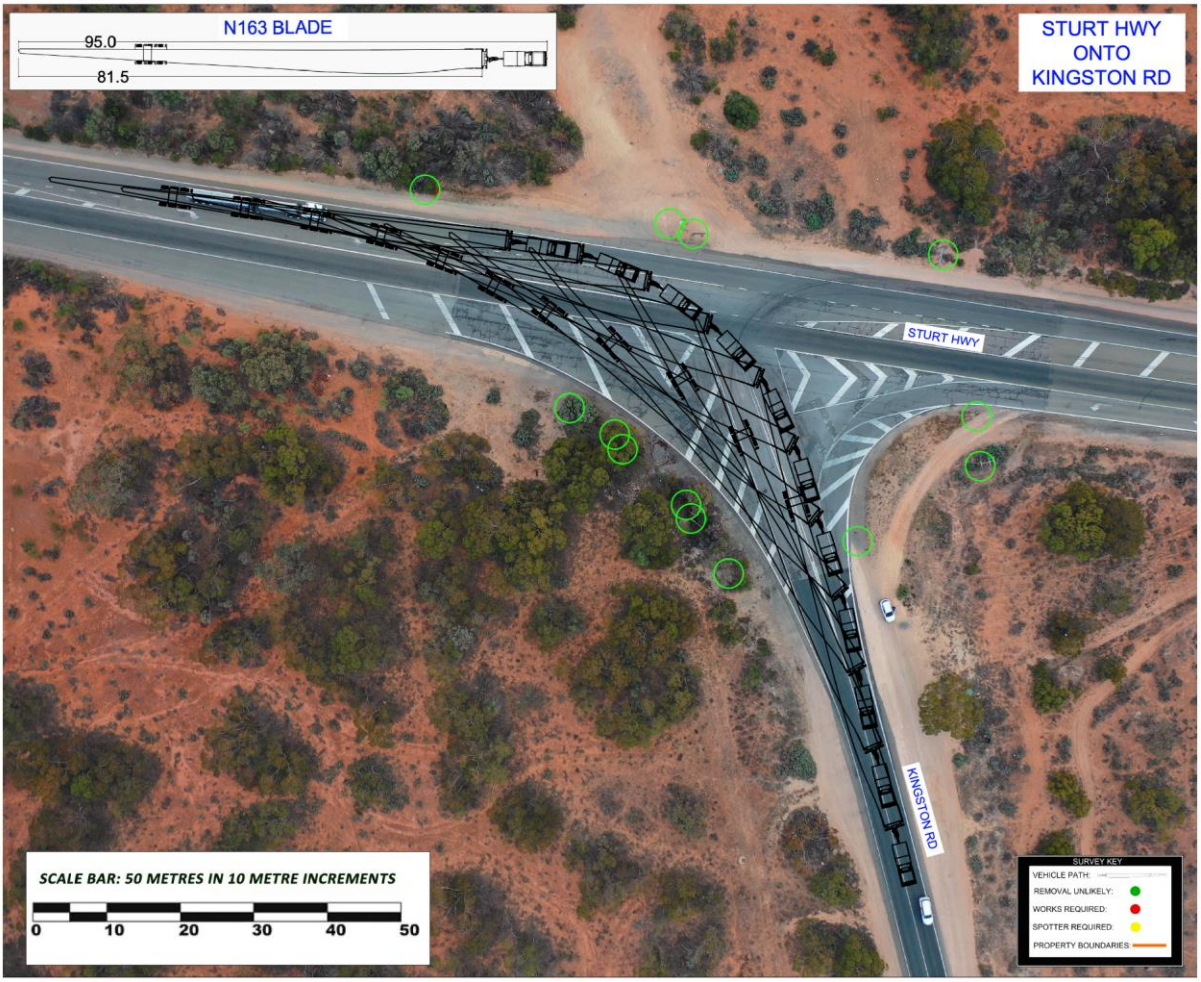


Figure 6 - Sturt Highway onto Kingston Road at Kingston

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

PROCEDURE: Right hand turn. Spotter to guide the load throughout the intersection.

ROAD MODIFICATIONS: No work is required.

246.45 Km's: Karoonda Hwy Roundabout in Loxton

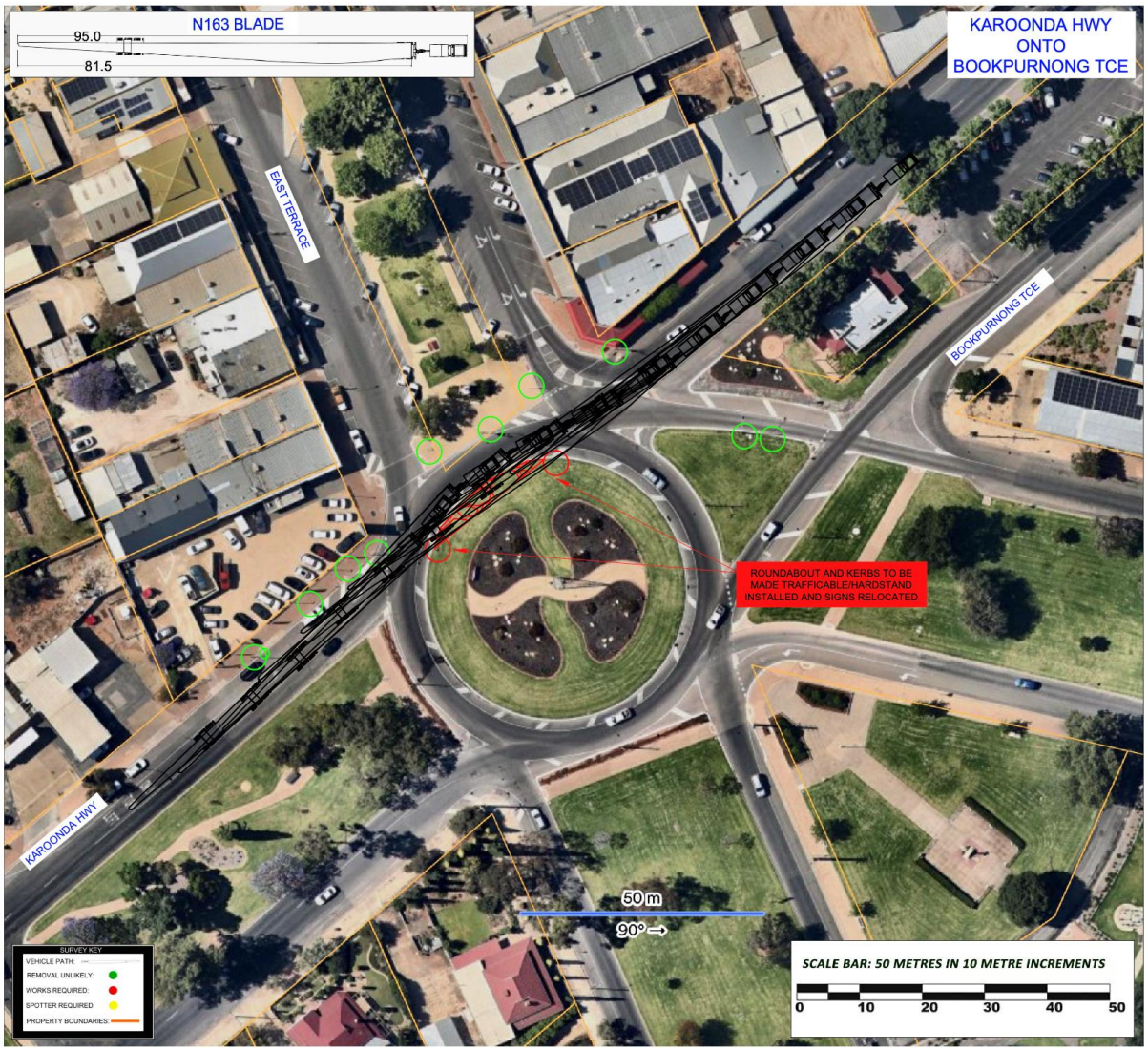


Figure 7 - Karoonda Hwy Roundabout in Loxton.

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/gZXFU8r5scZwGxqPA

PROCEDURE: Travel straight ahead using the hardstand installed on the roundabout and continue onto Bookpurnong Terrace.

ROAD MODIFICATIONS: Hardstand is required on the edge of the roundabout so the blade can cut straight across. Signs to be relocated or made removable.

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



Figure 8 - Bookpurnong Road onto Stanitzki Road

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

PROCEDURE: Right hand turn

ROAD MODIFICATIONS: No work is required. Vegetation on the outside of the corner will need to be checked before deliveries commence. Some trimming may be required.

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

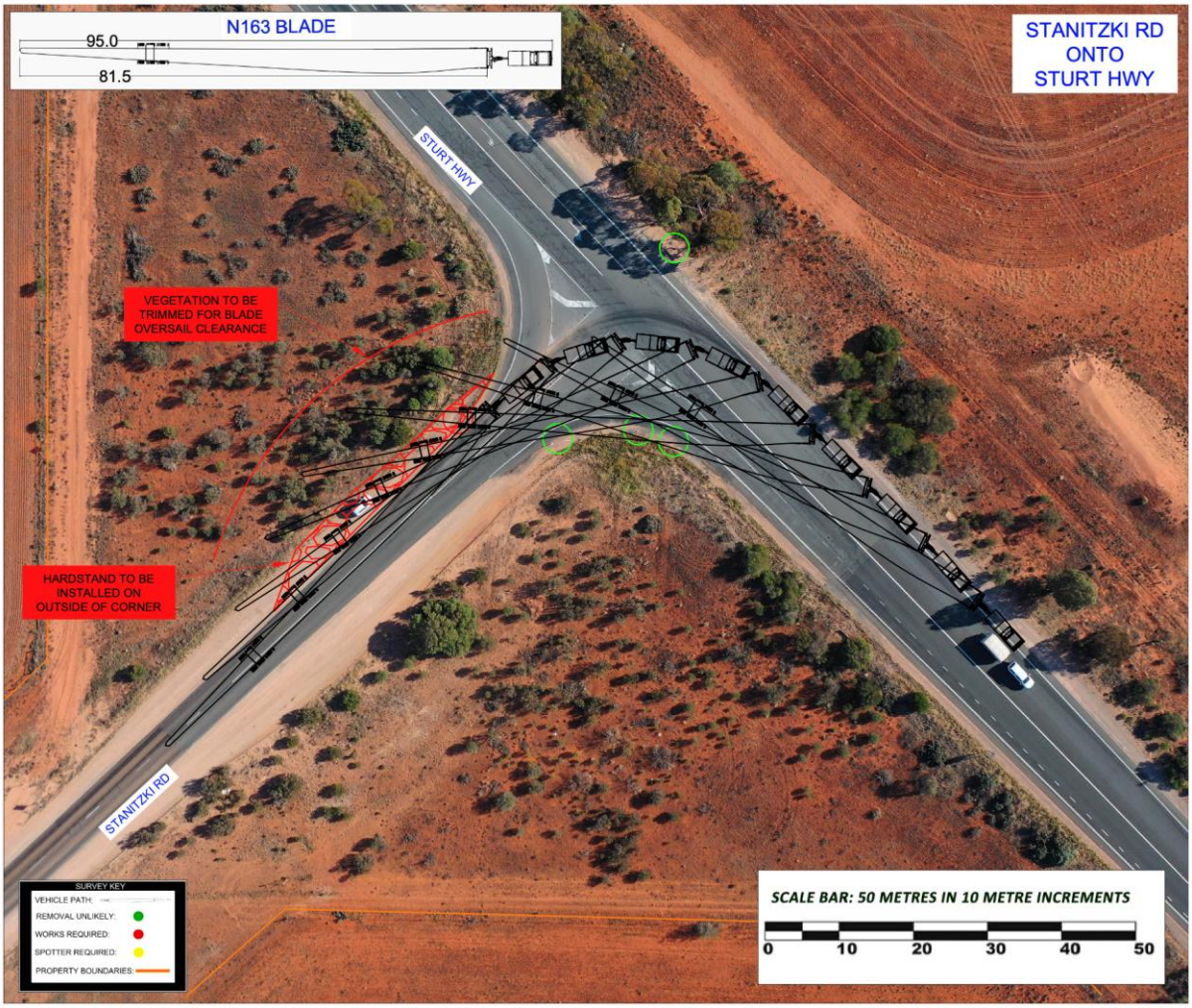


Figure 9 - Stanitzki Road onto Sturt Highway

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/QyNogMy3b9zg8MAUA

PROCEDURE: Right hand turn.

ROAD MODIFICATIONS: Existing shoulder on entry to be made trafficable with hardstand installed. Vegetation on the outside of the corner to be trimmed or removed for blade oversail clearance of 3.2m.

355.50 Km's: Sturt Highway onto Werrimull N Road

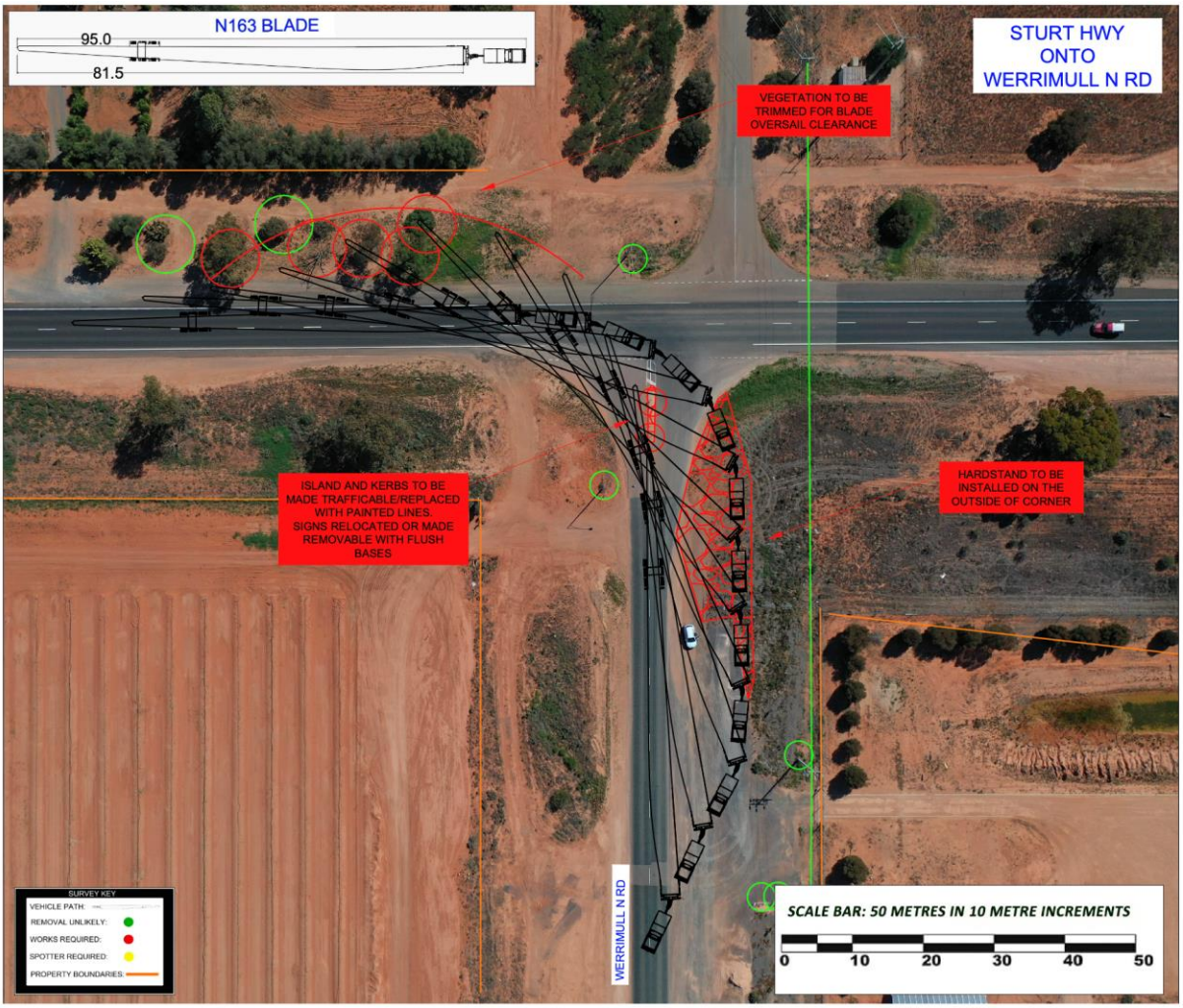


Figure 10 - Sturt Highway onto Werrimull N Road

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

PROCEDURE: Right hand turn

ROAD MODIFICATIONS: Hardstand is required on the outside of the corner. Numerous trees will need to be removed to allow the tail swing to pass. Island and kerbs to be made trafficable/replaced with painted lines and signs relocated or made removable.

368.10 Km's: Werrimull N Road onto Millewa Road

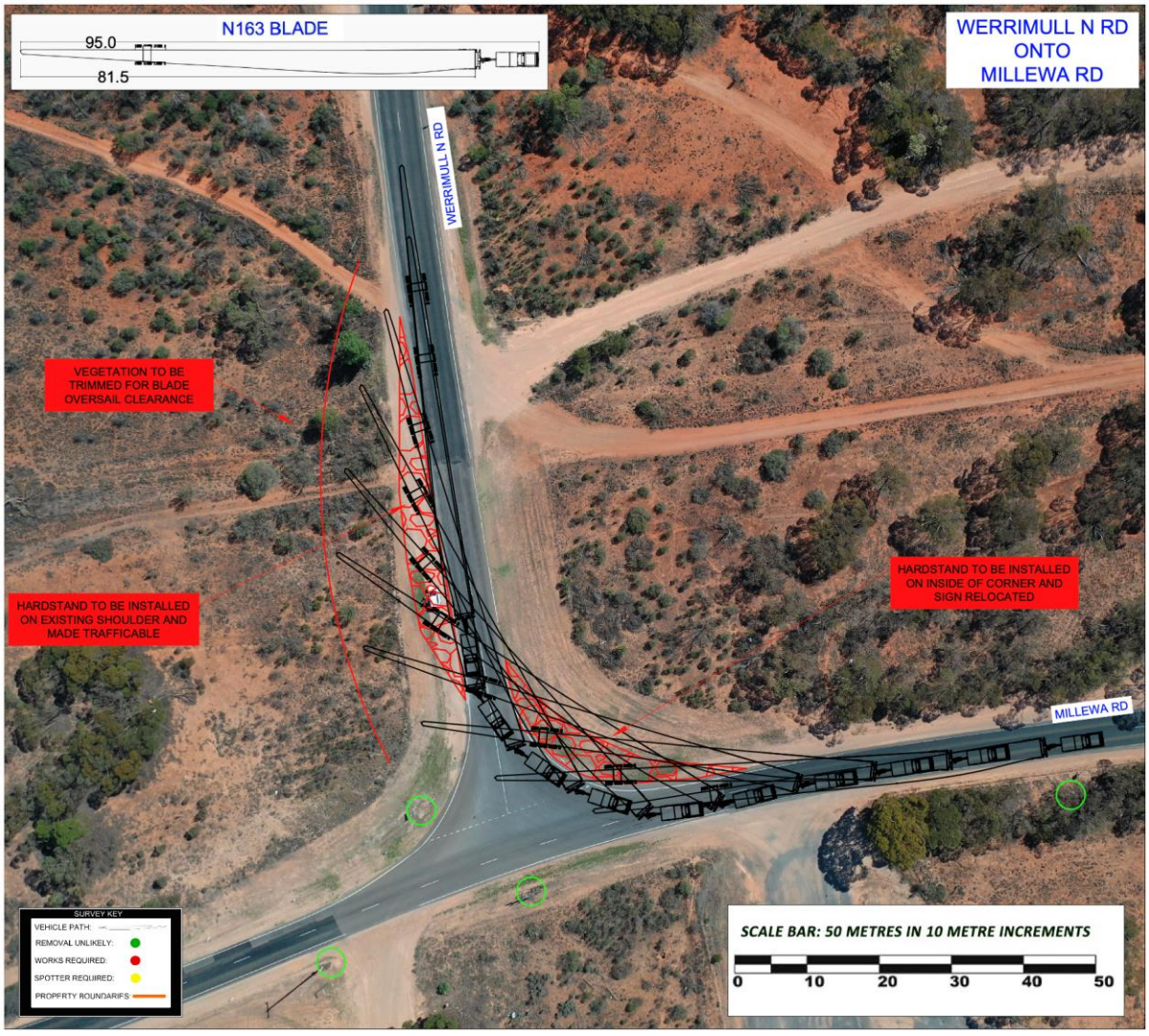


Figure 11 - Werrimull N Road onto Millewa Road

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

PROCEDURE: Left hand turn

ROAD MODIFICATIONS: Hardstand to be installed on the entry and inside of the corner. 1x sign to be relocated or made removable. Vegetation to be removed or trimmed for blade oversail clearance of 3.2m.

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

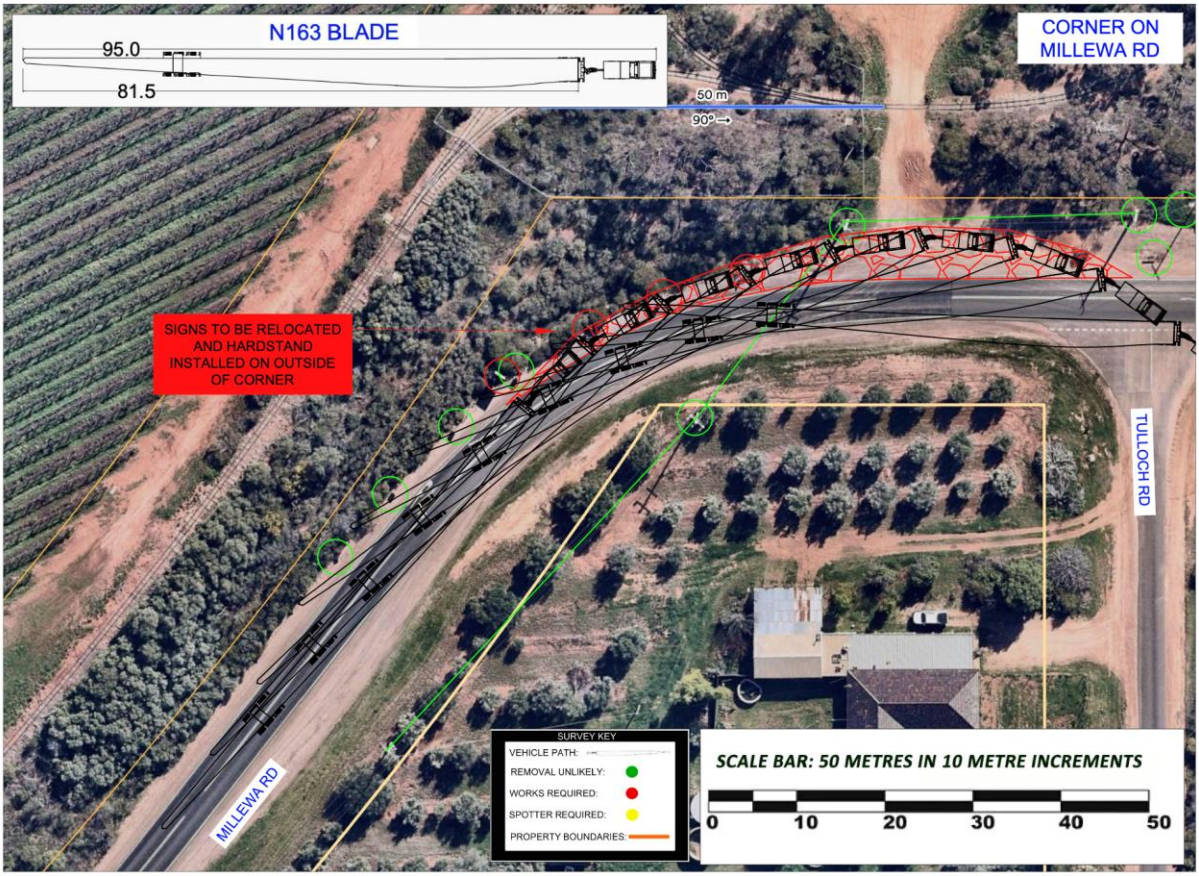


Figure 12 - Right hand bend on Millewa Road

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

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

ROAD MODIFICATIONS: Hardstand to be installed on the outside of corner. Signs will need to be removed and vegetation trimmed as required.

422.70 Km's: Millewa Road onto Calder Hwy

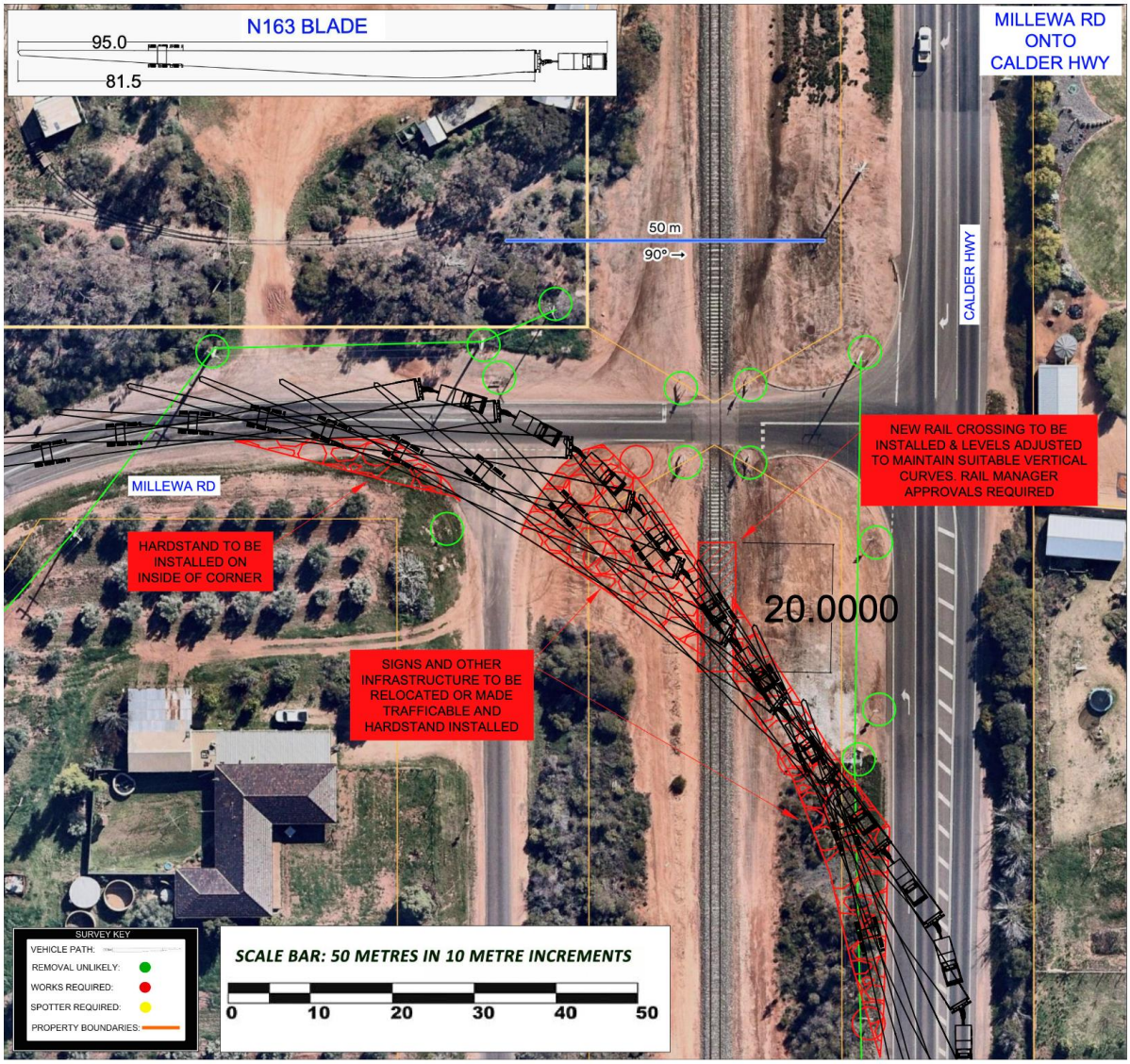


Figure 13 - Millewa Road onto Calder Hwy

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

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

ROAD MODIFICATIONS: 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

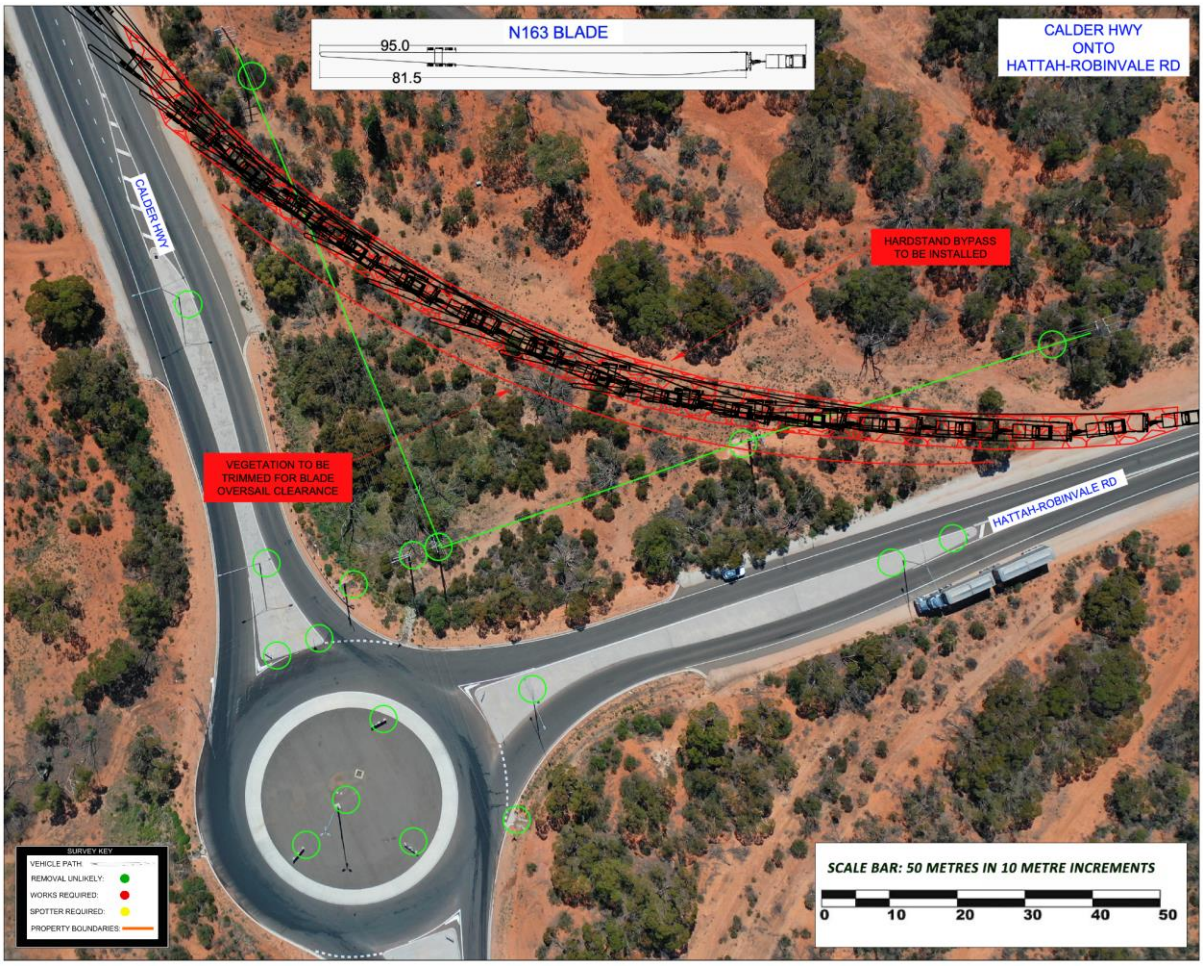


Figure 14 - Calder Highway onto Hattah-Robinvale Road

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

PROCEDURE: Left hand turn at the roundabout

ROAD MODIFICATIONS: 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

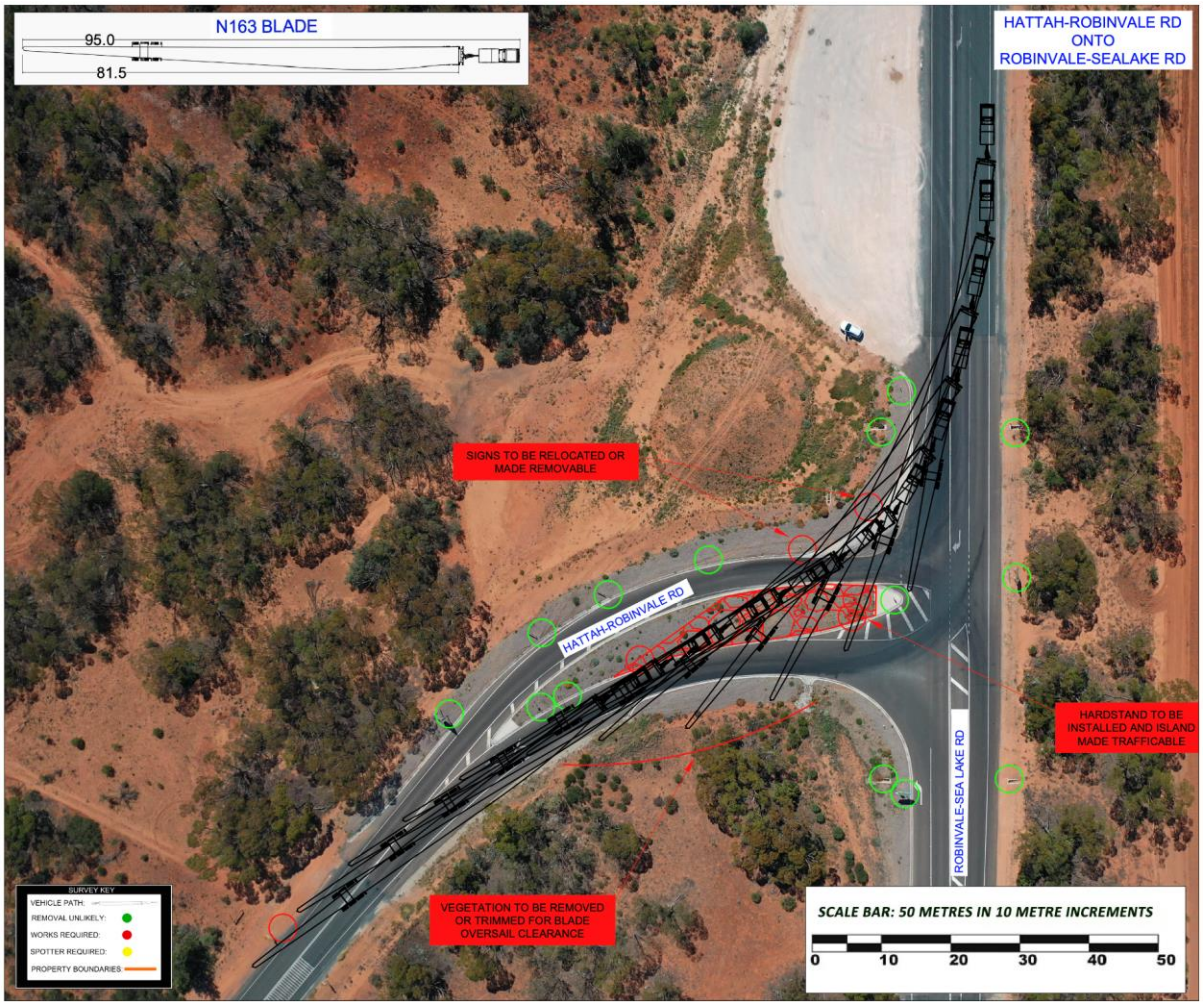


Figure 15 - Hattah-Robinvale Road onto Robinvale-Sea Lake Road

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

PROCEDURE: Left hand turn

ROAD MODIFICATIONS: Hardstand is required on the centre island and signs to be relocated or made removable. Delineators made removable, Vegetation trimmed as required.

546.00 Km's: Murray Valley Highway onto Sturt Highway

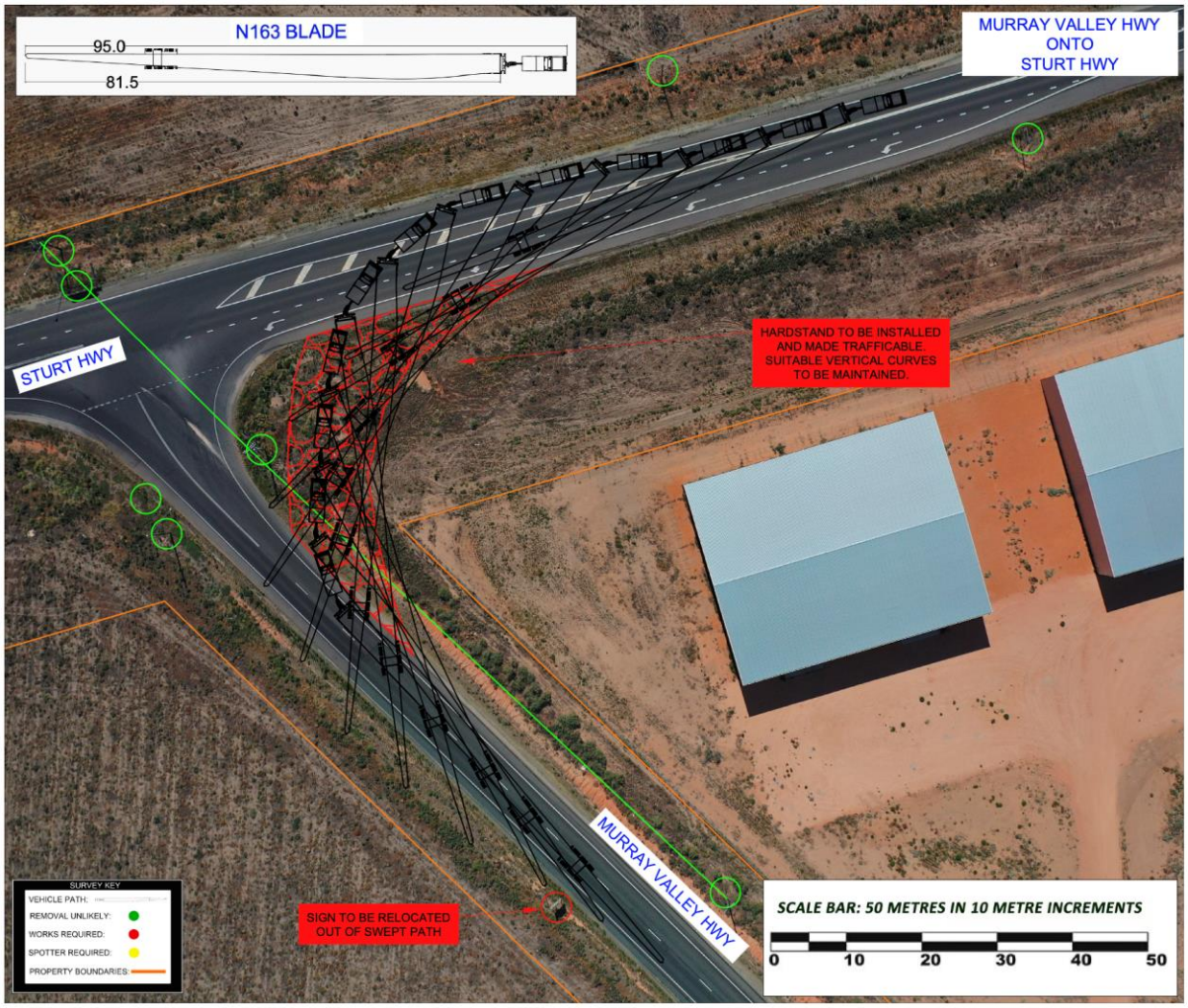


Figure 16 - Murray Valley Highway onto Sturt Highway

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/rnhvnjnN6VkAWX3eA
PROCEDURE: Right hand turn
ROAD MODIFICATIONS: A large amount of hardstand is required. The new alignment will need a lot of fill to bring it level with the highway. Sign to be relocated.

620.0 to 621.0 Km's: Sturt Highway through Balranald



Figure 17 - Sturt Highway at Balranald centre islands 1



Figure 18 - Sturt Highway at Balranald centre islands 2

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/DVbkEGBFeoUomVL29

PROCEDURE: Travel directly ahead on the correct side of the road. Spotter to guide load through this section of road.

ROAD MODIFICATIONS: Nil.

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

OPTION 1:



Figure 19 - Sturt Highway at Balranald option 1

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/xve4ZgbuRkqqPvVr7

PROCEDURE: Right hand turn

ROAD MODIFICATIONS: This section is very tight. The property has been bought by a third party who has given landowner consent to Bullawah Wind Farm to lodge their development application. Hardstand will be required on inside of corner along with the removal of trees, light poles and numerous signs. Median strips to be made trafficable/replaced with painted lines.

OPTION 2:

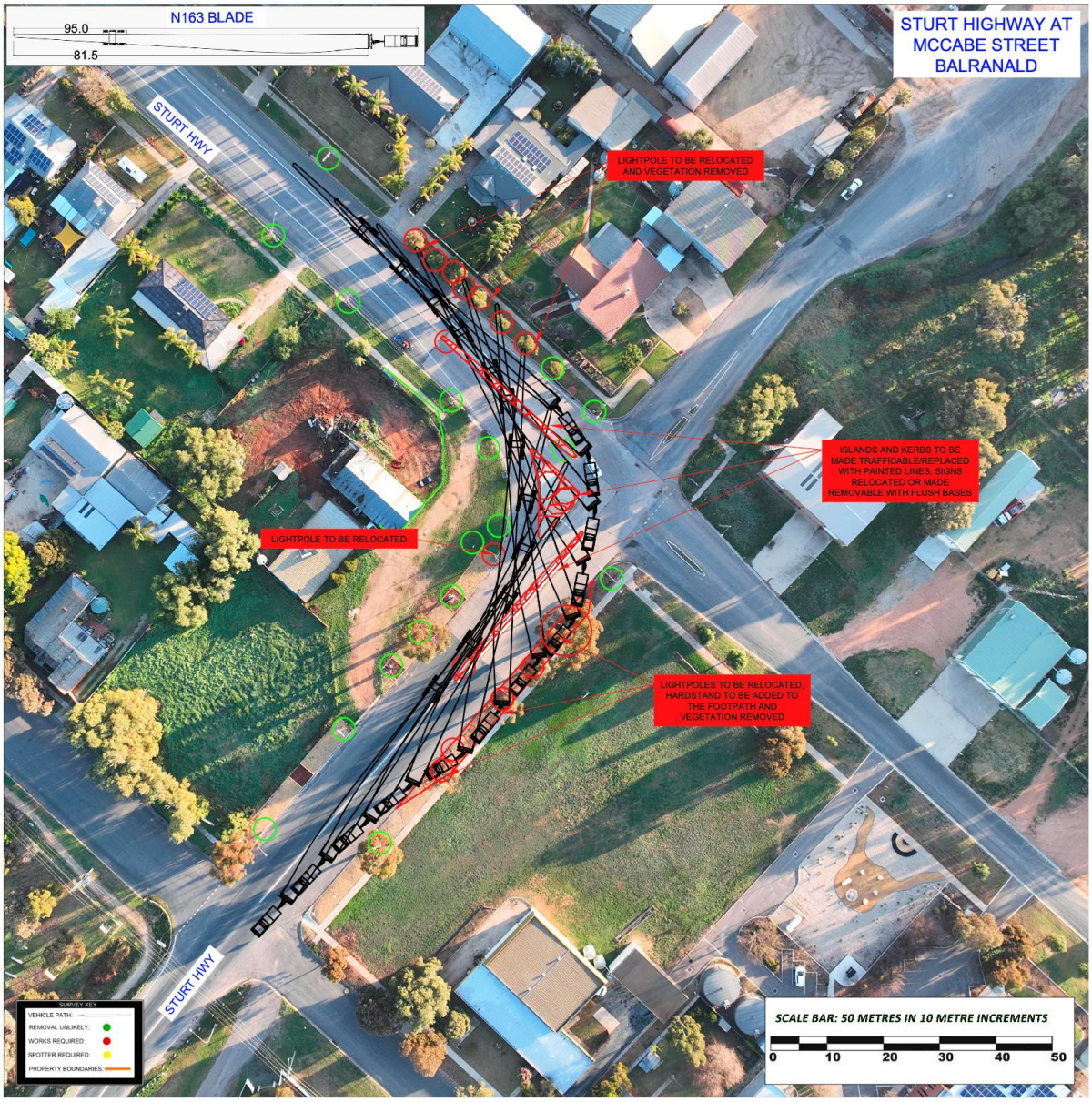


Figure 20 - Sturt Highway at Balranald option 2

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/xve4ZgbuRkqqPvVr7

PROCEDURE: Right hand turn

ROAD MODIFICATIONS: Hardstand will be required on the outside of corner along with the removal of trees, light poles and numerous signs. Median strips to be made trafficable/replaced with painted lines.

750.0 Km's: Roundabout on Sturt Highway at Hay onto Cobb Highway

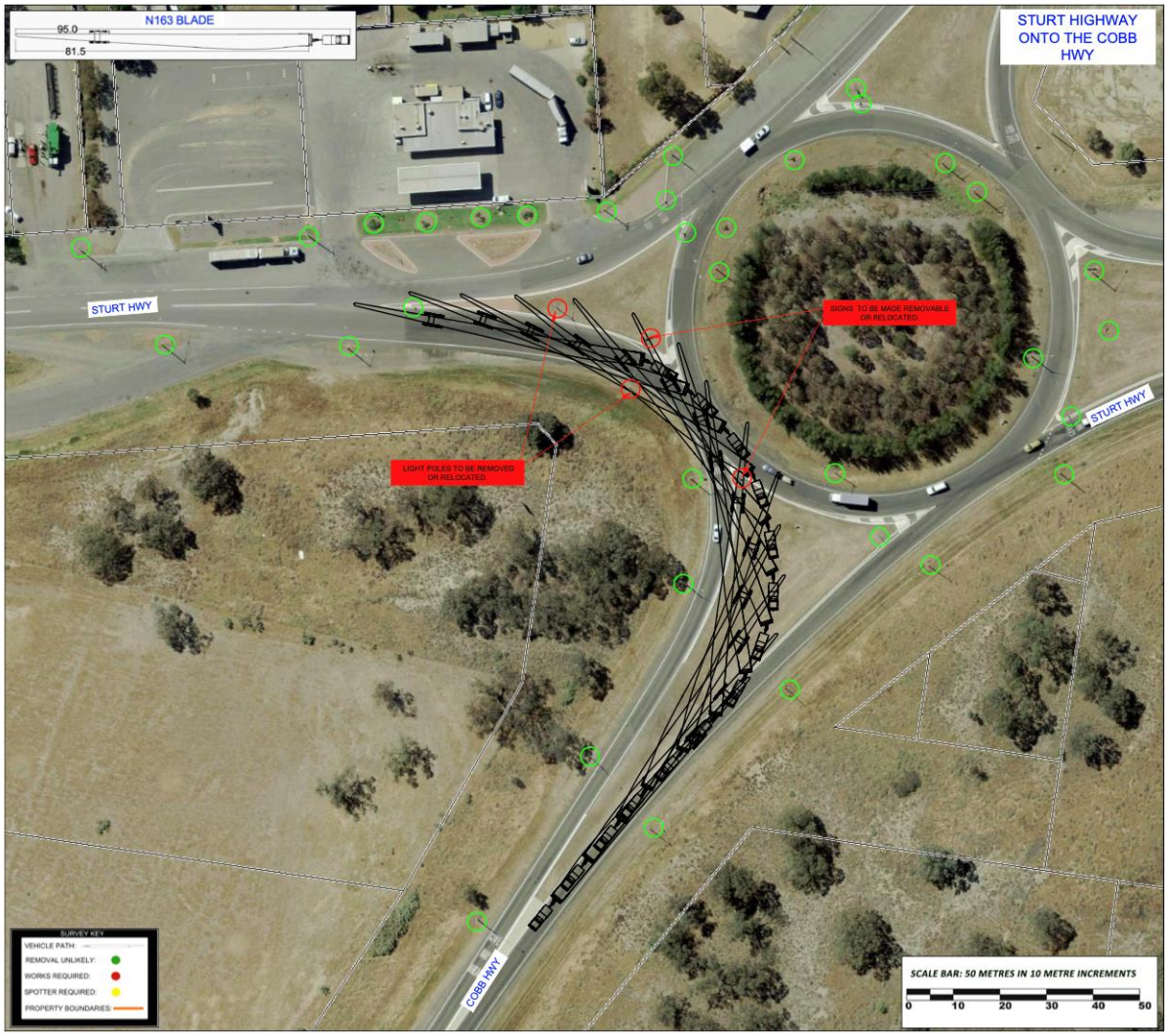


Figure 21: Sturt Highway onto Cobb Highway at Hay

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/9VAYyvhup29NtSPE6

PROCEDURE: Load to use incorrect side of roundabout and installed hardstand to turn right onto Cobb Hwy.

COMMENTS:

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

ROAD MODIFICATIONS: Yes. Several light poles and signs to be removed or relocated. Hardstand to be installed on exit of corner.

758.0 Km's: Cobb Highway onto Jerilderie Road

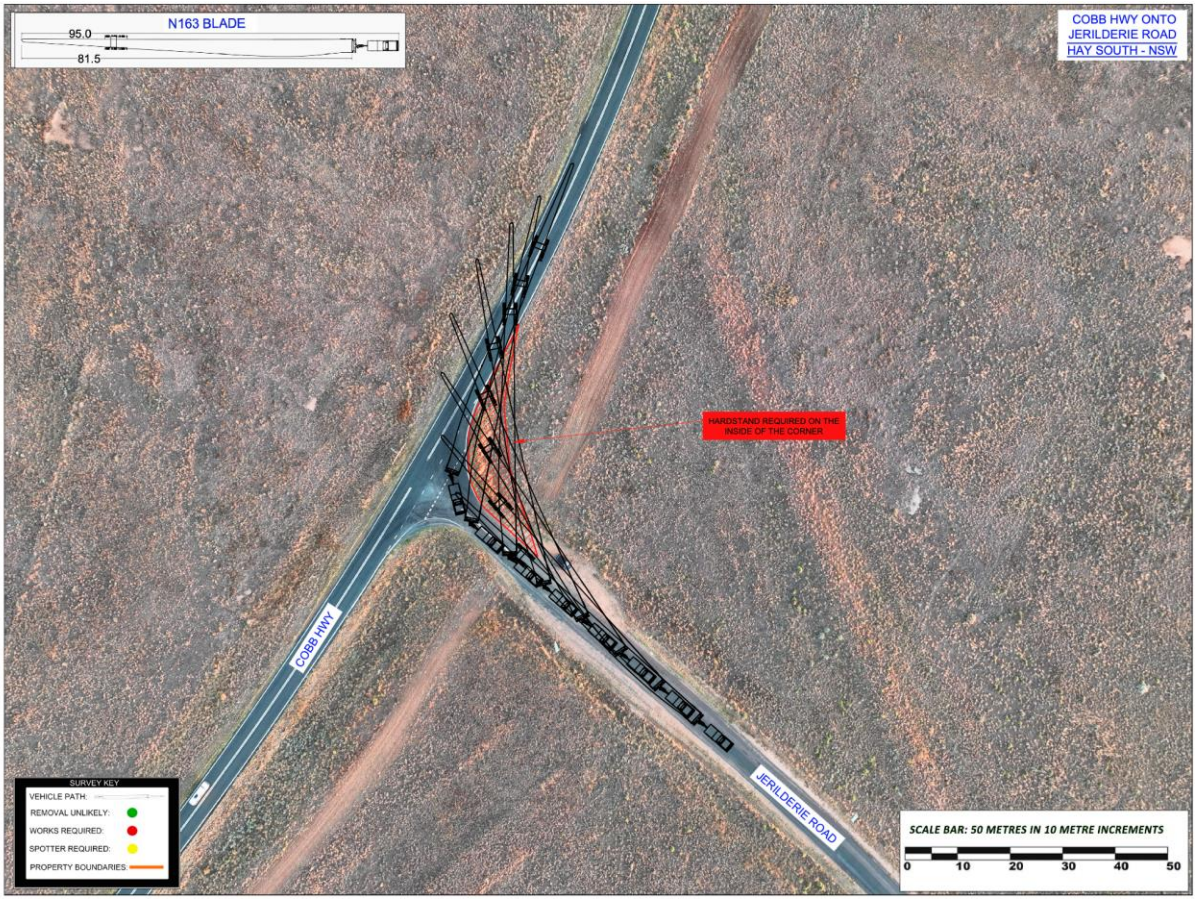


Figure 22: Cobb Highway onto Jeriderie Road

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/HYSt1h5MQfK9iie76

PROCEDURE: Turn left onto Jerilderie Road.

COMMENTS:

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

ROAD MODIFICATIONS: Yes, Hardstand to be installed on inside of corner.

793.0 Km's: Windfarm Entry # 1

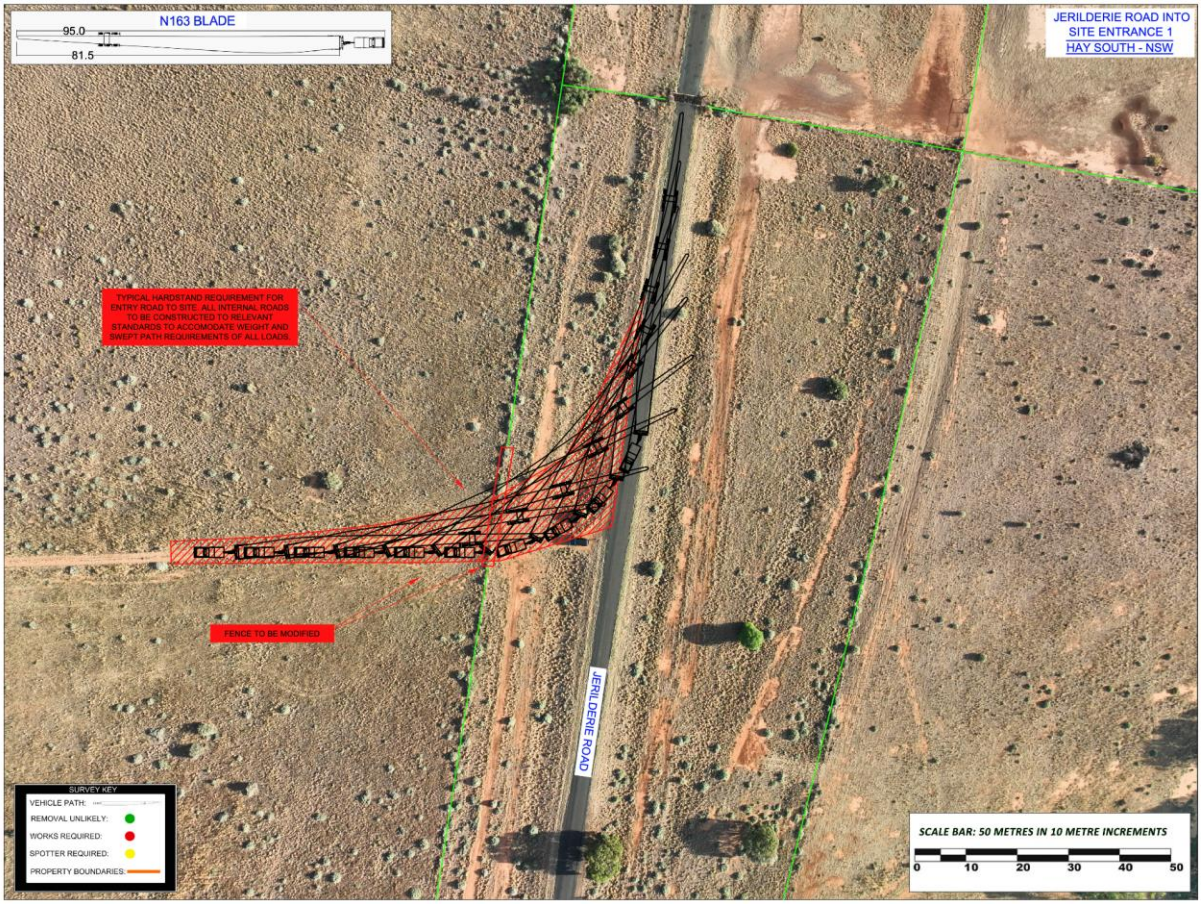


Figure 23: Jerilderie Road into Site entrance #1

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/tawfeFCo4jdCYgpF7

PROCEDURE: Turn right into site entry.

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

ROAD MODIFICATIONS: Yes, Hardstand to be installed, fence and gate to be modified.

800.0 Km's: Windfarm Entry # 5

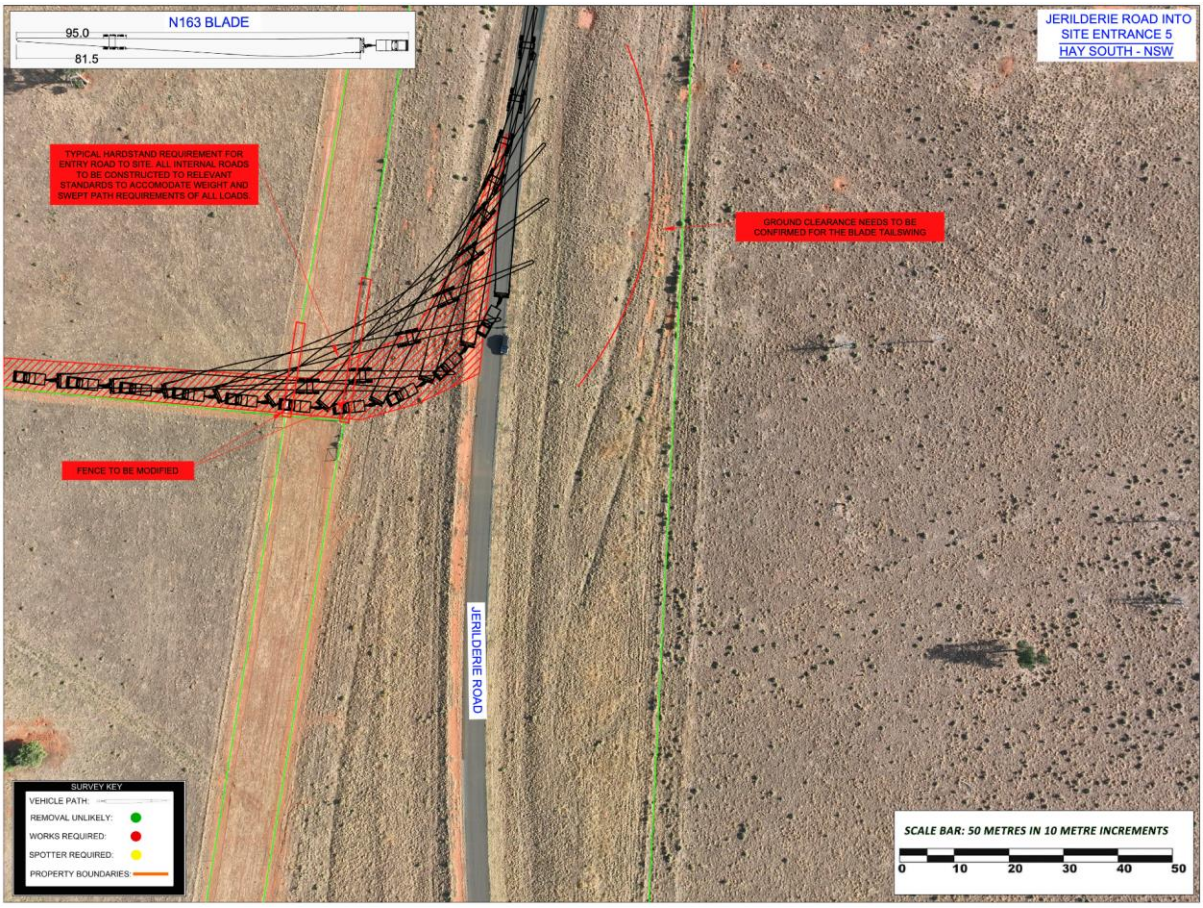


Figure 24: Jerilderie Road into Site entrance #5

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/V8ARPnJdpALJ5Kfm9

PROCEDURE: Turn right into site.

COMMENTS: Ground clearance to be confirmed for blade oversail. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warm all traffic.

ROAD MODIFICATIONS: Yes. Hardstand to be installed, fence and gate to be modified.

801.0 Km's: Windfarm Entry # 6

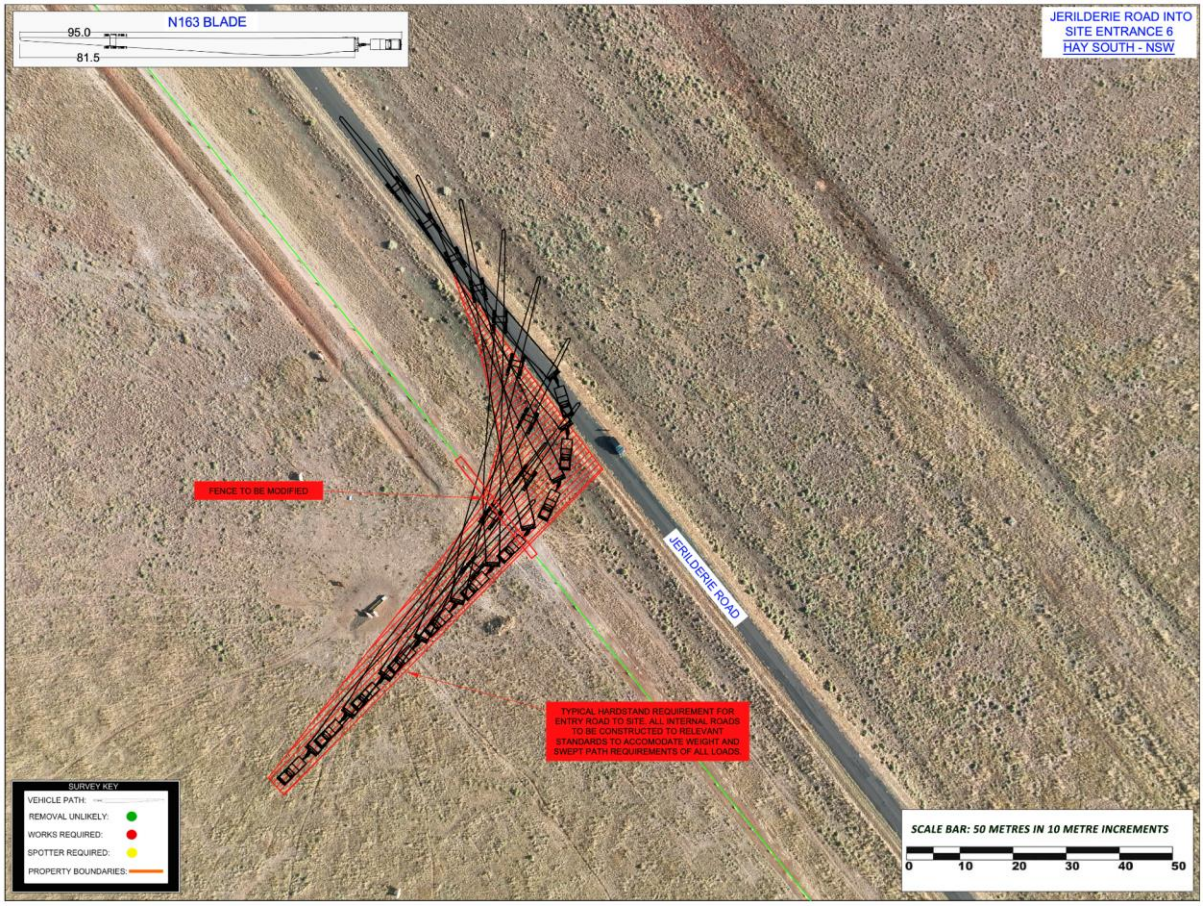


Figure 25: Jerilderie Road into Site entrance #6

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/hbR3EvWS7ZNm3Yhm9

PROCEDURE: Turn right into site.

COMMENTS:

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

ROAD MODIFICATIONS: Yes. Hardstand to be installed, fence and gate to be modified.

806.0 Km's: Windfarm Entry # 7

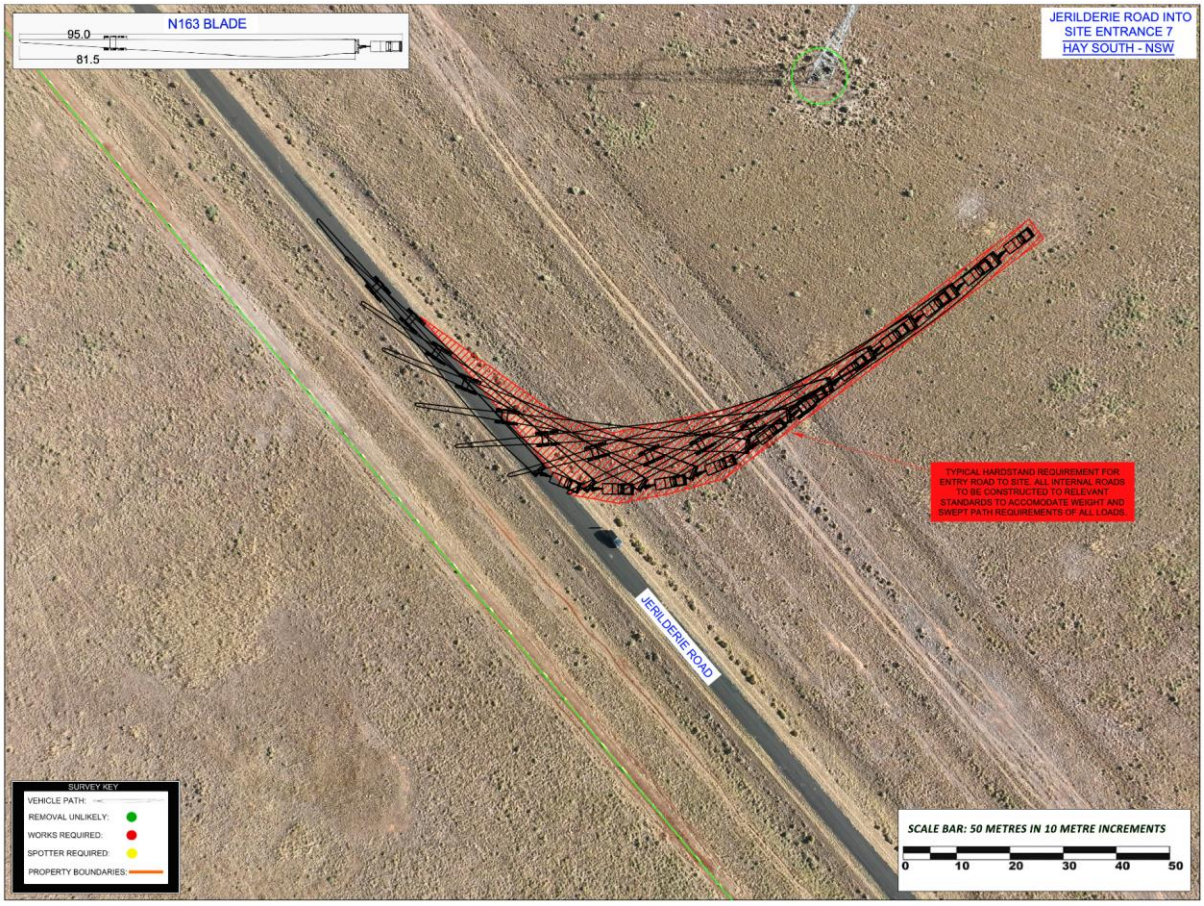


Figure 26: Jerilderie Road into Site entrance #7

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/jhpwVAAKmBFWt67E6

PROCEDURE: Turn left into site.

COMMENTS:

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

ROAD MODIFICATIONS: Yes. Hardstand to be installed.

809.0 Km's: Windfarm Entry # 8

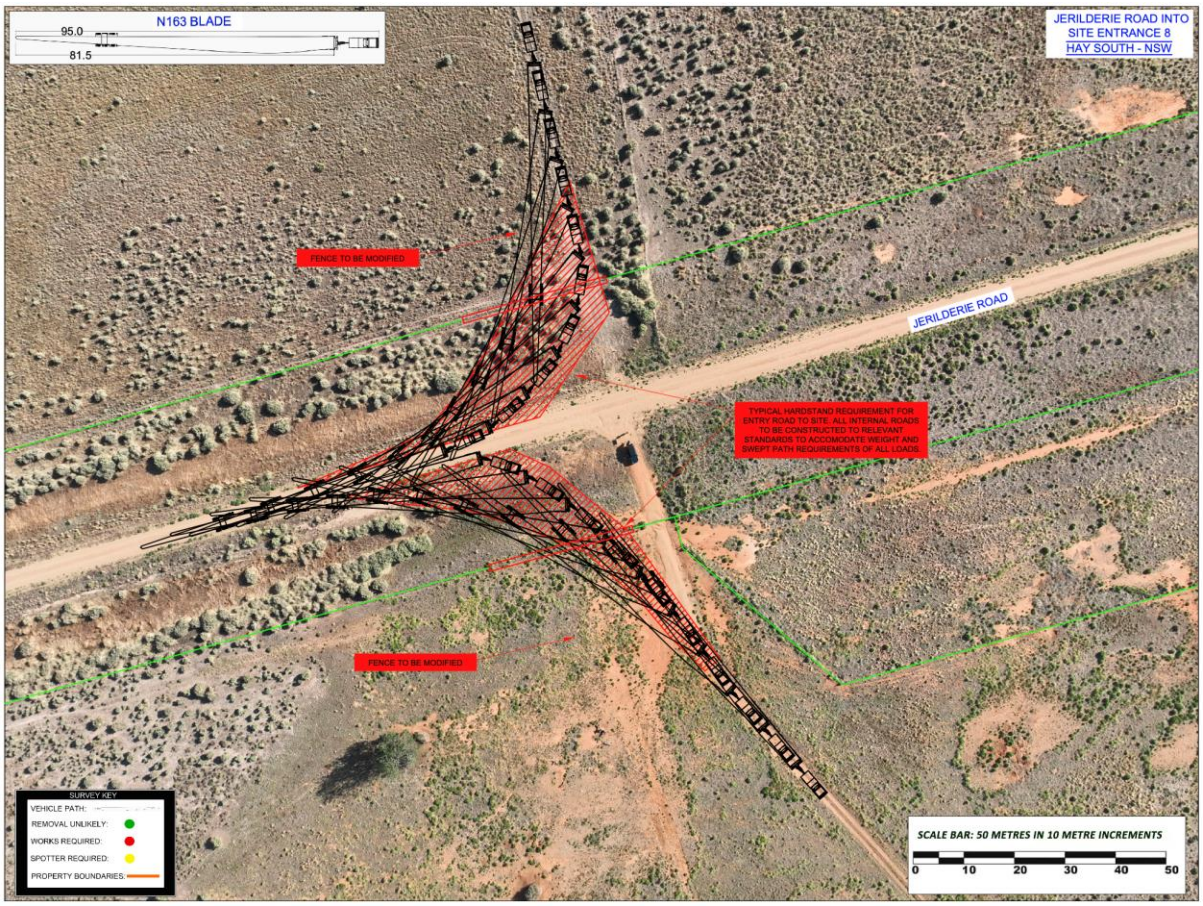


Figure 27: Jerilderie Road into Site entrance #8

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/X2kT4i9ZrhYZQBMv5

PROCEDURE: Turn left or right into site

COMMENTS:

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

ROAD MODIFICATIONS: Yes. Hardstand to be installed, fences and gates to be modified.

815.0 Km's: Windfarm Entry # 10

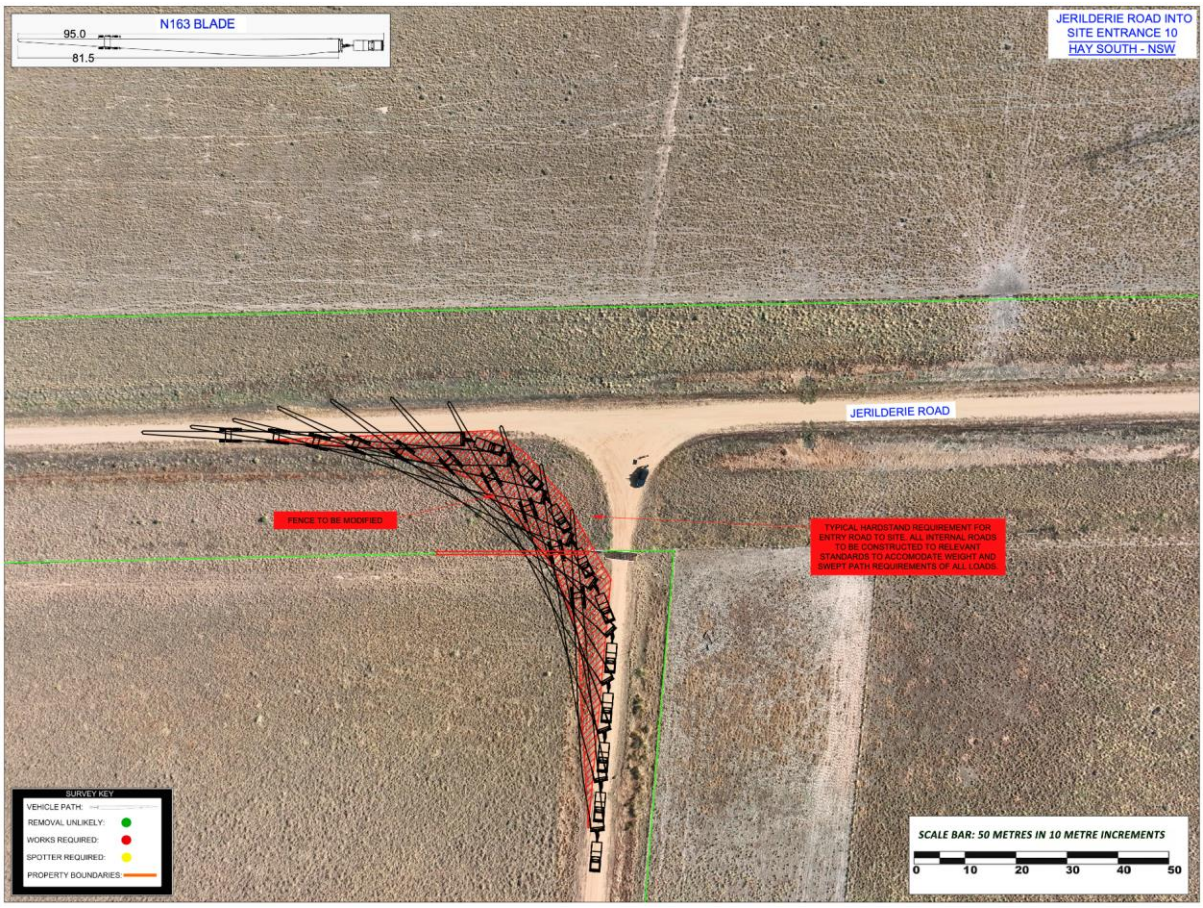


Figure 28: Jerilderie Road into Site entrance #10

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/U9HgH2MAAGqSqKrT7

PROCEDURE: Turn right into site.

COMMENTS:

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

ROAD MODIFICATIONS: Yes. Hardstand to be installed, fences and gates to be modified.

820.0 Km's: Windfarm Entry # 11

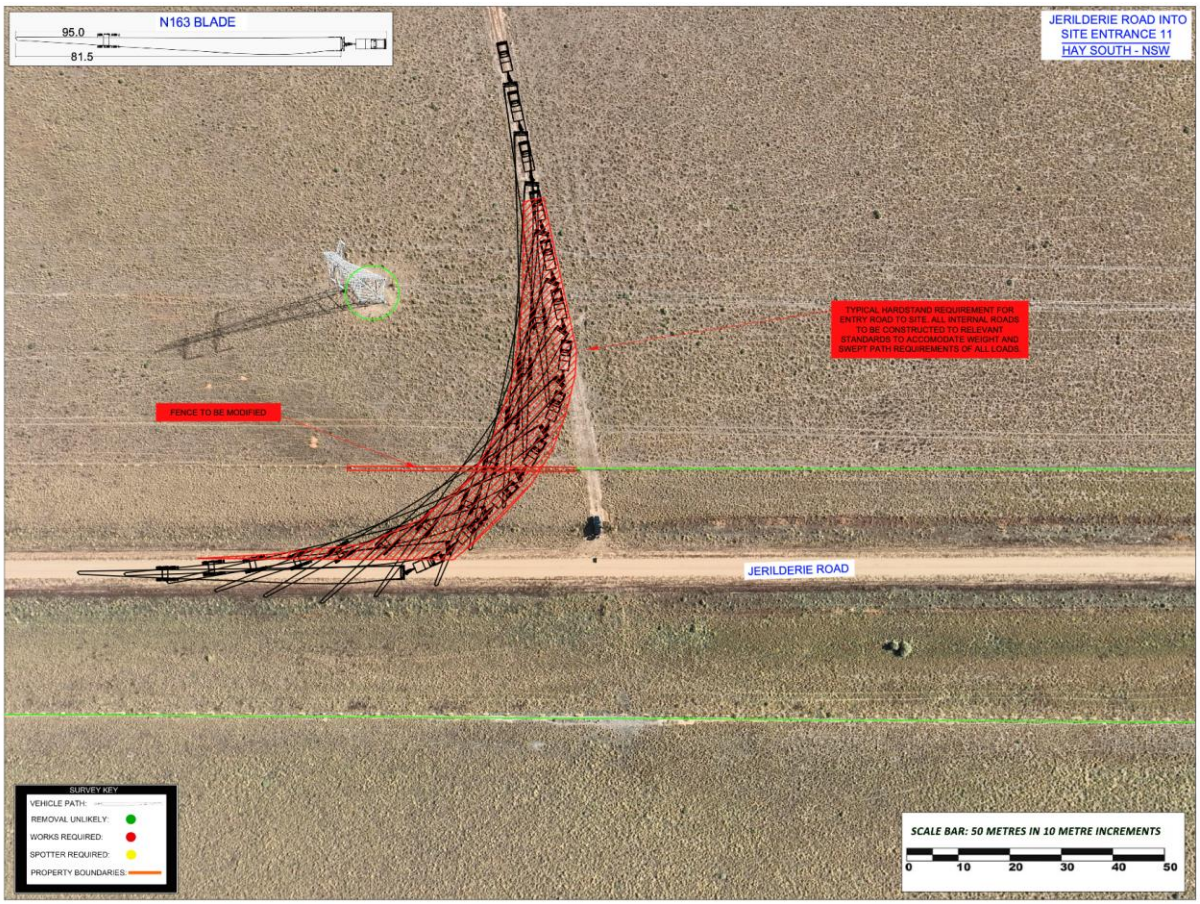


Figure 29: Jerilderie Road into Site entrance #11

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/kty5wETQgv1F9ARi9

PROCEDURE: Turn left into site.

COMMENTS:

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

ROAD MODIFICATIONS: Yes. Hardstand to be installed, fences and gates to be modified.

8.0 Route 1: Rest Areas

The following outlines rest areas along the proposed route that have sufficient existing length and width to accommodate the assessed OSOM (Over Size Over Mass) vehicles. Based on prior experience transporting similar turbine equipment along sections of the routes, it is considered unlikely that additional rest areas will be required to ensure the safe passage of OSOM movements (accounting for potential timing issues or challenges at identified pinch points). The final selection of rest areas to be used during OSOM transport will be confirmed following project approval, as part of detailed design and development of the Traffic Management Plan.

KEY	
MODIFICATIONS REQUIRED	
EMERGENCY PARKING	

KM index	Location	Section of road	Rest area dimensions	Procedure	Comments
539.0	Robinvale	Murray valley Highway GPS Link: https://maps.app.goo.gl/z3n7r1BdoUM1VWKVA	Length: 95m Width: 12.0m	Left Hand Merge	Fatigue parking all loads
553.0	Euston	Zinder Park rest area, Sturt Highway. GPS Link: https://maps.app.goo.gl/jc9RoePLUapHb3P69	Length: 550m Width: 10.0m	Left Hand Merge	Fatigue parking all loads
619.0	Balranald	Sturt Highway at Lions Park. GPS Link: https://maps.app.goo.gl/N1ykG5V6H8a49Dvk8	Length: 108m Width: 7.7m	Left Hand Merge	Fatigue parking all loads
660.0	Keri Keri	Willowvale rest area on the Sturt Highway' https://maps.app.goo.gl/kkfePjxZUgbALrvD6	Length: 193.0m Width: 9.3m	Merge to left	Large parking area. Will require a sign to be made removable or relocated.
683.0	Maude	Ravensworth rest area on the Sturt Highway https://maps.app.goo.gl/z6MmFmj8TW1Fgtcu6	Length: 102.0m Width: 9.3m	Merge to left	Large parking area.
749.8	South Hay	Mungadal rest area on the Sturt Highway https://maps.app.goo.gl/XsL194LfGa6mLK796	Length: 140.0m Width: 10.0m	Merge to left	Large parking area.

Supporting Rest Areas (Traffic Management)

To address potential narrow sections of the Sturt highway between Balranald and Hay raised by TfNSW, several viable passing locations have been identified along longer stretches between designated rest areas. These locations are presented in the table below and may be utilised to facilitate effective traffic management during OSOM movements. This approach is intended to minimise traffic disruption while maintaining safety for all road users. The availability and suitability of these sites—as

well as any additional opportunities that exist along the Sturt highway (noting that the Sturt highway is currently used for OSOM movements)—will be further assessed and confirmed during the detailed design phase as part of the Traffic Management Plan, in line with established OSOM transport planning practices.

Segment	Segment Length	Traffic Management Locations
Zinder Park (Euston) to Balranald	65km	**Meilman Rest Area** – 8 km east of Zinder Park Google Maps link **Abbotts Tank Rest Area** – Approximately 14 km east of Zinder Park Google Maps link **Prungle Mail Rest Area** – Approximately 50 km from Zinder Park Google Maps link
Balranald to Willowvale Rest Area (Keri Keri)	40km	**Yanga Creek Rest Area (Eastern Entrance)** – Approximately 8km from Balranald https://maps.app.goo.gl/7tcCjWipXBMBFKey6
Willowvale Rest Area (Keri Keri) to Ravensworth Rest Area (Maude)	35km	**St Paul's Rest Area** – Approximately 23km from Willowvale Rest Area https://maps.app.goo.gl/juBUTNfb6CVweryw6
Ravensworth Rest Area (Maude) to Mungadal Rest Area (South Hay)	50km	**Pevensey Rest Area** – Approximately 25km from Ravensworth Rest Area https://maps.app.goo.gl/Apco7oZvMrhP9k2n7

539.0 Km's: Murray Valley Highway at Robinvale



Figure 30 – Robinvale parking area

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/z3n7r1BdoUM1VWKVA

PROCEDURE: Merge to left

COMMENTS: Can be used for overnight parking or fatigue breaks. Police and pilots to control all traffic.

553.0 Km's: Sturt Highway at Euston



Figure 31 – Zinder Park parking area

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/jc9RoePLUapHb3P69

PROCEDURE: Merge to left

COMMENTS: Can be used for overnight parking or fatigue breaks. Police and pilots to control all traffic.

619.0 Km's: Sturt Highway at Balranald



Figure 32 – Balranald Lions Park parking area

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/N1ykG5V6H8a49Dvk8

PROCEDURE: Merge to left

COMMENTS: Can be used for overnight parking or fatigue breaks. Police and pilots to control all traffic.

660.0 Km's: Sturt Highway at Keri Keri



Figure 33 – Willowvale rest area

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/kkfePjxZUgbALrvD6

PROCEDURE: Merge to left

COMMENTS: Can be used for overnight parking or fatigue breaks. Willowvale Rest area. Police and pilots to control all traffic.

ROAD MODIFICATIONS: Yes. A sign will need to be relocated or made removable.

683.0 Km's: Sturt Highway at Maude



Figure 34 – Ravensworth rest area

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/z6MmFmj8TW1Fgtcu6

PROCEDURE: Merge to left

COMMENTS: Can be used for overnight parking or fatigue breaks. Ravensworth Rest area. Police and pilots to control all traffic.

ROAD MODIFICATIONS: Nil.

749.8 Km's: Sturt Highway at South Hay



Figure 35 – Mungadal rest area

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/XsL194LfGa6mLK796

PROCEDURE: Merge to left

COMMENTS: Can be used for overnight parking or fatigue breaks. Mungadal Rest area. Police and pilots to control all traffic.

ROAD MODIFICATIONS: Nil.

9.0 Route 1: Rail crossing conflicts

01 Eastern parade, Port Adelaide
GPS: https://maps.app.goo.gl/GS6qo8BNQJDNASDn6

Type: Level crossing
Asset Owner: ARTC
Line: Dry Creek-Port Flat
LXM ID: 1887
Operational: Yes
Maximum width clearance: 8.5 Metres
Conflict: Non



02 Millewa Road, Red Cliffs
GPS: https://maps.app.goo.gl/TWyVPzxqUdxbLpwx8

Type: Level crossing
Asset Owner: V-Line
Line: TBC
LXM ID: TBC
Operational: Yes
Maximum width clearance: 9.8 Metres
Conflict: Yes. New corridor for the blades will be required.



10.0 Route 1: Conclusion

After studying all options and undertaking a route survey, the route in its current condition will require a moderate amount of upgrading 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 will require a moderate amount of work in order to accommodate the proposed blade size.
- The pinchpoints that have been identified in the report as requiring work should be investigated early in the planning stages to avoid delays or rejections.
- It is expected that the modifications that are required for this project be kept in place for the lifespan of the project, in case of the need for replacement blades.

VERTICAL CURVE:

- Vertical curves were checked for the entire route.

OVERHEAD STRUCTURES: (5.2 Maximum loaded height)

- The lowest structures are the overpasses along the Northern Expressway. The lowest of these has a clearance of 5.2m.
- Loads higher than 5.2m cannot use this route and will need to travel along route 2 (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 5.2 metres travel height 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. Bridge assessments will still be required for the entire route. Bridge assessments have been carried out by TfNSW which have concluded all TfNSW managed structures are approved for the various requested loads on the respective requested routes except for the transformer which is currently being assessed. The assessment for the transformer will be completed post approval.

RAIL ASSETS:

- There are 2 crossings on this route that will require approval from authorities before loads can access the routes. It is advised that the rail stakeholders are notified and pre approval given for the loads listed to use this route.
- The rail crossing was checked for conflicts, taking into account the width and vertical curve. The first crossing does not have any conflicts, however the second crossing at Red Cliffs will need to be diverted with a new crossing, as shown in the route 1 study.

VEGETATION:

- The route requires a moderate amount of vegetation clearing at various locations as listed in the report.

PAVEMENT:

- Pavement on the route is of highway standard up to Jerilderie Road.
- Jerilderie Road and North Boundary Road are 4.6 metre wide tar roads but not of a highway standard. It is likely that this road will wear throughout the deliveries and may require regular maintenance.
- Bypasses or modifications will be required at several corners as shown in the swept path survey and are to be constructed to suitable standards and maintained for the duration of deliveries if not sealed.
- All site access roads to be constructed to appropriate standards in order to accommodate the weight, height and swept path of all proposed loads. Roads to be maintained for the duration of deliveries if not sealed.

STOCK GRIDS:

- There are 12 stock grids on Jerilderie Road. All grids are approx. 6m wide.

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.

SITE ACCESS ROADS:

- All site access roads to be constructed to appropriate standards in order to accommodate the height, weight, vertical curves and swept path of all proposed roads.
- Roads to be made all weather and maintained for the duration of deliveries.

11.0 Route 2 Study: Port Adelaide to Bullawah Windfarm

COMPONENTS: Towers and any load exceeding 5.2 metres in loaded height

DISTANCE: 847 kilometres

MAXIMUM HEIGHT: 6.4 Metres

GPS LINK: https://maps.app.goo.gl/xz2VFhaa2GFEgn4D6

ROUTE: 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 Highway, Werrimull N Rd, Millewa Rd, Calder Hwy, Hattah Robinvale Rd, Robinvale-Sea lake Rd, Murray Valley Hwy, Sturt Hwy, Cobb Hwy, Jerilderie Rd, North Boundary Road.

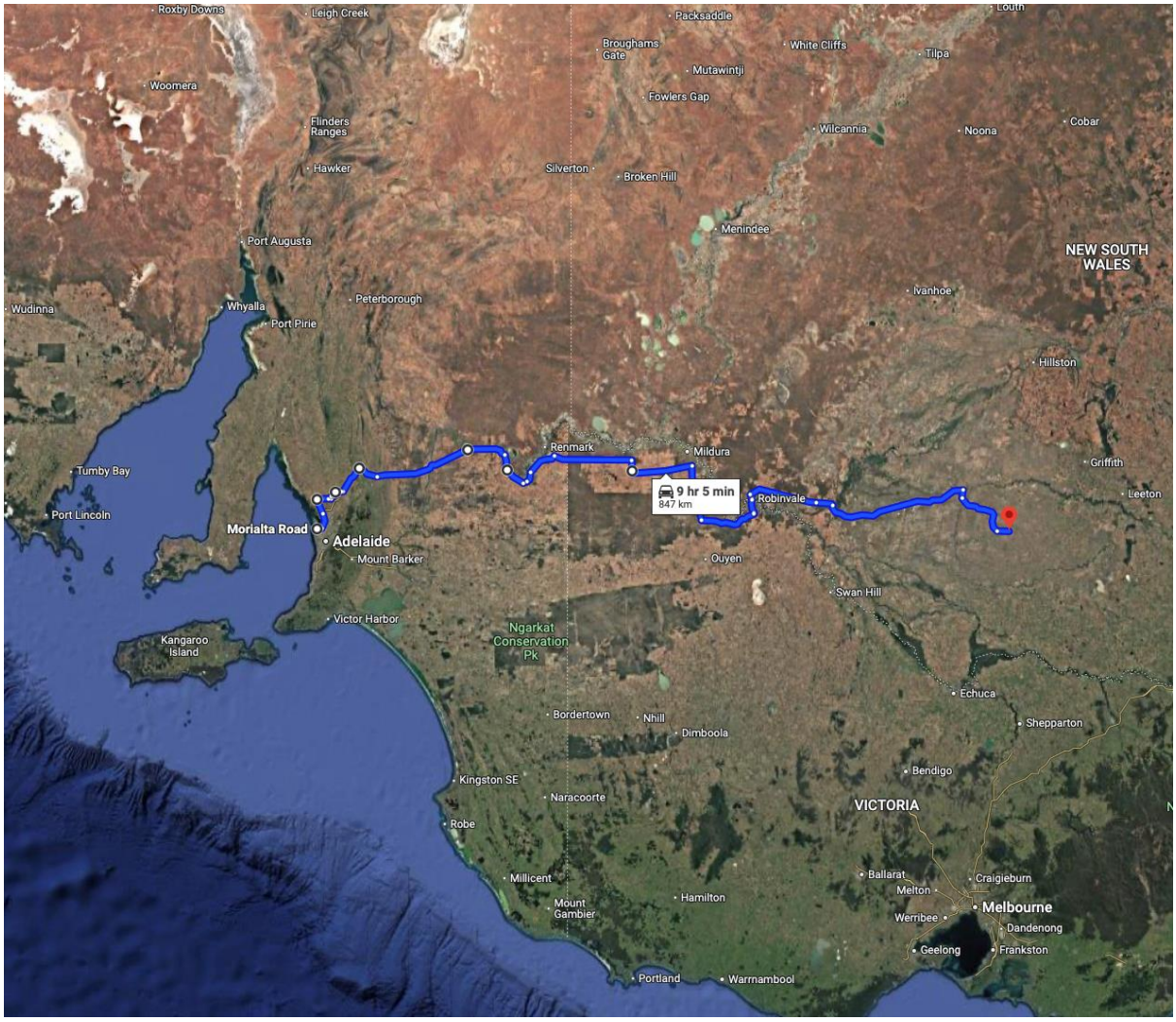


Figure 36: Route 2 map

KEY	
PINCH POINT	
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/tK6JqG1AjdMDqqSs5	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.
0.2	Port Adelaide	Eastern Parade over rail crossing GPS Link: https://goo.gl/maps/UfZfLvNDkKxRyTed9	Length: 80.5 metres Width: 10.0 metres Height: N/A	Travel directly ahead	Approval required from Rail network provider before crossing this infrastructure. 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/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/ycLGFDqzQ8idciv47	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	Centre island to be made trafficable.
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
34.4	Two wells	Gawler Road over rail crossing GPS Link: https://maps.app.goo.gl/QUe9rFL1cXjhiNEb8	Length: N/A Width: 10.0 metres Height: N/A	Travel directly ahead	Approval required from Rail network provider before crossing this infrastructure.
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	Hardstand to be added prior and after the corner.
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	No problems with this section of road
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	Hardstand to be added to the outside of the corner.
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	No problems with this section of road
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	Vegetation to be trimmed.
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/Py6YuP9aWyH2	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/vqgkXWMZMhhpCgAK9	Width: 6.5 metres	Right hand turn	No problems with this section of road

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
88.3 to 91.8	Kapunda	East Terrace GPS Link: https://maps.app.goo.gl/XEWTBkqA7q6j7FLx9	Width: 6.5 metres	Travel directly ahead on a gravel road	This section of road may need to be maintained during deliveries.
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
111.0	Truro	Truro Rd onto Sturt Hwy GPS Link: https://goo.gl/maps/VsQYKAe4MpcgjyYd7	Length: 55 metres Width: 10.0 metres	Left hand turn	No problems with this section of road
235.0	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
269.0	Loxton	Kingston Rd onto Karoonda Hwy GPS Link: https://goo.gl/maps/pFS9uJqw6ivxmETP8	Length: 100 metres Width: 6.5 metres	Travel directly ahead	No problems with this section of road.
272.0	Loxton	Karoonda Hwy onto Bookpurnong Road GPS Link: https://goo.gl/maps/qZXFU8r5scZwGxqPA	Length: 80 metres Width: 7.0 metres	Second exit on Roundabout	Tower to use Route 1 modification at this location.
282.0	Bookpurnong	Bookpurnong Road onto Stanitzki Rd GPS Link: https://goo.gl/maps/qPjyFcCbL8mXfecF6	Length: 80 metres Width: 8.0 metres	Right Hand Turn	No problems with this section of road
310.0	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
313.0	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
313.0	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.
322.0	Meringur	Sturt Hwy GPS Link: https://goo.gl/maps/Tm7PCDegxcSf6pt5A	Length: 80m Width: 10.0m	Left Hand Merge	Fatigue parking all loads other than blades
381.0	Cullulleraine	Sturt Hwy onto Werrimull N Rd GPS Link: https://goo.gl/maps/mEXbnEwPCDYMM4Fh8	Length: 60m	Right Hand Turn	Tower to use Route 1 modification at this location.
393.0	Werrimull	Werrimull N Rd onto Millewa Rd GPS Link: https://goo.gl/maps/ohs9s9RSbbfqi5uN9	Length: 80m	Left Hand Turn	No problems with this section of road

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
447.8	Red Cliffs	Bend on Millewa Rd GPS Link: https://goo.gl/maps/4VgMQjQQvY3arG786	Length: 50m	Right Hand Turn	No problems with this section of road
447.9	Red Cliffs	Millewa Road over rail crossing GPS Link: https://maps.app.goo.gl/JykvYyqRPVcbq4Xi9	Length: N/A Width: 9.0 metres Height: N/A	Travel directly ahead	Approval required from Rail network provider before crossing this infrastructure.
448.0	Red Cliffs	Millewa Rd onto Calder Hwy GPS Link: https://goo.gl/maps/Rm6ZZEukQW5Nmbkc8	Length: 50m	Right Hand Turn	No problems with this section of road
497.5	Hattah	Calder Hwy GPS Link: https://goo.gl/maps/R26CpzXrFJYpJ6TB9	Length: 90m Width: 10.0m	Left Hand Merge	Fatigue parking all loads
498.0	Hattah	Calder Hwy onto Hattah-Robinvale Rd GPS Link: https://goo.gl/maps/Z6zEDLCq71fpPZU27	Length: 50m	Left Hand Turn Via new bypass road	Tower to use Route 1 modification at this location.
551.0	Bannerton	Hattah-Robinvale Rd onto Robinvale-Sea Lake Rd GPS Link: https://goo.gl/maps/4FwG4Lh1Qr95TX1t9	Length: 50m	Left Hand Turn	Tower to use Route 1 modification at this location.
565.0	Robinvale	Robinvale-Sea Lake Rd turns into Murray Valley Hwy GPS Link: https://goo.gl/maps/55pknuwKNHsoA1ydA	Length: 120m Width: 10.0m	Continue Straight	No problems with this section of road
567.0	Robinvale	Murray Valley Highway over the Euston-Robinvale Bridge https://goo.gl/maps/uKnaiBJZG5yVVWJQ9	Width: 10.0m	Continue straight	Bridge assessment required for this structure.
569.0	Euston	Murray Valley Hwy onto Sturt Hwy GPS Link: https://goo.gl/maps/rnhvnjnN6VkAWX3eA	Length: 50m	Right Hand Turn	No problems with this section of road
647.0	Balranald	Sturt Hwy (Market st) onto Sturt Hwy GPS Link: https://goo.gl/maps/xve4ZqbuRkqoPvVr7	6 metres wide	Right Hand Turn	Median strips will need to be made trafficable, and signs made removable.
673.0	Balranald	Sturt Hwy GPS Link: https://maps.app.goo.gl/YWhKDDuG8iWCezRRA	Length: 120m Width: 7.0m	Left hand Turn	Fatigue parking all loads
674.0	Balranald	Safety Cam on the Sturt Hwy GPS Link: https://maps.app.goo.gl/dqSAaqNCWXTnx2wGA	Height: 6.8m	Travel directly ahead	No problems with this section of road.
708.0	Willowvale Rest Area Keri Keri	Sturt Hwy GPS Link: https://goo.gl/maps/JGKFZJpyurnxBhBX9	Length: 180m Width: 10.0m	Left Hand Merge	Fatigue parking all loads
731.0	Ravensworth Truck Parking Maude	Sturt Hwy GPS Link: https://goo.gl/maps/FiimZvvv5rjKFLqy9	Length: 90m Width: 10.0m	Left Hand Merge	Fatigue parking all loads other than blades

KM index	Location	Section of road	Critical Measurement	Procedure	Notes
776.9	Hay South	Sturt Hwy GPS Link: https://goo.gl/maps/kvaDjV8eHVbgb8sK8	Length: 120m Width: 10.0m	Cross to incorrect side of the road	Fatigue parking all loads
777.0	Hay South	Sturt Hwy onto Cobb Highway GPS Link: https://goo.gl/maps/9VAYyvhup29NtSPE6	Length: 80m Width: 4.5m	Load to use incorrect side of roundabout and installed hardstand to turn right onto Cobb Hwy.	No problems with this section of road
785.0	Hay South	Cobb Highway onto Jerilderie Road GPS Link: https://goo.gl/maps/HYSt1h5MQfK9iie76	Length: 50m Width: 7.5m	Turn left onto Jerilderie Road.	Tower to use Route 1 modification at this location.
820.0	Hay South	Windfarm Entry # 1 GPS Link: https://goo.gl/maps/tawfeFCo4jdCYqpF7	N/A	Turn right into site entry.	Tower to use Route 1 modification at this location.
827.0	Hay South	Windfarm Entry # 5 GPS Link: https://goo.gl/maps/V8ARPnJdpALJ5Kfm9	N/A	Turn right into site.	Tower to use Route 1 modification at this location.
828.0	Hay South	Windfarm Entry # 6 GPS Link: https://goo.gl/maps/hbR3EvWS7ZNm3Yhm9	N/A	Turn right into site.	Tower to use Route 1 modification at this location.
833.0	Hay South	Windfarm Entry # 7 GPS Link: https://goo.gl/maps/jhpwVAAKmBFWt67E6	N/A	Turn left into site.	Tower to use Route 1 modification at this location.
836.0	Hay South	Windfarm Entry # 8 GPS Link: https://goo.gl/maps/X2kT4i9ZrhYZQBMv5	N/A	Turn left or right into site	Tower to use Route 1 modification at this location.
842.0	Hay South	Windfarm Entry # 10 GPS Link: https://goo.gl/maps/U9HqH2MAAGqSqKrT7	N/A	Turn right into site.	Tower to use Route 1 modification at this location.
847.0	Hay South	Windfarm Entry # 11 GPS Link: https://goo.gl/maps/kty5wETQqv1F9ARj9	N/A	Turn left into site.	Tower to use Route 1 modification at this location.

0.0 Km's: Exiting Adelaide Port

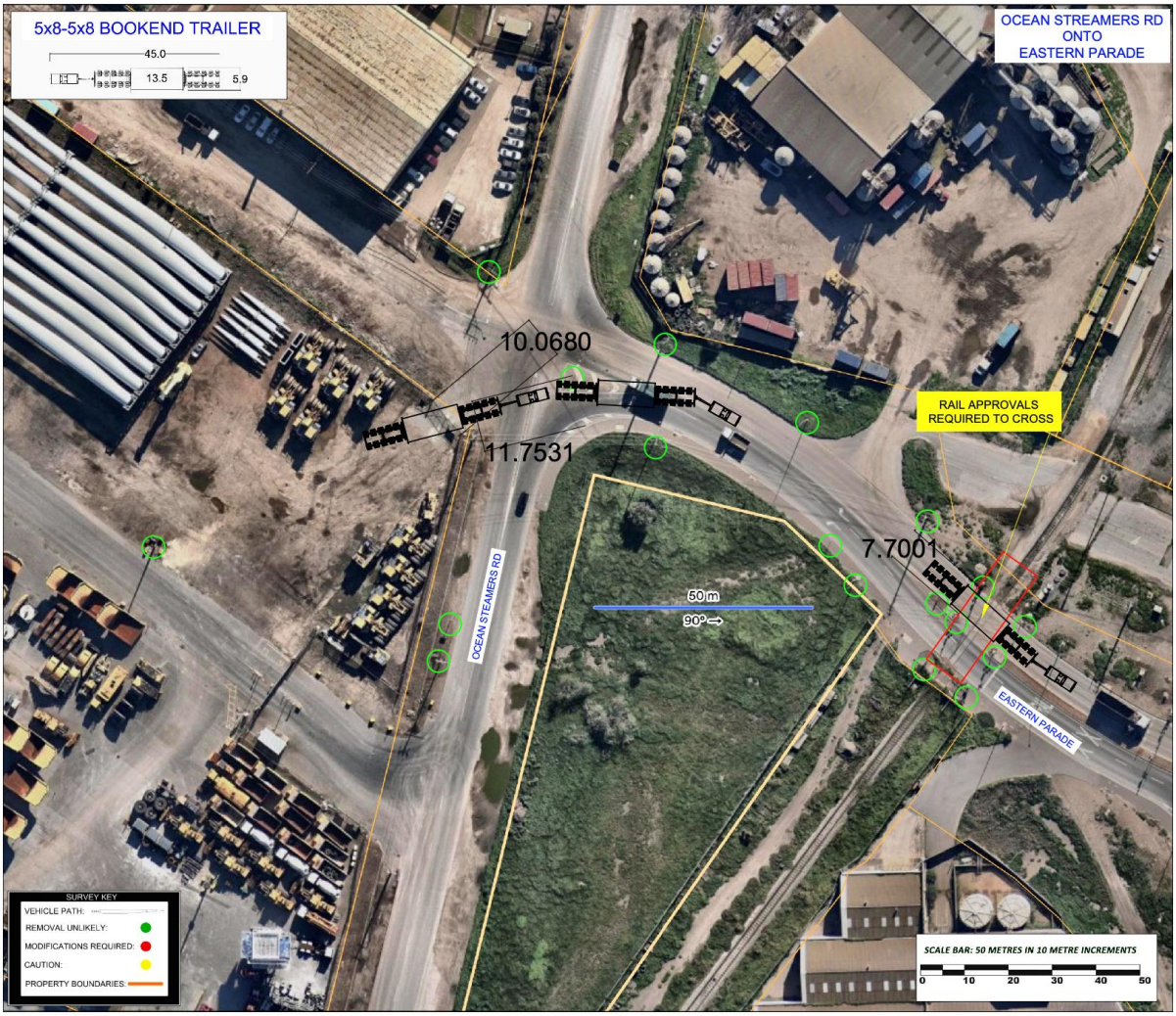


Figure 37 - Exiting Adelaide Port

PROCEDURE: Travel directly ahead from the port access gate and across Ocean Steamers Road with a slight right merge onto Eastern Parade.

GPS LINK: https://goo.gl/maps/tK6JqG1AjdMDgqSs5

COMMENTS: Spotter to guide the load through the intersection. Approval required to cross rail infrastructure.

ROAD MODIFICATIONS: No works required.

0.9 Km's: Eastern Parade onto the Port River Expressway



Figure 38 - Eastern Parade onto the Port River Expressway

PROCEDURE: Left hand turn from Eastern Parade onto the Port River Expressway.

GPS LINK: https://goo.gl/maps/mPFZDKYzewGxvm8S8

COMMENTS: The loads will travel from the correct side of Eastern Parade onto the Port River Expressway.

Spotter to assist with this procedure.

ROAD MODIFICATIONS: No works required.

33.4 Km's: A1 onto Mallala Road at Two Wells.

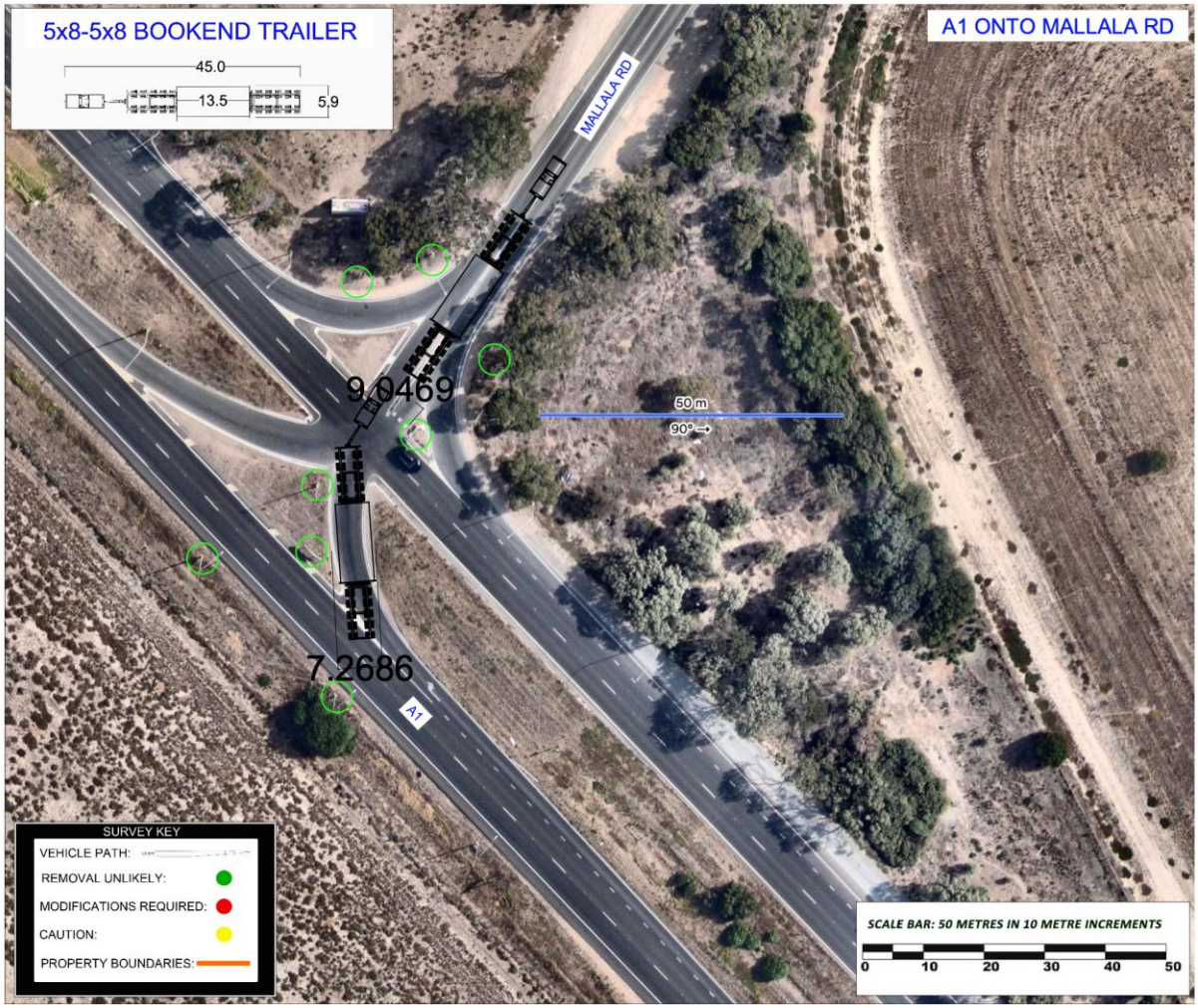


Figure 39 – A1 onto Mallala Road

PROCEDURE: Right hand turn from the A1 onto Mallala Road.
GPS LINK: https://goo.gl/maps/U78MZSBL43D2
COMMENTS: The loads will travel around the corner on the correct side of the road. Spotter to assist with this procedure.
ROAD MODIFICATIONS: No works required.

33.7 Km's: Mallala Road onto Old Port Wakefield Road at Two Wells.

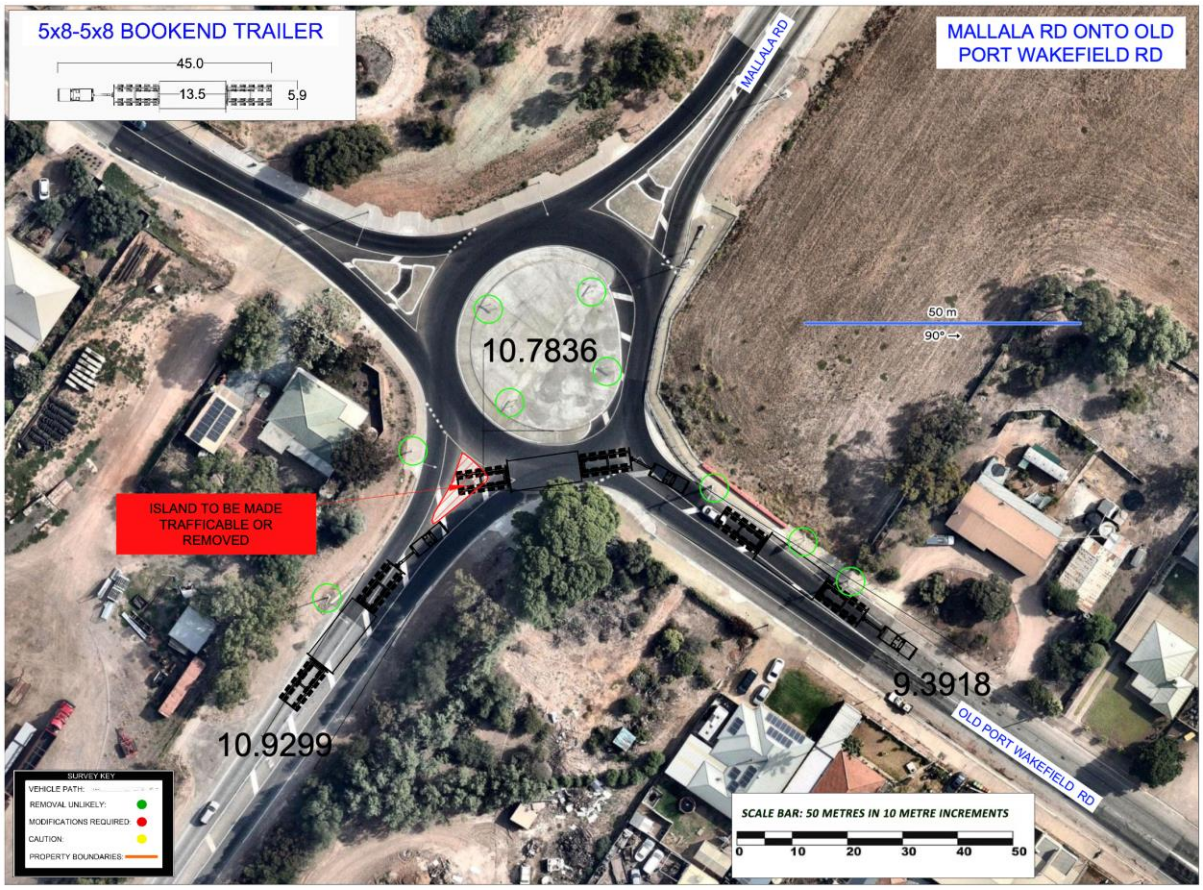


Figure 40 – Mallala Road onto Old Port Wakefield Road

PROCEDURE: Right hand turn from Mallala Road onto Old Port Wakefield Road.

GPS LINK: https://goo.gl/maps/CzpYPwc9cBM2

COMMENTS: The loads will travel around the corner on the incorrect side of the road.

Spotter to assist with this procedure.

ROAD MODIFICATIONS: Centre island to be removed or made trafficable.

33.9 Km's: Old Port Wakefield Road onto Gawler Road at Two Wells.

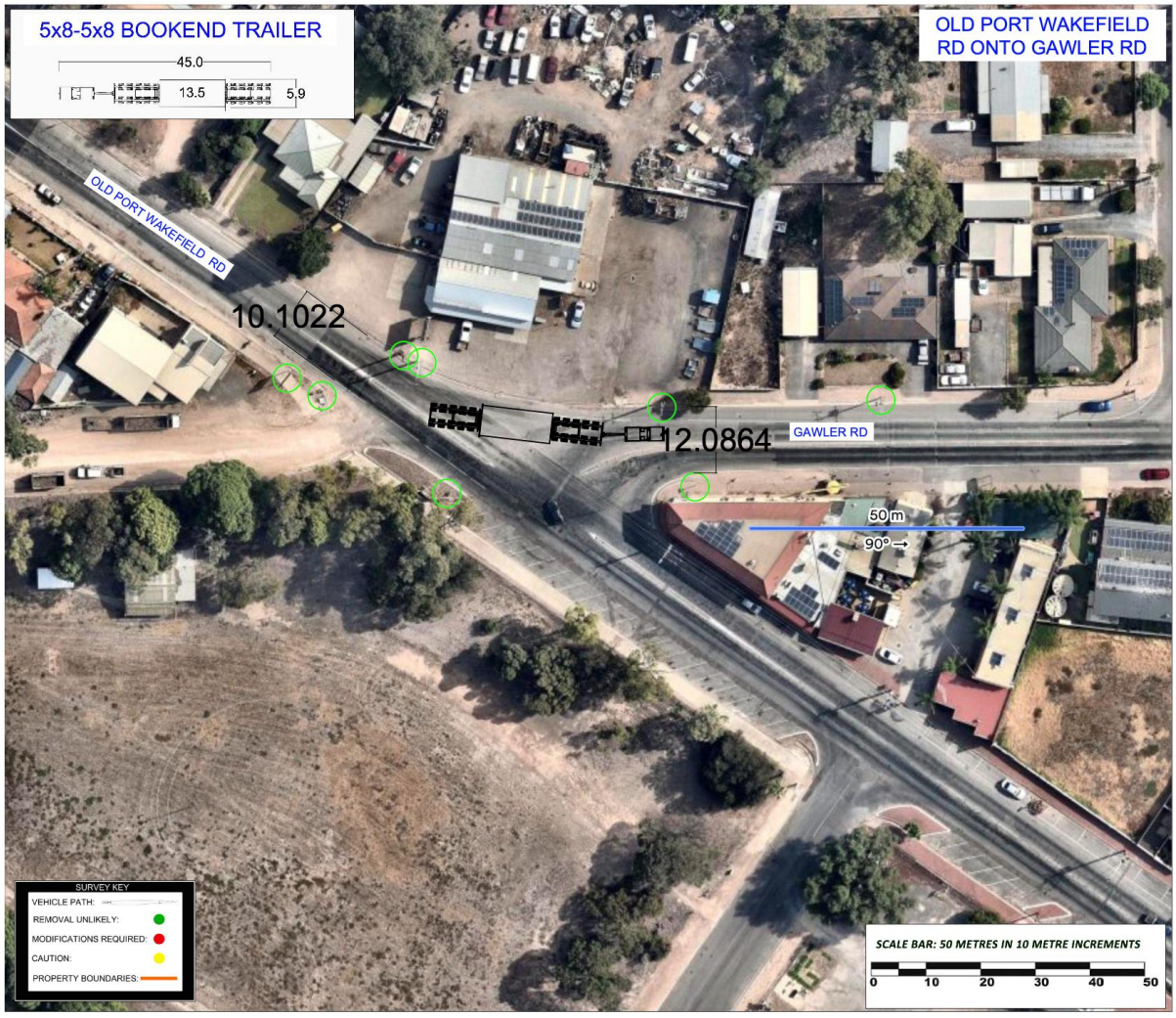


Figure 41 –Old Port Wakefield Road onto Gawler Road

PROCEDURE: Left hand turn from Old Port Wakefield Road onto Gawler Road.
GPS LINK: https://goo.gl/maps/TfEJNdGpFP12
COMMENTS: The loads will travel around the corner on the correct side of the road. Spotter to assist with this procedure.
ROAD MODIFICATIONS: No works required.

46.8 Km's: Two Wells Road onto Wilkinson Road at Gawler River.

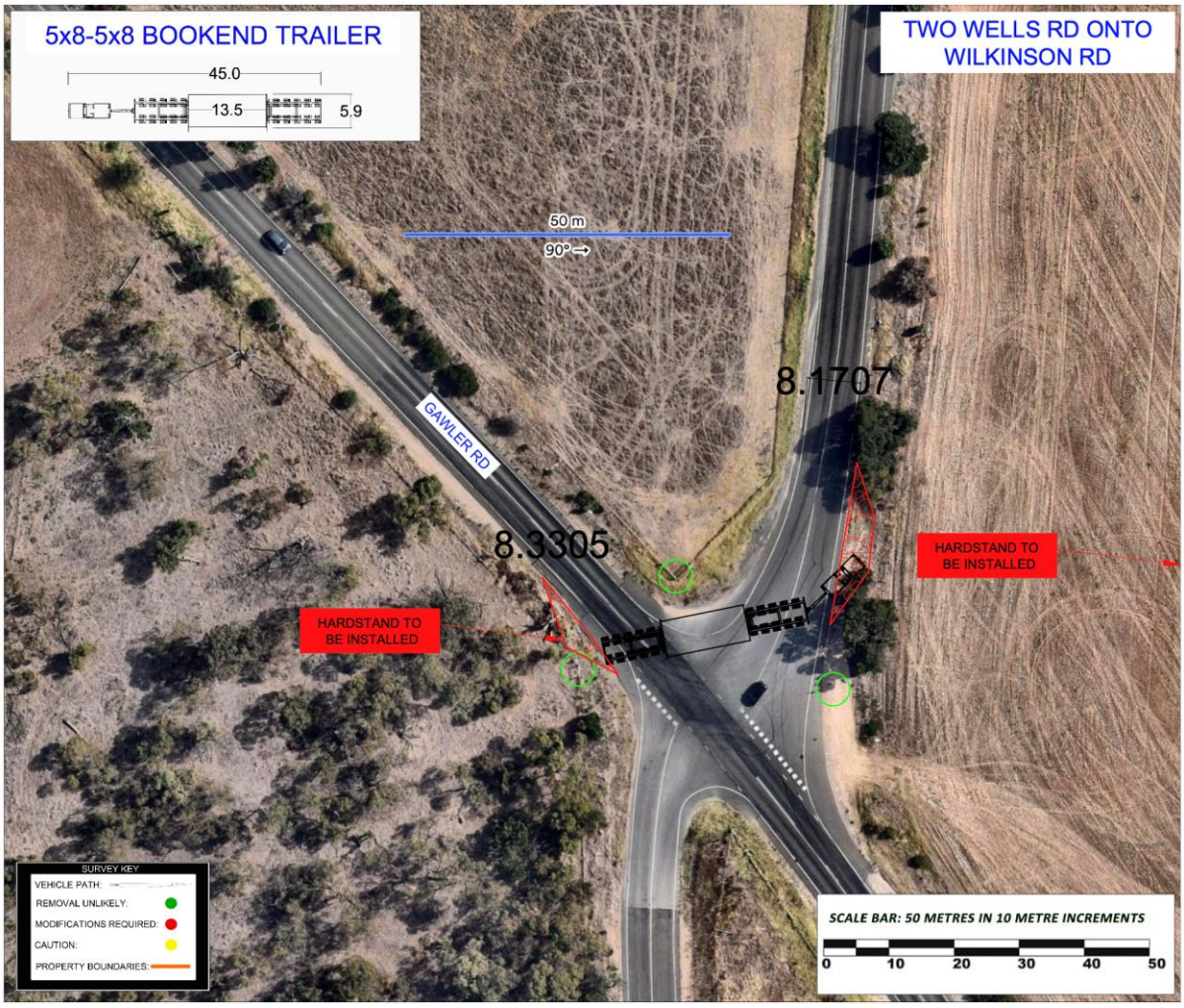


Figure 42 –Two Wells Road onto Wilkinson Road

PROCEDURE: Left hand turn from Two Wells Road onto Wilkinson Road.

GPS LINK: https://goo.gl/maps/6DeWPk5rKF32

COMMENTS: The loads will travel around the corner from the incorrect side of the road.

Spotter to assist with this procedure.

ROAD MODIFICATIONS: Hardstand is required on the entrance and exit of the corner.

49.3 Km's: Wilkinson Road onto Hatcher Road at Kangaroo Flat.

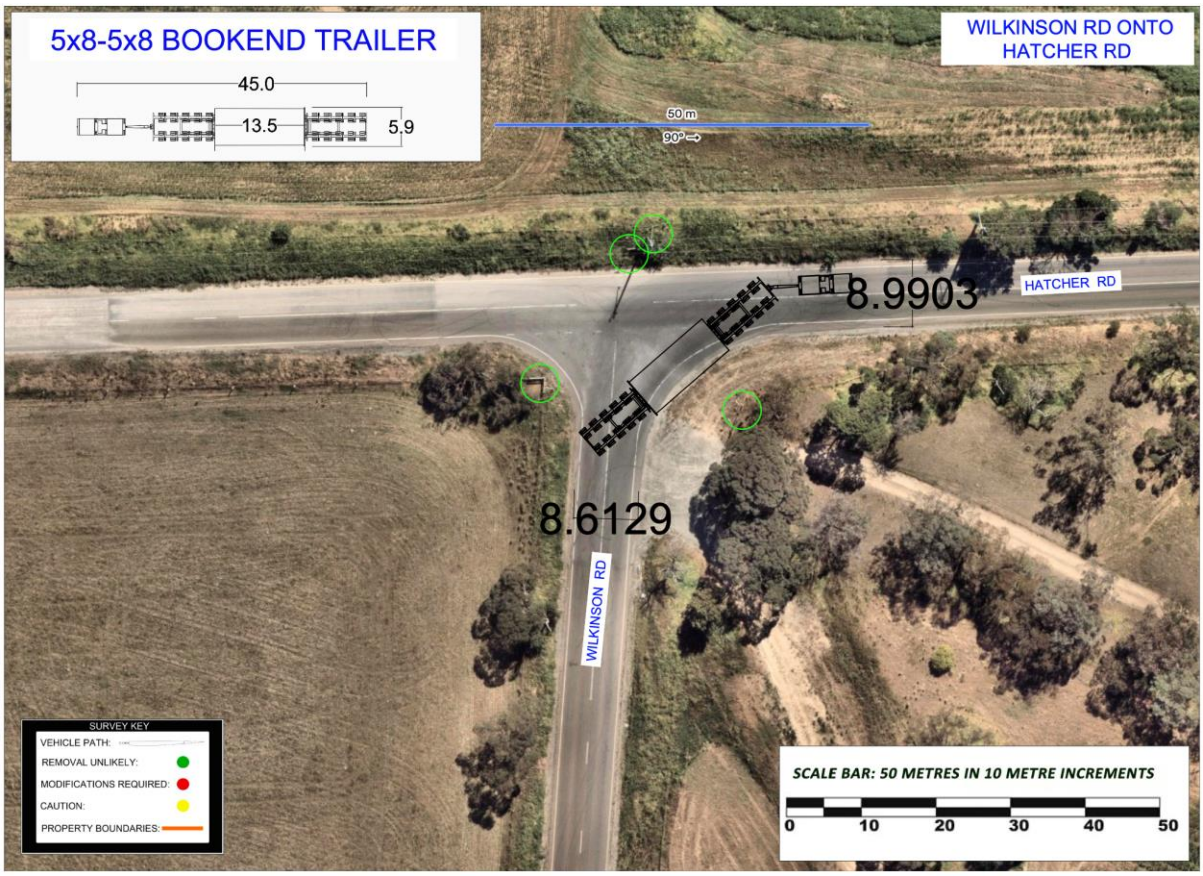


Figure 43 –Wilkinson Road onto Hatcher Road

PROCEDURE: Right hand turn from Wilkinson Road onto Hatcher Road.

GPS LINK: https://goo.gl/maps/XQ8cNtgzQUG2

COMMENTS: The loads will travel around the corner from the correct side of the road.

Spotter to assist with this procedure.

ROAD MODIFICATIONS: No works required.

54.5 Km's: Oates Road onto Redbanks Road at Kangaroo Flat.

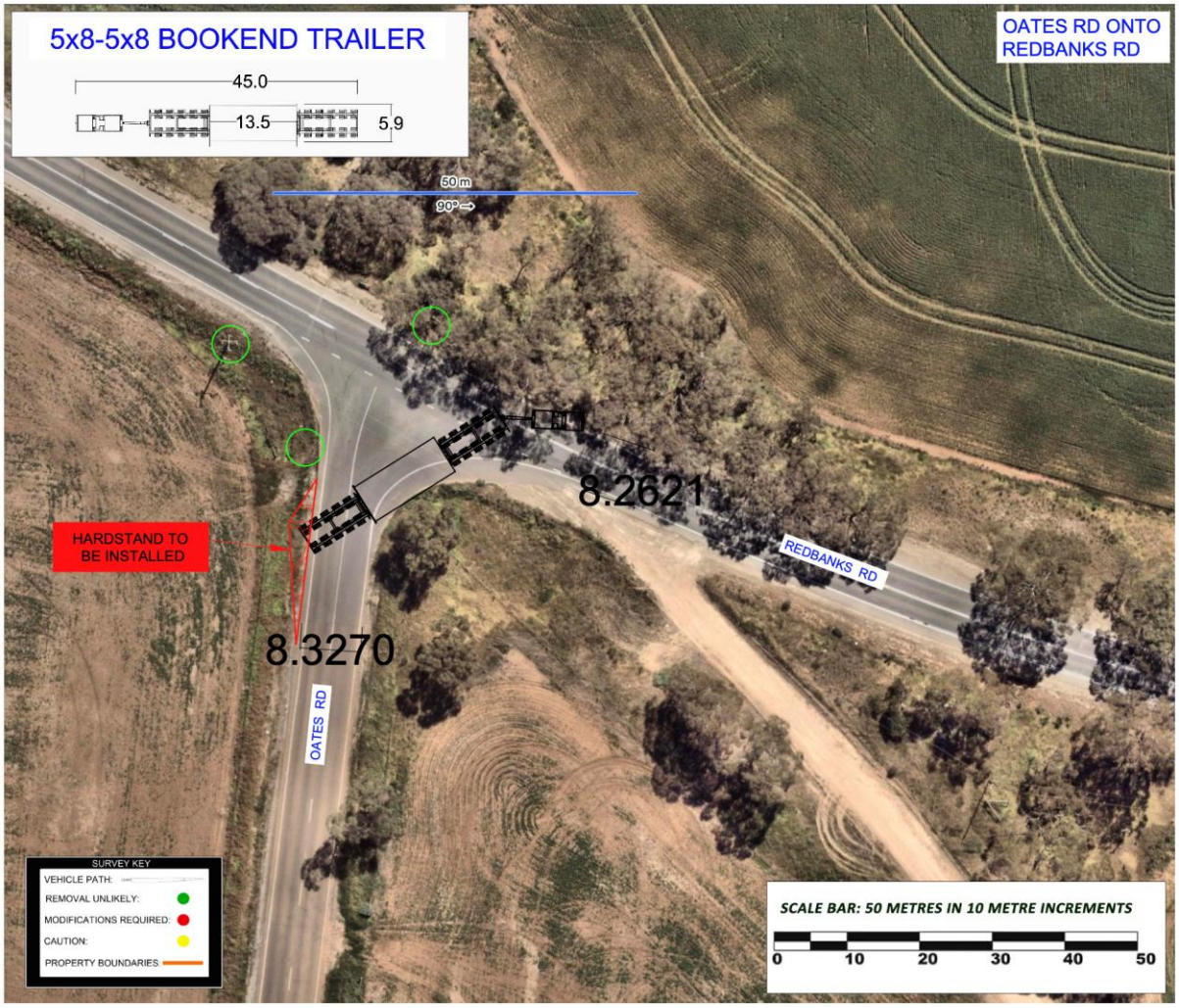


Figure 44 –Oates Road onto Redbanks Road

PROCEDURE: Right hand turn from Oates Road onto Redbanks Road.

GPS LINK: https://goo.gl/maps/tVCv2BFmnZ72

COMMENTS: The loads will travel around the corner from the correct side of the road.

Spotter to assist with this procedure.

ROAD MODIFICATIONS: Hardstand is required on the left-hand side while entering the corner.

55.1 Km's: Redbanks Road onto Mudla Wirra Road at Kangaroo Flat.

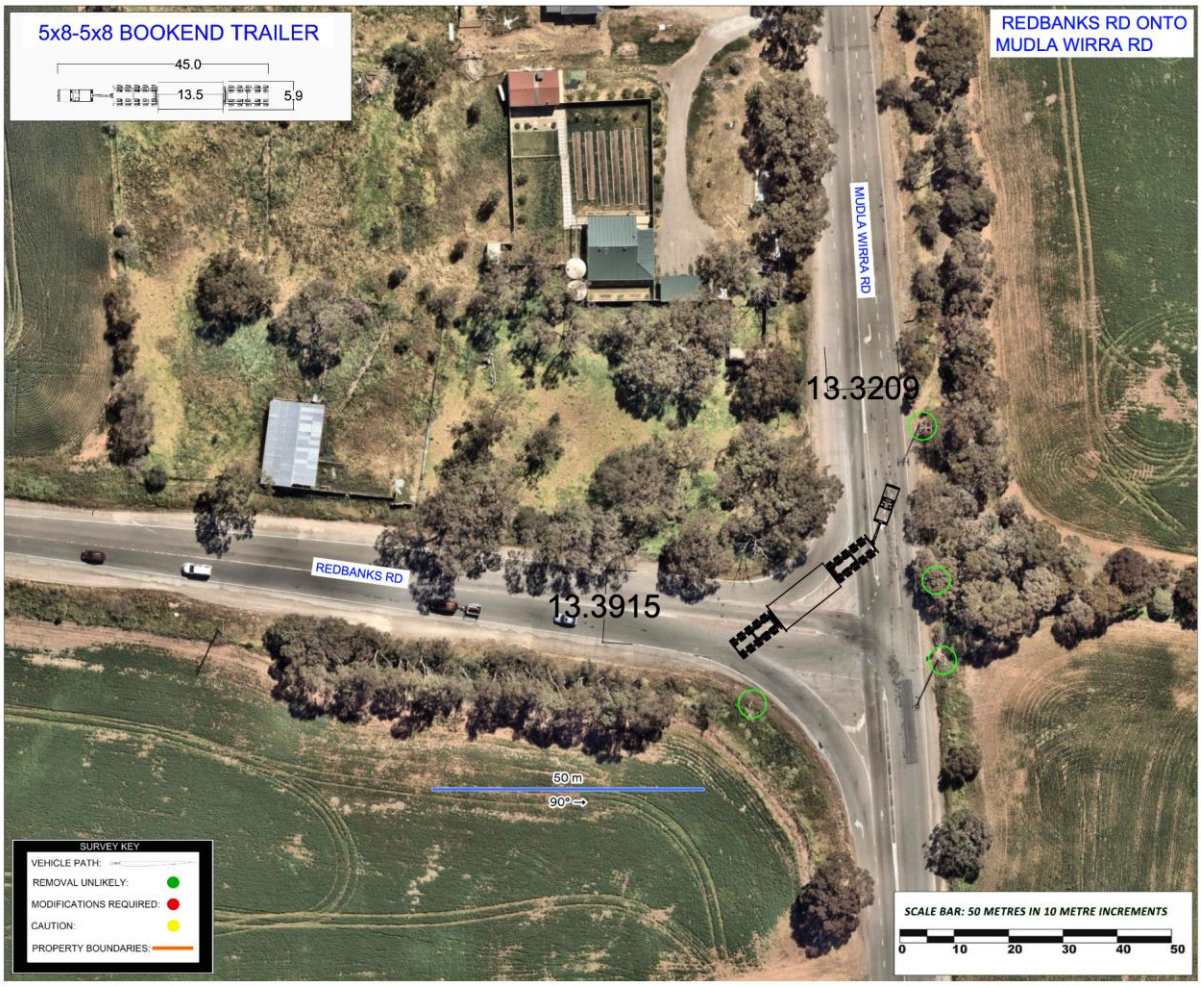


Figure 45 –Redbanks Road onto Mudla Wirra Rd

PROCEDURE: Left hand turn from Redbanks Road onto Mudla Wirra Road.

GPS LINK: https://goo.gl/maps/2yC31AASRxM2

COMMENTS: The loads will travel around the corner from the incorrect side of the road.

Spotter to assist with this procedure.

ROAD MODIFICATIONS: No works required.

56.5 Km's: Mudla Wirra Road onto College Road at Roseworthy.

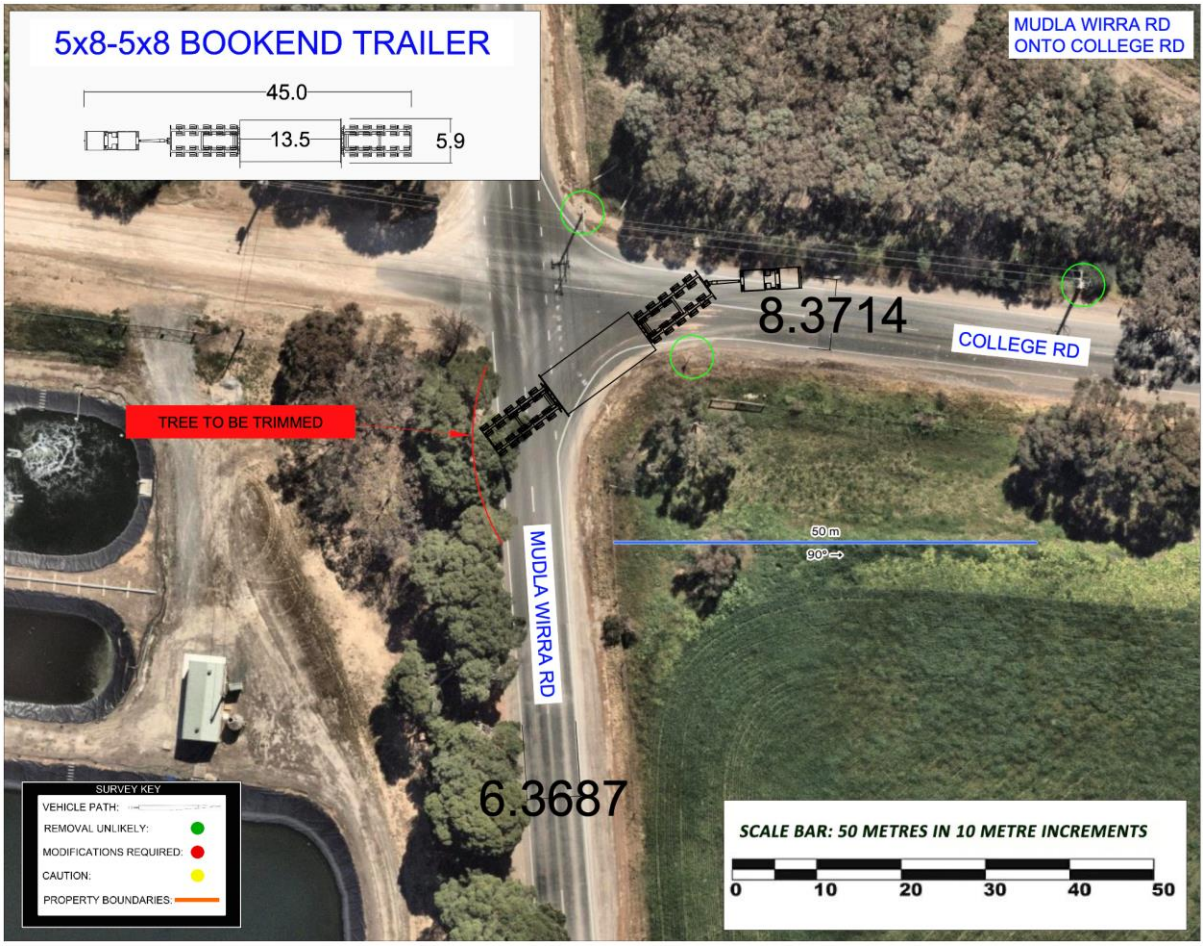


Figure 46 –Mudla Wirra Rd onto College Road

PROCEDURE: Right hand turn from Mudla Wirra Road onto College Road.

GPS LINK: https://goo.gl/maps/bu28YmqsfDP2

COMMENTS: The loads will travel around the corner from the correct side of the road.

Spotter to assist with this procedure.

ROAD MODIFICATIONS: Some vegetation needs to be trimmed on this corner.

60.8 Km's: College Road onto Cliff Road at Roseworthy.

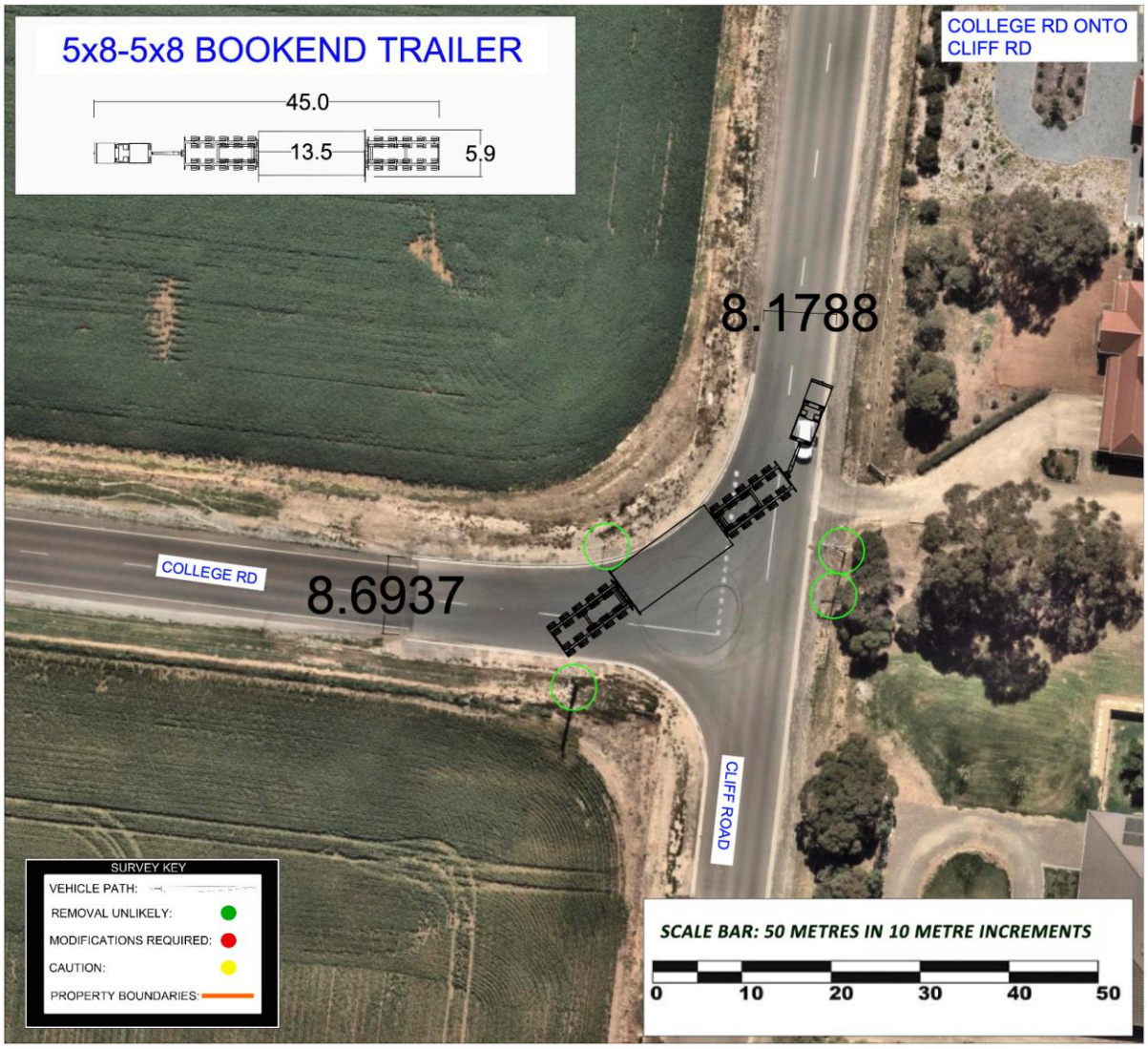


Figure 47 –College Road onto Cliff Road

PROCEDURE: Left hand turn from College Road onto Cliff Road.

GPS LINK: https://goo.gl/maps/n6BLSsACgHT2

COMMENTS: The loads will travel around the corner from the incorrect side of the road.

Spotter to assist with this procedure.

ROAD MODIFICATIONS: No works required.

61.4 Km's: Cliff Road onto Gartrell Street at Roseworthy.

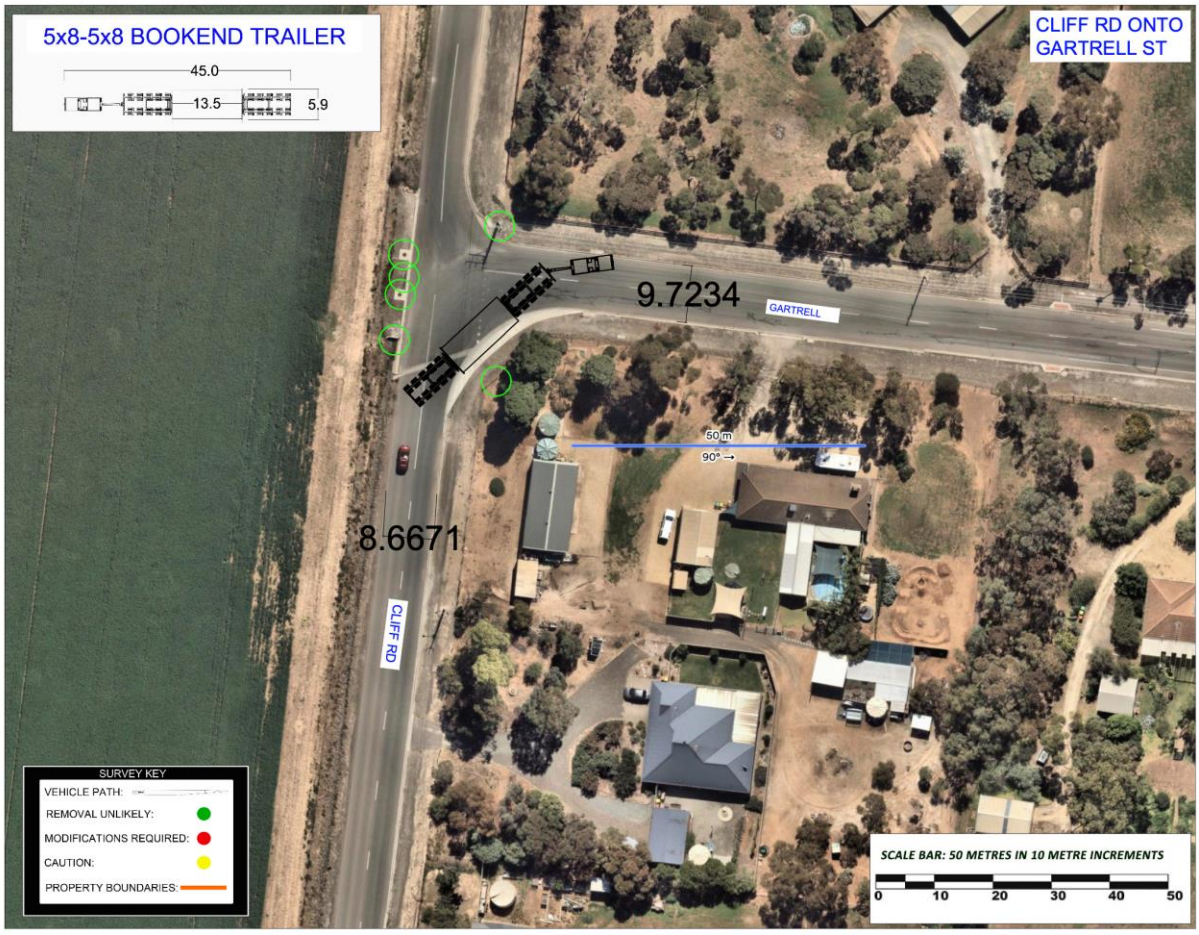


Figure 48 –Cliff Road onto Gartrell Street

PROCEDURE: Right hand turn from Cliff Road onto Gartrell Street.

GPS LINK: https://goo.gl/maps/UGN6vnZ8DDG2

COMMENTS: The loads will travel around the corner from the correct side of the road.

Spotter to assist with this procedure.

ROAD MODIFICATIONS: No works required.

64.8 Km's: Roseworthy Road onto the Thiele Hwy at Kingsford.

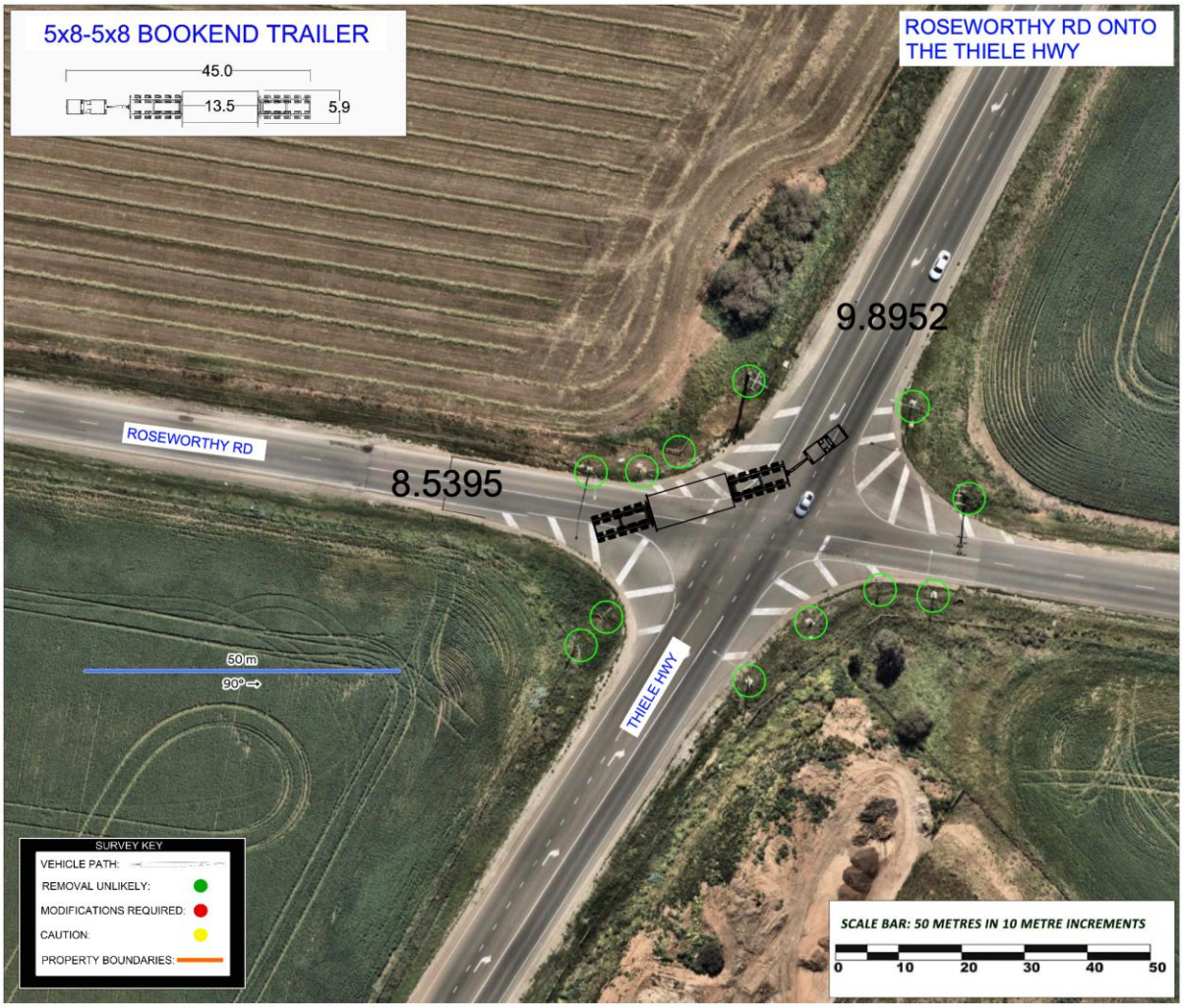


Figure 49 –Roseworthy Road onto the Thiele Highway

PROCEDURE: Left hand turn from Roseworthy Road onto the Thiele Highway.

GPS LINK: https://goo.gl/maps/GpH6AaL4yS4exER47

COMMENTS: The loads will travel around the corner from the correct side of the road.

Spotter to assist with this procedure.

ROAD MODIFICATIONS: No works required.

88.3 Km's: Thiele Hwy onto East Terrace at Kapunda.

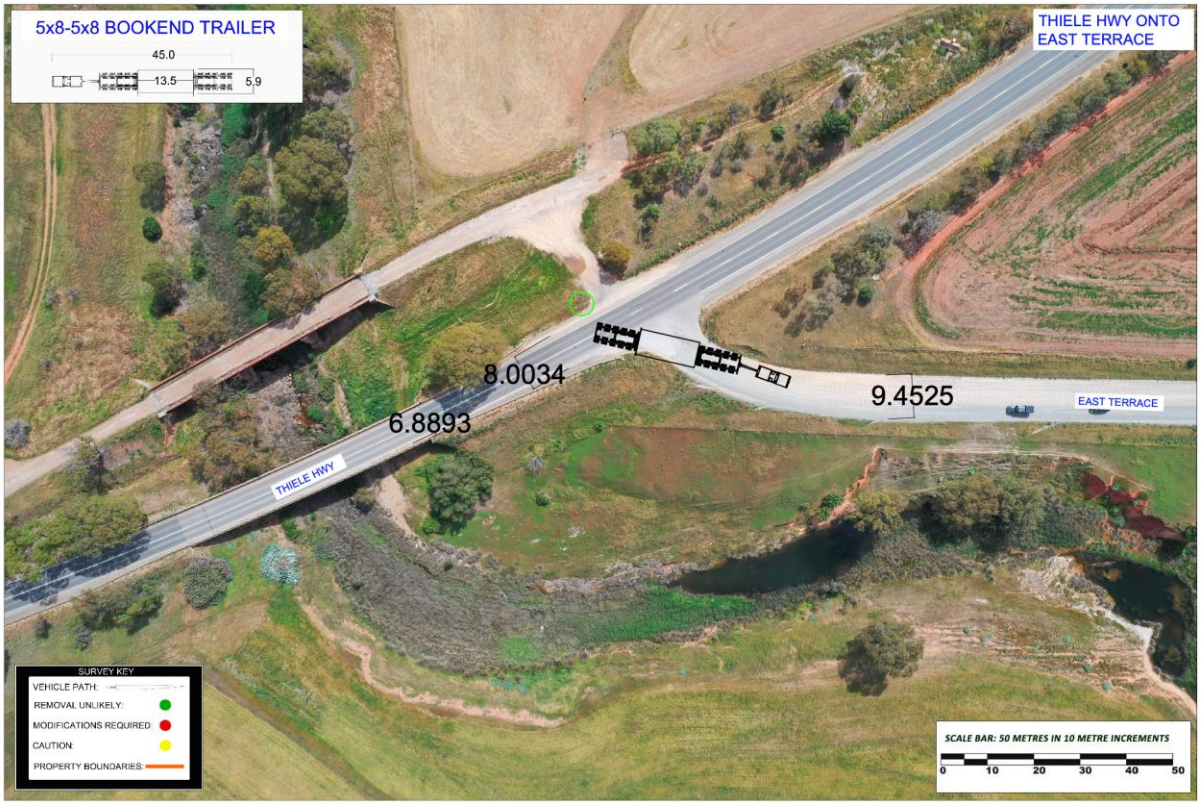


Figure 50 –Thiele Highway onto East Terrace

PROCEDURE: Right hand turn from the Thiele Highway onto East Terrace.

GPS LINK: https://goo.gl/maps/vqgkXWMZMhhpCgAK9

COMMENTS: The loads will travel around the corner from the correct side of the road.

Spotter to assist with this procedure.

ROAD MODIFICATIONS: No works required.

91.8 Km's: East Terrace onto the Thiele Hwy at Kapunda.

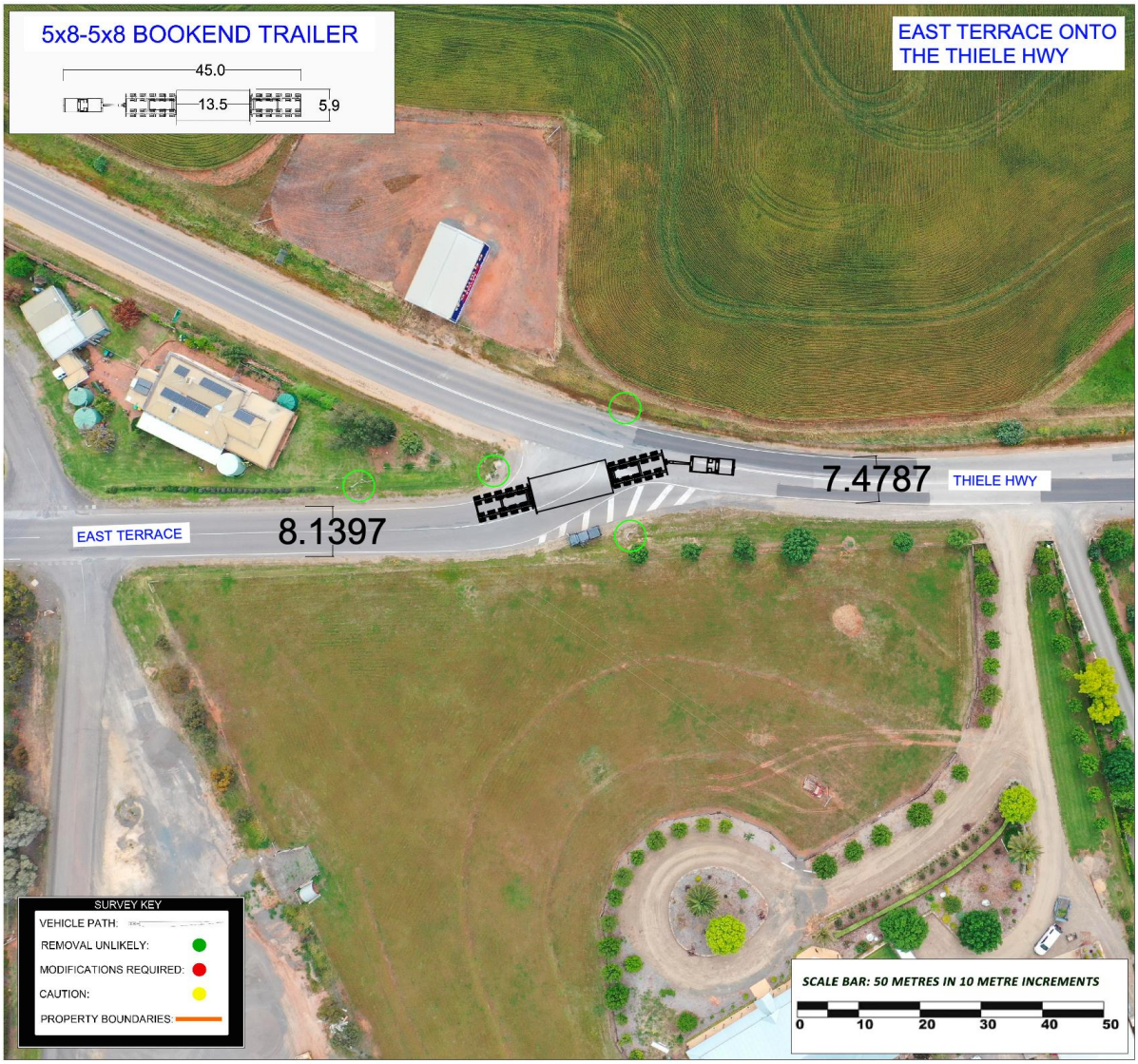


Figure 51 –East Terrace onto the Thiele Highway

PROCEDURE: Right hand turn from East Terrace onto the Thiele Highway.

GPS LINK: https://goo.gl/maps/wVeWZTnSnDTAaxEs6

COMMENTS: The loads will travel around the corner from the correct side of the road.

Spotter to assist with this procedure.

ROAD MODIFICATIONS: No works required.

92.0 Km's: Thiele Hwy onto Truro Road at Kapunda.

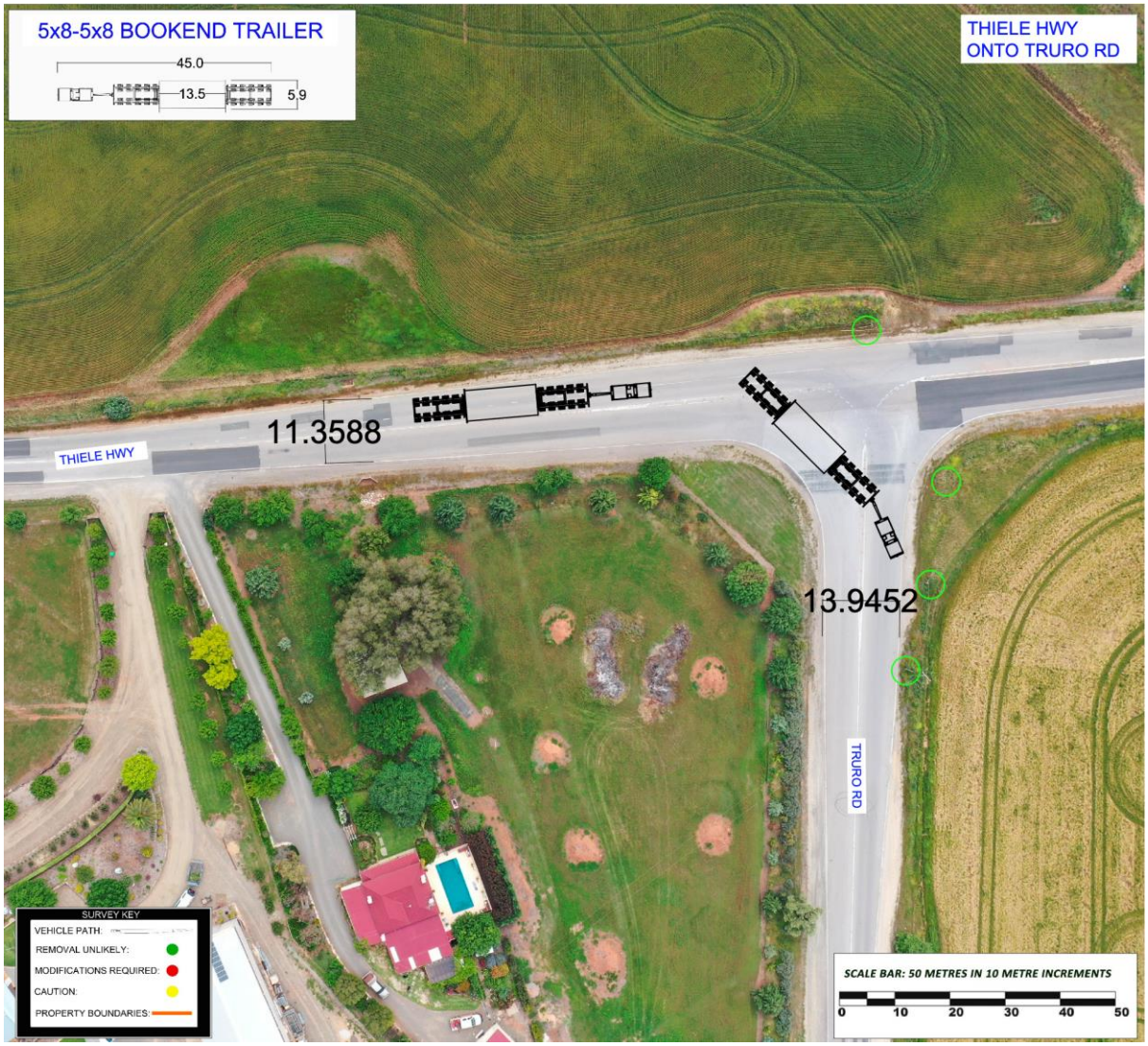


Figure 52 –Thiele Highway onto Truro Road

PROCEDURE: Right hand turn from the Thiele Highway onto Truro Road.

GPS LINK: https://goo.gl/maps/rupYTUbWTiDqQbLq9

COMMENTS: The loads will travel around the corner from the correct side of the road.

Spotter to assist with this procedure.

ROAD MODIFICATIONS: No works required.

111.0 Km's: Truro Road onto the Sturt Highway at Truro.

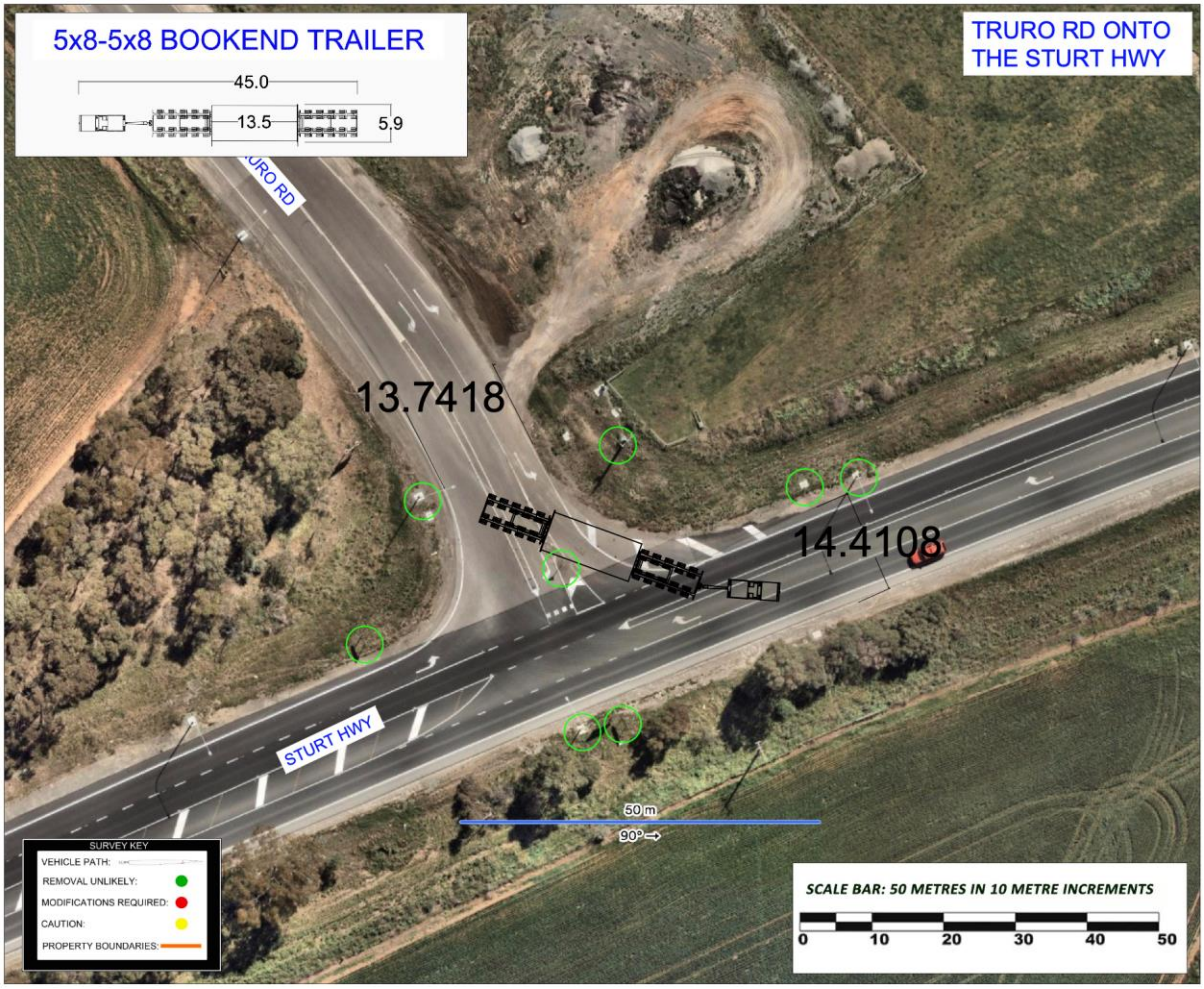


Figure 53 –Truro Road onto the Sturt Highway

PROCEDURE: Left hand turn from Truro Road onto the Sturt Highway.

GPS LINK: https://goo.gl/maps/VsQYKAe4MpcgjyYd7

COMMENTS: The loads will travel around the corner from the incorrect side of the road.

Spotter to assist with this procedure.

ROAD MODIFICATIONS: No works required.

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

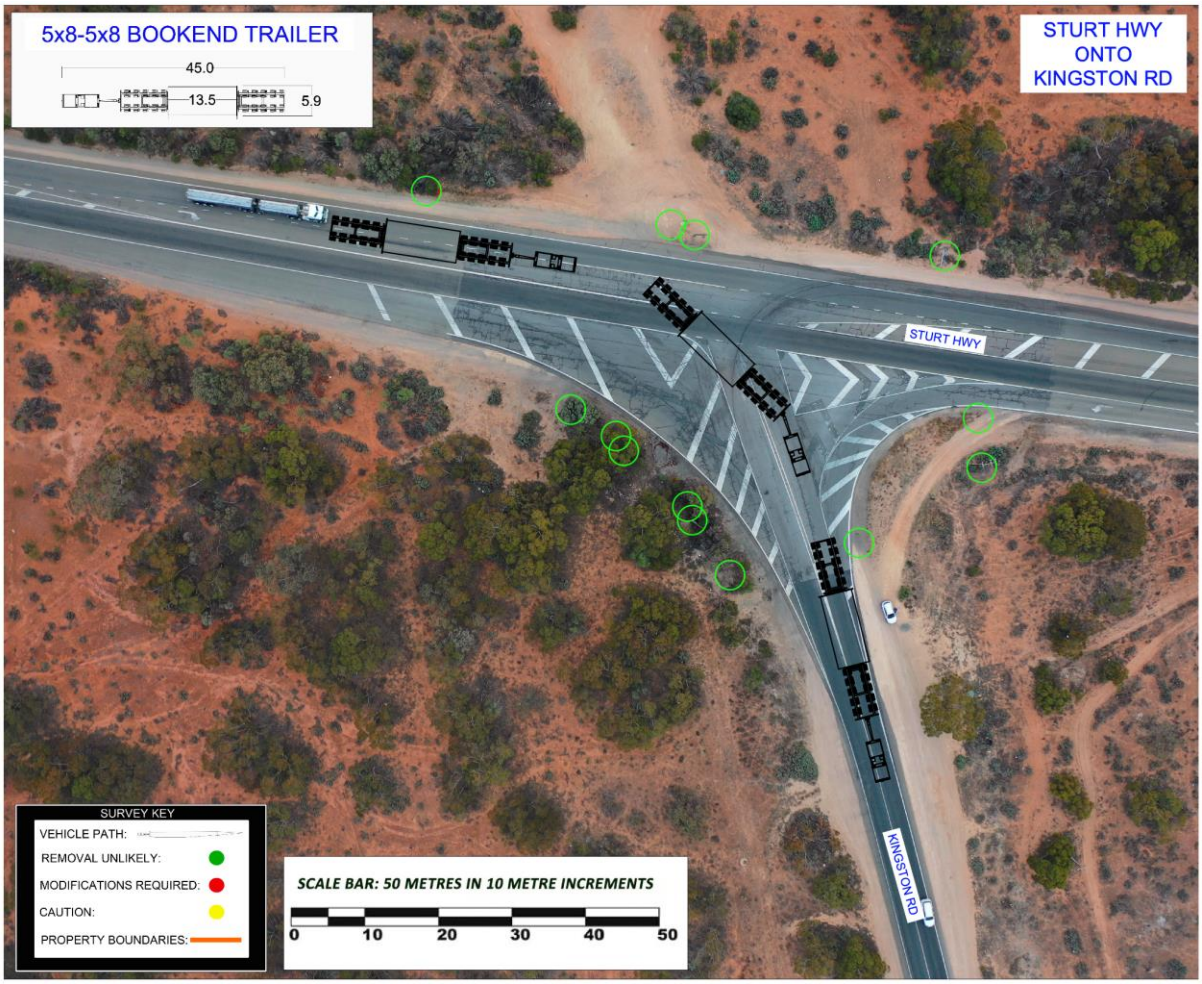


Figure 54 - Sturt Highway onto Kingston Road at Kingston

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/cvafMBJpqWNRudqp8
PROCEDURE: Right hand turn
ROAD MODIFICATIONS: No works required.

272.0 Km's: Karoonda Hwy Roundabout in Loxton

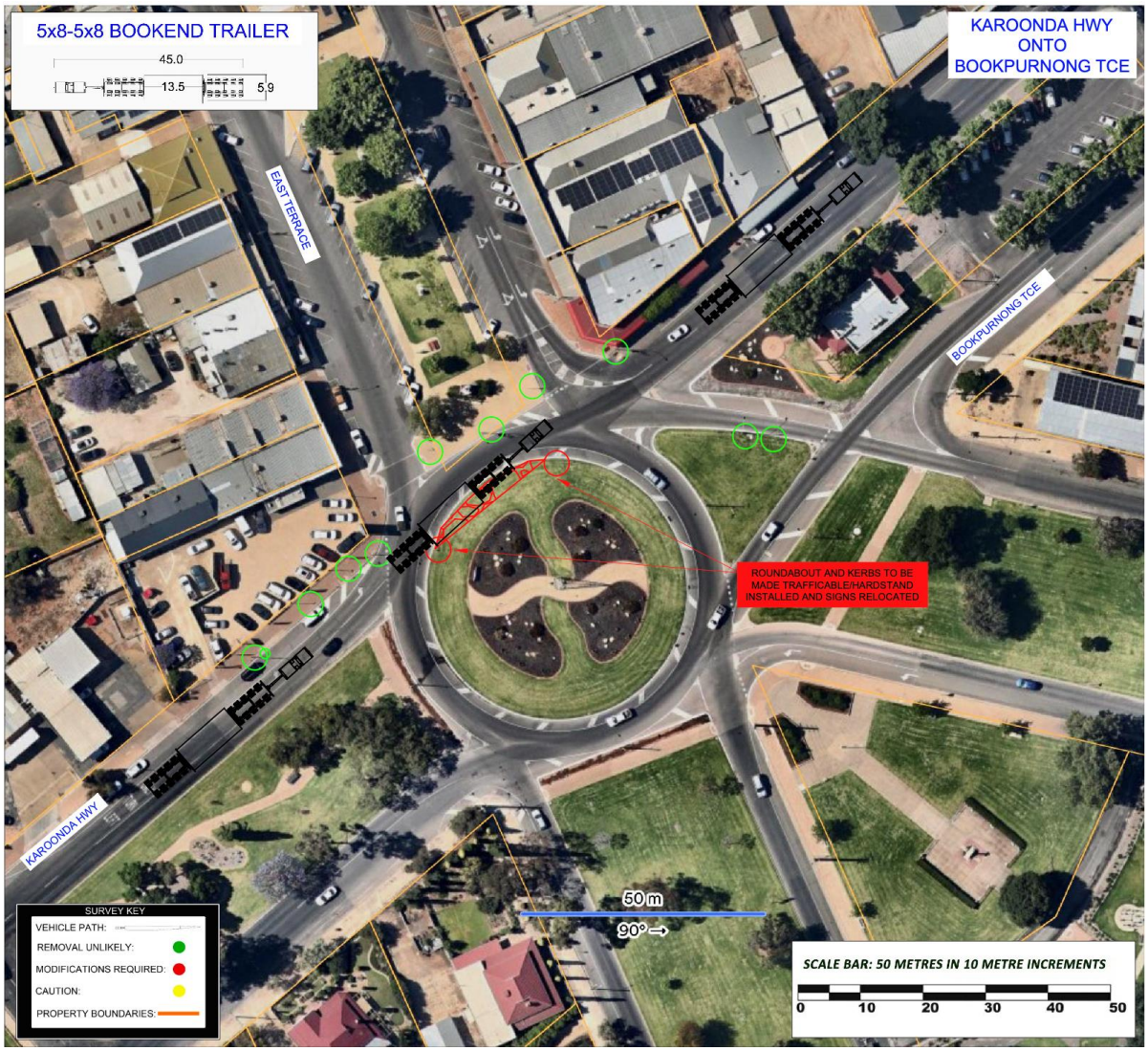


Figure 55 - Karoonda Hwy Roundabout in Loxton.

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/gZXFU8r5scZwGxqPA

PROCEDURE: Travel straight ahead using the hardstand installed on the roundabout and continue onto Bookpurnong Terrace.

ROAD MODIFICATIONS: Tower to use Route 1 modification at this location.

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



Figure 56 - Bookpurnong Road onto Stanitzki Road

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/4D9S2wy8wpSkWqCG8
PROCEDURE: Right hand turn
ROAD MODIFICATIONS: No works required.

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

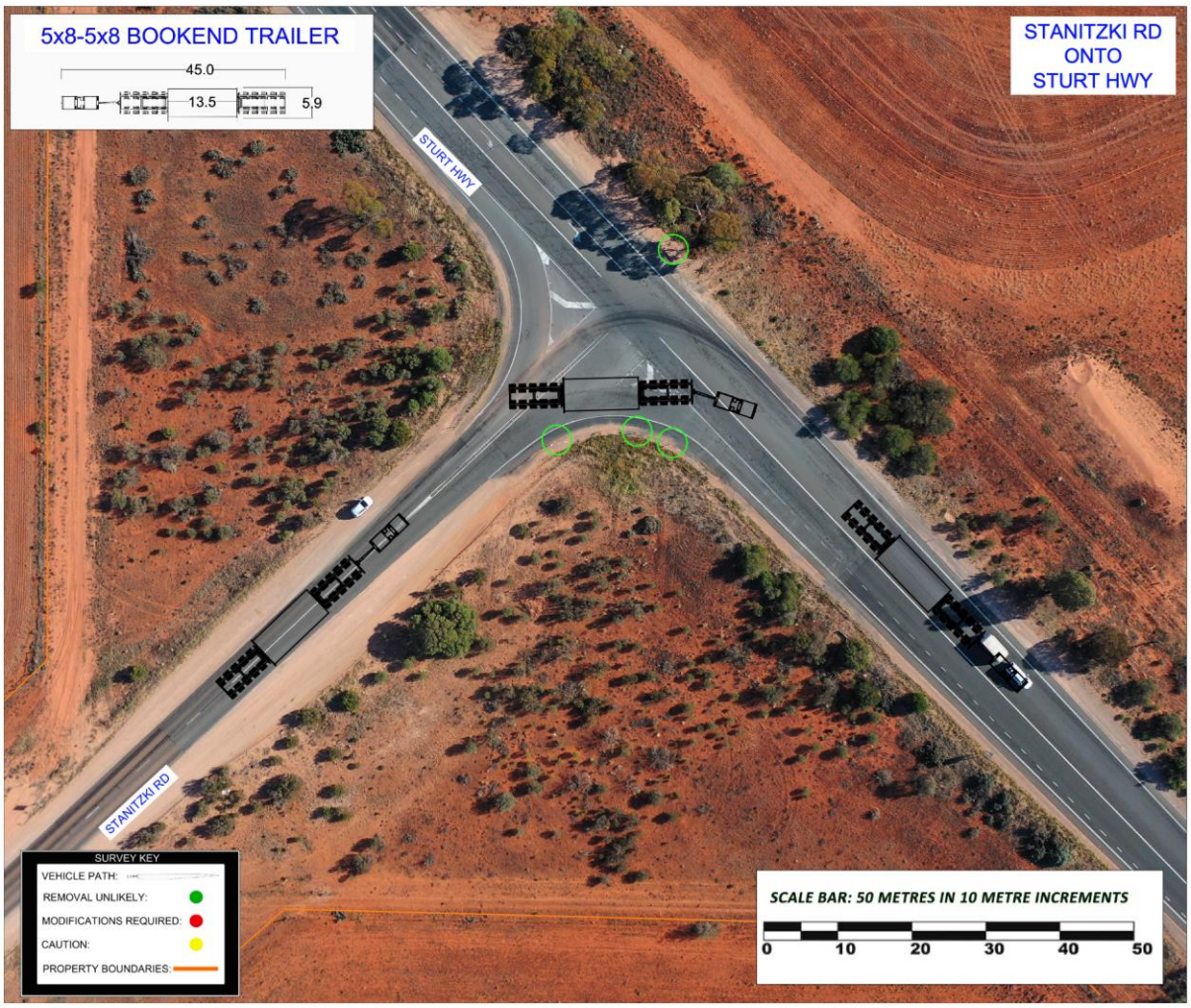


Figure 57 - Stanitzki Road onto Sturt Highway

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/QyNogMy3b9zg8MAUA
PROCEDURE: Right hand turn.
ROAD MODIFICATIONS: No works required.

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



Figure 58: Sturt Highway under the big tyre at Yamba

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.

381.0 Km's: Sturt Highway onto Werrimull N Road

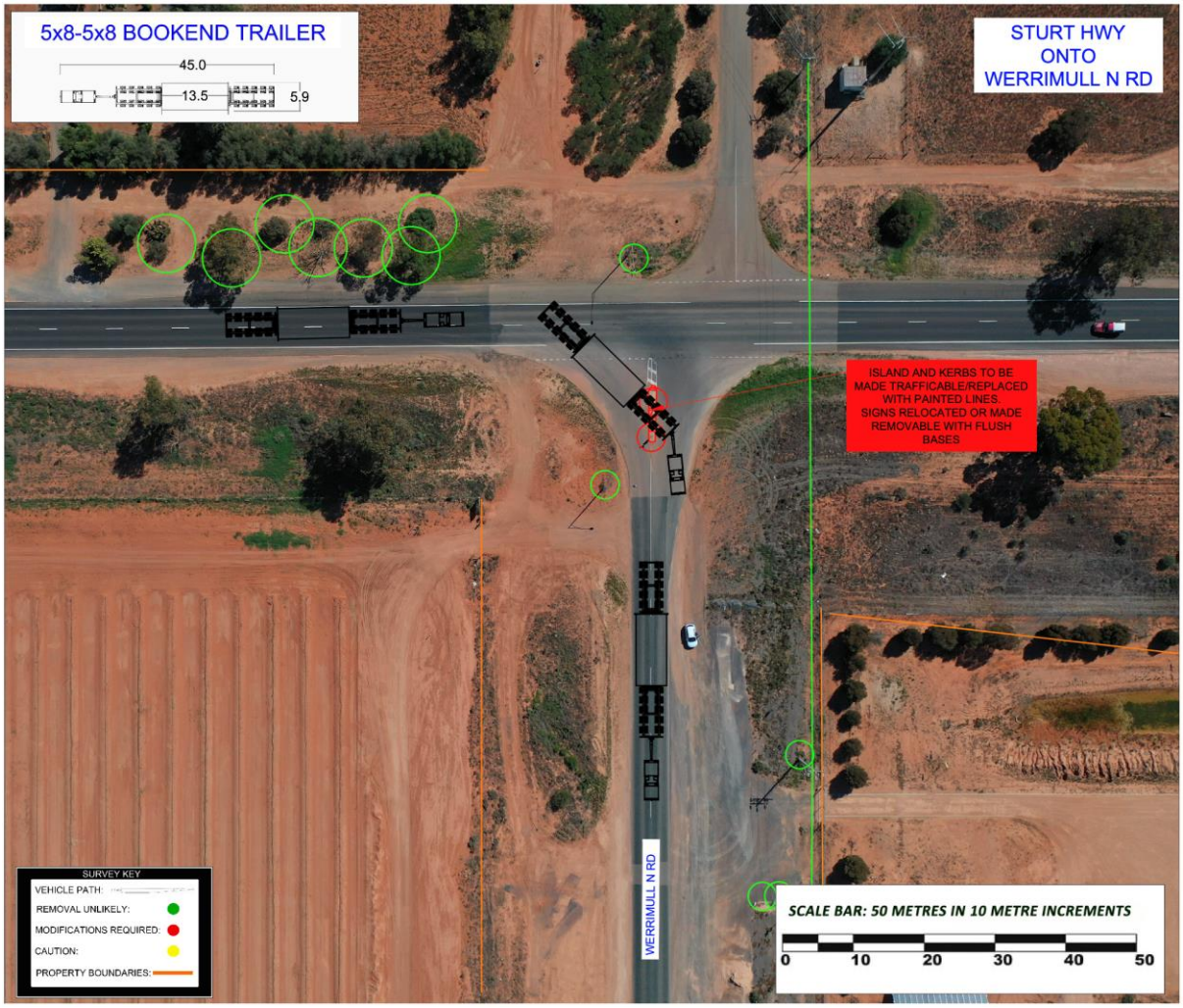


Figure 59 - Sturt Highway onto Werrimull N Road

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/mEXbnEwPCDYMM4Fh8
PROCEDURE: Right hand turn
ROAD MODIFICATIONS: Tower to use Route 1 modification at this location.

393.0 Km's: Werrimull N Road onto Millewa Road

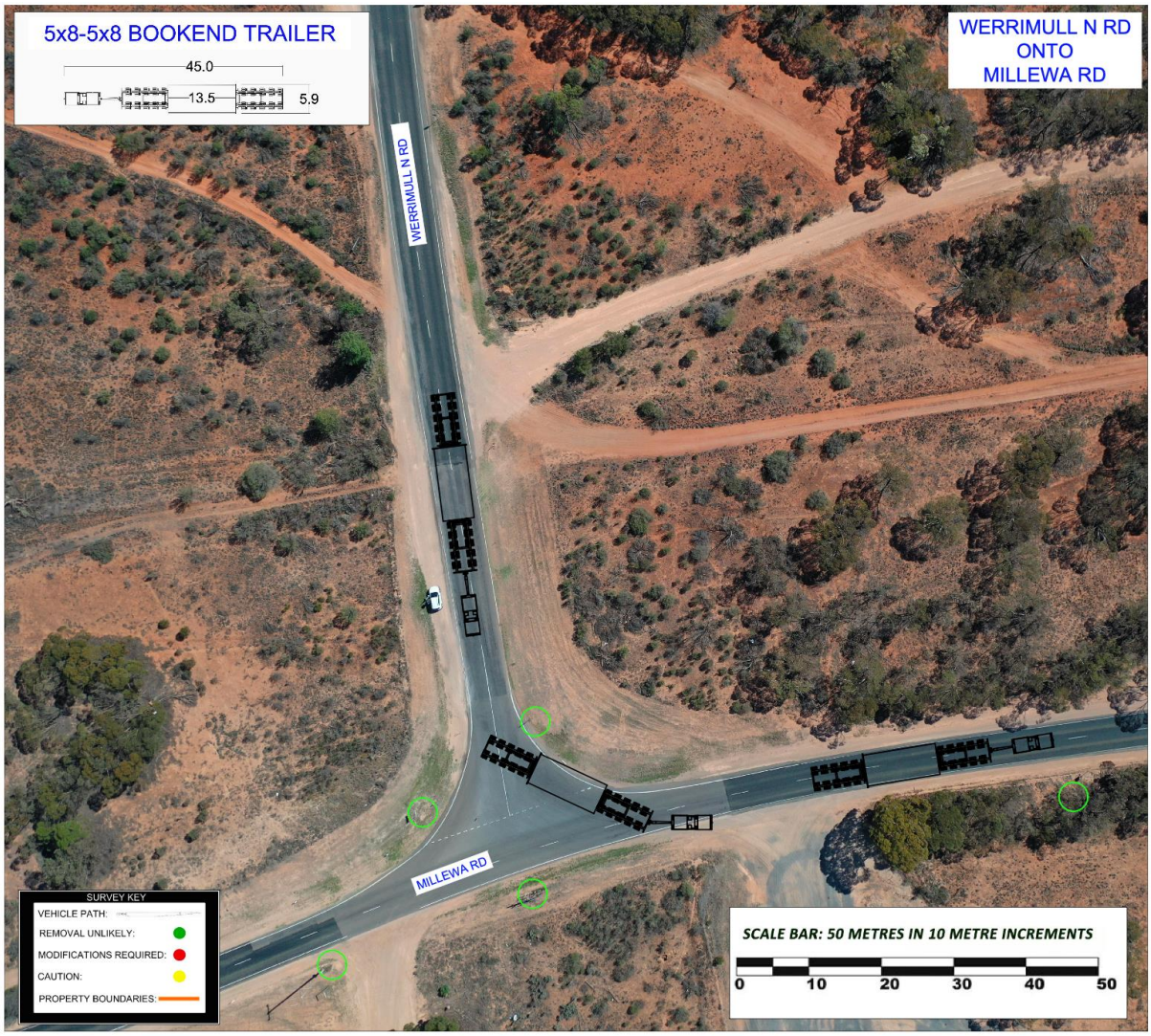


Figure 60 - Werrimull N Road onto Millewa Road

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/ohs9s9RSbbfqi5uN9
PROCEDURE: Left hand turn
ROAD MODIFICATIONS: No works required.

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

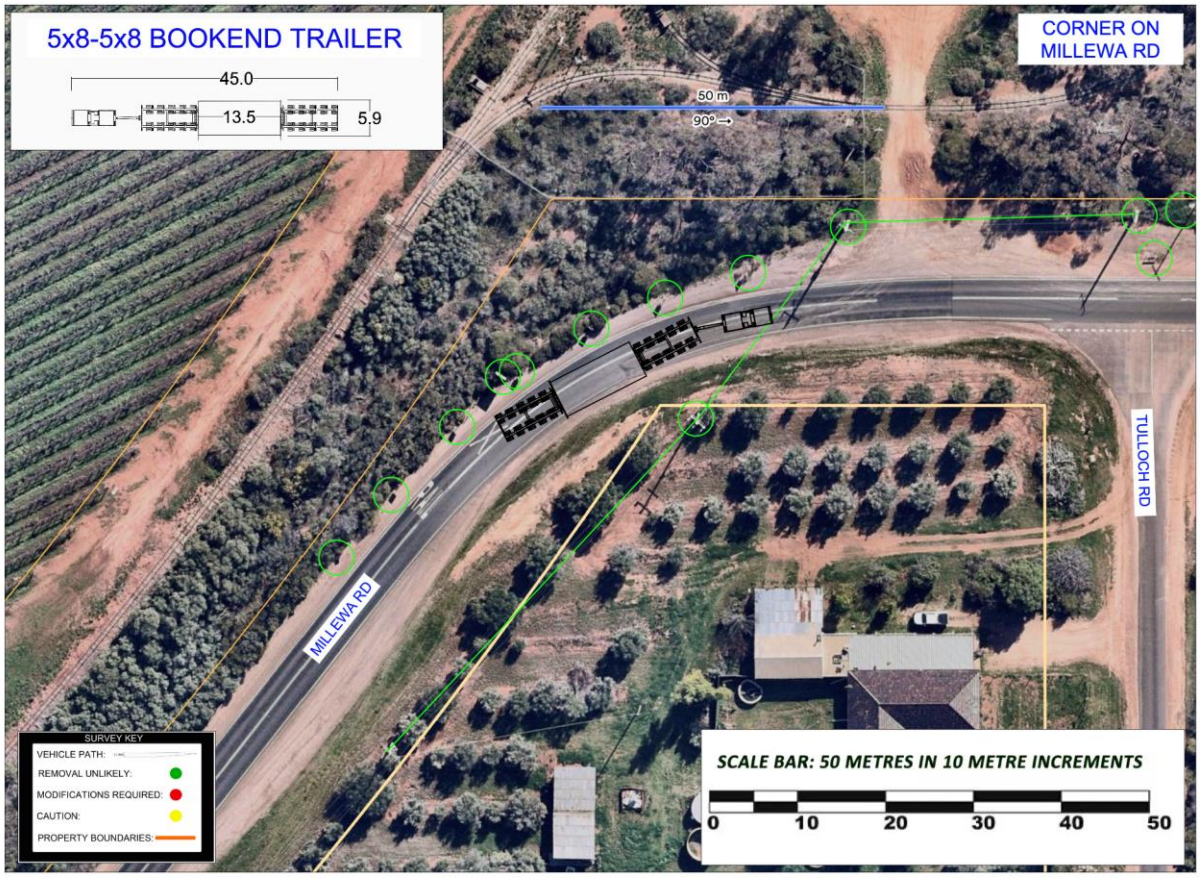


Figure 61 - Right hand bend on Millewa Road

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/4VgMQjQQvY3arG786
PROCEDURE: Right hand bend then sharp right hand turn over the rail crossing.
ROAD MODIFICATIONS: No works required.

448.0 Km's: Millewa Road onto Calder Hwy

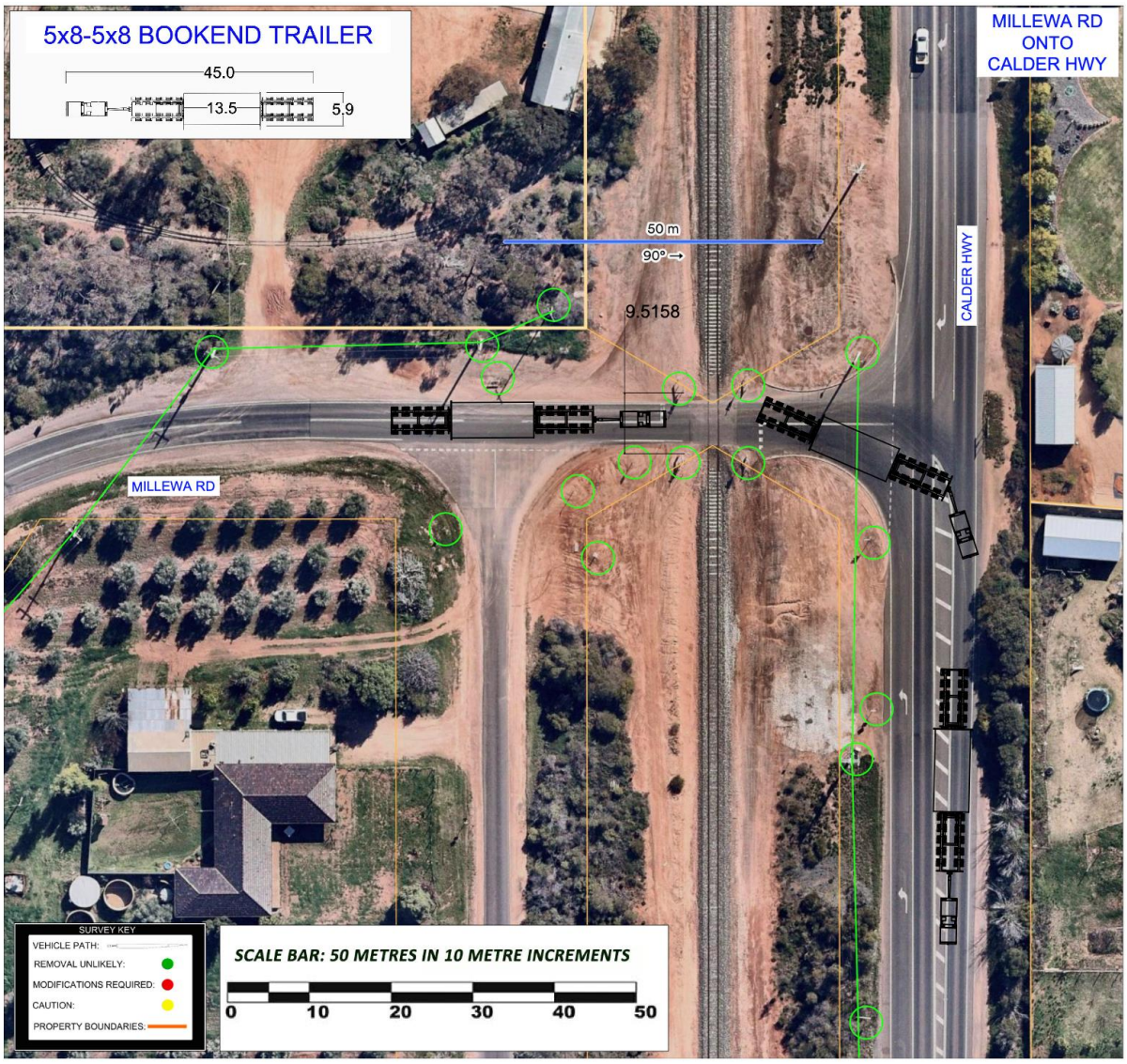


Figure 62 - Millewa Road onto Calder Hwy

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/Rm6ZZEukQW5Nmbkc8
PROCEDURE: Right hand bend then sharp right hand turn over new rail crossing.
ROAD MODIFICATIONS: No works required.

498.0 Km's: Calder Highway onto Hattah-Robinvale Road

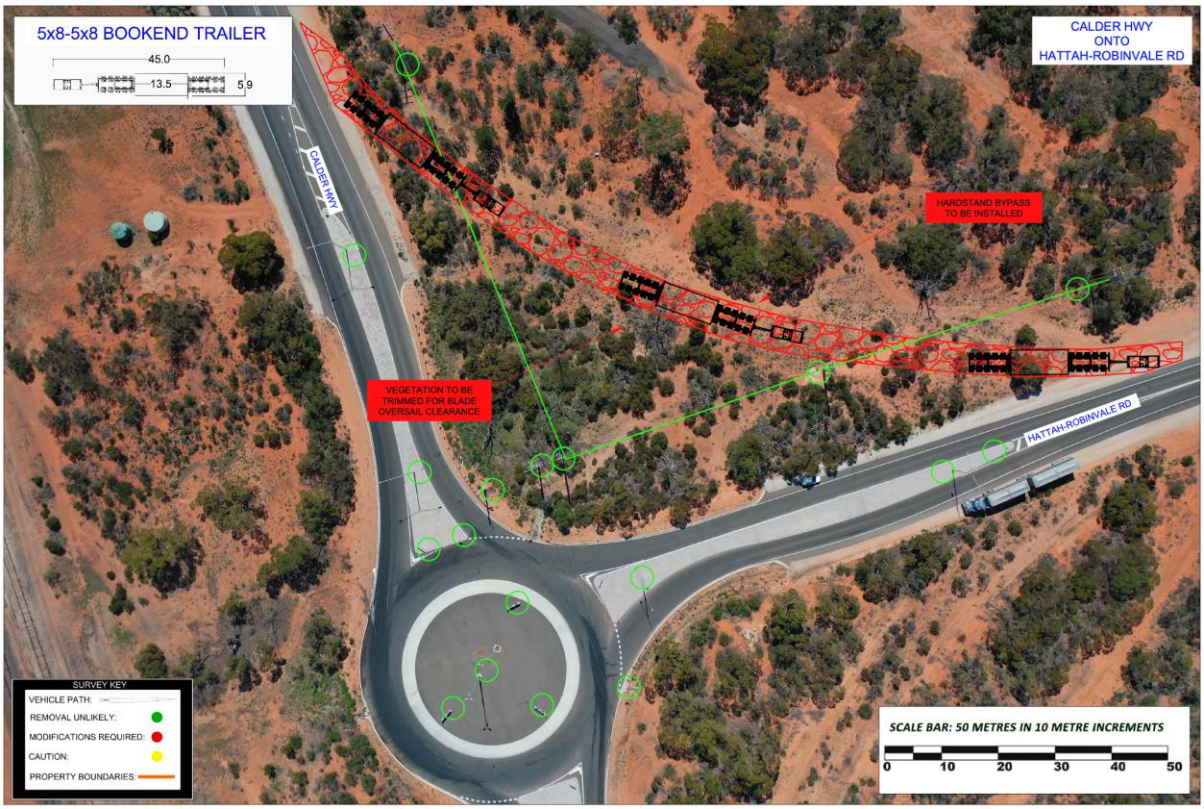


Figure 63 - Calder Highway onto Hattah-Robinvale Road

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/Z6zEDLCq71fpPZU27
PROCEDURE: Left hand turn at the roundabout
ROAD MODIFICATIONS: Tower to use Route 1 modification at this location.

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

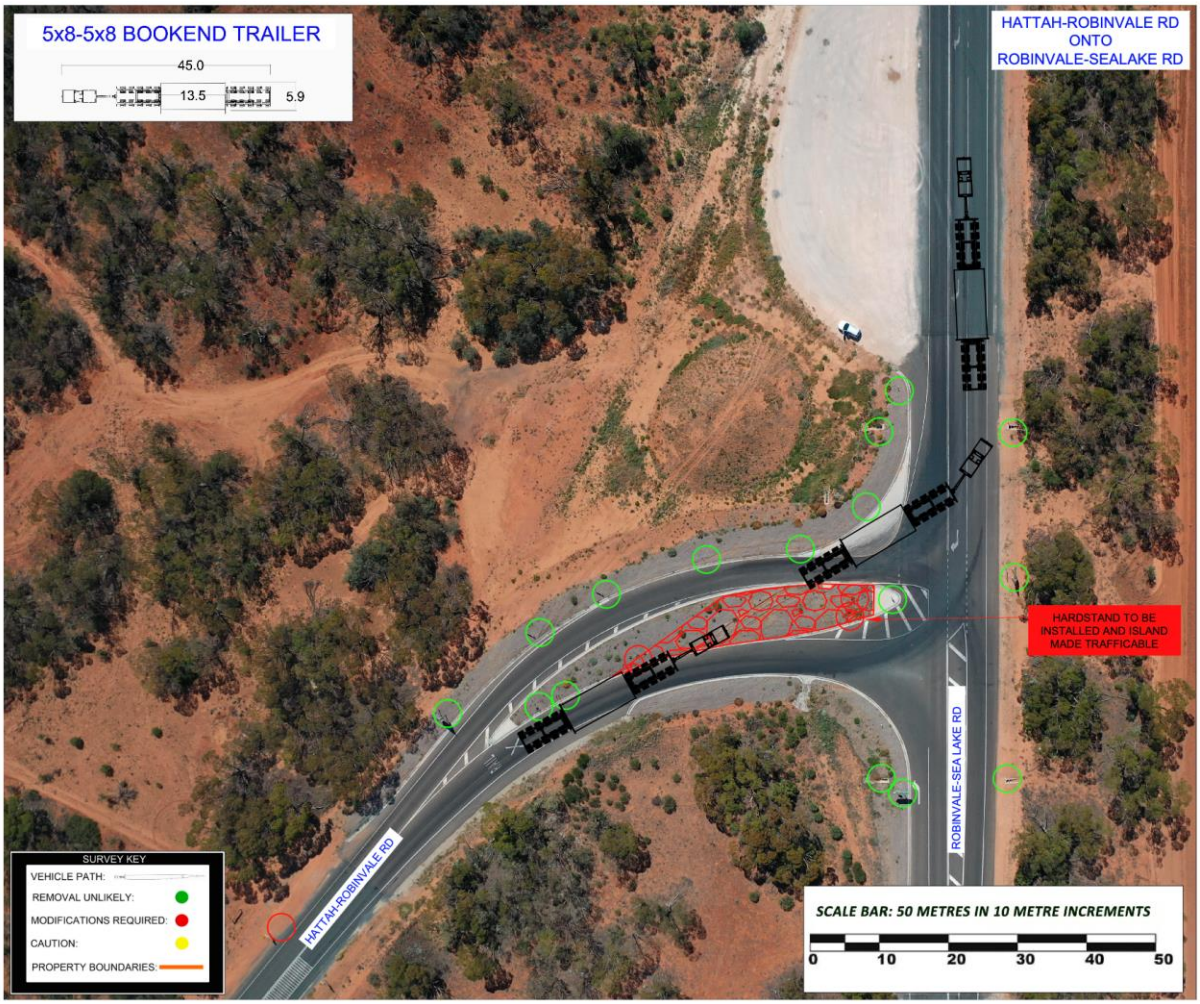


Figure 64 - Hattah-Robinvale Road onto Robinvale-Sea Lake Road

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/4FwG4Lh1Qr95TX1t9
PROCEDURE: Left hand turn
ROAD MODIFICATIONS: Tower to use Route 1 modification at this location.

569.0 Km's: Murray Valley Highway onto Sturt Highway

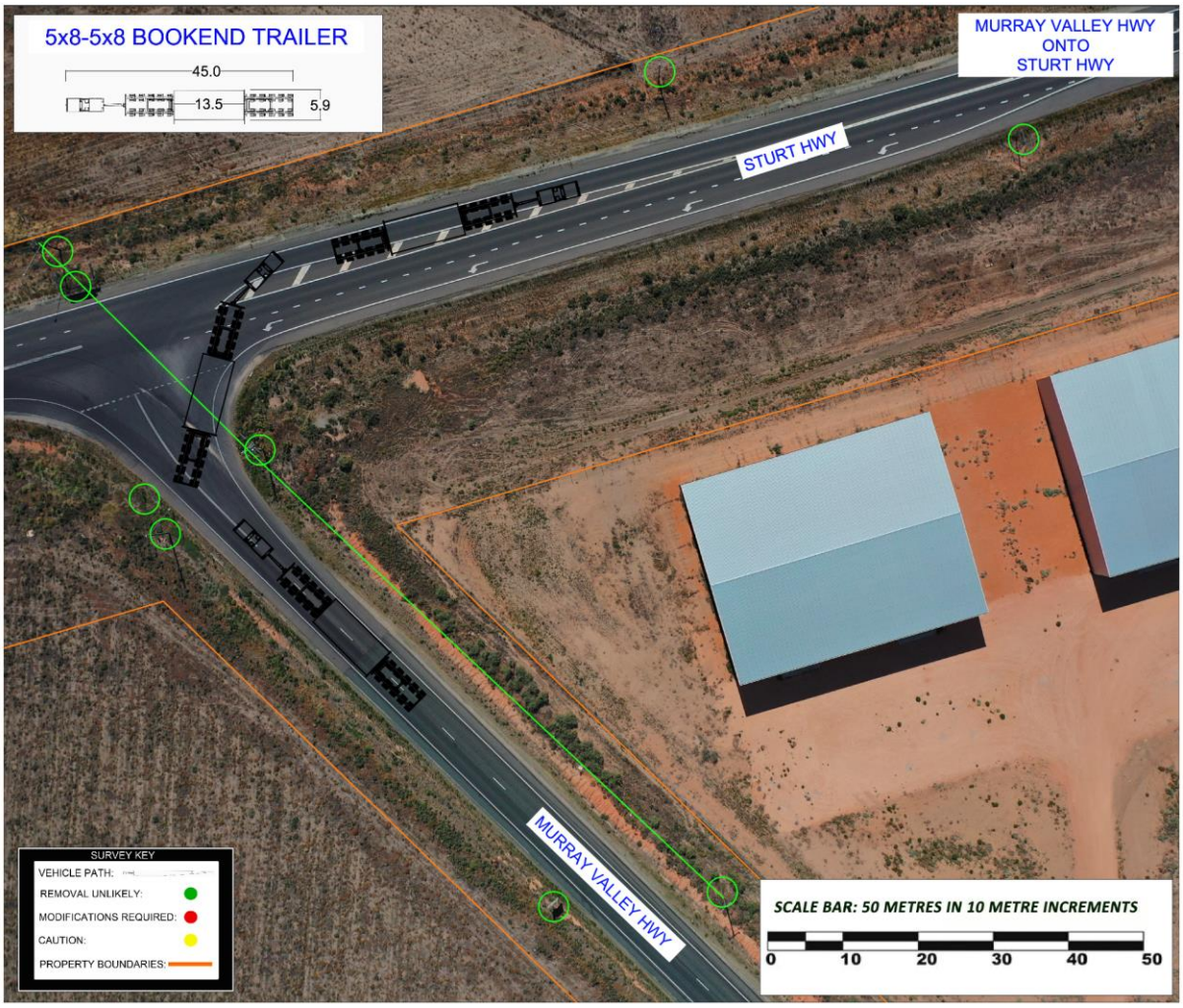


Figure 65 - Murray Valley Highway onto Sturt Highway

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/rnhvnjnN6VkAWX3eA
PROCEDURE: Right hand turn
ROAD MODIFICATIONS: No works required.

647.0 to 648.0 Km's: Sturt Highway through Balranald

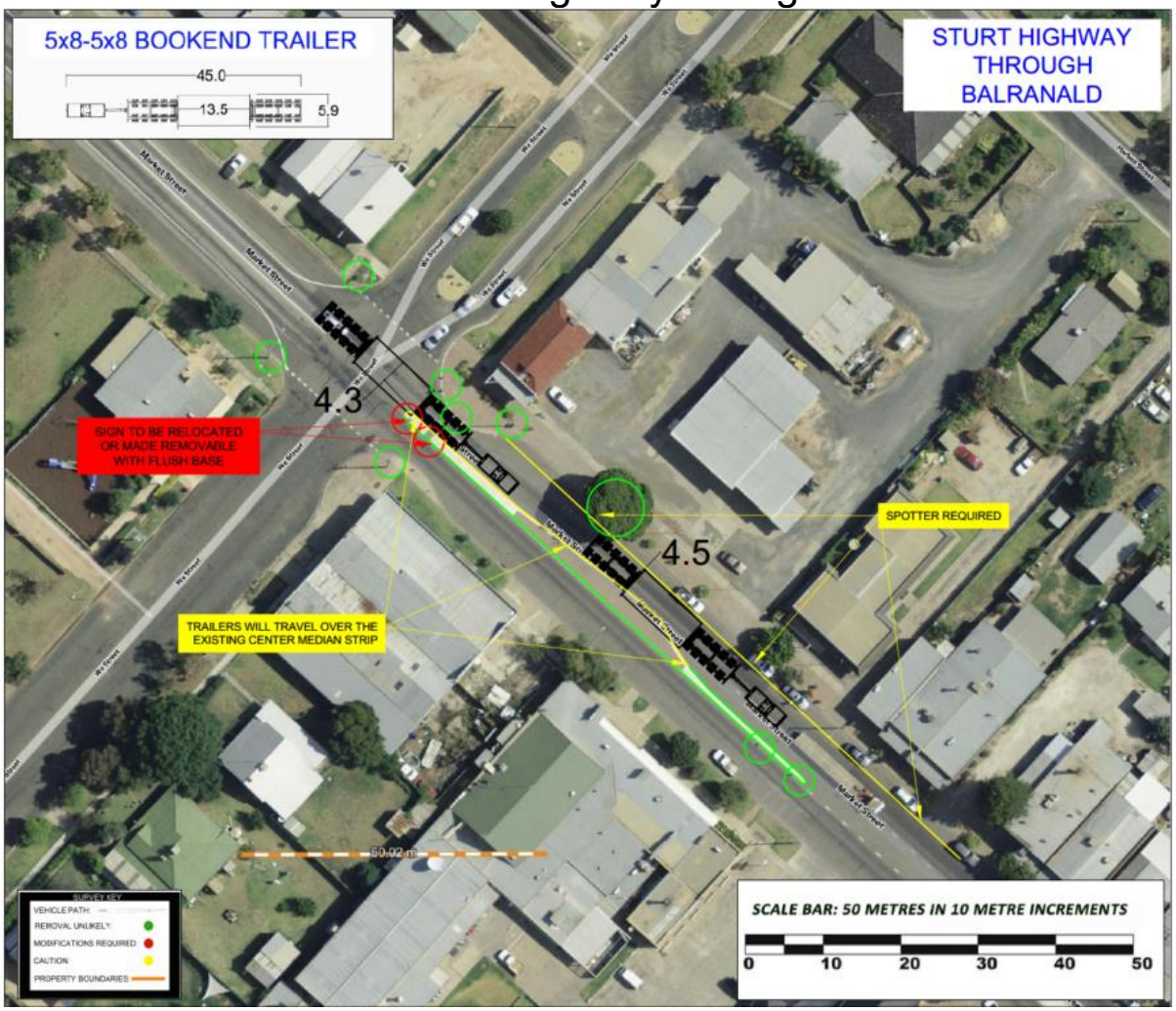


Figure 66 - Sturt Highway at Balranald centre islands 1

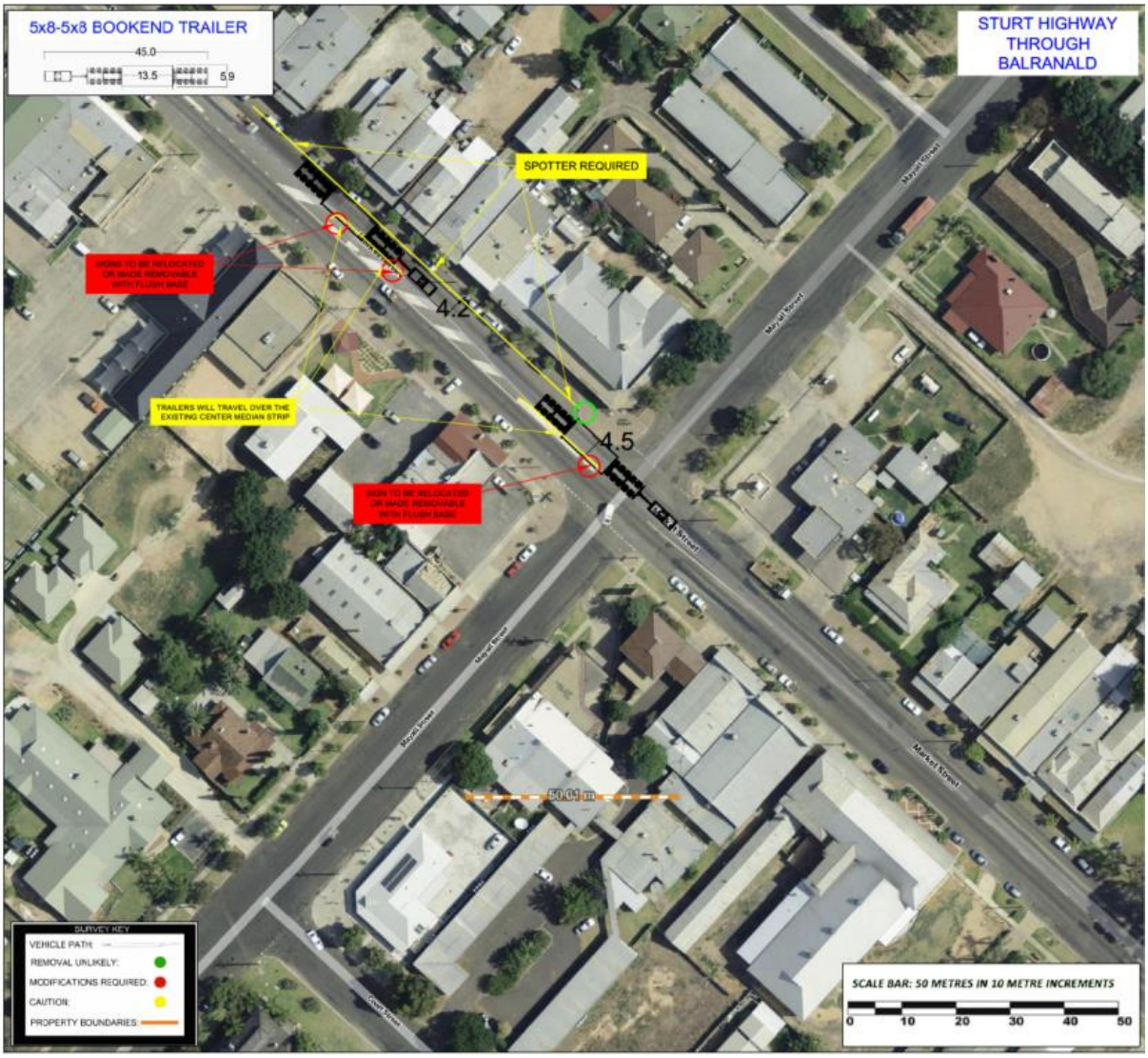


Figure 67 - Sturt Highway at Balranald centre islands 2

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/DVbkEGBFeoUomVL29

PROCEDURE: Travel directly ahead on the correct side of the road. Spotter to guide load through this section of road.

ROAD MODIFICATIONS: Signs to be made removable. Potential for the load to traverse the existing islands which look to be trafficable.

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

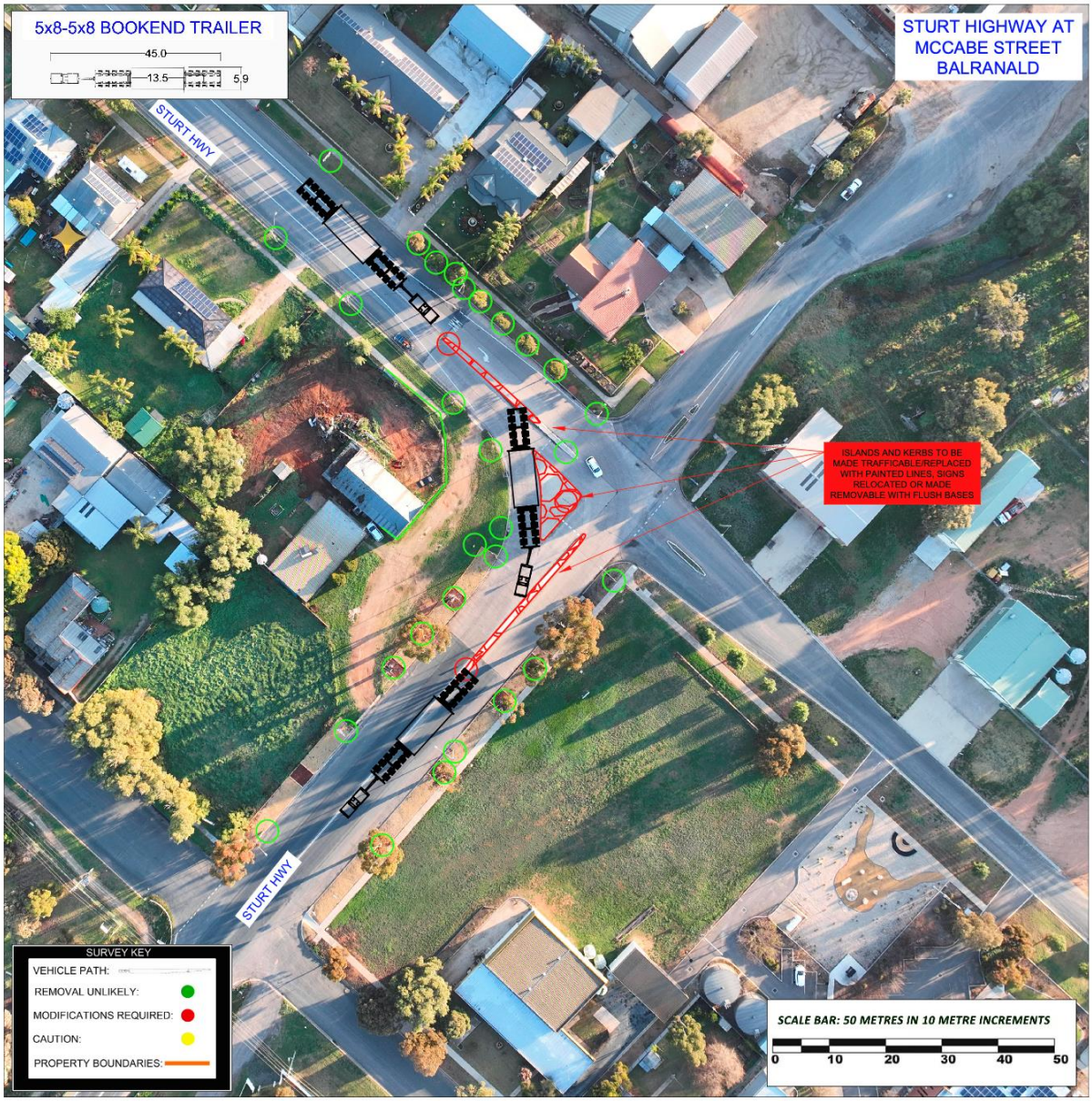


Figure 68 - Sturt Highway at Balranald option 1

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/xve4ZgbuRkqqPvVr7
PROCEDURE: Right hand turn
ROAD MODIFICATIONS: Tower to use Route 1 modification at this location.

777.0 Km's: Roundabout on Sturt Highway at Hay onto Cobb Highway

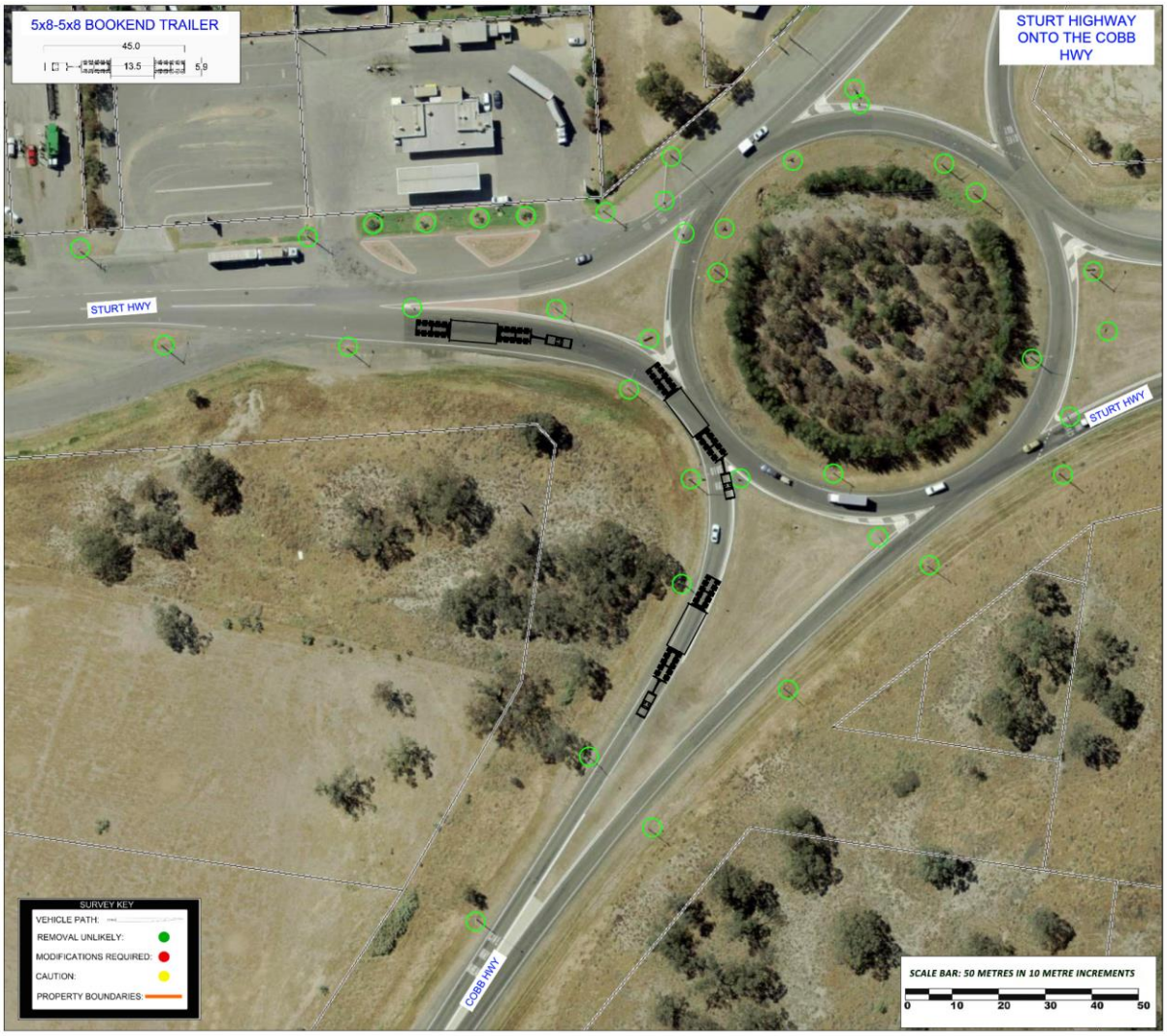


Figure 69: Sturt Highway onto Cobb Highway at Hay

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/9VAYyvhup29NtSPE6

PROCEDURE: Load to use incorrect side of roundabout and installed hardstand to turn right onto Cobb Hwy.

COMMENTS:

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

ROAD MODIFICATIONS: No works required.

NOTE: The remainder of the route will use the Route 1 modifications.

12.0 Route 2: Rail crossing conflicts

01 Eastern parade, Port Adelaide
GPS: https://maps.app.goo.gl/GS6qo8BNQJDNASDn6

Type: Level crossing
Asset Owner: ARTC
Line: Dry Creek-Port Flat
LXM ID: 1887
Operational: Yes
Maximum width clearance: 8.5 Metres
Conflict: Non



02 Gawler Road, Two Wells
GPS: https://maps.app.goo.gl/bprikfGH1CZggQVdA

Type: Level crossing
Asset Owner: ARTC
Line: Adelaide-Crystalbrook
LXM ID: 1726
Operational: Yes
Maximum width clearance: 7.5 Metres
Conflict: Non



03 Millewa Road, Red Cliffs
GPS: https://maps.app.goo.gl/TWyVPzxqUdxbLpwx8

Type: Level crossing
Asset Owner: V-Line
Line: TBC
LXM ID: TBC
Operational: Yes
Maximum width clearance: 9.8 Metres
Conflict: Yes. New corridor for the blades will be required.



13.0 Route 2: Conclusion

After studying all options and undertaking a route survey, this route in its current condition will require some modifications as listed in the index of this report. A loaded height of 6.4 metres is possible on this route.

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 will require a moderate amount of work in order to accommodate the proposed loads.
- The corners that have been identified in the report as requiring work should be investigated early in the planning stages to avoid delays or rejections.

OVERHEAD STRUCTURES: (6.4 Maximum loaded height)

- The lowest structures on route are on the Northern connector, they have a maximum vertical clearance of 6.5 metres, so a tower loaded height should not exceed 6.4 metres.

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. Bridge assessments have been completed for all TfNSW bridge and culvert structures by TfNSW and have been approved for the requested loads on the respective routes except for the transformer which is currently being assessed. The assessment for the transformer will be completed post approval.

OVERHEAD UTILITIES:

- Although the highest loads have a maximum loaded height of 6.4 metres the travel height of the towers along rural roads would need to be set higher once the loads are clear of the bridge structures. We would recommend a travel height of up to 6.5 metres when trailers are at travelling height.
- This route will need to be checked by an authorised scoping company for a loaded height of 6.5 metres.
- Given the length of the route and large tower size there will likely be a significant amount of overhead utility lifting/relocation required. It is advised that the project starts discussions with all authorities that have utilities overhanging the corridor.

VEGETATION:

- The route requires a moderate amount of vegetation clearing at various locations. The assessment confirms the vegetation that requires clearing.

RAIL ASSETS:

- There are 3 crossings on this route that will require approval from authorities before loads can access the routes. It is advised that the rail stakeholders are notified and pre approval given for the loads listed to use this route.
- All rail crossings were checked for conflicts, taking into account the width and vertical curve, and all crossings are suitable for the loads using this route that are listed in this route study 2.

COMPONENTS THAT WOULD USE ROUTE 2:

- 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.

PAVEMENT:

- Pavement on the route is of highway standard up to Jerilderie Road. Bypasses or modifications will be required at several corners and are to be constructed to suitable standards and maintained for the duration of deliveries if not sealed.
- Jerilderie Road and North Boundary Road is a 4.6 metre wide tar road but not of a highway standard. It is likely that this road will wear throughout the deliveries and may require regular maintenance.
- All site access roads to be constructed to appropriate standards in order to accommodate the weight, height and swept path of all proposed loads. Roads to be maintained for the duration of deliveries if not sealed.

STOCK GRIDS:

- There are 12 stock grids on Jerilderie Road. All grids are approx. 6m wide.

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.

SITE ACCESS ROADS:

- All site access roads to be constructed to appropriate standards in order to accommodate the height, weight, vertical curves and swept path of all proposed roads.
- Roads to be made all weather and maintained for the duration of deliveries.

14.0 Transport Approvals Required

Approvals will need to be sought from the following stakeholders.

- NHVR
- DIT (SA Roads department)
- SA Police
- VIC Roads
- TfNSW
- NSW Police
- Local councils
- Motorways and private infrastructure operators
- Energy & telecommunication infrastructure owners/managers
- Rail Managers/Owners

15.0 Draft delivery schedule

WEEKLY SCHEDULE													
Component	Transport combo	DATE:TBC Sun	DATE:TBC Mon	DATE:TBC Tues	DATE:TBC Wed	DATE:TBC Thurs	DATE:TBC Fri	DATE:TBC Sat	DATE:TBC Sun
BLADE 1	2X4-3X8 BLADE TRANSPORTER	PILOTS: 4 POLICE: 2 DRIVER: TBC				PILOTS: 4 POLICE: 2 DRIVER: TBC			
BLADE 2	2X4-3X8 BLADE TRANSPORTER	PILOTS: 4 POLICE: 2 DRIVER: TBC							
TOWER 6	4X8-3X8 DOLLY AND JINKER	PILOTS: 3 POLICE: N/A DRIVER: TBC				PILOTS: 3 POLICE: N/A DRIVER: TBC			
NAC	2X8-4X8 DOLLY AND LOW LOADER		PILOTS: 2 THAN 1 POLICE: N/A DRIVER: TBC					PILOTS: 2 THAN 1 POLICE: N/A DRIVER: TBC	
HUB	2X8-3X8 DOLLY AND LOW LOADER		PILOTS: 2 POLICE: N/A DRIVER: TBC					PILOTS: 2 POLICE: N/A DRIVER: TBC	
T5	4X8-5X8 EXTENDING PLATFORM TRAILER			PILOTS: 3 POLICE: N/A DRIVER: TBC					PILOTS: 3 POLICE: N/A DRIVER: TBC
T4	4X8-5X8 EXTENDING PLATFORM TRAILER			PILOTS: 3 POLICE: N/A DRIVER: TBC					PILOTS: 3 POLICE: N/A DRIVER: TBC
DRIVE TRAIN	6X8 PLATFORM			PILOTS: 2 THAN 1 POLICE: N/A DRIVER: TBC					PILOTS: 2 THAN 1 POLICE: N/A DRIVER: TBC
T1	10X8 PLATFORM TRAILER				PILOTS: 2 POLICE: N/A DRIVER: TBC				
T2	4X8-5X8 EXTENDING PLATFORM TRAILER				PILOTS: 3 POLICE: N/A DRIVER: TBC				
BLADE 3	2X4-3X8 BLADE TRANSPORTER					PILOTS: 4 POLICE: 2 DRIVER: TBC			
T3	4X8-5X8 EXTENDING PLATFORM TRAILER					PILOTS: 3 POLICE: N/A DRIVER: TBC			
Containers	SIDE LOADER	DRIVER: TBC		DRIVER: TBC		DRIVER: TBC		DRIVER: TBC	

16.0 References:

Rex J Andrews P/L Route survey # 379 REV01
BayWa
Google Earth/Maps
Nearmaps
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.

17.0 Appendix 1 – Transport Combinations (Examples)

N163 5.X TS148 WIND TURBINE GENERATOR:

Nacelles (12.8l x 4.3w x 4.1h x 67T)
Configuration. Prime mover with 2x8-4x8 Low loader
Overall dimensions: 30.0l x 4.4w x 5.2h x 104.5T
Route: 1

Drive trains (6.8l x 3.4w x 3.25h x 75.0T)
Configuration. Prime mover with 6x8 Platform trailer
Overall dimensions: 30.0l x 4.2w x 4.8h x 124.5T
Route: 1

Hubs (5.3l x 4.7w x 4.0h x 50.0T)
Configuration. Prime mover with 2x8-3x8 Low loader
Overall dimensions: 30.0l x 4.4w x 5.2h x 85.5T
Route: 1

Blades (80.5l x 4.7w x 4.2h x 31T)
Configuration. Prime mover with 3x8-3x8 Blade Trailer
Overall dimension: 90.0l x 4.8w x 5.0h x 86.5T
Route: 1

Tower T1 (13.5l x 5.9 x 5.5 x 103T)
Configuration. Prime mover with 5x8-5x8 Bookend Trailer
Overall dimension: 45.0l x 5.9w x 6.4h x 181.5T
Route: 2

Tower T2 (19.3l x 5.0 x 5.0 x 89T)
Configuration. Prime mover with 4x8-5x8 Extending Platform Trailer
Overall dimension: 34.0l x 5.0w x 6.1h x 158.5T
Route: 2

Tower T3 (23.4l x 5.0 x 5.0 x 88T)
Configuration. Prime mover with 4x8-5x8 Extending Platform Trailer
Overall dimension: 36.0l x 5.0w x 6.1h x 158.5T
Route: 2

Tower T4 (29.5l x 5.0 x 5.0 x 88T)
Configuration. Prime mover with 4x8-5x8 Extending Platform Trailer
Overall dimension: 41.5l x 5.0w x 6.1h x 159.5T
Route: 2

Tower T5 (29.9l x 5.0 x 4.1 x 89T)
Configuration. Prime mover with 4x8-5x8 Extending Platform Trailer
Overall dimension: 41.5l x 5.0w x 6.1h x 139.5T
Route: 2

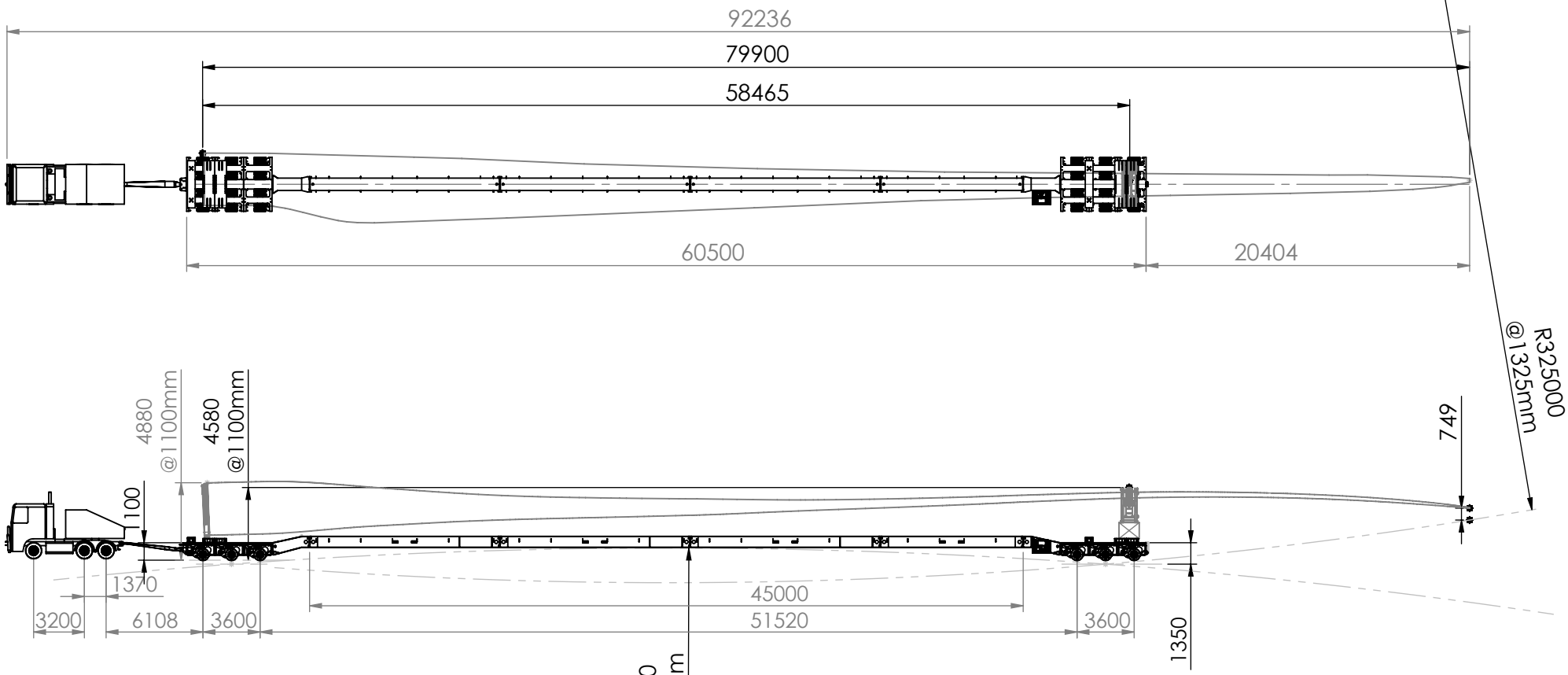
Tower T6 (29.3l x 4.1 x 3.3 x 50.8T)
Configuration: Prime mover with 4x8 Dolly 3x8 Jinker
Overall dimension: 39.1l x 4.3w x 5.2h x 89.5T
Route: 1

ERECTION CRANES:
Crane carrier (19.2l x 3.0 x 4.0 x 100T)
Configuration. Prime mover with 10x8 Platform trailer + Backup truck
Overall dimensions: 36.0l x 4.2w x 5.2h x 164.5T + Backup truck
Route: 1

TRANSFORMER:
Transformer size (10.5l x 4.2 x 4.2 x 150T)
Configuration. Prime mover with 14x8 Platform trailer + 1 x Backup truck
Overall dimensions: 49.0l x 4.2w x 5.2h x 249.5T
Route: 1
NOTE: Transformer swept path is less than the blades, and all mods completed for the blades are adequate for this load.

SWITCHROOM:
The largest switchroom size that is recommended for this site would be as follows.
Switchroom dimensions: 30.0l x 5.0w x 4.4h x 90.0T
Overall dimensions: 45.0l x 5.0w x 5.4h x 156.5T
Route: 2
NOTE: Switchroom swept path is less than the T1 tower, and all mods completed for the T1 tower are adequate for this load.

18.0 Appendix 2 – Transport Combination Drawings



11R22.5x2	11R22.5x8 @2.5m	3x8 215/75R17.5 @3.4m
T: 9.0T	T: 18.0T	T: 20.0T
P: 0.0T	P: 0.0T	P: 16.0T
G: 6.0T	G: 18.0T	G: 36.0T (12.0T/ROW)

3x8 215/75R17.5 @3.4m
T: 20.0T
P: 16.0T
G: 36.0T (12.0T/ROW)

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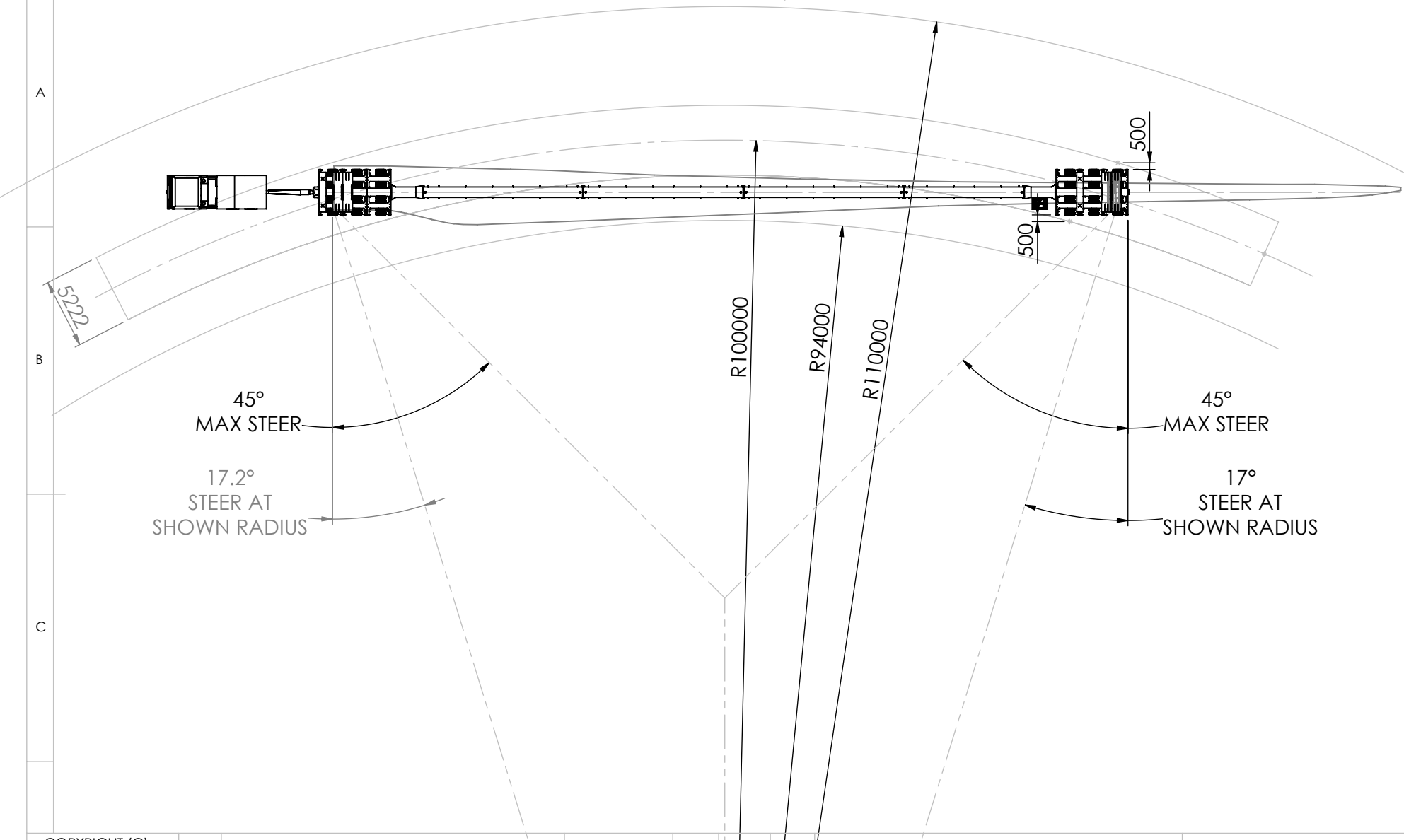
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79.9m

A4

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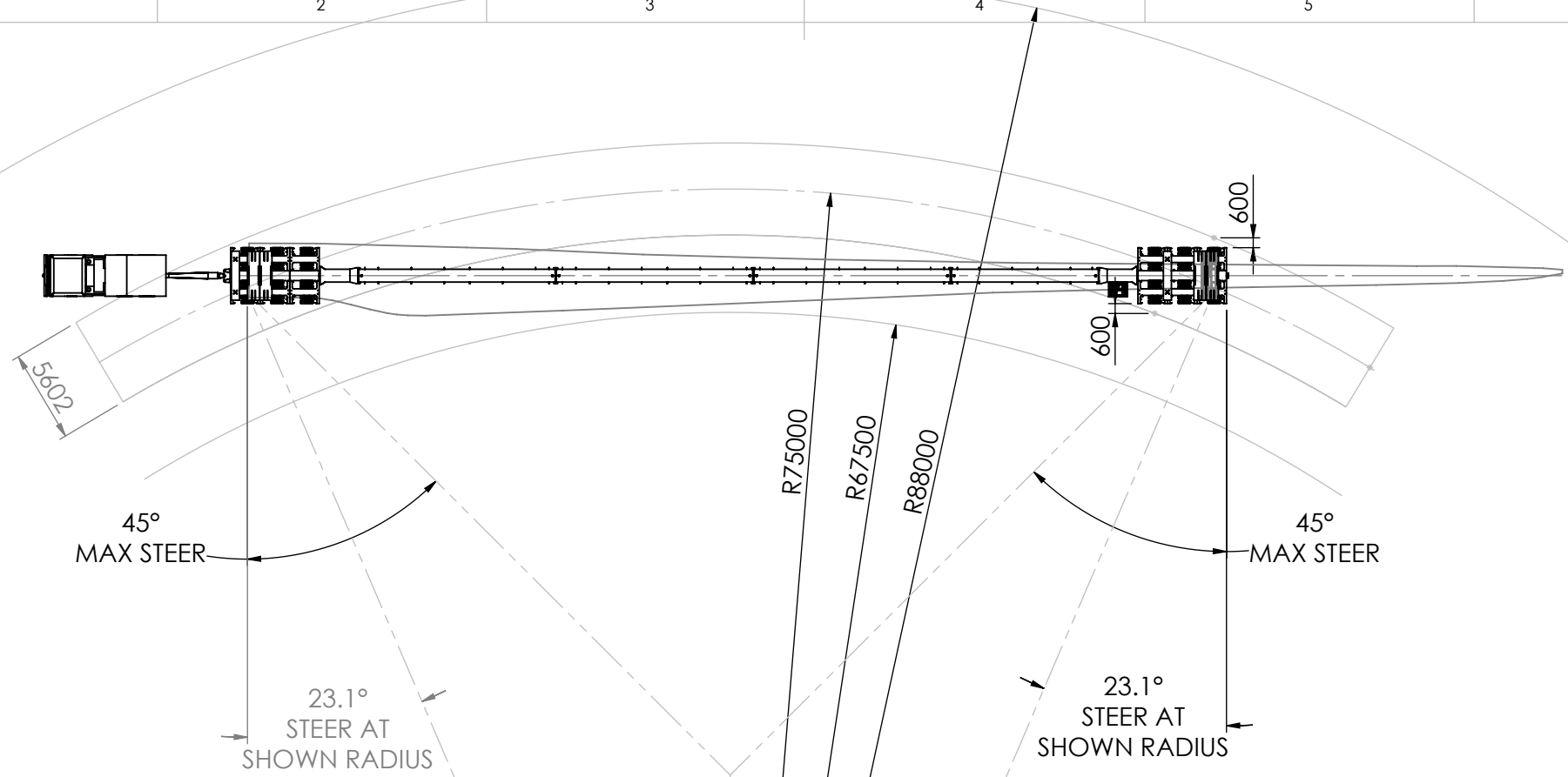
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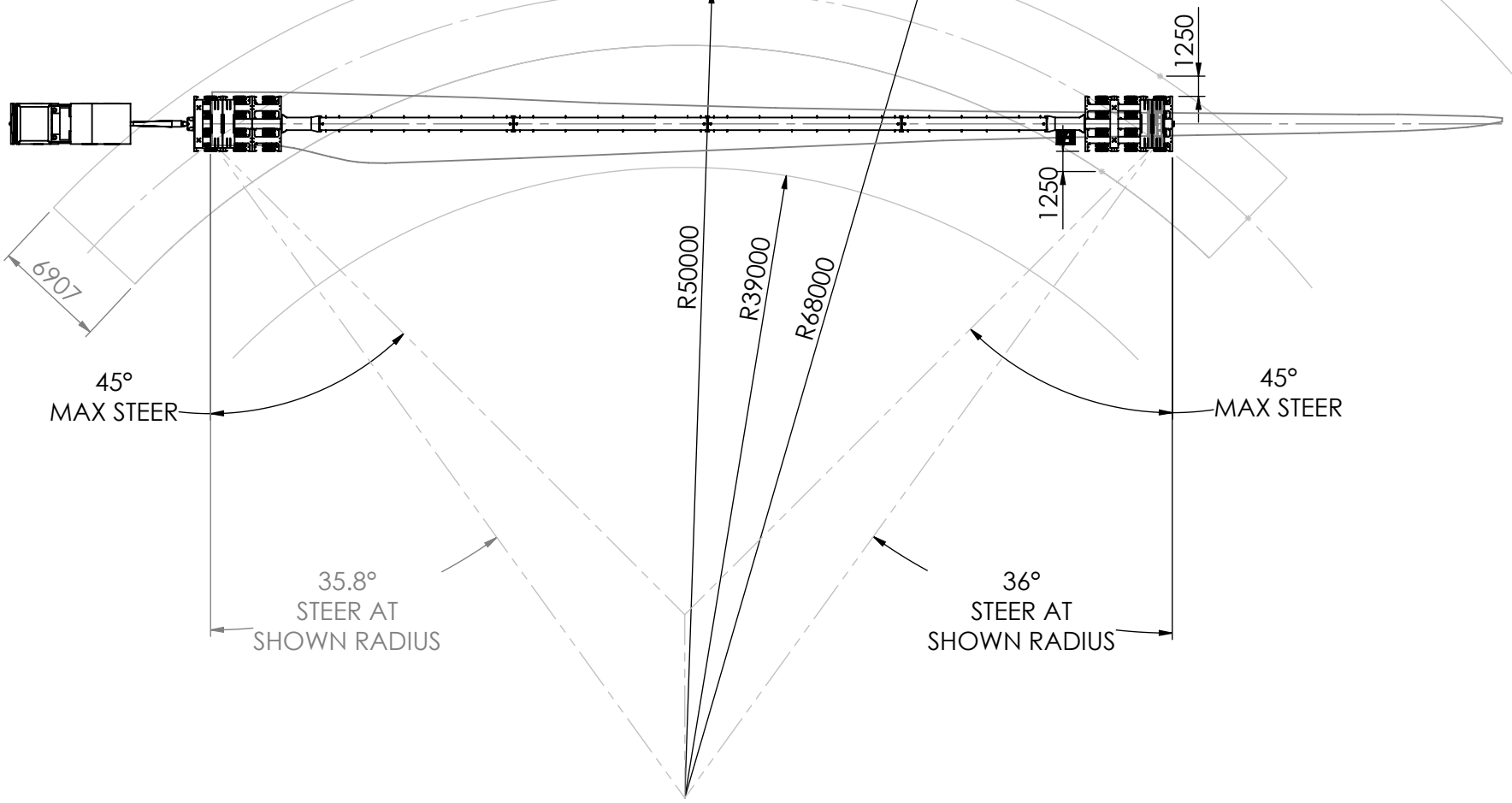
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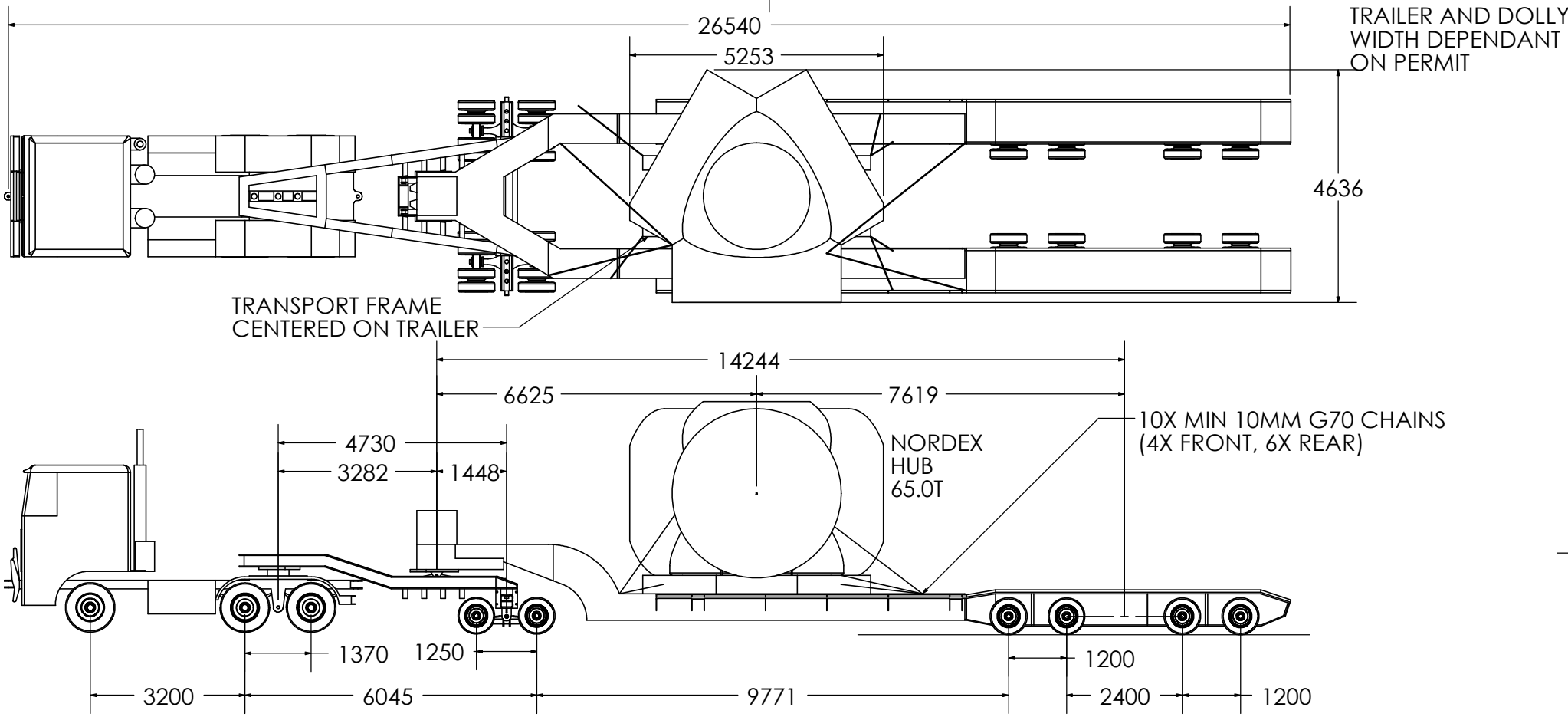
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11R22.5 T 6.25T P 0.0T G 6.25T	11R22.5@2.4M T 7.0T P 10.5T G 17.5T	215/75R17.5 @ 3.7M T 5.0T P 24.0T G 29.0T (14.5T/ROW)

215/75R17.5 @ 4.2M T 15.0T P 30.5T G 45.5T (11.4T/ROW)

ALL LOAD RESTRAINT 10MM G70
MIN 6.3T SHACKLE WHERE USED
DOUBLE UP CHAINS WHERE AVAILABLE
TO INCREASE SYSTEM STRENGTH

LOAD MUST BE PLACED ON DRY RUBBER
OR OTHER MATERIAL ACHEIVING
MIN COF OF 0.4 AT ALL CONTACT POINTS

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R	ISSUED FOR REVIEW	14/11/2018	H.A	H.A	

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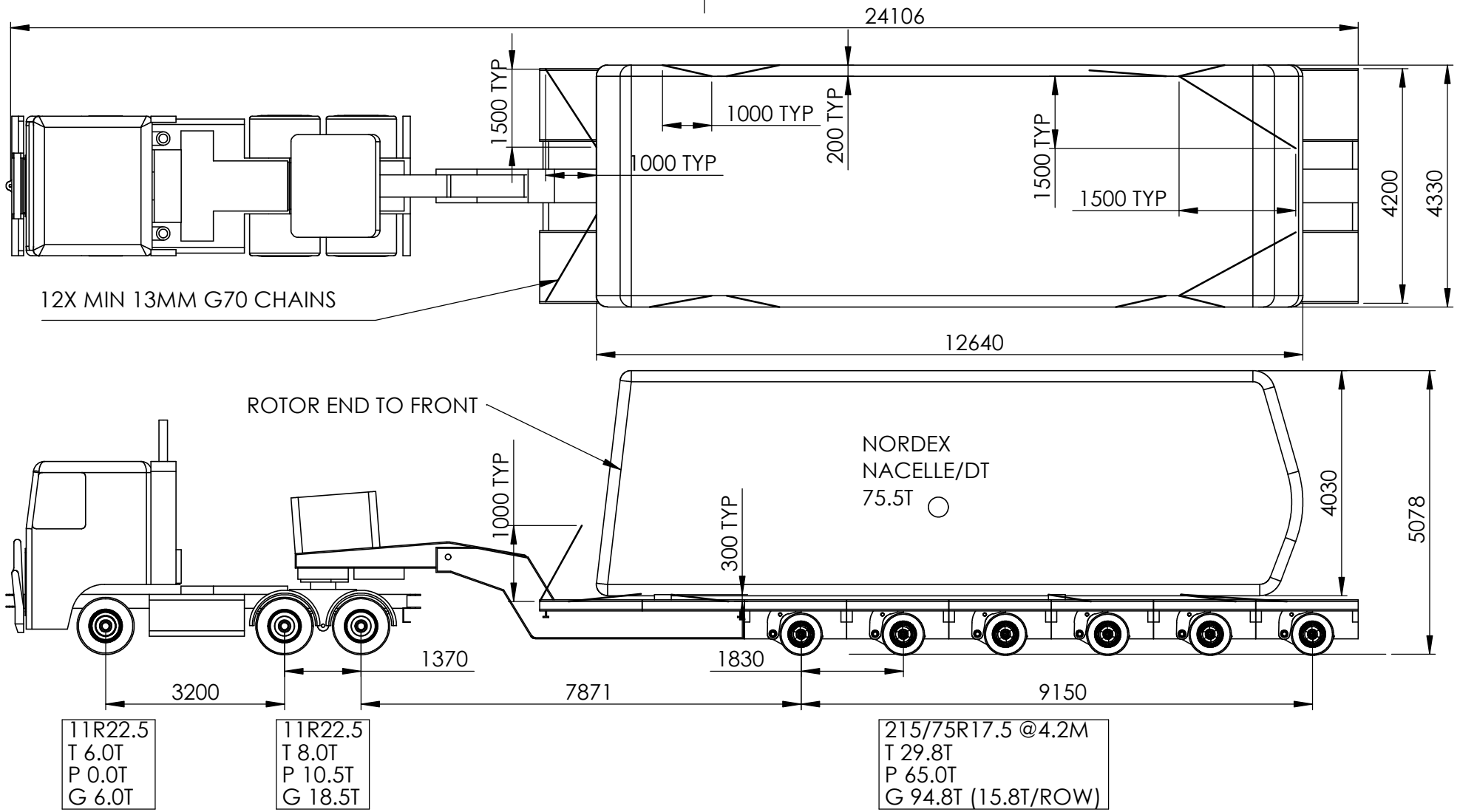
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65T HUB

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DRG NO:
NORD_MCWF_HUB01

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- ALL RESTRAINTS 10MM G70 WITH RATCHET RURNBUCKLES
- DOUBLE CHAINS WHERE POSSIBLE

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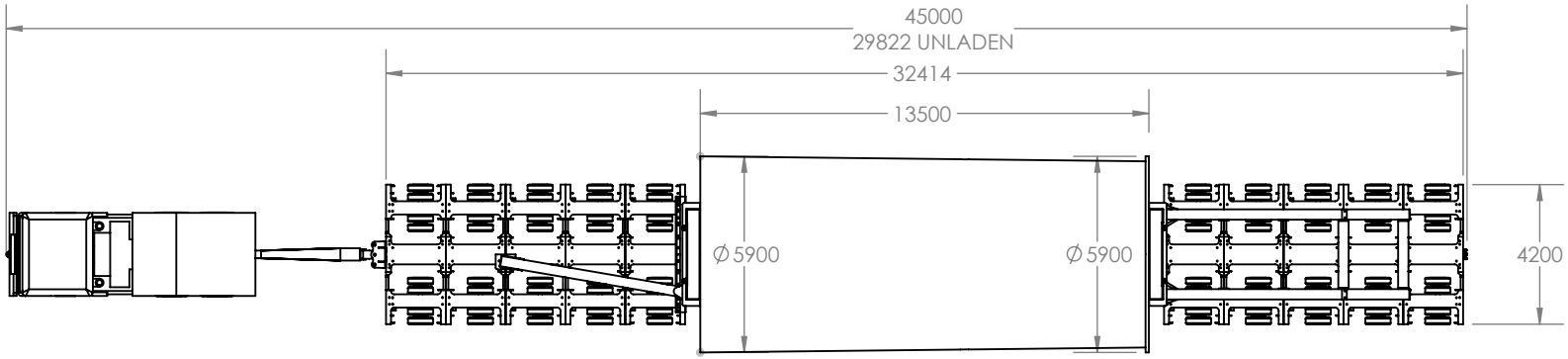
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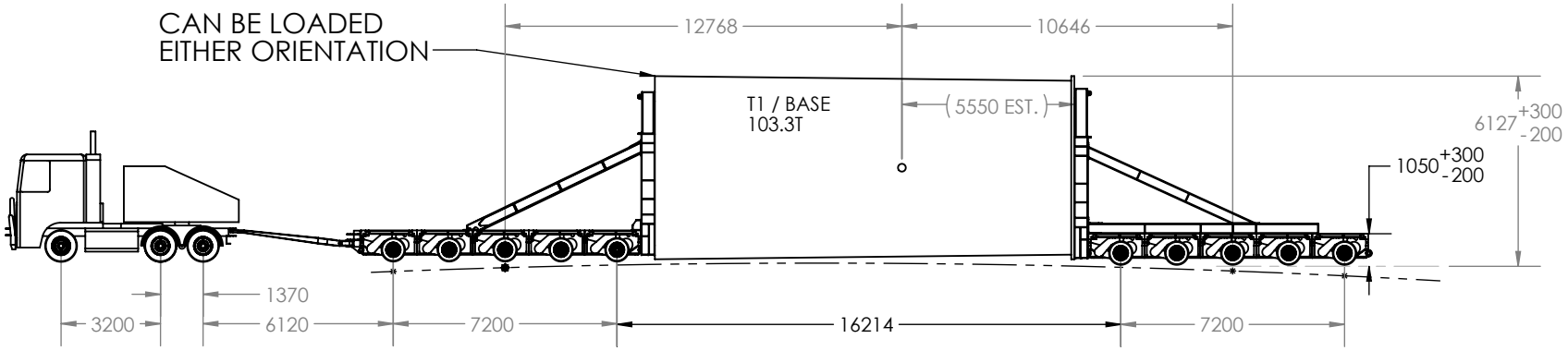
NORDEX
NACELLE 6X8 - 75.5T

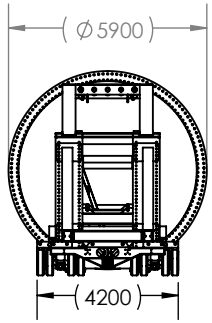
DO NOT SCALE

DRG NO: NORD_MCWF_NAC01

A4

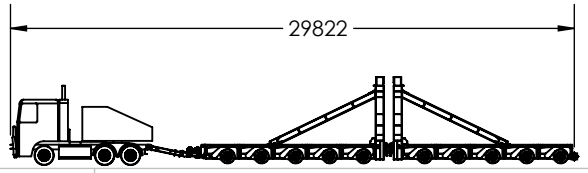






11R22.5 T 6.25T P 0.0T G 6.25T	11R22.5@2.5m T 18.5T P 0T G 18.5T	5x8 215/75R17.5 @4.2m T 5x3.6+1+8.2=27.2T P 52.6T G 79.8T (16.0T/ROW)

5x8 215/75R17.5 @4.2m
T 5x3.6+8.2=26.2T
P 50.7T
G 76.9T (15.4T/ROW)



TARE	77.9T
GVM	181.2T

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DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

REV		DATE	DRN	CKD	APP
0	ISSUED FOR APPROVAL	16/07/2025	J.S	W.A	W.A
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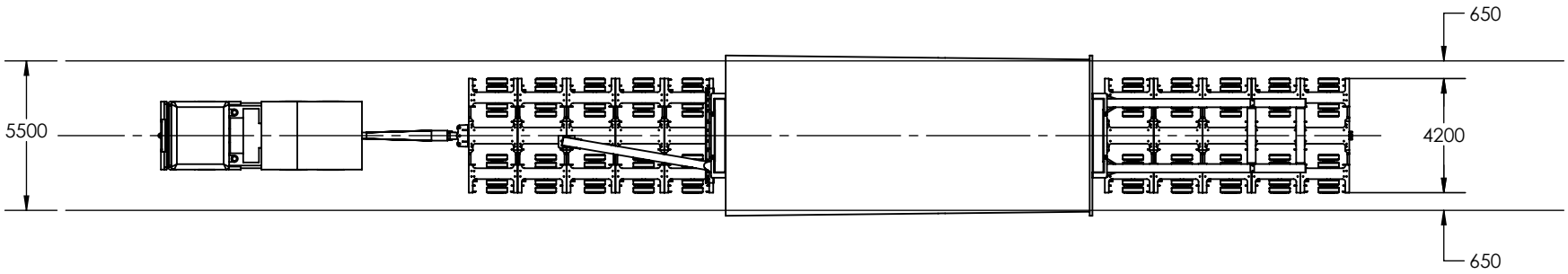
TRANSPORT PROPOSAL

NORDEX
164mHH Ø5.9mF
T1 TOWER 103.3T

DO NOT SCALE

DRG NO: NORD 164HH_5.9m_T01AAA

A4



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- LINEAR ± 5.0

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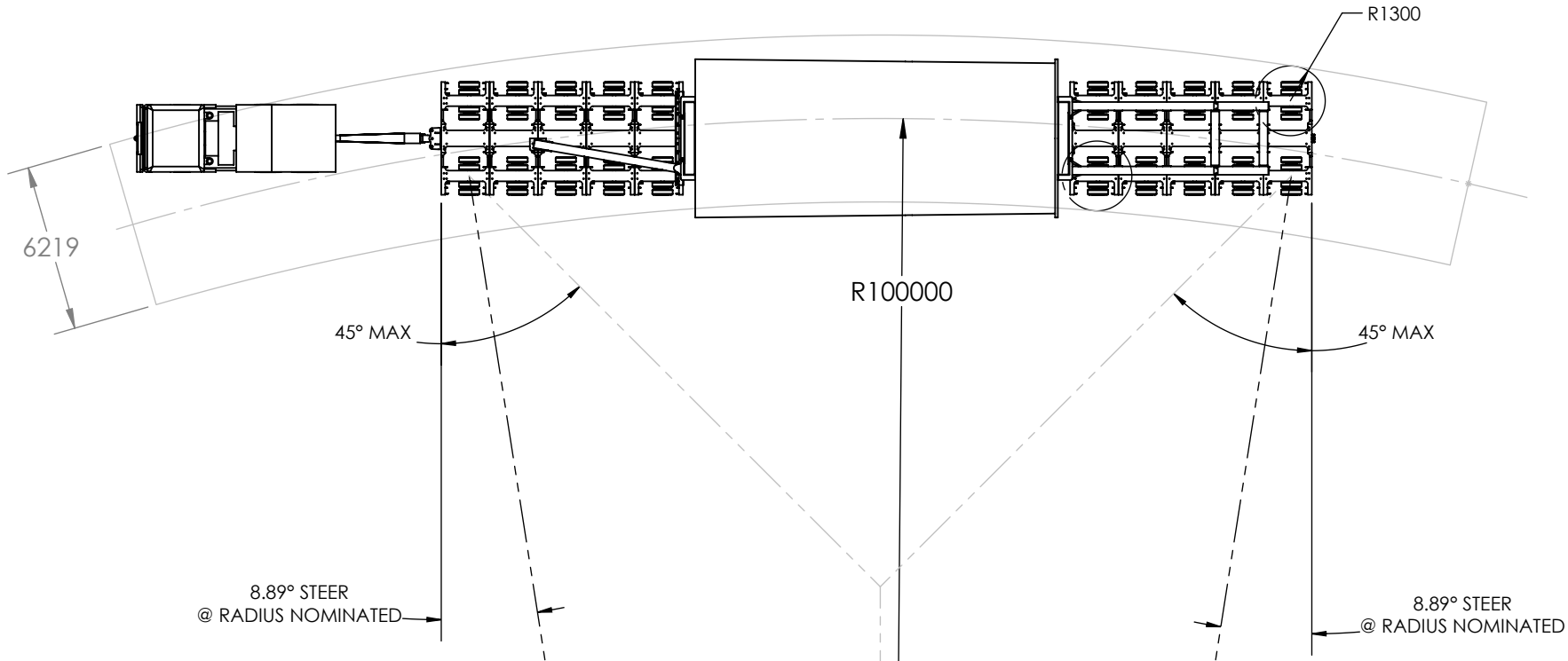
TRANSPORT PROPOSAL

NORDEX
164mHH Ø5.9mF
T1 TOWER 103.3T

DO NOT SCALE

DRG NO: NORD 164HH_5.9m_T01AAA

A4



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TOLERANCES
- LINEAR ± 5.0

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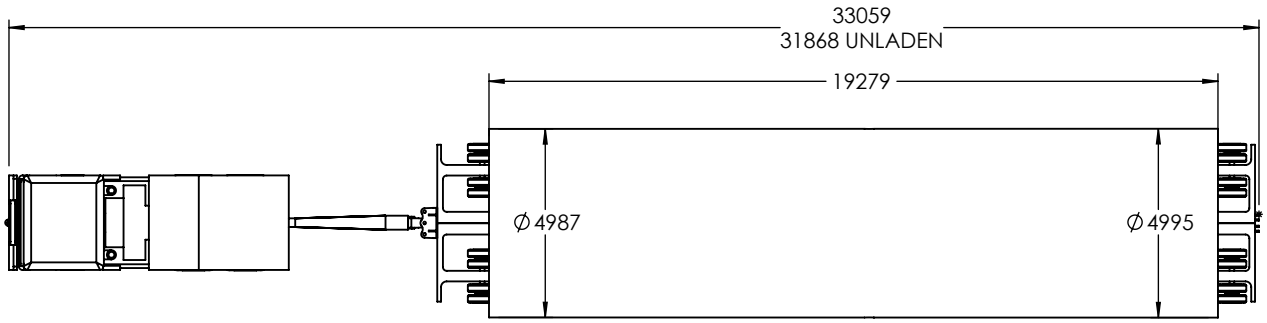
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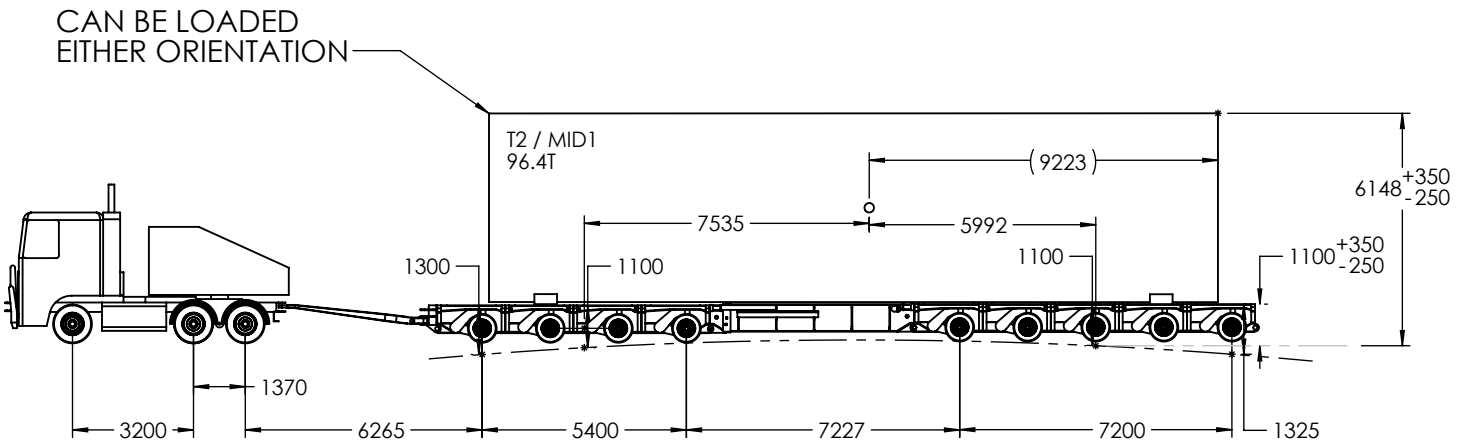
NORDEX
164mHH Ø5.9mF
T1 TOWER 103.3T

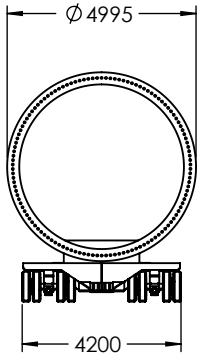
DO NOT SCALE

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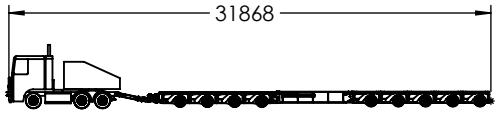
A4







11R22.5	11R22.5@2.5m	4x8 215/75R17.5 @4.2m	5x8 215/75R17.5 @4.2m
T 6.25T	T 18.5T	T 16.9T	T 20.5T
P 0.0T	P 0T	P 42.7T	P 53.7T
G 6.25T	G 18.5T	G 59.6T (14.9T/ROW)	G 74.2T (14.84T/ROW)



TARE	62.15T
GVM	158.55T

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DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

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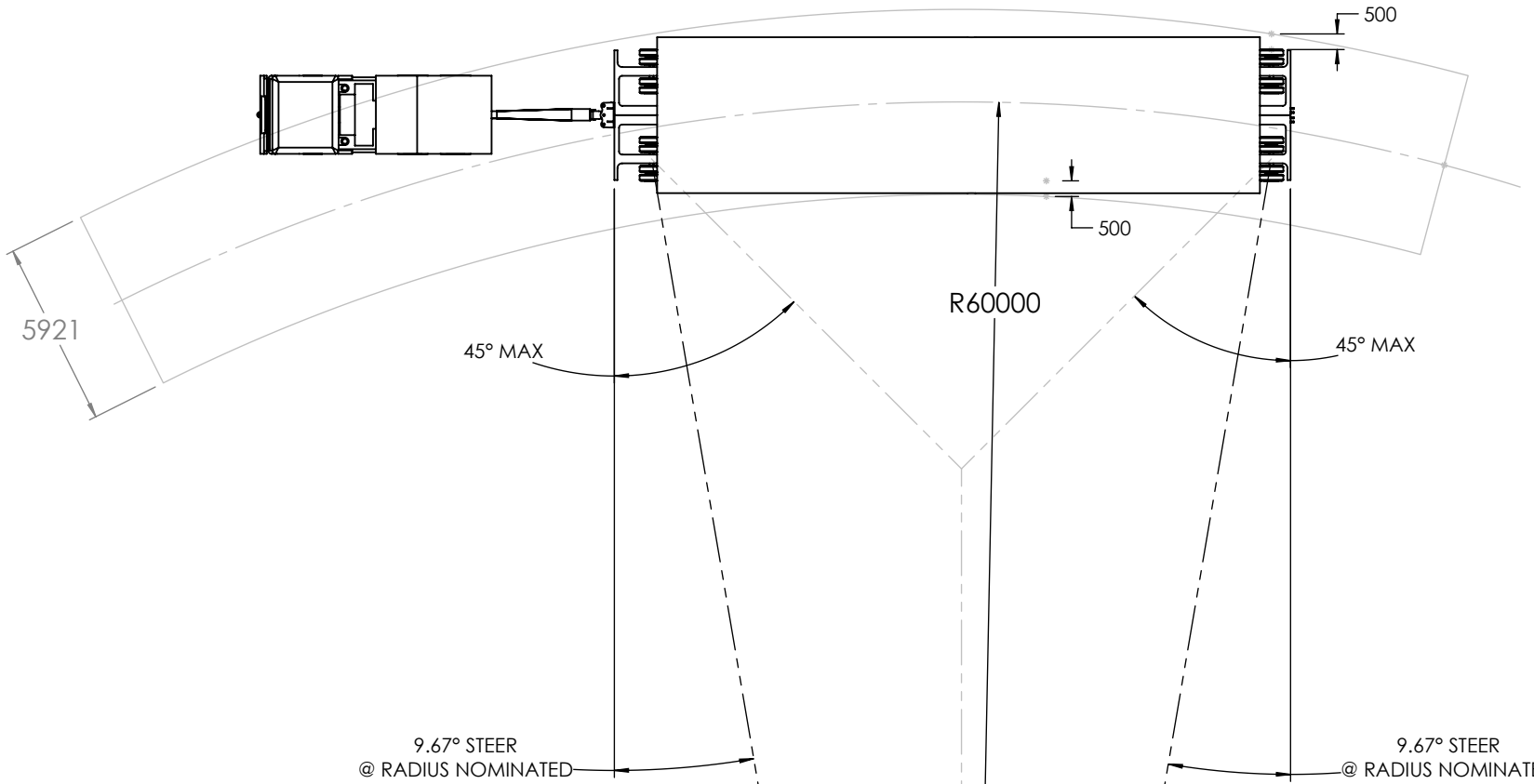
TRANSPORT PROPOSAL

TS148
T2 TOWER 96.4T

DO NOT SCALE

DRG NO: NORD_TS148_T02A

A4



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DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

REV		DATE	DRN	CKD	APP
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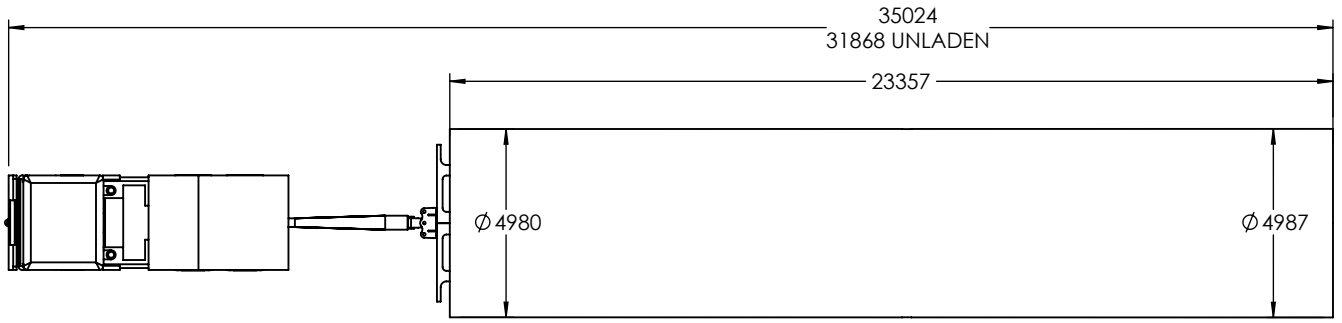
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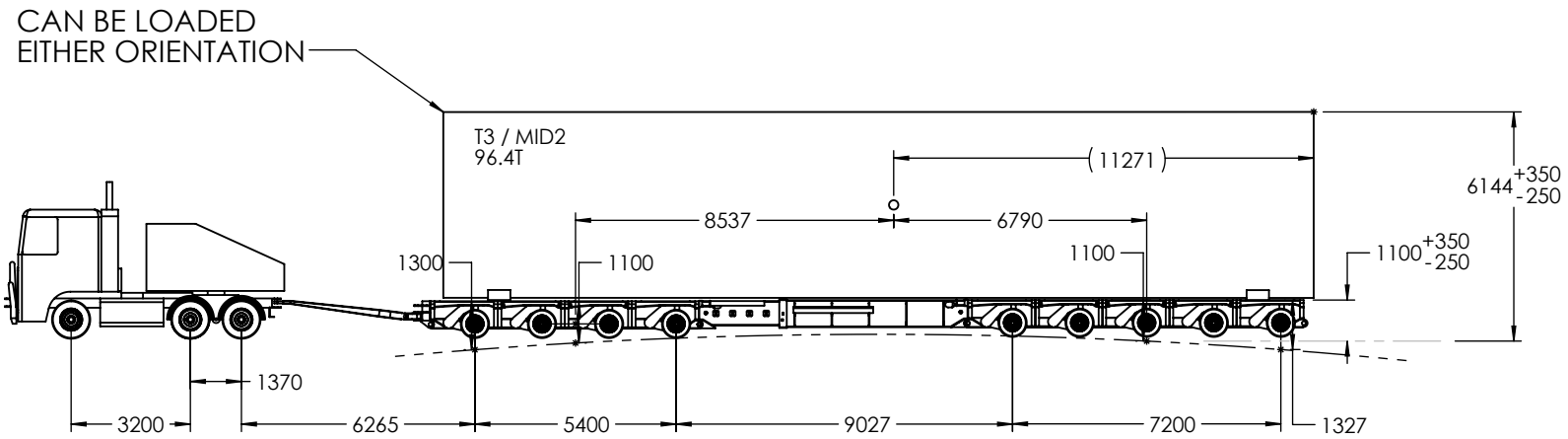
TS148
T2 TOWER 96.4T

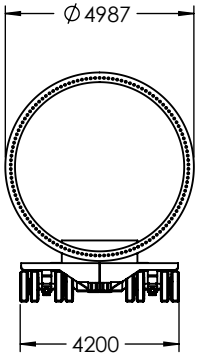
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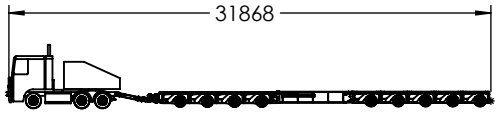
A4







11R22.5 T 6.25T P 0.0T G 6.25T	11R22.5@2.5m T 18.5T P 0T G 18.5T	4x8 215/75R17.5 @4.2m T 16.9T P 42.7T G 59.6T (14.9T/ROW)	5x8 215/75R17.5 @4.2m T 20.5T P 53.7T G 74.2T (14.84T/ROW)



TARE	62.15T
GVM	158.55T

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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

REV		DATE	DRN	CKD	APP
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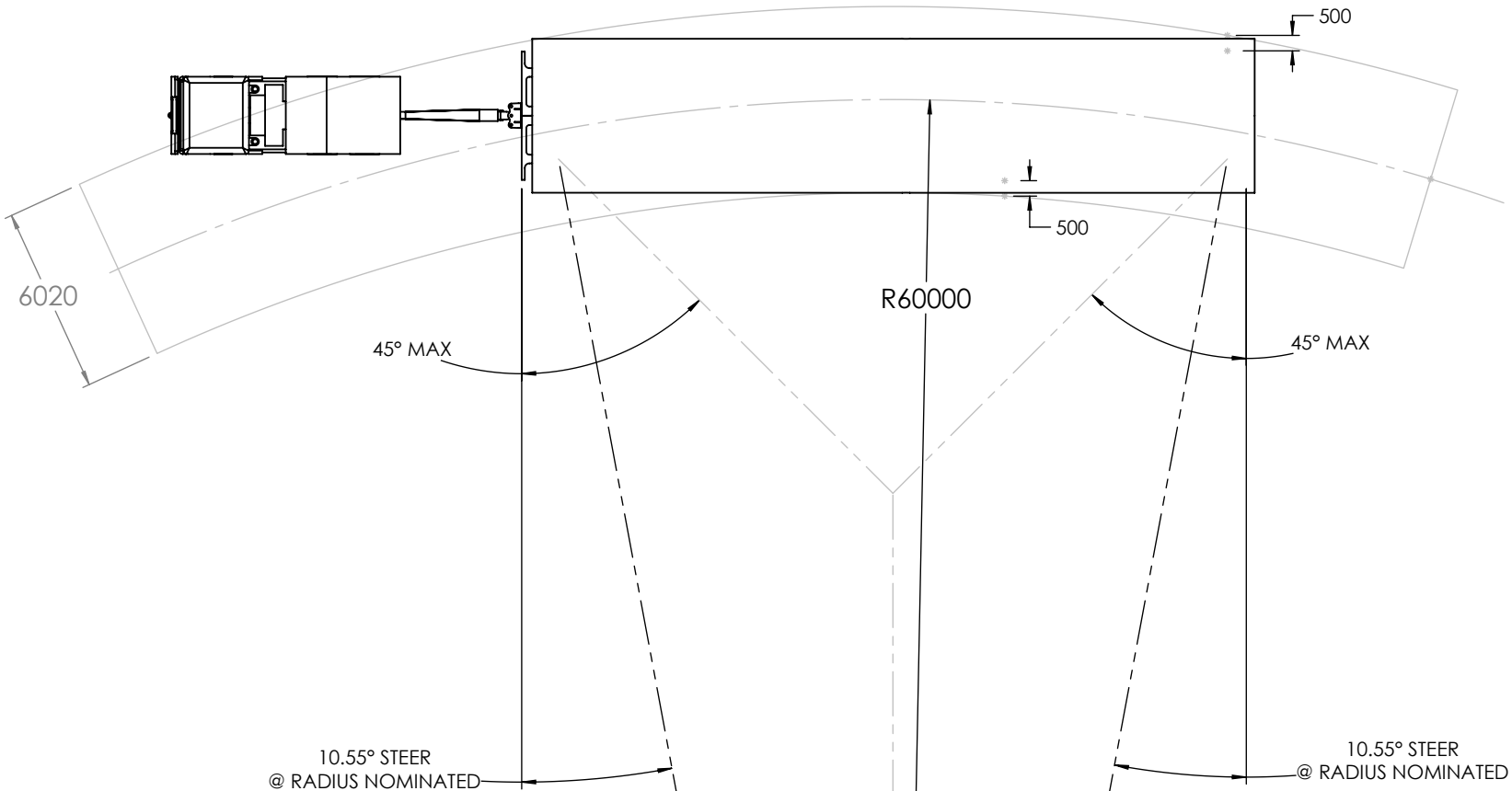
TRANSPORT PROPOSAL

TS148
T3 TOWER 96.4T

DO NOT SCALE

DRG NO:
NORD_TS148_T03A

A4



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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

REV		DATE	DRN	CKD	APP
0	ISSUED FOR APPROVAL	29/08/2024	J.S	W.A	W.A
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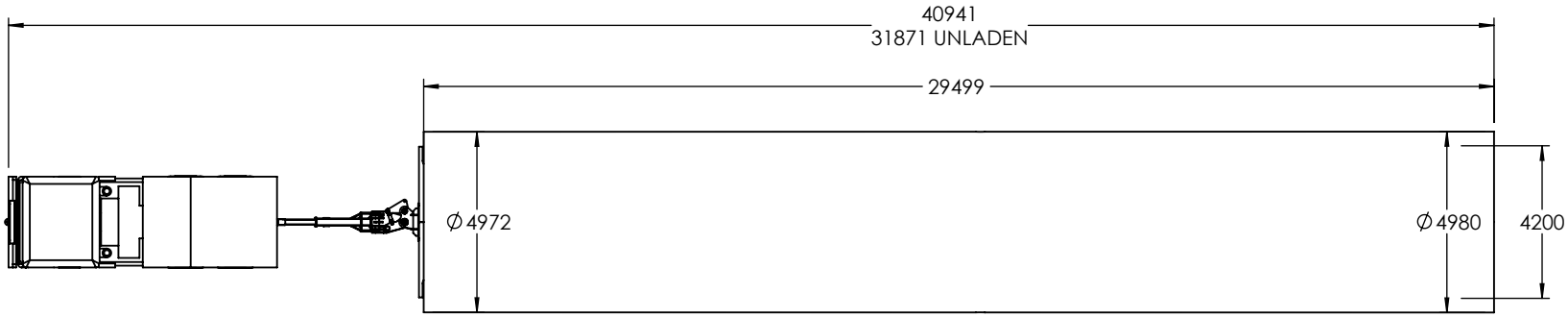
TRANSPORT PROPOSAL

TS148
T3 TOWER 96.4T

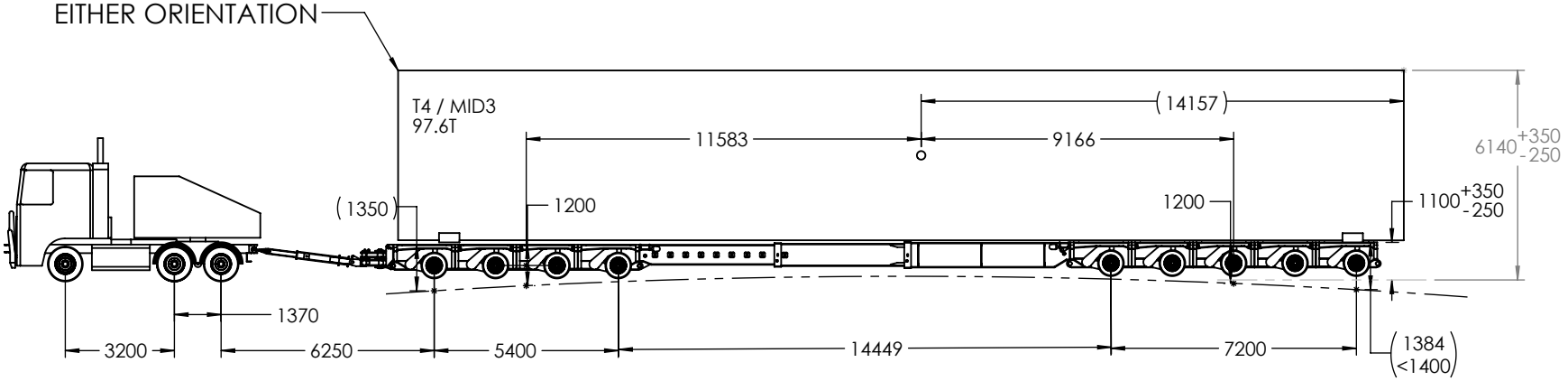
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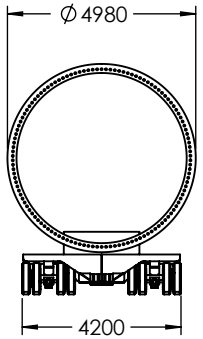
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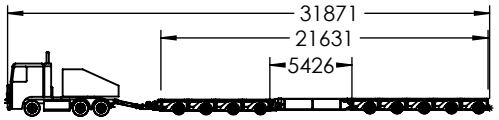


CAN BE LOADED
EITHER ORIENTATION





11R22.5	11R22.5@2.5m	4x8 215/75R17.5 @4.2m	5x8 215/75R17.5 @4.2m
T 6.25T	T 18.5T	T 17.1T	T 20.7T
P 0.0T	P 0T	P 43.1T	P 54.5T
G 6.25T	G 18.5T	G 60.2T (15.05T/ROW)	G 75.2T (15.04T/ROW)



TARE	62.55T
GVM	160.75T

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TOLERANCES
- LINEAR ± 5.0

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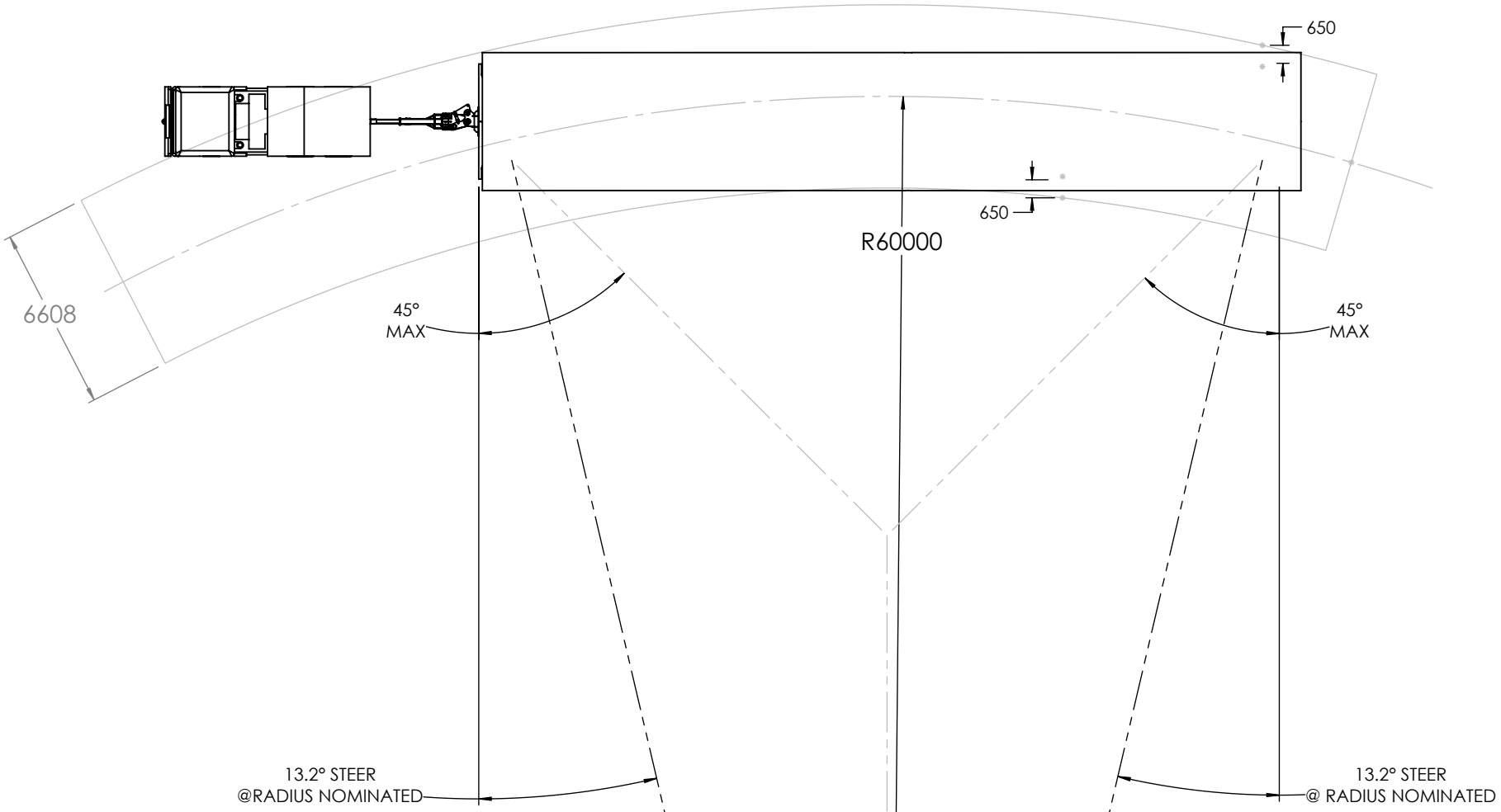
TRANSPORT PROPOSAL

TS148
T4 TOWER 97.6T

DO NOT SCALE

DRG NO: NORD_TS148_T04A

A4



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TOLERANCES
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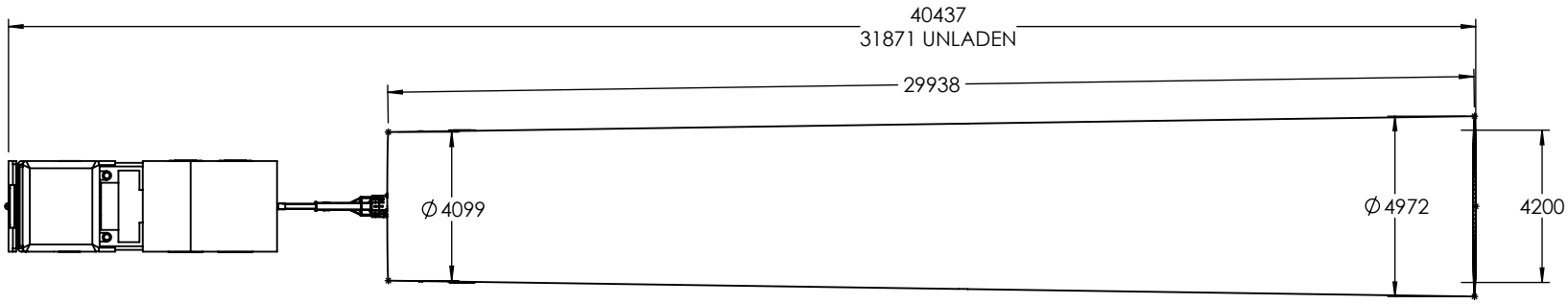
TRANSPORT PROPOSAL

TS148
T4 TOWER 97.6T

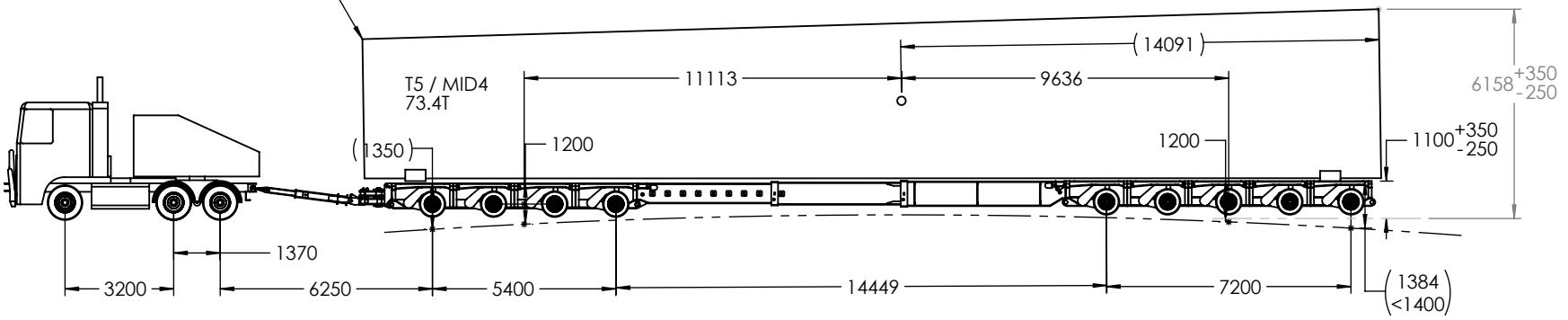
DO NOT SCALE

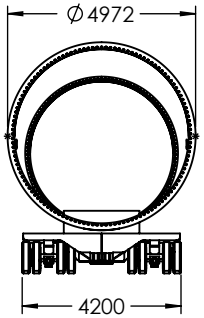
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A4

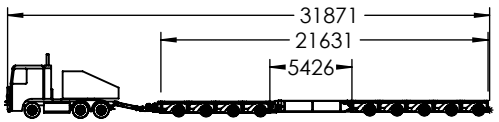


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EITHER ORIENTATION





11R22.5	11R22.5@2.5m	4x8 215/75R17.5 @4.2m	5x8 215/75R17.5 @4.2m
T 6.25T	T 18.5T	T 17.1T	T 20.7T
P 0.0T	P 0T	P 34.1T	P 39.3T
G 6.25T	G 18.5T	G 51.2T (12.8T/ROW)	G 60.0T (12.0T/ROW)



TARE	62.55T
GVM	135.95T

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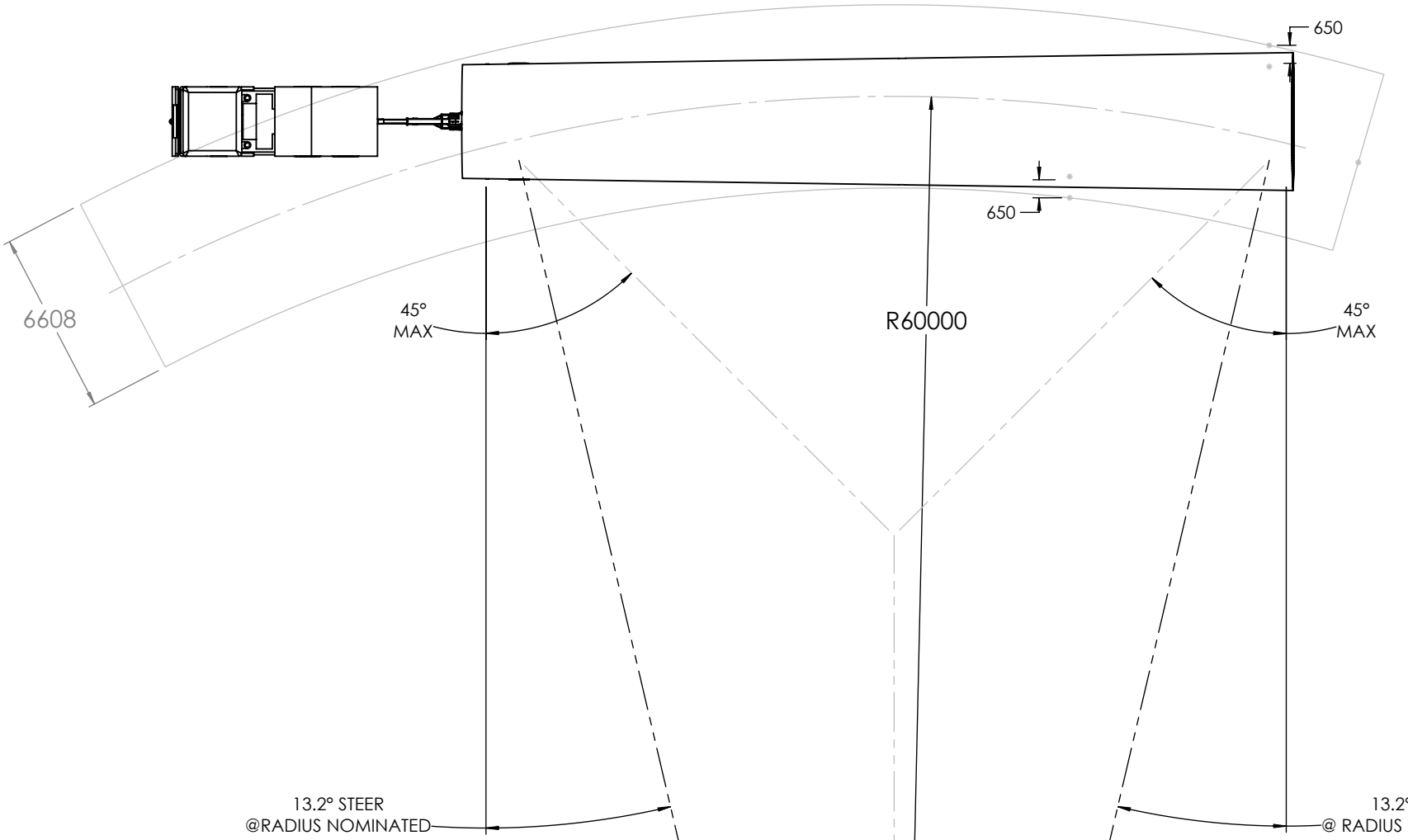
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TS148
T5 TOWER 73.4T

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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

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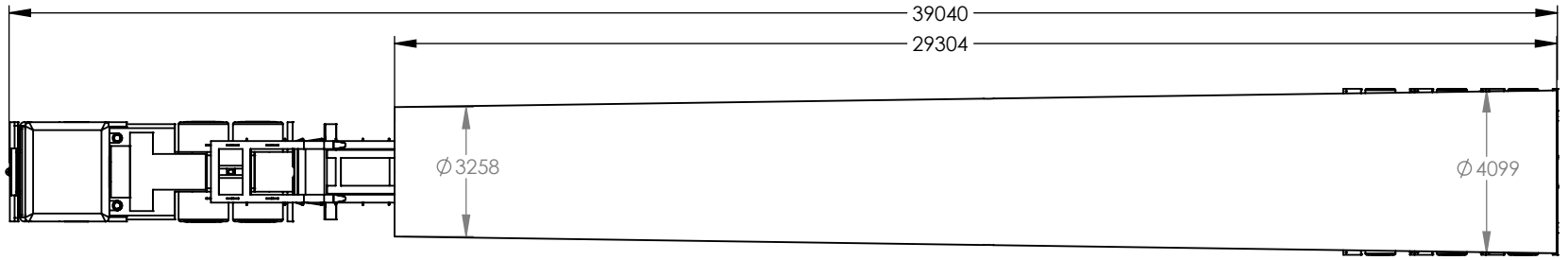
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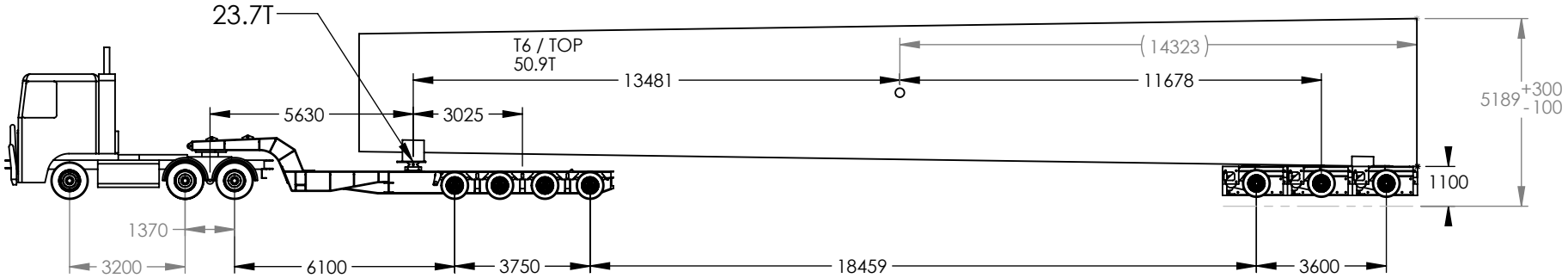
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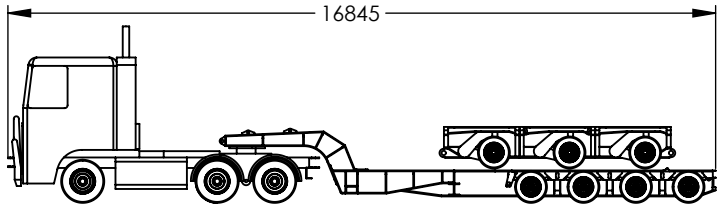
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-CRADLE MUST HAVE DRY RUBBER UNDER
-CRADLE MUST BE RESTRAINED TO TRAILERTO RESIST MOVEMENT SIDEWAYS

-DRY RUBBER THEN 3MM CLEARANTI MARKING PLASTIC BETWEEN TOWER AND CRADLE
-ALL RESTRAINTS 10MM G70 WITH RATCHET TURNBUCKLES
-DOUBLE UP IF AVAILABLE, USE BOLTED ADAPTER TO TOWER NEVER PASS CHAIN THROUGHHOLES





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P 0.0T	P 8.3T	P 15.4T	P 27.23T
G 6.25T	G 17.3T	G 23.4T	G 41.73T (13.91T/ROW)



TARE	37.75T
GVM	88.65T

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TOLERANCES
- LINEAR ± 2.0

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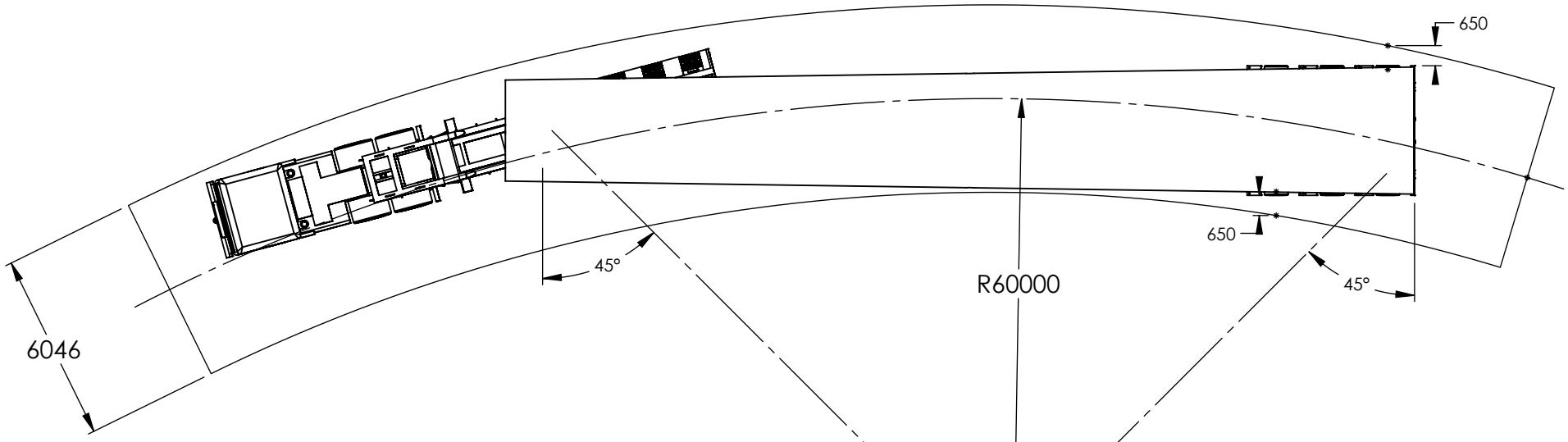
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TOLERANCES
- LINEAR ± 2.0

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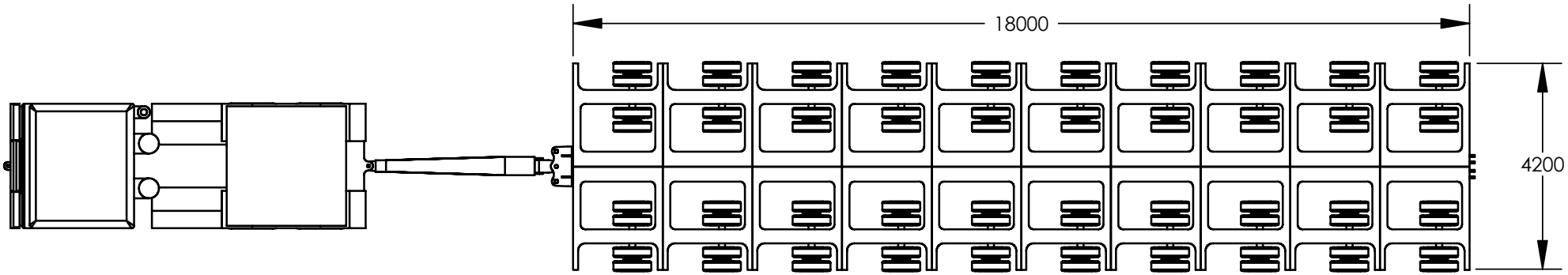
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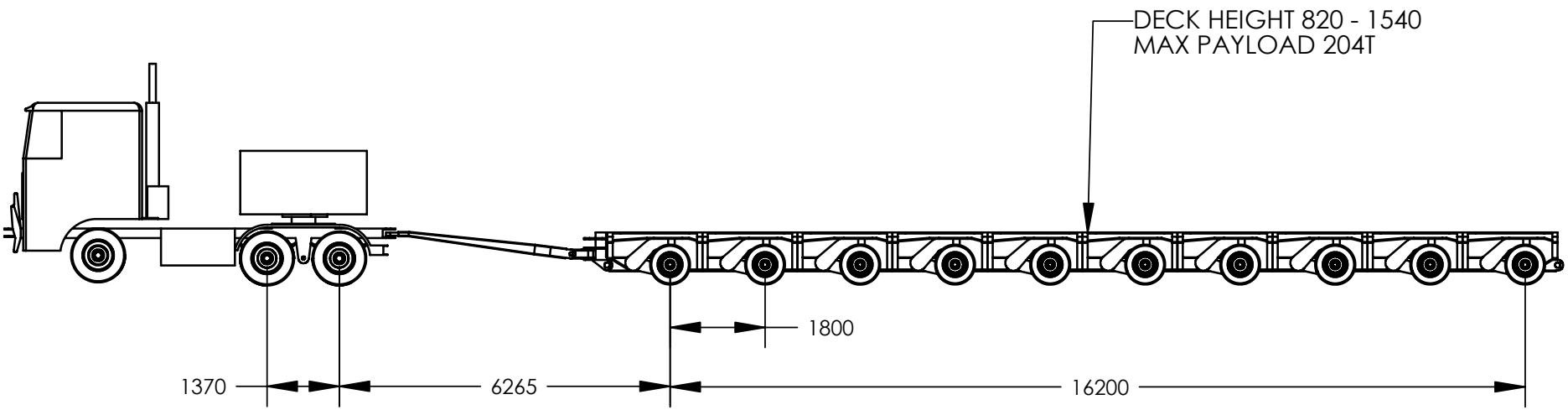
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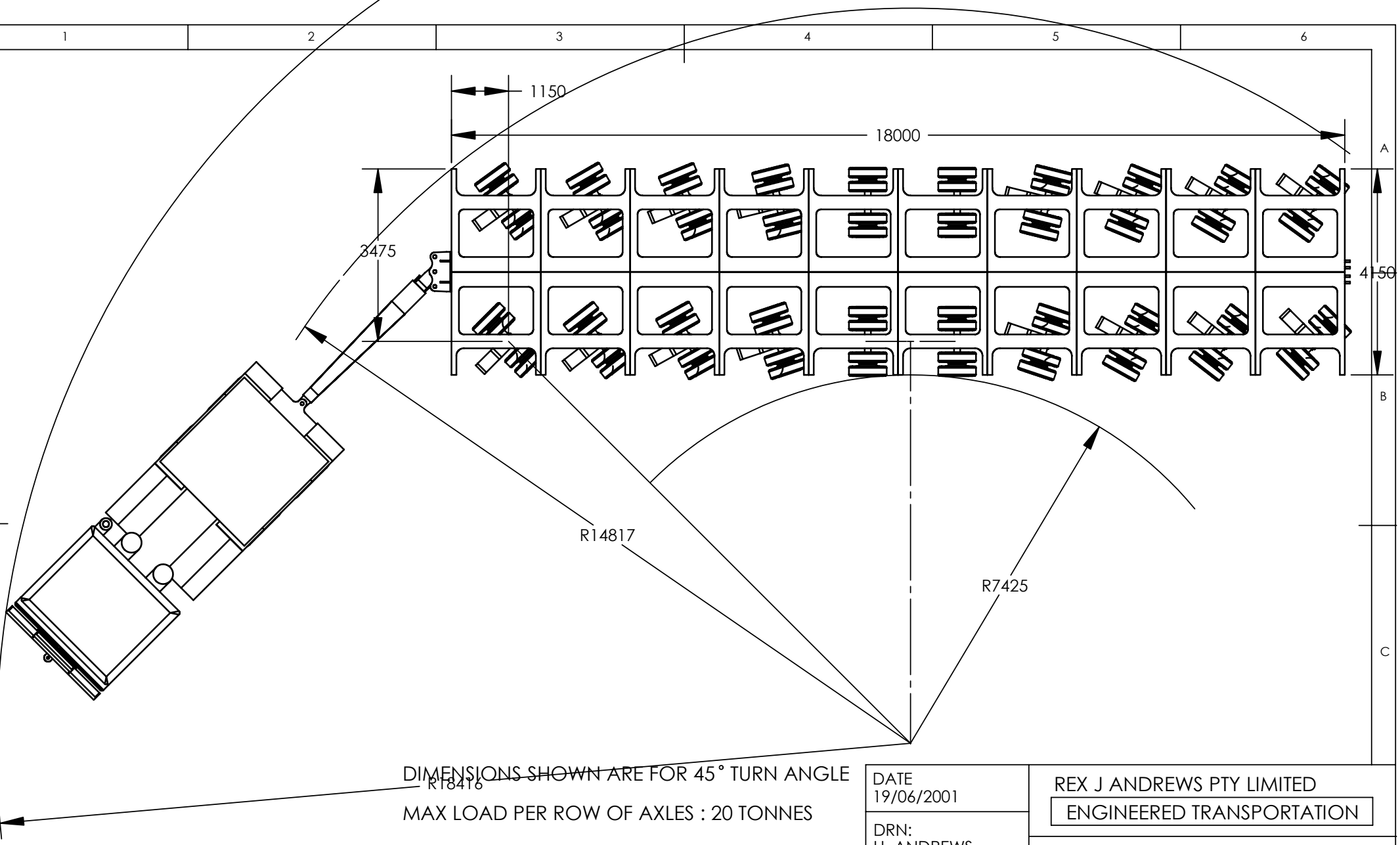
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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES (UNLESS OTHERWISE STATED)
- LINEAR ± 2.0
- RADIAL ± 0.2

DATE 30/08/2001	REX J ANDREWS PTY LIMITED ENGINEERED TRANSPORTATION
DRN: H. ANDREWS	GENERAL ARRANGEMENT
APPROVED:	960 SERIES 10X8 PLATFORM TRAILER
ONLY APPROVED DRAWINGS CAN BE USED FOR MANUFACTURING	DO NOT SCALE / DRG NO: 10X8_02 / A4



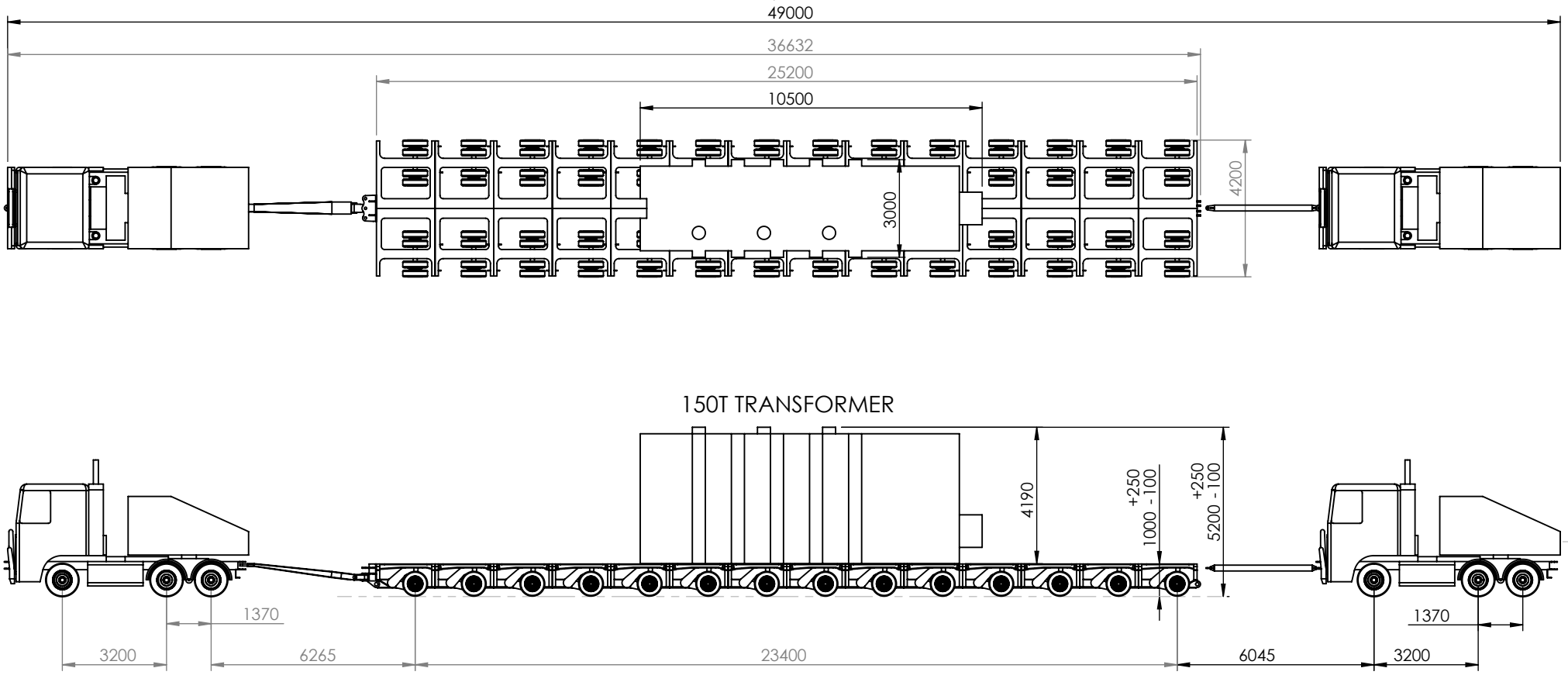
DIMENSIONS SHOWN ARE FOR 45° TURN ANGLE

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MAX GROSS LOAD : 200 TONNES
MAX PAYLOAD : 160 TONNES

TYRE TYPE 215/75 R17.5 J
TRAILER LIFT:
MIN : 820MM
MAX : 1520MM

DATE 19/06/2001	REX J ANDREWS PTY LIMITED ENGINEERED TRANSPORTATION
DRN: H. ANDREWS	MAXIMUM TURN ANGLE
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P 0.0T	P 0.0T	P 150.0T	P 0.0T	P 0.0T
G 6.0T	G 18.5T	G 200.4T (14.3T/ROW)	G 6.0T	G 18.5T

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TRUCKS	1	2
TARE	74.9T	224.9T
GVM	224.9T	249.4T

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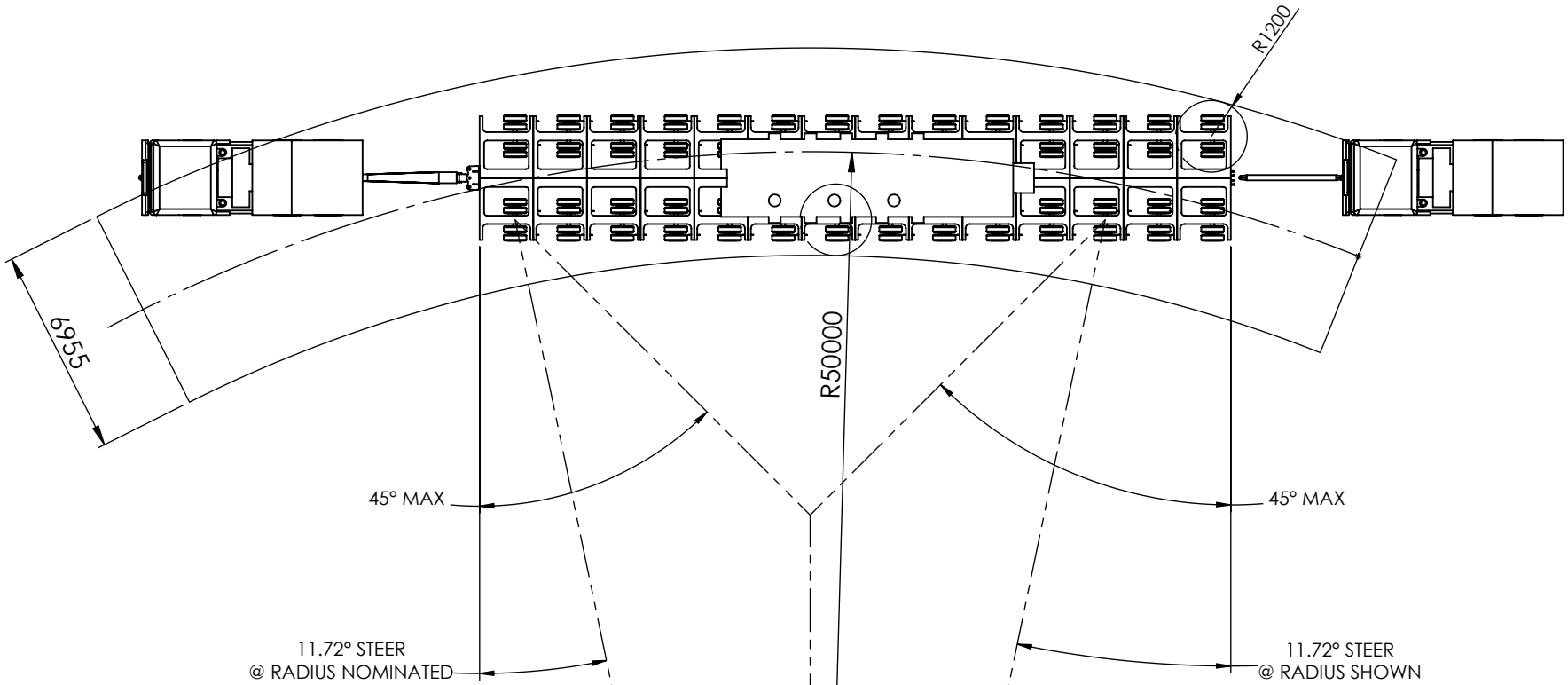
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Appendix B

Response to Preliminary TfNSW Queries, TTPP Letter dated 30 May 2025 (23022-L01V03-250528-Response to RFIs)

Our Ref: 23022

28 May 2025

Suite 1101, Level 11
213 Miller Street
North Sydney NSW 2060

Attention: Nathan Baker

Dear Nathan,

RE: BULLAWAH WIND FARM
RESPONSE TO TFNSW RFI'S

As requested, please find herein The Transport Planning Partnership (TTPP)'s response to TfNSW's RFI's regarding the Traffic Impact Assessment prepared for the Bullawah Wind Farm.

Background

An initial Traffic Impact Assessment (TIA) for the proposed Bullawah Wind Farm was prepared by The Transport Planning Partnership (TTPP) on 2 July 2024 as part of the Development Application.

In response to preliminary comments received from Transport for NSW (TfNSW), a revised TIA was subsequently prepared and lodged on 2 April 2025. This revised assessment addressed the issues raised in TfNSW's initial review, including traffic generation, access arrangements, and network capacity.

Following submission of the revised TIA, TfNSW provided further feedback identifying several outstanding matters requiring clarification. A meeting was held with TfNSW on 8 May 2025 to discuss these matters in detail. In accordance with the outcomes of that meeting, the applicant has been requested to provide further traffic related information addressing the following:

- A review of the requirements for an intersection upgrade at Cobb Highway and Jerilderie Road.
- Clarification of traffic distributions and peak hour volumes at key intersections.
- Clarification regarding the potential use of Four Corners Road and Kidman Way for site access.

- Further detail on proposed construction hours and their interaction with background traffic volumes.
- Application of TfNSW provided growth rates for the Cobb Highway.

This report has been prepared to provide the requested responses and supplementary information to support TfNSW's ongoing assessment of the Bullawah Wind Farm proposal.

Peak Hour Distribution and Construction Hours

The traffic impact assessment for Bullawah Wind Farm has been based on conservative and realistic assumptions regarding construction activity timing and traffic distribution. Specifically:

- Development peak periods have been assessed based on the arrival and departure times of construction workers, which are expected to occur between 6:30am–7:30am (AM peak) and 5:30pm–6:30pm (PM peak) on weekdays.
- Heavy vehicle movements are expected to occur throughout the standard construction hours (i.e., 7:00am–6:00pm weekdays, 8:00am–1:00pm Saturdays) and are anticipated to be evenly distributed across the day.
- Stick diagrams have been provided in **Attachment One** to illustrate the distribution of construction traffic across key routes and intersections.
- Network peak periods have been adopted from the surveyed intersections to establish baseline traffic conditions. These peak hours may not align with the development's peak periods; however, this approach provides a conservative, worst-case scenario assessment of traffic impacts. The surveyed road network peak periods are shown in Table 1.

Table 1:Surveyed Road Network Peak Hour Periods

Intersection	Weekday AM Peak	Weekday PM Peak	Weekend Peak
Cobb Highway and Sturt Highway	8:15am–9:15am	2:00pm–3:00pm	11:15am–12:15pm
Sturt Highway and Conargo Road	9:00am–10:00am	1:45pm–2:45pm	11:00am–12:00pm
Conargo Road and North Boundary Road	9:30am–10:30am	1:00pm–2:00pm	11:45am–12:45pm
Jerilderie Road, Willurah Road and North Boundary Road	6:15am–7:15am	1:00pm–2:00pm	6:30am–7:30am
Cobb Highway and Jerilderie Road	9:15am–10:15am	2:15pm–3:15pm	11:15am–12:15pm

Traffic Assessment

Adoption of Revised Growth Rate

Following consultation with Transport for NSW (TfNSW), an updated annual background traffic growth rate of 1.5% has been provided for the Cobb Highway.

This rate supersedes the previously assumed 0.6% per annum, which was based on Newell Highway growth rates. The updated growth rate has been applied to traffic volumes used in the intersection capacity assessments and turn warrant analyses associated with the Bullawah Wind Farm.

Revised Turn Warrants and Traffic Generation

In response to the revised background growth assumptions, the turn warrants assessment has been updated. **Attachment Two** outlines the updated turn warrant calculations based on revised growth rates with corresponding turn warrant diagrams plotted in Figure 1. **Attachment Three** presents updated traffic volumes and level of service (LoS) outcomes across key intersections.

There are no significant changes to the assessment based on the updated traffic growth rates as the existing traffic volumes on Cobb Highway were relatively low.

Cobb Highway and Jerilderie Road

As demonstrated in Figure 1, the left-turn movement from Cobb Highway to Jerilderie Road exceeds the threshold for a CHL (Channelised Left Turn treatment) during the Weekday AM peak hour period.

This result, however, is primarily influenced by traffic generated by the Pottinger Wind Farm proposal. When Pottinger Wind Farm traffic generation is excluded from the analysis, this movement no longer warrants a CHL as shown in Table 2 and Figure 2. The following four cases have been assessed:

- **Case 1**: Existing Case
- **Case 2**: Existing Case plus background traffic growth and Bullawah Wind Farm traffic
- **Case 3**: Existing Case plus background traffic growth and Pottinger Wind Farm traffic
- **Case 4**: Existing Case plus background traffic growth, Bullawah Wind Farm and Pottinger Wind Farm traffic

Table 2: Turn Warrants Assessment Cobb Highway and Jerilderie Road – Left Turn

Scenario	Weekday AM Peak		Weekday PM Peak		Recommended Treatment
	Q_M (veh/h)	Q_T (veh/h)	Q_M (veh/h)	Q_T (veh/h)	
Case 1	23	3	18	0	Existing BAL requires no conversion.
Case 2	24	99	19	28	Existing BAL requires no conversion
Case 3	312	197	19	0	Existing BAL requires conversion to CHL
Case 4	312	293	19	28	Existing BAL requires conversion to CHL

Figure 1: Warrants for Turn Treatments on Major Roads at Unsignalised Intersections – Plotted

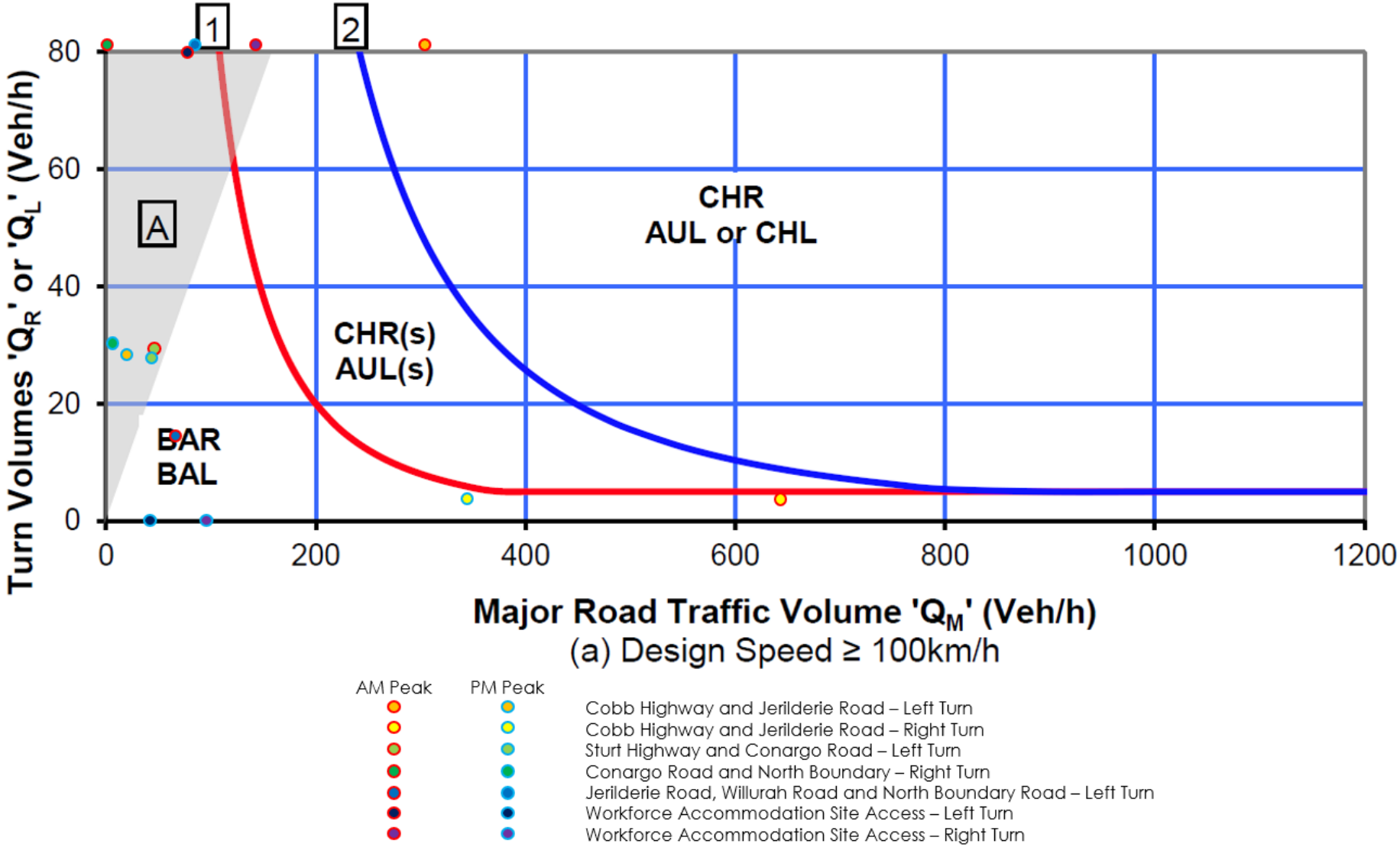
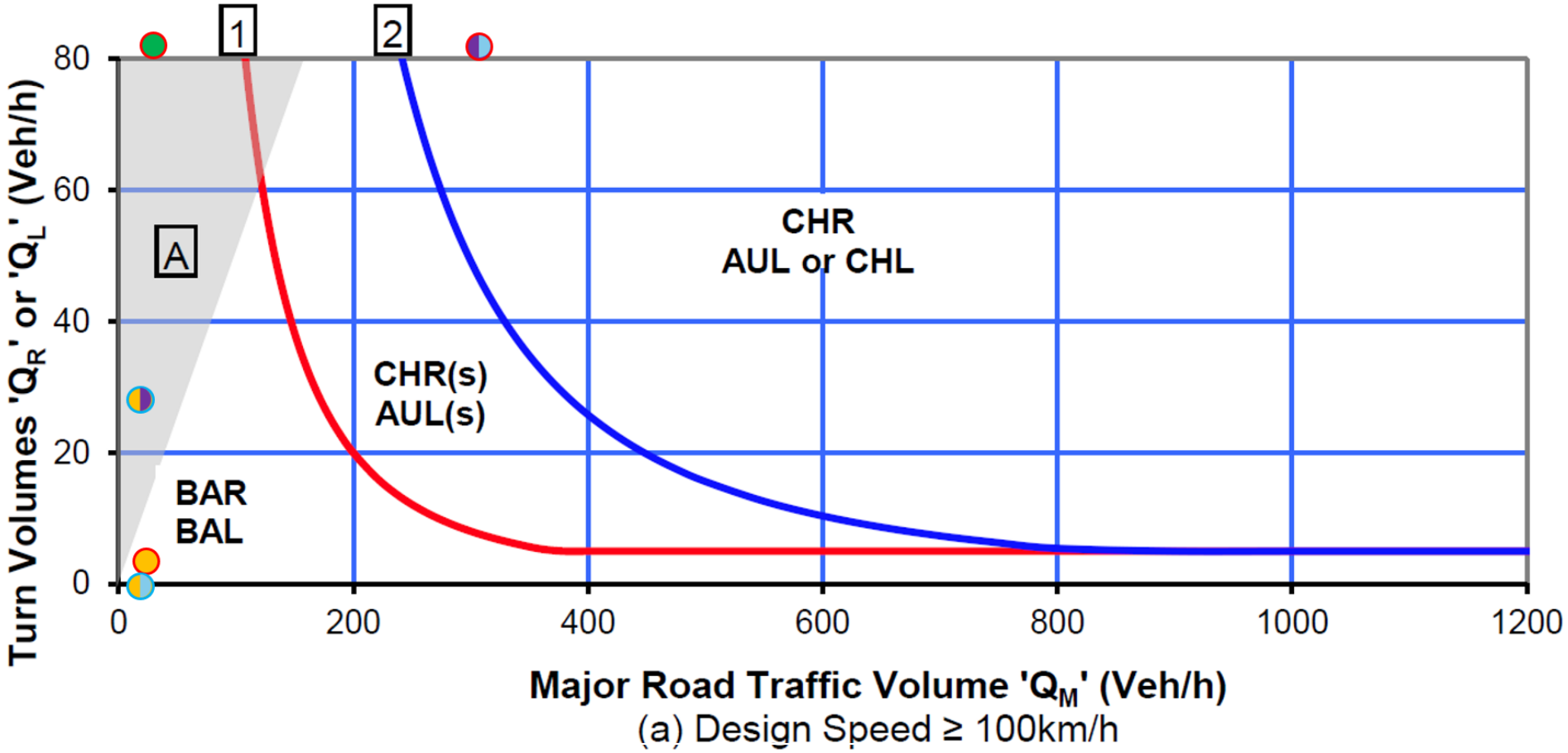


Figure 2: Turn Warrants Assessment Cobb Highway and Jerilderie Road Intersection – Plotted



AM Peak PM Peak

Case 1: Existing Case
Case 2: Existing Case plus background traffic growth and Bullawah Wind Farm traffic
Case 3: Existing Case plus background traffic growth and Pottinger Wind Farm traffic
Case 4: Existing Case plus background traffic growth, Bullawah Wind Farm and Pottinger Wind Farm traffic

The Pottinger Wind Farm Traffic Impact Assessment has identified and committed to the upgrade of the Cobb Highway and Jerilderie Road intersection.

As such, Bullawah Wind Farm does not independently trigger the need for an upgrade, considering the following scenarios:

- Scenario 1: Pottinger Wind Farm is not approved – the CHL upgrade is not required.
- Scenario 2: Pottinger Wind Farm is approved and constructs the CHL – no obligation falls on Bullawah.

In both cases, construction traffic generated by Bullawah Wind Farm would not trigger the need for providing the CHL upgrade and the road network can continue to function acceptably without additional works.

BayWa r.e. had previously committed to limiting traffic from the southern quarries to a maximum of four vehicle movements per hour. However, the right-turn movement from Cobb Highway onto Jerilderie Road still meets the threshold for a Basic Right Turn (BAR) treatment, as the intersection is not currently upgraded.

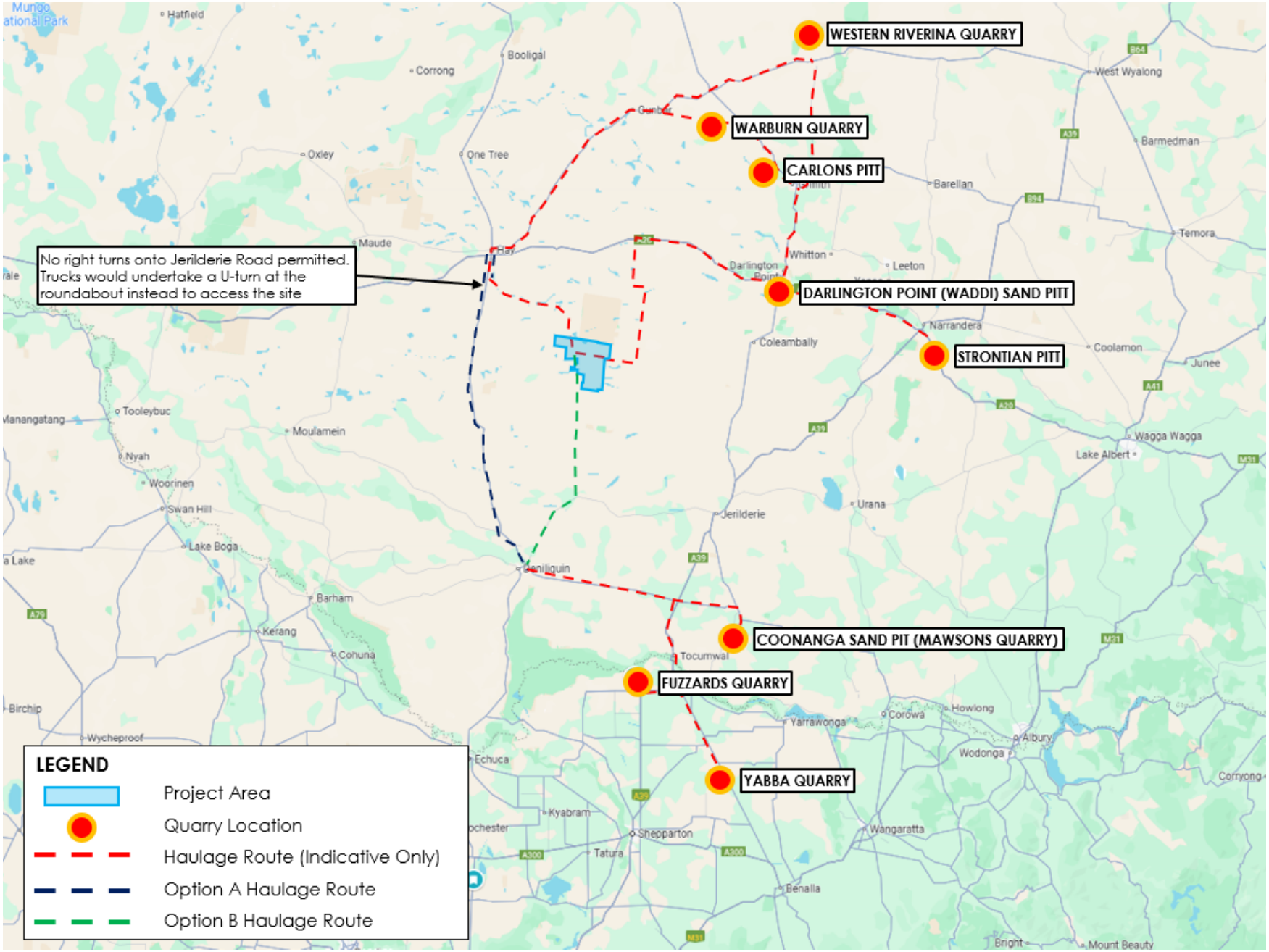
To avoid the need for this upgrade and reduce disruption to the road network and surrounding environment for what is only a temporary requirement, two alternative routes are proposed to the southern quarries. It is also proposed to remove the Lake Cooper Quarry as a possible quarry option.

Option A retains the existing outbound route to the quarries but modifies the return route. Under this option, quarry vehicles would travel north along the Cobb Highway past Jerilderie Road, perform a U-turn at the Sturt Highway/Cobb Highway roundabout, and then return southbound to make a left turn into Jerilderie Road. This eliminates the need for a right-turn movement from the Cobb Highway into Jerilderie Road, thereby removing the requirement for a turn warrant assessment.

Option B would have vehicles accessing the southern quarries use Willurah Road and Carrathool Road to access the Riverina Highway. A turn warrants assessment of the Willurah Road/ Carrathool Road intersection and Wanderer Street/ Riverina Highway intersection is required.

These updated routes are presented in in Figure 3.

Figure 3: Quarry Locations and Travel Routes



The two turning movements for Option B that may trigger a turn warrant is the left turn from Carrathool Road onto Willurah Road, and the right turn from Riverina Highway onto Wanderer Street. The Riverina Highway and Wanderer Street right turn has already been upgraded to a channelised right turn so no further upgrade would be required.

Traffic counts were obtained from Edward Rivers Council along Willurah Road and Carrathool Road, displayed in Table 3.

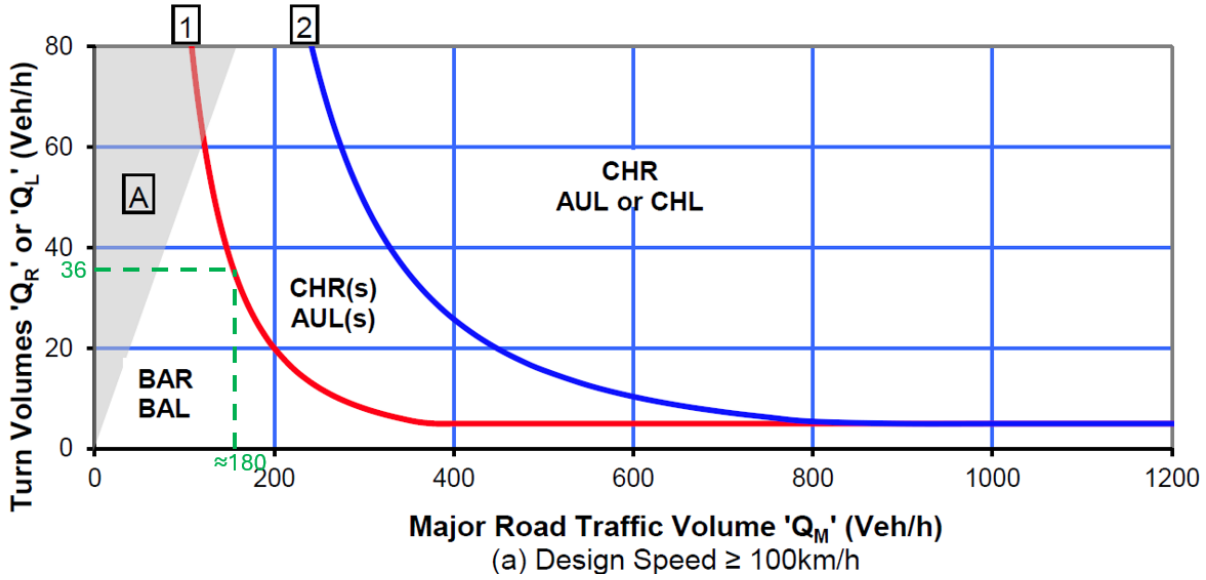
Table 3: Traffic Count Data

Road	Location	Annual Daily Traffic	Heavy Vehicles %	Year - Data Captured
Willurah Road	1km from Carrathool Road intersection	22	16	2024
Carrathool Road	On Bitumen section at CH 6.30, after the Willurah Road intersection	120	11	2024
Carrathool Road	0.5 Km from Conargo town	137	10.5	2010

It is proposed to add up to 25 additional left-turn movements from Carrathool Road onto Willurah Road. Applying a highly conservative assumption—that all traffic on Willurah Road originates from a left turn at Carrathool Road, and that 50% of the daily traffic occurs during the peak hour—this would result in approximately 36 peak hour left-turn movements (11 existing plus 25 proposed).

To trigger the threshold for a higher-order intersection treatment, Carrathool Road would need to carry at least 180 eastbound vehicles during the peak hour, as shown in Figure 4.

Figure 4: Turn Warrants Assessment Carrathool Road and Willurah Road



As evident from the traffic data in Table 3, Carrathool Road recorded an average daily traffic (ADT) volume of 120 vehicles east of Willurah Road (2024 count) and 137 vehicles west of

Willurah Road (2010 count). After accounting for directional splits and peak hour proportions, the number of eastbound vehicles falls well short of the 180-vehicle threshold. Accordingly, only a Basic Left (BAL) treatment is warranted.

While it is understood that the existing intersection is in poor condition and will require resurfacing and updated line marking, no road widening is necessary.

Kidman Way and Four Corners Road – Light Vehicle Access

Access to the project via Kidman Way and Four Corners Road will be restricted to a limited number of light vehicles associated with construction personnel. This route will be used only by workers not housed in the temporary accommodation facility, which accommodates a maximum of 35 workers. Of these, approximately 30% (i.e. 11 workers) are expected to travel from Coleambally.

This results in 11 light vehicle trips during both the AM and PM peak periods. The only movement with potential to meet turn warrant thresholds is the right turn from Kidman Way onto Four Corners Road during the AM peak. The PM peak left turn out of Four Corners Road onto Kidman Way is not applicable for a warrant upgrade.

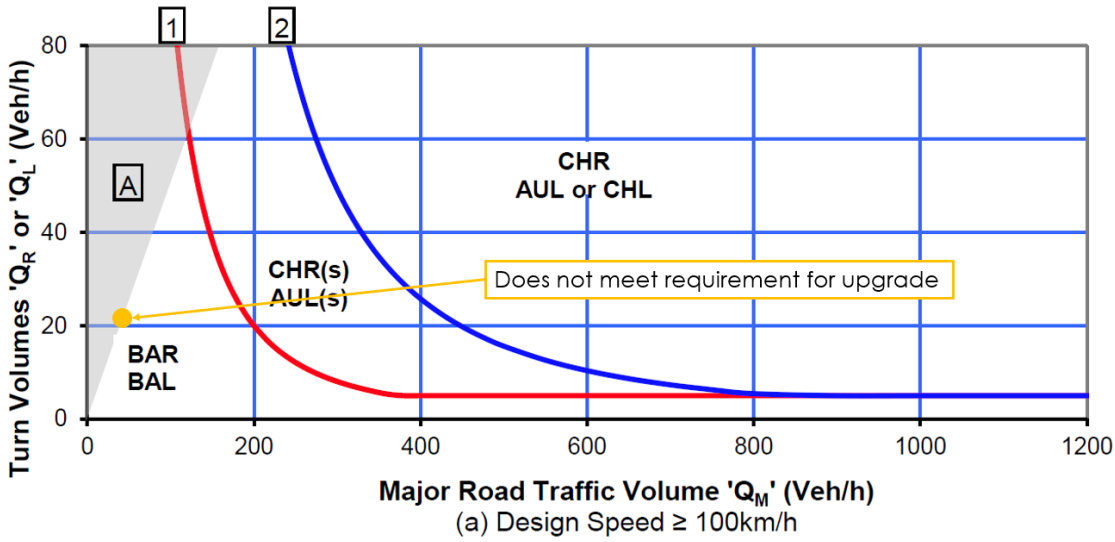
Although this intersection was not included in the original TIA surveys, it is noted that the intersection currently provides a BAR treatment. Reference is made to traffic surveys undertaken for the Yanco Delta Wind Farm on Wednesday 4 May 2022, which recorded the following results on Kidman Way during the AM Peak:

- 16 northbound vehicles
- 11 southbound vehicles

Applying a growth rate of 1.2% on Kidman Way based on TfNSW Traffic volume Viewer data, this results in an additional vehicle in either direction for the expected project peak. Additionally, surveys for the Project Energy Connect project identified 10 vehicles per hour on Four Corners Road during peak times.

Assuming conservatively that all westbound vehicles on Four Corners Road turn right, and adding the project-generated 11 right-turning vehicles (21 total vehicles), the plotted turn warrant analysis in Figure 5 demonstrates that the threshold for a CHR (Channelised Right Turn treatment) is not met. As such, no upgrade to the existing BAR treatment is required.

Figure 5: Turn Warrants Assessment Four Corners Road and Kidman Way – Plotted



Summary and Conclusion

The additional analysis provided herein confirms that the Bullawah Wind Farm will not result in unacceptable impacts on the surrounding road network during construction.

The traffic distribution assumptions, peak hour modelling, and intersection assessments have been based on conservative scenarios to ensure a robust and comprehensive review of worst-case conditions.

Where intersection thresholds were exceeded, the causative factors—such as external projects (e.g., Pottinger Wind Farm)—have been clearly identified. In such instances, Bullawah Wind Farm does not independently trigger the need for upgrades. Further, the project has actively revised its design and traffic routes, including the reworking of quarry routes to the south and the restriction of traffic along Kidman Way, to mitigate traffic impacts and eliminate the need for additional treatments.

Overall, the revised assessment demonstrates that the road network has sufficient capacity to accommodate project-related traffic with minimal intervention. The outcomes presented are considered to satisfactorily address TfNSW's RFI items, and we trust this provides a suitable basis for progressing the assessment of the Bullawah Wind Farm.

Should you have any queries regarding the above or require further information, please do not hesitate to contact the undersigned on 8437 7800.

Yours sincerely,



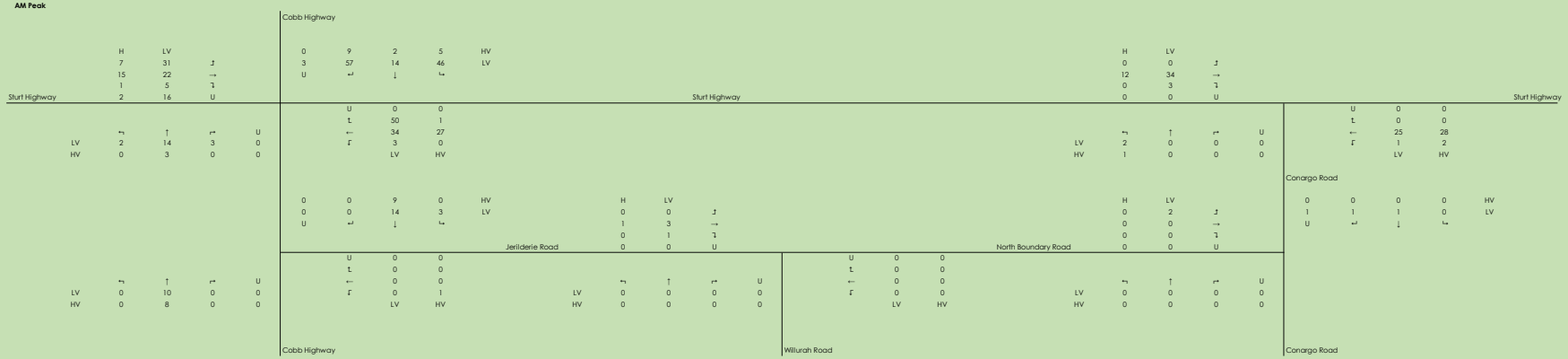
Jason Rudd
Director

Attachment One

Stick Diagrams

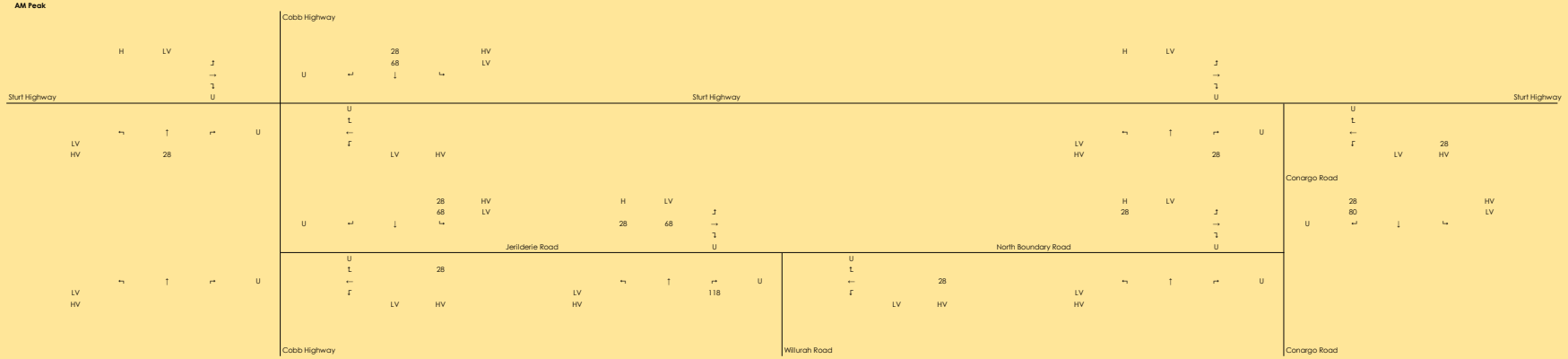
Existing

AM Peak



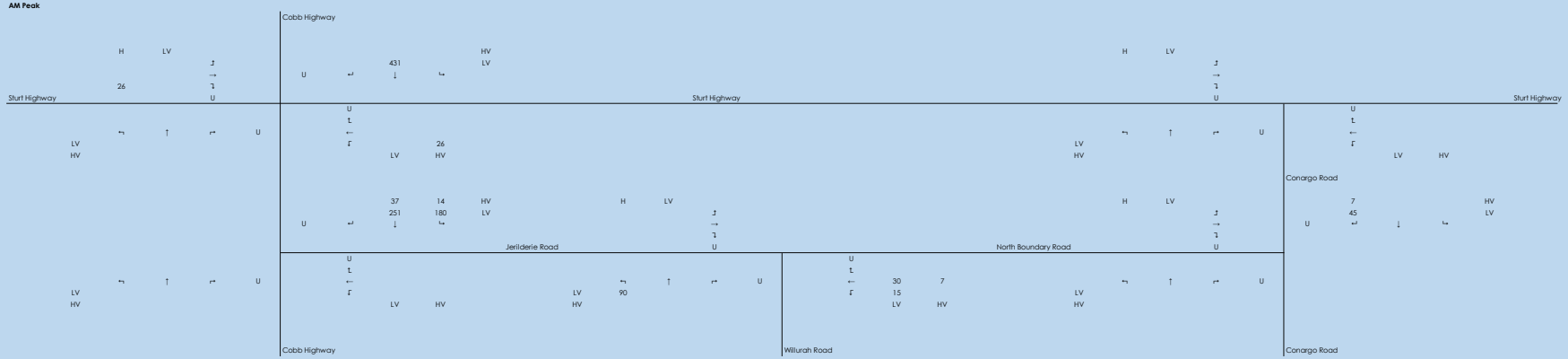
Project

AM Peak



Other Developments

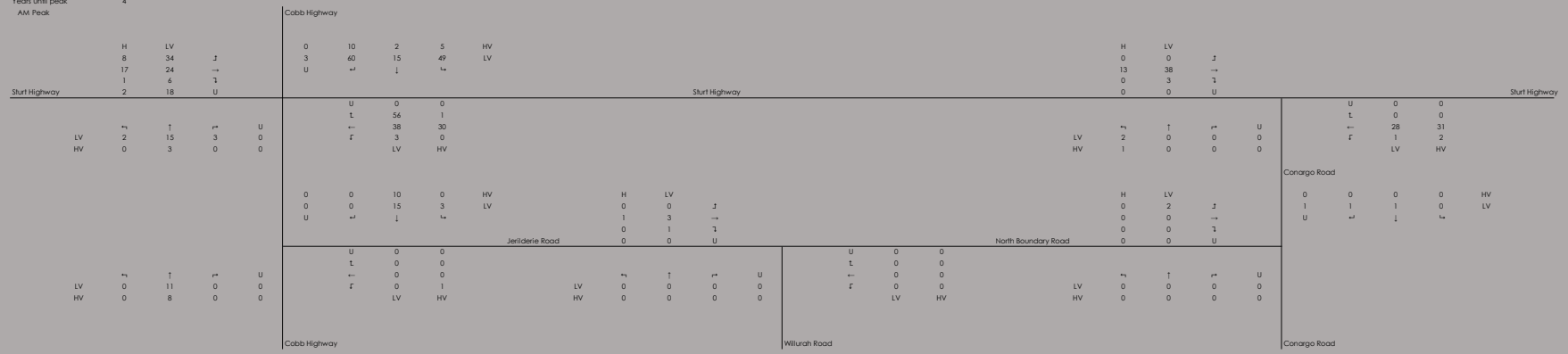
AM Peak



Background traffic growth

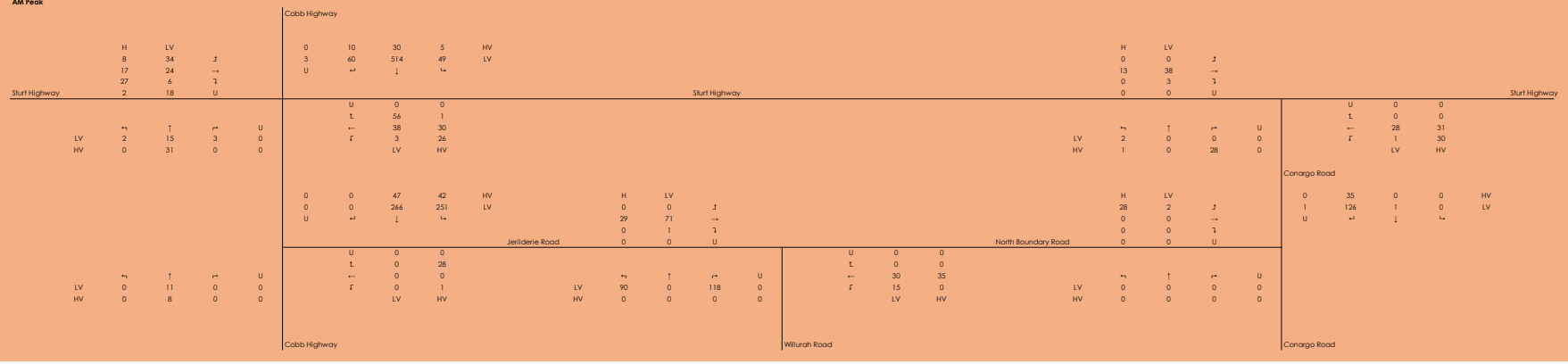
Years until peak 4

AM Peak



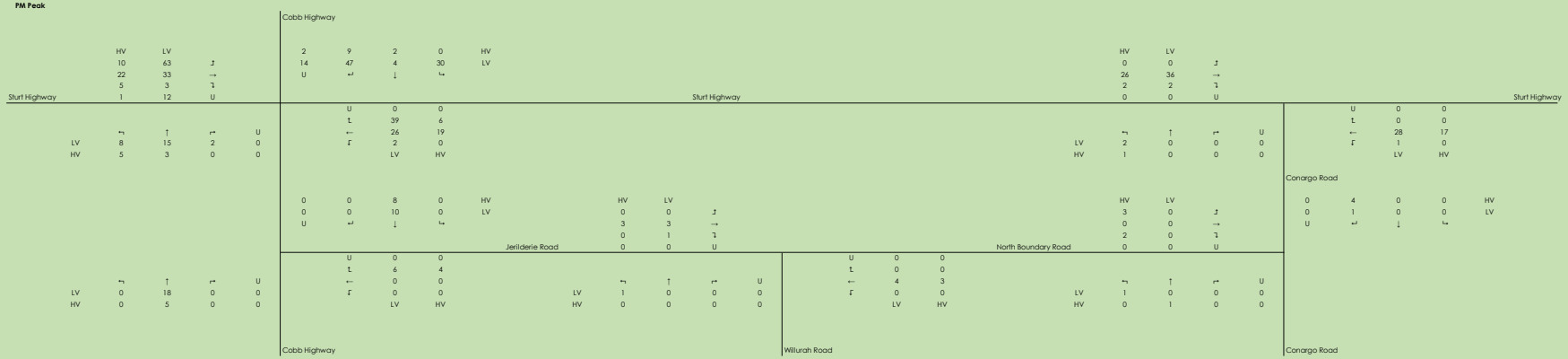
Total

AM Peak



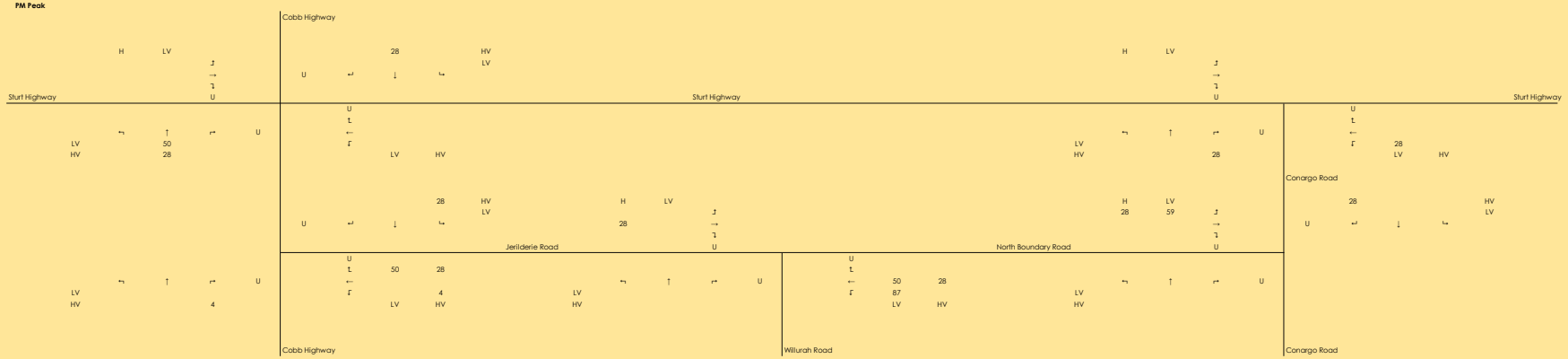
Existing

PM Peak



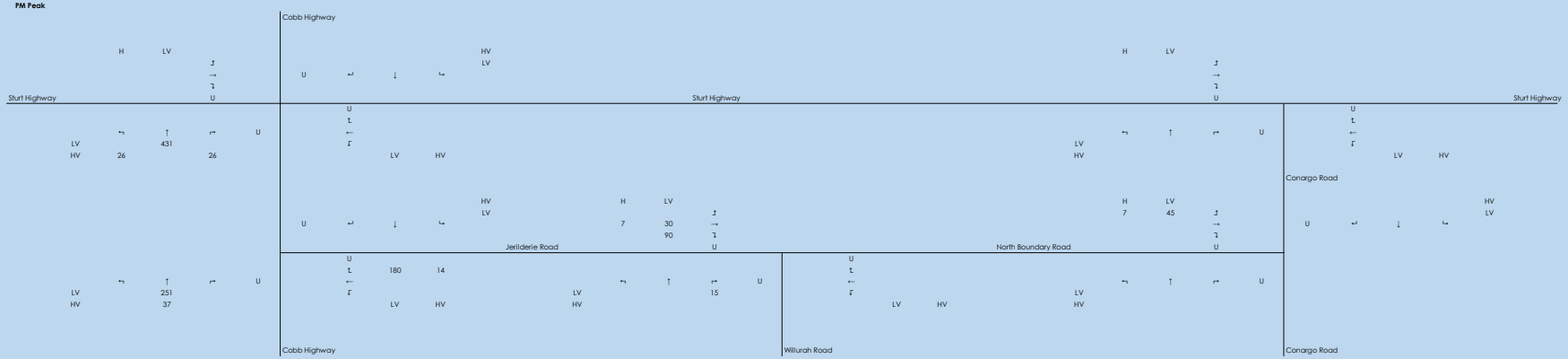
Project

PM Peak



Other Developments

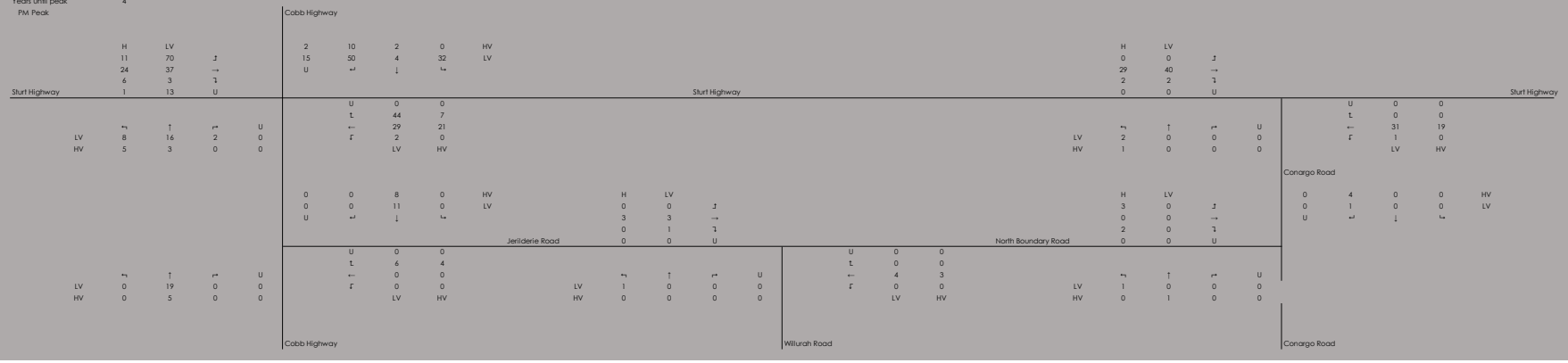
PM Peak



Background traffic growth

Years until peak 4

PM Peak



Total

PM Peak

Attachment Two

Turn Warrants Assessment

Unsignalised Intersection	AM Peak		PM Peak		Recommended Treatment
	Q_M (veh/h)	Q_T (veh/h)	Q_M (veh/h)	Q_T (veh/h)	
Cobb Highway and Jerilderie Road – Left Turn					
Existing Case	23	3	18	0	Existing BAL requires conversion to CHL.
Project Traffic	0	96	0	28	
Nearby Developments	288	194	0	0	
Total (including background traffic growth)	312	293	19	28	
Cobb Highway and Jerilderie Road – Right Turn					
Existing Case	44	0	41	0	Requires upgrade to BAR.
Project Traffic	96	4	28	4	
Nearby Developments	482	0	288	0	
Total (including background traffic growth)	625	4	360	4	
Sturt Highway and Conargo Road – Left Turn					
Existing Case	53	3	45	1	BAL requires no upgrade.
Project Traffic	0	28	0	28	
Nearby Developments	0	0	0	0	
Total (including background traffic growth)	59	31	50	29	
Conargo Road and North Boundary – Right Turn					
Existing Case	1	1	2	5	BAR requires no upgrade.
Project Traffic	0	108	0	28	
Nearby Developments	0	52	0	0	
Total (including background traffic growth)	1	161	2	33	
Jerilderie Road, Willurah Road and North Boundary Road – Left Turn					
Existing Case	0	0	7	0	BAL requires no upgrade.
Project Traffic	28	0	78	87	
Nearby Developments	37	15	0	0	
Total (including background traffic growth)	65	15	85	87	
Workforce Accommodation Site Access – Left Turn					
Existing Case	0	0	7	0	BAL requires no upgrade.
Project Traffic	28	80	28	0	
Nearby Developments	52	0	0	0	

Unsignalised Intersection	AM Peak		PM Peak		Recommended Treatment
	Q_M (veh/h)	Q_T (veh/h)	Q_M (veh/h)	Q_T (veh/h)	
Total (including background traffic growth)	80	80	35	0	
Workforce Accommodation Site Access – Right Turn					
Existing Case	4	0	13	0	BAR requires an upgrade to CHR(s)
Project Traffic	28	186	28	0	
Nearby Developments	52	0	52	0	
Total (including background traffic growth)	84	186	93	0	

Attachment Three

Traffic Generation

Road	Period	Direction	Existing Volumes (2024)			With Bullawah Wind Farm Construction Volumes and Background Traffic Growth (2028)*				With Bullawah Wind Farm Construction Volumes, Background Traffic Growth (2028) and Nearby Development Peak Traffic		
			Volume (pcu/hr)	V/C	LoS	Project Generated Traffic (pcu/hr)	Total Future Volume (pcu/hr)	V/C	LoS	Total Future Volume (pcu/hr)	V/C	LoS
Sturt Highway	Morning Peak	Eastbound	138	0.07	A	56	194	0.10	A	246	0.12	A
		Westbound	207	0.11	A	56	263	0.14	A	315	0.15	A
	Evening peak	Eastbound	208	0.11	A	56	264	0.14	A	316	0.16	A
		Westbound	181	0.10	A	56	237	0.12	A	289	0.14	A
	Weekend Peak	Eastbound	174	0.09	A	56	230	0.12	A			
		Westbound	168	0.09	A	56	224	0.12	A			
Cobb Highway	Morning Peak	Northbound	127	0.07	A	56	183	0.10	A	183	0.09	A
		Southbound	161	0.08	A	124	285	0.15	A	820	0.43	B
	Evening Peak	Northbound	184	0.10	A	104	288	0.15	A	823	0.43	B
		Southbound	128	0.07	A	56	184	0.10	A	184	0.09	A
	Weekend Peak	Northbound	160	0.08	A	76	236	0.12	A			
		Southbound	138	0.07	A	56	194	0.10	A			
Jerilderie Road	Morning Peak	Eastbound	6	0.01	A	118	124	0.12	A	332	0.17	A
		Westbound	2	0.00	A	50	52	0.05	A	186	0.10	A
	Evening Peak	Eastbound	11	0.01	A	50	61	0.06	A	195	0.10	A
		Westbound	15	0.01	A	98	113	0.11	A	321	0.17	A
	Weekend Peak	Eastbound	7	0.01	A	50	57	0.06	A			
		Westbound	3	0.00	A	70	73	0.07	A			
Conargo Road	Morning Peak	Northbound	28	0.03	A	50	78	0.08	A	78	0.04	A
		Southbound	37	0.04	A	130	167	0.17	A	226	0.12	A
	Evening Peak	Northbound	45	0.04	A	106	151	0.15	A	210	0.11	A
		Southbound	28	0.03	A	50	78	0.08	A	78	0.04	A
	Weekend Peak	Northbound	91	0.09	A	74	165	0.17	A			
		Southbound	17	0.02	A	50	67	0.07	A			
		Eastbound	5	0.01	A	242	247	0.25	A	247	0.13	A

Road	Period	Direction	Existing Volumes (2024)			With Bullawah Wind Farm Construction Volumes and Background Traffic Growth (2028)*				With Bullawah Wind Farm Construction Volumes, Background Traffic Growth (2028) and Nearby Development Peak Traffic		
			Volume (pcu/hr)	V/C	LoS	Project Generated Traffic (pcu/hr)	Total Future Volume (pcu/hr)	V/C	LoS	Total Future Volume (pcu/hr)	V/C	LoS
North Boundary Road	Morning Peak	Westbound	1	0.00	A	136	137	0.14	A	196	0.10	A
	Evening Peak	Eastbound	11	0.01	A	112	123	0.12	A	182	0.10	A
		Westbound	11	0.01	A	186	197	0.20	A	197	0.10	A
	Weekend Peak	Eastbound	6	0.01	A	80	86	0.09	A			
		Westbound	0	0.00	A	112	112	0.11	A			
Willurah Road	Morning Peak	Northbound	0	0.00	A	174	174	0.17	A	264	0.14	A
		Southbound	1	0.00	A	56	57	0.06	A	72	0.04	A
	Evening Peak	Northbound	1	0.00	A	56	57	0.06	A	72	0.04	A
		Southbound	1	0.00	A	139	140	0.14	A	230	0.12	A
	Weekend Peak	Northbound	0	0.00	A	56	56	0.06	A			
		Southbound	1	0.00	A	91	92	0.09	A			

Appendix C

Sample Driver Code of Conduct

BULLAWAH WIND FARM

Driver Code of Conduct

Bullawah Wind Farm is committed to ensuring all employees and contractors access and exit the site in a safe and responsible manner.

All employees and contractors are expected to comply with the relevant legal requirements and accepted community standards whist travelling to and from work.

This Driver Code of Conduct sets out specific requirements for travel to and from the Bullawah Wind Farm site for all employees and contractors. This code utilises measures which seek to mitigate, minimise and manage the potential traffic impacts associated with traffic to and from the Bullawah Wind Farm site.

DRAFT

DECLARATION

I, the undersigned, hereby agree to abide by the Driver Code of Conduct for the transportation of construction materials to/ from the site in a safe manner.

I have read and understand the requirements outlined in the Code and will, to the best of my ability, comply and assist with their implementation, requirements and ongoing administration.

Driver

Full Name: _____

Organisation: _____

Signature: _____

Date: _____

General Requirements

This Driver Code of Conduct is to be distributed to all sub-contractors with fleet accessing the site prior to the commencement of works.

The Code is to be provided to each driver to read and sign to confirm they have understood and pledge to follow the haulage instructions prior to accessing the site.

Once completed, a copy of the signed Code would be supplied to the contractor for record keeping.

Heavy vehicle drivers hauling to and from the subject site must:

- Have read and signed the Driver Code of Conduct (this document) prior to entry to the site;
- Hold a valid driver's license for the class of vehicle that it being operated;
- Operate the vehicle in a safe manner while on site and public road network;
- Adhere to all road rules and regulations;
- Comply with the direction of authorised site personnel when onsite;
- All drivers are to use seat belts when driving; and
- All drivers are to drive to the sign posted speed limit, both on public roads and within the site.

Site Access

All access to the construction site is to be via Jerilderie Road and North Boundary Road only. Drivers must exercise caution when approaching site access points that are yet to be upgraded.

Prior to entry, drivers are to radio ahead to confirm that no vehicles are exiting the site. Upon arrival, drivers must then visually confirm that the access is clear before proceeding.

Only one vehicle is permitted to enter or exit the access at a time prior to upgrade.

Heavy Vehicle Speed

Truck drivers must comply with the Australian Road Rules with travelling along public roads. Drivers are to observe the posted speed limits, and adjust speed appropriately to suit the road and weather conditions at the time.

The maximum speed that a vehicle must travel is the signposted speed. Warning signs indicating a reduction in speed ahead must also be obeyed.

Upon reaching the site, drivers will be instructed by traffic controllers on when and how to enter the site.

The speed limit within the site is 5km/hr (unless signposted otherwise in an area) which is to be strictly maintained.

DRAFT

Heavy Vehicles Driver Fatigue

The heavy vehicle driver fatigues law commenced in NSW in 2008 and applies to trucks and truck combinations over 12 tonnes GVM (however, Ministerial Exemption Notices may apply).

Under the law, industry has the choice of operating under three fatigue management schemes, namely:

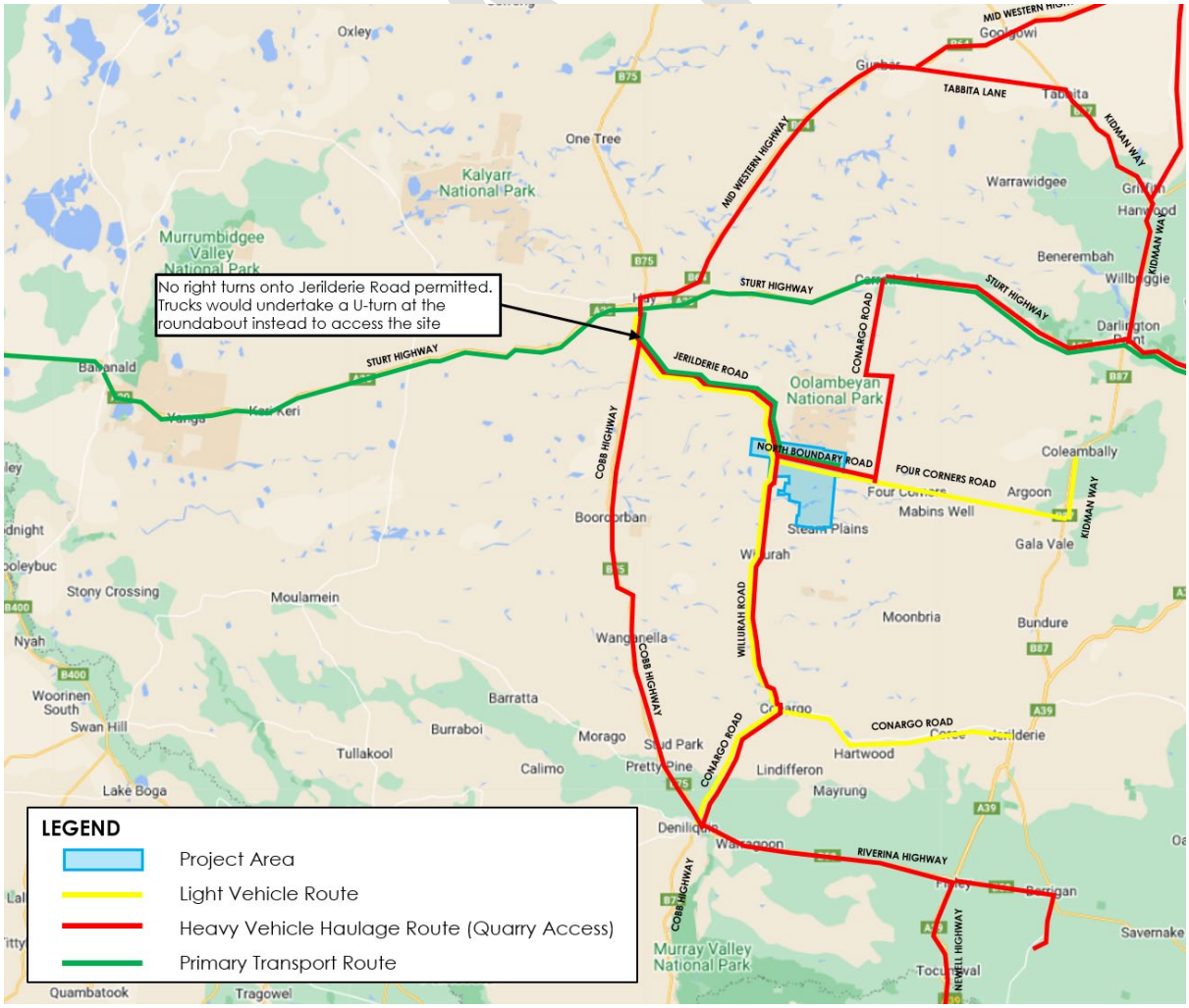
1. Standard Hours of Operation
2. Basic Fatigue Management (BFM)
3. Advanced Fatigue management (AFM).

All heavy vehicle drivers associated with the construction works at the subject site must be aware of their adopted fatigue management scheme and operate within its requirements.

Heavy Vehicle Haul Routes

All heavy vehicle drivers must adhere to the designated truck routes to/ from the site as shown in Figure A1. The heavy vehicle routes have been developed to minimise the impact of construction traffic on the road network. Right turns from the Cobb Highway onto Jerilderie Road are strictly prohibited and will be monitored to ensure compliance.

Figure A1: Haulage Routes



Heavy Vehicle Compression Braking

Compression braking/ engine braking is not permitted within the vicinity of the site, that includes, internal to and surrounding the subject site.

Heavy Vehicle Noise

Permitted times of construction works at the site are as follows:

- Construction works shall be carried out on:
  - Monday to Friday 7:00am – 6:00pm
  - Saturday 8:00am – 1:00pm
  - No work is to be undertaken on Sundays or public holidays

Any works outside these times will only occur with approval from the relevant authorities prior to the commencement of any works.

Load Covering

All loaded trucks arriving at and departing from the construction site are required to have an effective cover over their load for the duration of the journey. The load cover may be removed only upon arrival at the destination (ie. at the site).

Care must be taken to ensure that all loose debris from vehicles and wheels is removed prior to exiting the site.

Site management is to monitor loose material on the side of the haul route and take appropriate action regularly.

Other Safety Considerations Along the Haul Route

Heavy vehicle drivers should be aware of the following:

- Concealed driveways – drivers are to drive with caution around any signed concealed driveways
- Wet weather safety – drivers should adjust their driving speed to suit weather condition at the time.
- Other motorists – drivers should stay alert to other drivers, motorcyclists and cyclists on whilst driving to/ from the site.

DRAFT

Appendix D

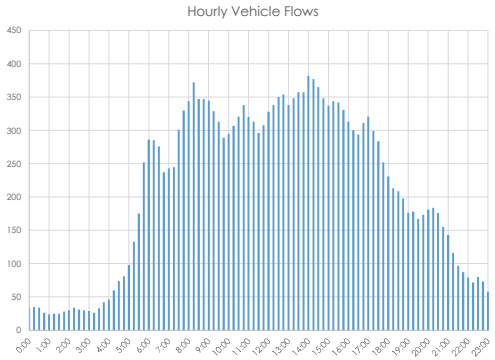
Survey Results

	Thu 29/02/24	Fri 01/03/24	Sat 02/03/24
SV	24	19	19
SVT	4	6	2
TB2	16	10	10
TB3	5	1	0
T4	0	0	0
ART3	0	0	0
ART4	0	0	0
ART5	0	0	0
ART6	1	1	1
BD	1	0	0
DRT	1	0	0
TRT	0	0	0
M/C	0	0	1
CYCLE	0	0	0
???	0	0	0
TOTAL	52	37	33

	Thu 29/02/24	Fri 01/03/24	Sat 02/03/24
00:00:00	0	0	1
01:00:00	0	0	0
02:00:00	0	0	0
03:00:00	0	1	0
04:00:00	0	0	0
05:00:00	1	1	0
06:00:00	3	1	0
07:00:00	3	5	5
08:00:00	2	0	0
09:00:00	3	7	3
10:00:00	1	0	5
11:00:00	5	0	3
12:00:00	1	0	3
13:00:00	14	1	0
14:00:00	2	4	1
15:00:00	3	3	4
16:00:00	2	3	1
17:00:00	6	3	3
18:00:00	3	2	1
19:00:00	1	3	0
20:00:00	1	3	0
21:00:00	0	0	0
22:00:00	0	0	1
23:00:00	1	0	2
TOTAL	52	37	33

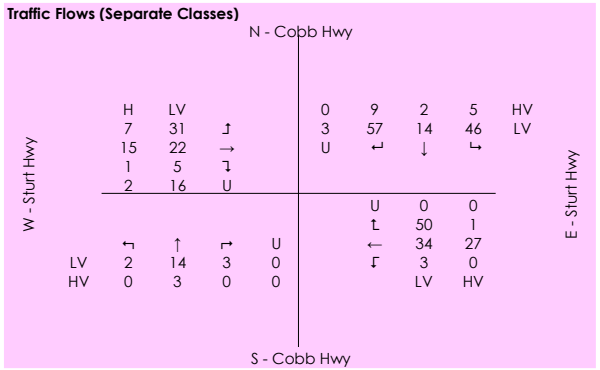
transport planning

Job Number	23022
Intersection	Cobb Hwy / Sturt Hwy
Weather	Fine
Date	Thursday, 29 February 2024
AM Peak	8:15 AM
PM Peak	2:00 PM

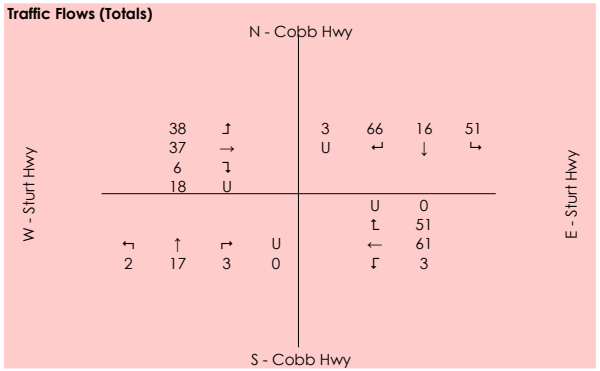


AM PEAK

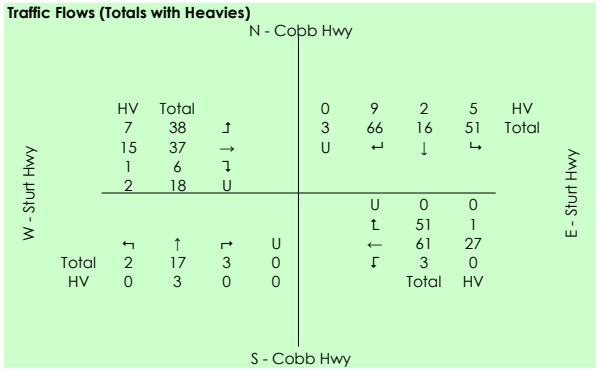
Traffic Flows (Separate Classes)



Traffic Flows (Totals)

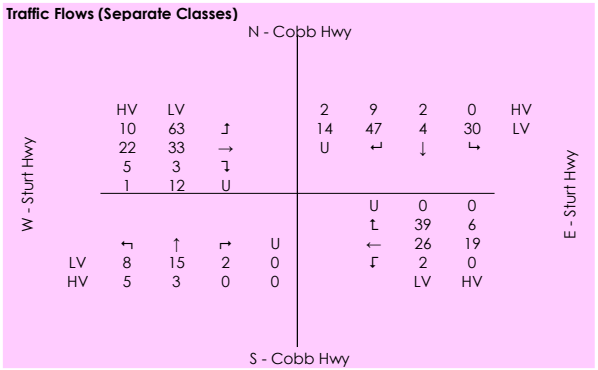


Traffic Flows (Totals with Heavies)

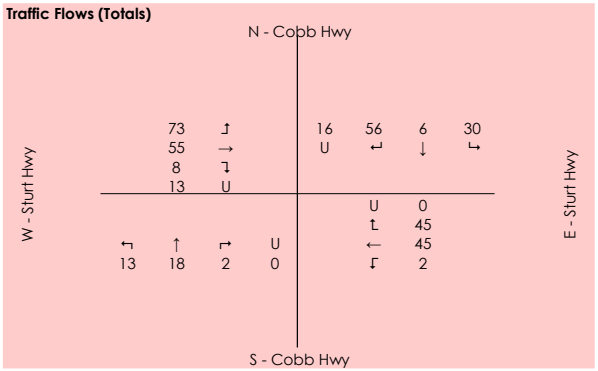


PM PEAK

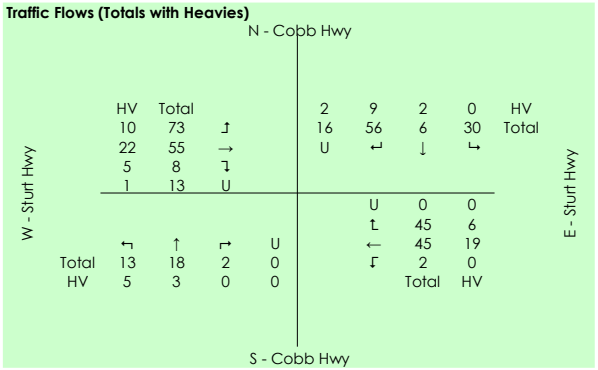
Traffic Flows (Separate Classes)



Traffic Flows (Totals)



Traffic Flows (Totals with Heavies)

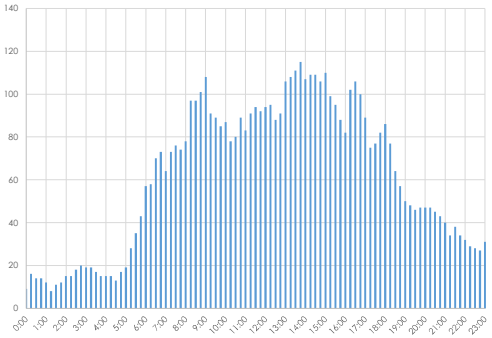


Hourly Flows		South Approach													East Approach													North Approach													West Approach												
		Cobb Hwy													Sturt Hwy													Cobb Hwy													Sturt Hwy												
		Left			Through			Right			U-turn				Left			Through			Right			U-turn				Left			Through			Right			U-turn				Left			Through			Right			U-turn			
Start	End	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds
0:00	1:00	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	7	9	0	1	1	0	0	0	0	3	0	3	0	0	0	5	1	6	0	0	0	0	5	2	7	1	6	7	0	0	0	0	0	0
0:15	1:15	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	4	6	1	0	1	0	0	0	0	3	0	3	0	0	0	5	1	6	0	0	0	0	5	2	7	1	9	10	1	0	1	0	0	0
0:30	1:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	8	10	1	0	1	0	0	0	0	2	0	2	0	0	0	1	1	2	0	0	0	0	3	3	6	2	10	12	1	0	1	0	0	0
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1:00	2:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	6	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	3	3	2	8	10	1	0	1	0	0	0
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1:30	2:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	0	2	0	0	0	0	2	0	2	0	0	0	3	1	4	0	0	0	0	3	3	6	1	8	9	0	0	0	0	0	0
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transport planning

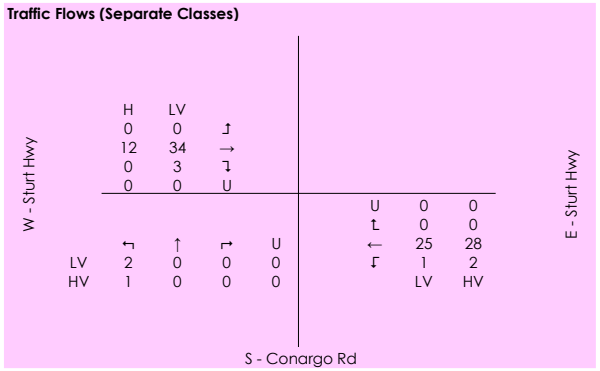
Job Number	23022
Intersection	Sturt Hwy / Conargo Rd
Weather	Fine
Date	Thursday, 29 February 2024
AM Peak	9:00 AM
PM Peak	1:45 PM

Hourly Vehicle Flows

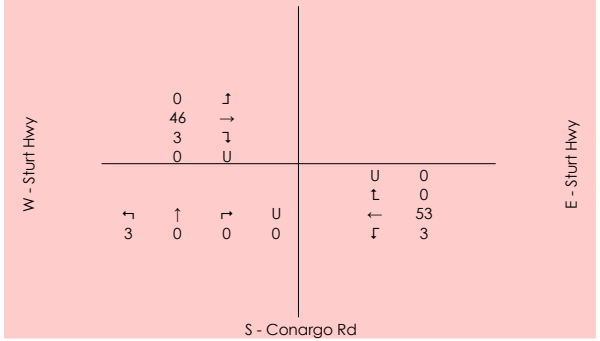


AM PEAK

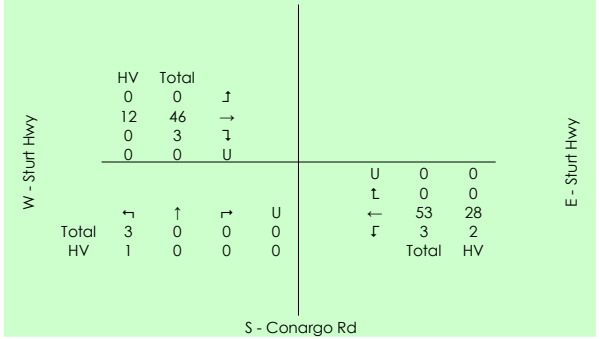
Traffic Flows (Separate Classes)



Traffic Flows (Totals)

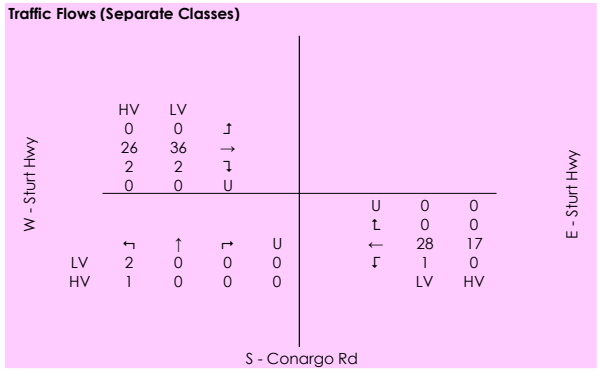


Traffic Flows (Totals with Heavies)

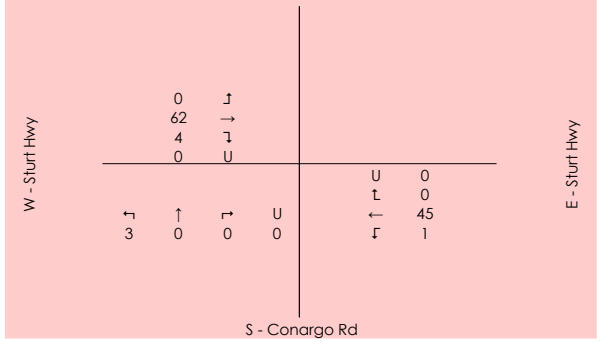


PM PEAK

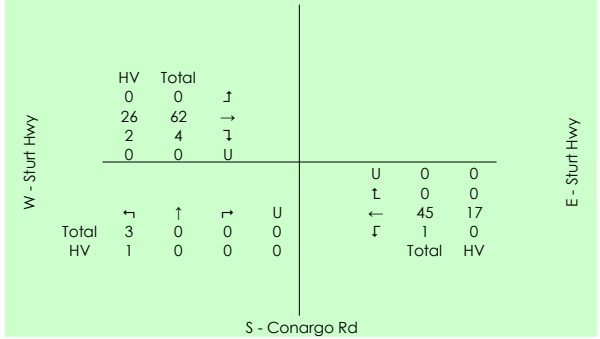
Traffic Flows (Separate Classes)



Traffic Flows (Totals)



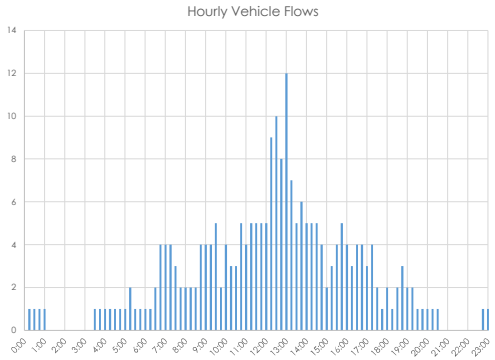
Traffic Flows (Totals with Heavies)



Hourly Flows		South Approach													East Approach												North Approach												West Approach											
		Conargo Rd													Sturt Hwy												<<<NAME OF ROAD>>>												Sturt Hwy											
		Left			Through			Right			U-turn				Left			Through			Right			U-turn			Left			Through			Right			U-turn				Left			Through			Right			U-turn			
Start	End	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds
0:00	1:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1	0	1	0	0	0	0
0:15	1:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5	8	1	0	1	0	0	0	0
0:30	1:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	7	1	0	1	0	0	0	0
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16:00	17:00	3	0	3	0	0	0	0	1	1	0	0	0	0	2	1	3	27	16	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	12	30	2	0	2	0	0	0	0
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16:30	17:30	9	1	10	0	0	0	1	0	1	0	0	0	0	2	3	5	28	19	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	18	41	2	0	2	0	0	0	0
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17:00	18:00	10	3	13	0	0	0	2	1	3	0	0	0	0	0	2	2	22	13	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	17	35	1	0	1	0	0	0	0
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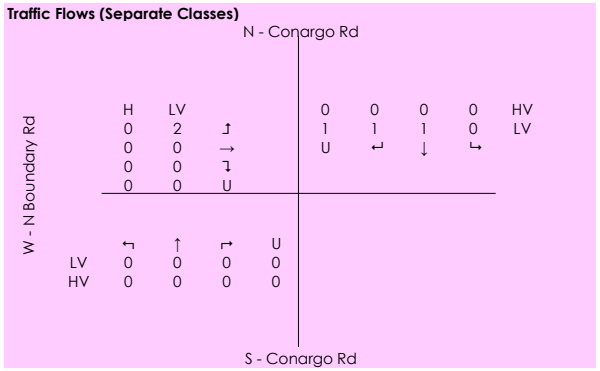
transport planning

Job Number	23022
Intersection	Conargo Rd / N Boundary Rd
Weather	Fine
Date	Thursday, 29 February 2024
AM Peak	9:30 AM
PM Peak	1:00 PM

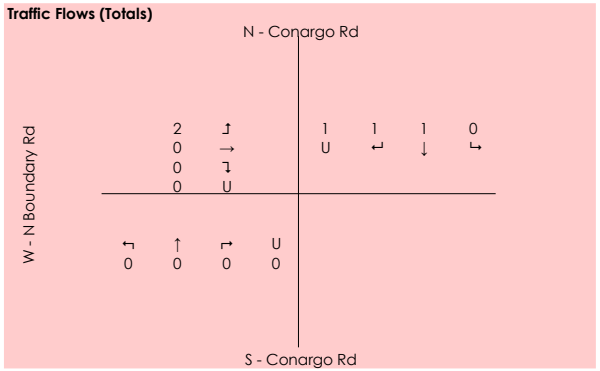


AM PEAK

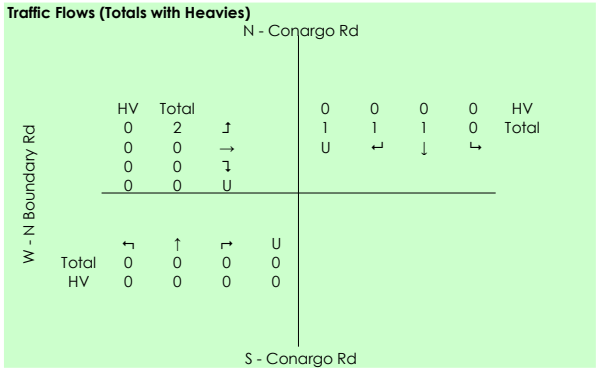
Traffic Flows (Separate Classes)



Traffic Flows (Totals)

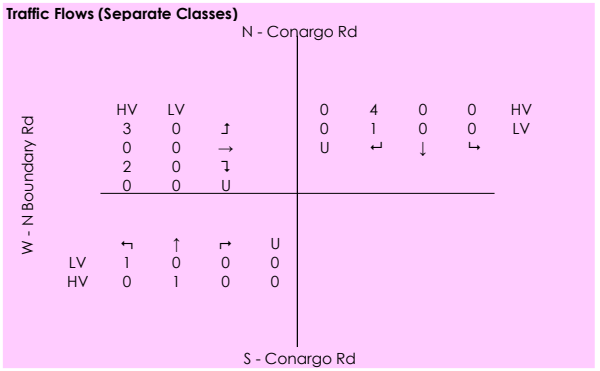


Traffic Flows (Totals with Heavies)

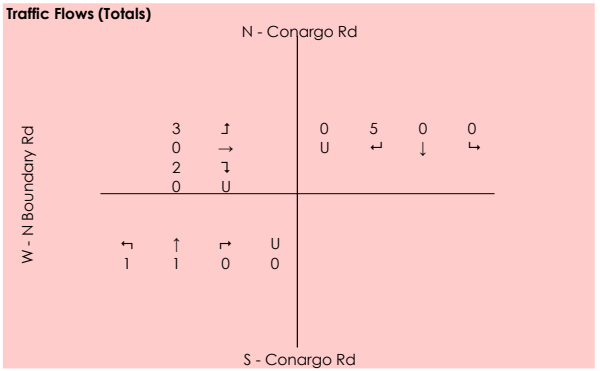


PM PEAK

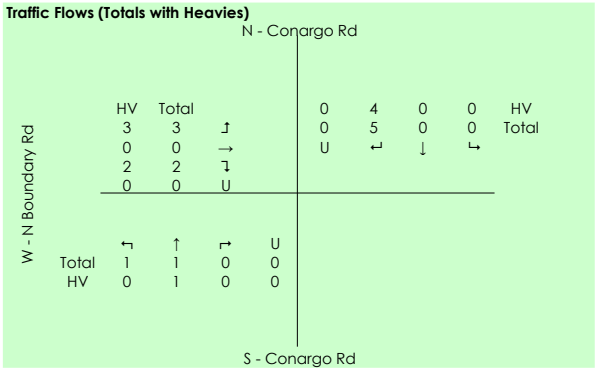
Traffic Flows (Separate Classes)



Traffic Flows (Totals)



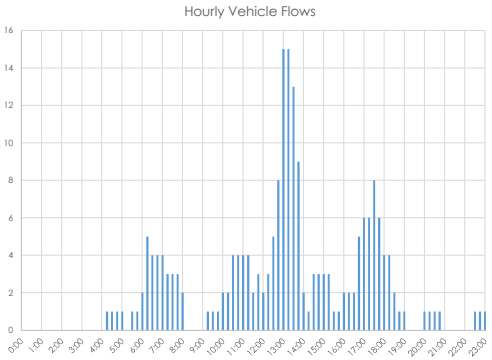
Traffic Flows (Totals with Heavies)



Hourly Flows		South Approach													East Approach												North Approach												West Approach											
		Conargo Rd													<<<NAME OF ROAD>>>												Conargo Rd												N Boundary Rd											
		Left			Through			Right			U-turn				Left			Through			Right			U-turn			Left			Through			Right			U-turn			Left			Through			Right			U-turn			
Start	End	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds
0:00	1:00	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:15	1:15	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	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:30	1:30	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	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:45	1:45	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	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00	2:00	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	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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18

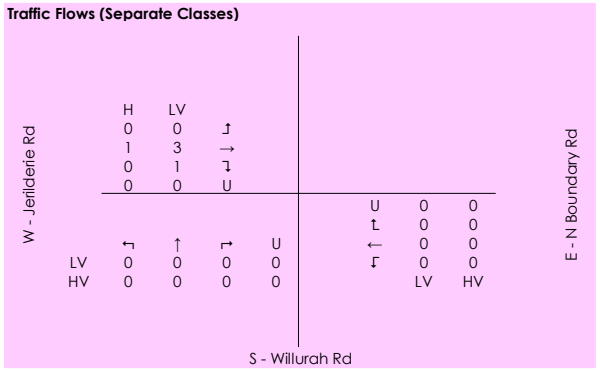
transport planning

Job Number	23022
Intersection	Jerilderie Rd / N Boundary Rd / Willurah Rd
Weather	Fine
Date	Thursday, 29 February 2024
AM Peak	6:15 AM
PM Peak	1:00 PM

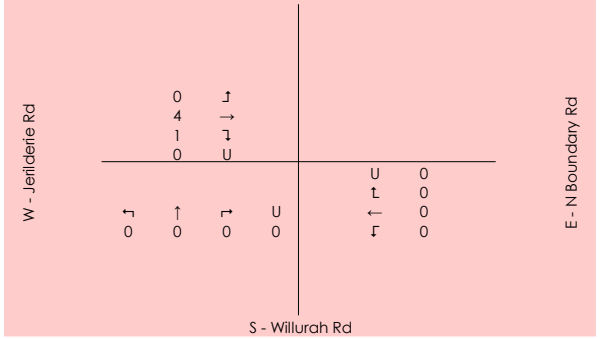


AM PEAK

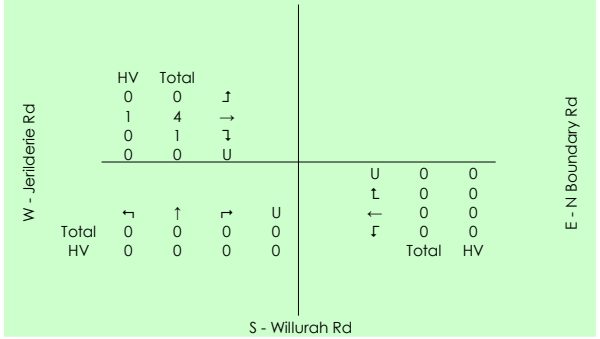
Traffic Flows (Separate Classes)



Traffic Flows (Totals)

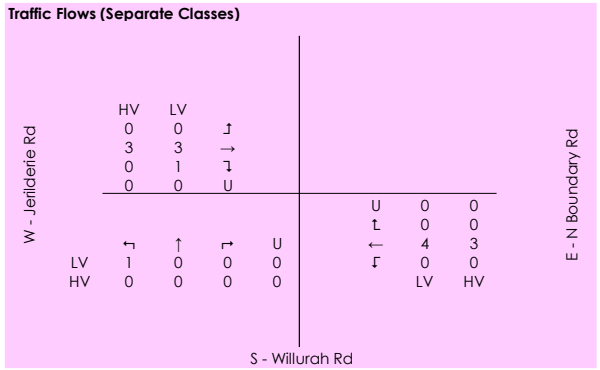


Traffic Flows (Totals with Heavies)

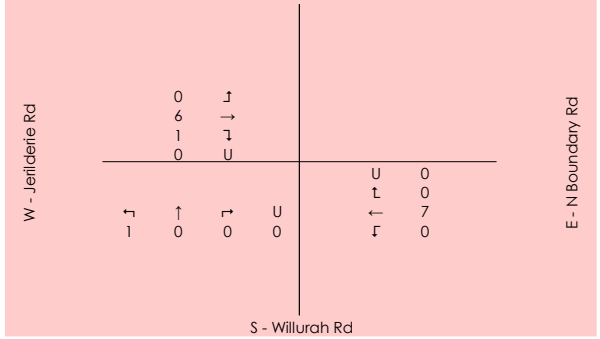


PM PEAK

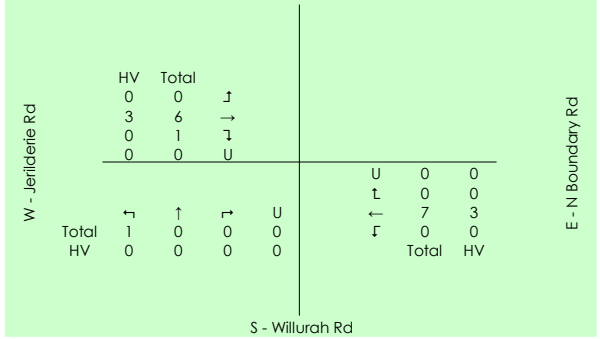
Traffic Flows (Separate Classes)



Traffic Flows (Totals)



Traffic Flows (Totals with Heavies)

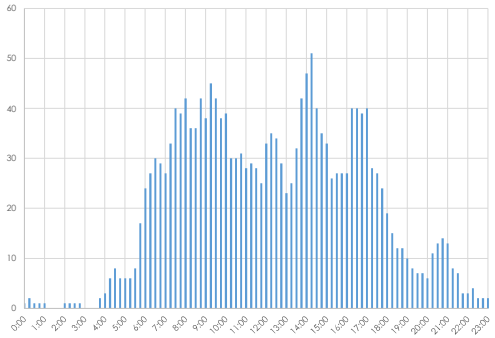


Hourly Flows		South Approach													East Approach												North Approach												West Approach											
		Willurah Rd													N Boundary Rd												<<<NAME OF ROAD>>>												Jerilderie Rd											
		Left			Through			Right			U-turn				Left			Through			Right			U-turn			Left			Through			Right			U-turn				Left			Through			Right			U-turn			
Start	End	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds
0:00	1:00	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:15	1:15	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0:45	1:45	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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11:30	12:30	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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12:00	13:00	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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14:45	15:45	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	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	0	0	0	0
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15:30	16:30	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	16:45	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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16:45	17:45	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	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	0	0	0	0
17:00	18:00	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3	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	0	0	0	0
17:15	18:15	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	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	0	0	0	0
17:30	18:30	1	1	2	0	0	0	0	0	0	0	0	0	0	1	0	1	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

transport planning

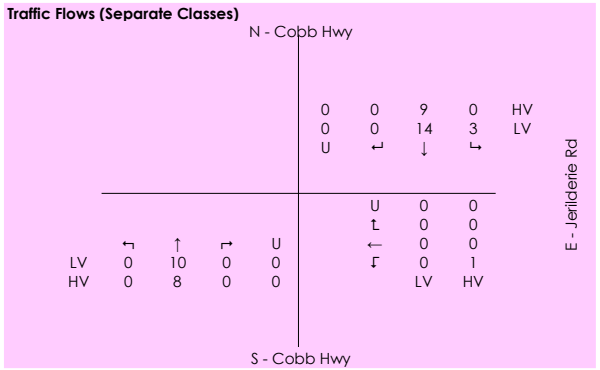
Job Number	23022
Intersection	Cobb Hwy / Jerilderie Rd
Weather	Fine
Date	Thursday, 29 February 2024
AM Peak	9:15 AM
PM Peak	2:15 PM

Hourly Vehicle Flows

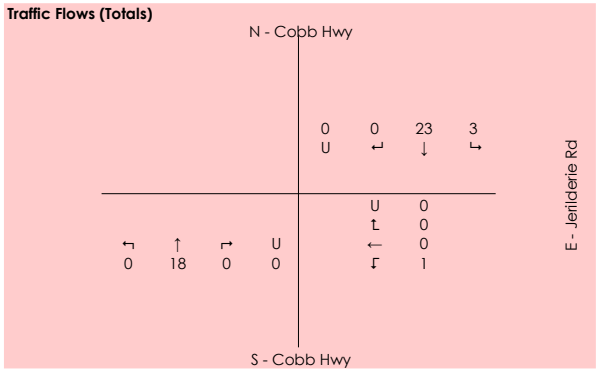


AM PEAK

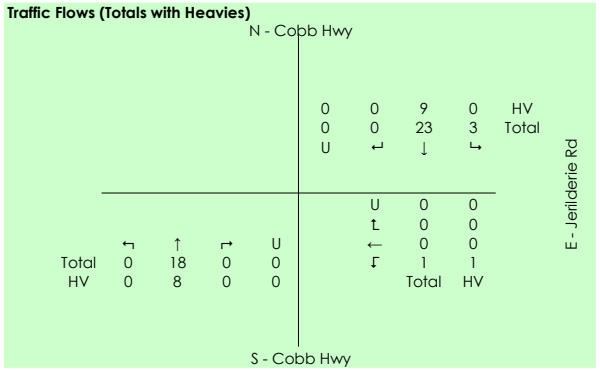
Traffic Flows (Separate Classes)



Traffic Flows (Totals)

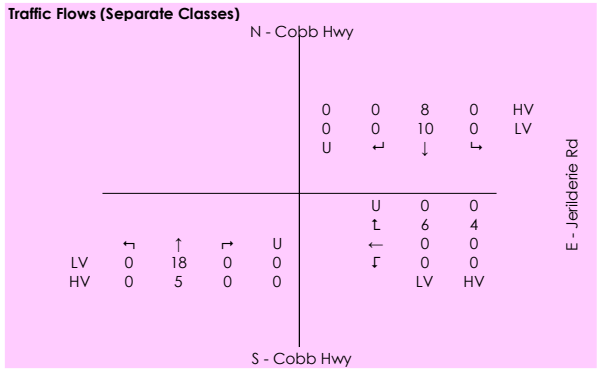


Traffic Flows (Totals with Heavies)

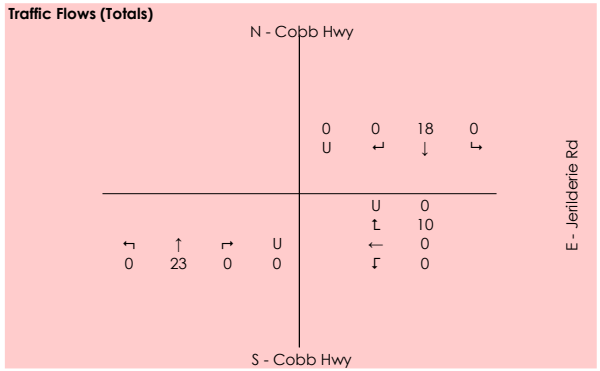


PM PEAK

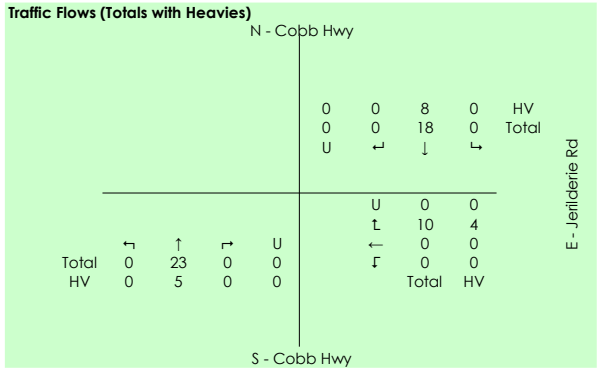
Traffic Flows (Separate Classes)



Traffic Flows (Totals)



Traffic Flows (Totals with Heavies)

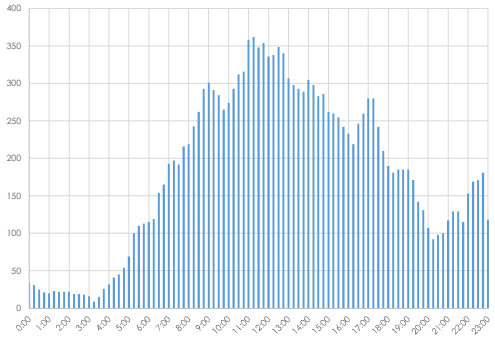


Hourly Flows		South Approach													East Approach												North Approach												West Approach											
		Cobb Hwy													Jerilderie Rd												Cobb Hwy												<<<NAME OF ROAD>>>											
		Left			Through			Right			U-turn				Left			Through			Right			U-turn			Left			Through			Right			U-turn				Left			Through			Right			U-turn			
Start	End	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds
0:00	1:00	0	0	0	1	0	1	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	0	0	0	0												
0:15	1:15	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0												
0:30	1:30	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	0	1	0	1	0	0	0	0	0	0												
0:45	1:45	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	0	1	0	1	0	0	0	0	0	0												
1:00	2:00	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	0	1	0	1	0	0	0	0	0	0												
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2:15	3:15	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	0	1	0	1	0	0	0	0	0	0												
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3:00	4:00	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	0	0	0	0	0	0	0	0	0	0												
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6:00	7:00	0	0	0	1	4	5	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	4	1	5	13	0	13	0	0	0	0	0	0												
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transport planning

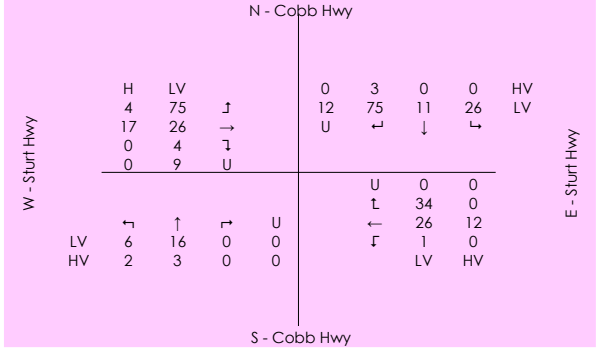
Job Number	23022
Intersection	Cobb Hwy / Sturt Hwy
Weather	Fine
Date	Saturday, 2 March 2024
AM Peak	11:15 AM
PM Peak	12:30 PM

Hourly Vehicle Flows

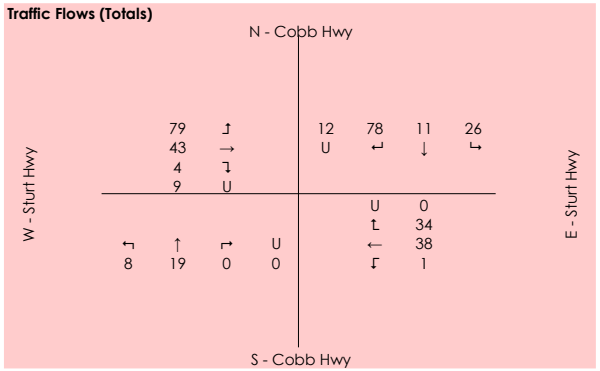


AM PEAK

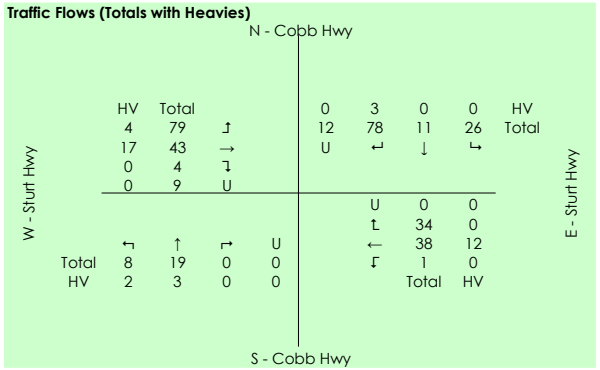
Traffic Flows (Separate Classes)



Traffic Flows (Totals)

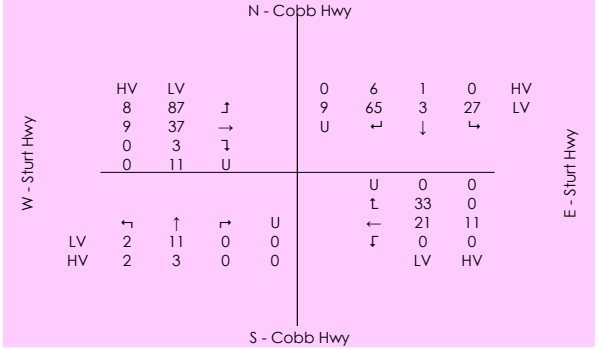


Traffic Flows (Totals with Heavies)

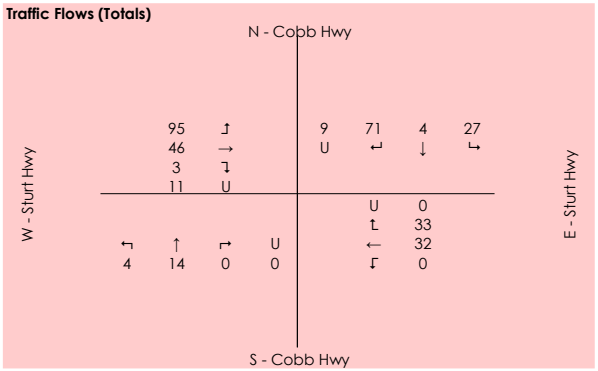


PM PEAK

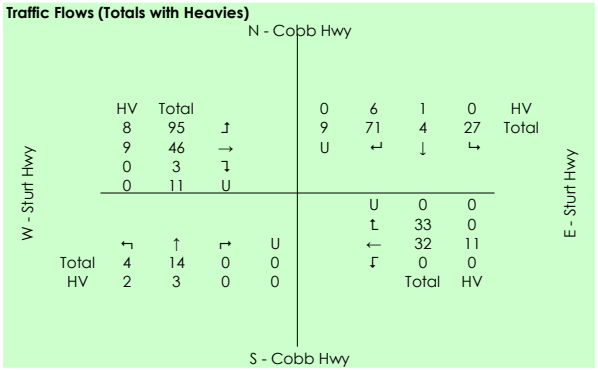
Traffic Flows (Separate Classes)



Traffic Flows (Totals)



Traffic Flows (Totals with Heavies)

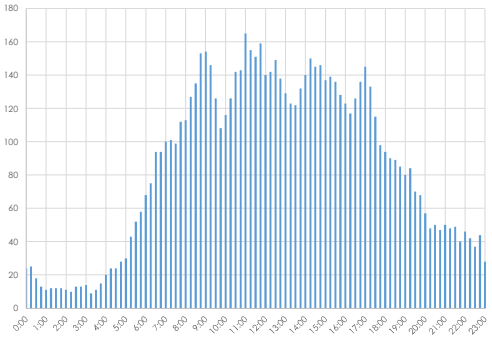


Hourly Flows		South Approach													East Approach													North Approach													West Approach												
		Cobb Hwy													Sturt Hwy													Cobb Hwy													Sturt Hwy												
		Left			Through			Right			U-turn				Left			Through			Right			U-turn				Left			Through			Right			U-turn				Left			Through			Right			U-turn			
Start	End	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds
0:00	1:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	3	9	12	2	0	2	0	0	0	0	2	0	2	0	0	0	0	5	1	6	0	0	0	0	3	1	4	3	4	7	0	0	0	0	0	0	0
0:15	1:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	12	16	2	0	2	0	0	0	0	2	0	2	0	0	0	2	2	4	0	0	0	0	0	2	1	3	2	2	4	0	0	0	0	0	0	0
0:30	1:30	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	9	11	2	0	2	0	0	0	0	1	0	1	0	0	0	3	2	5	0	0	0	0	0	0	2	2	1	2	3	0	0	0	0	0	0	0
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transport planning

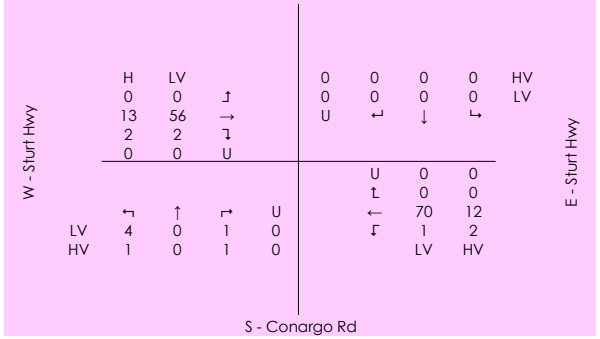
Job Number	23022
Intersection	Sturt Hwy / Conargo Rd
Weather	Fine
Date	Saturday, 2 March 2024
AM Peak	11:00 AM
PM Peak	2:15 PM

Hourly Vehicle Flows

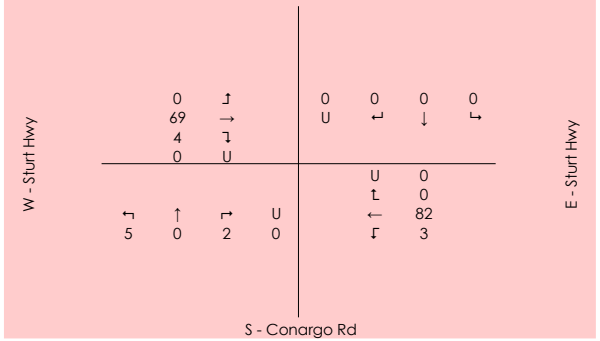


AM PEAK

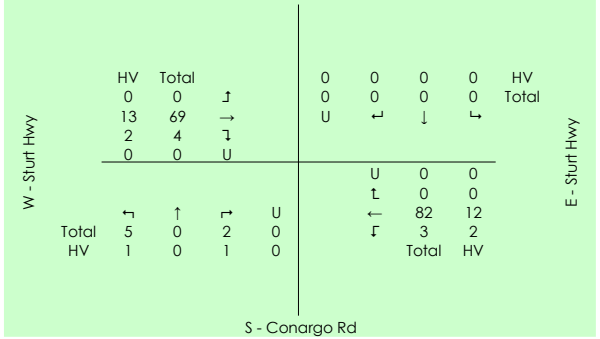
Traffic Flows (Separate Classes)



Traffic Flows (Totals)

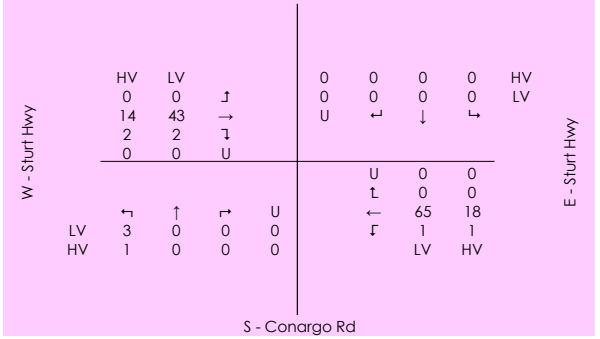


Traffic Flows (Totals with Heavies)

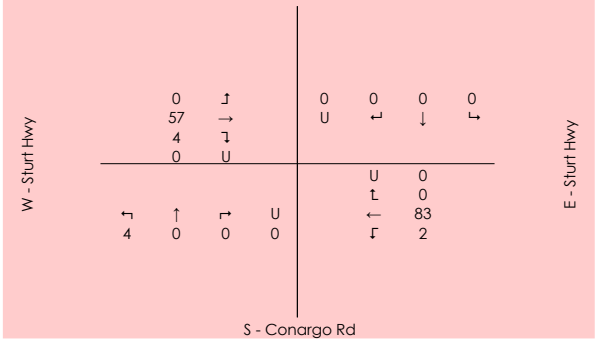


PM PEAK

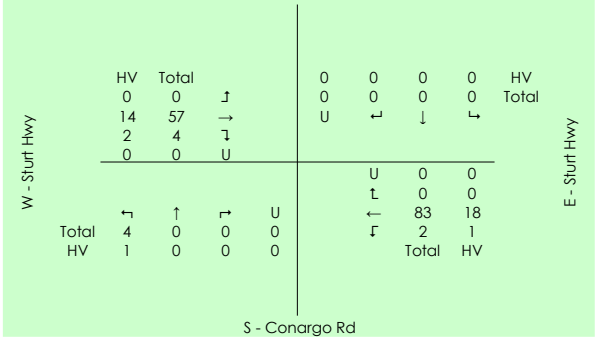
Traffic Flows (Separate Classes)



Traffic Flows (Totals)



Traffic Flows (Totals with Heavies)

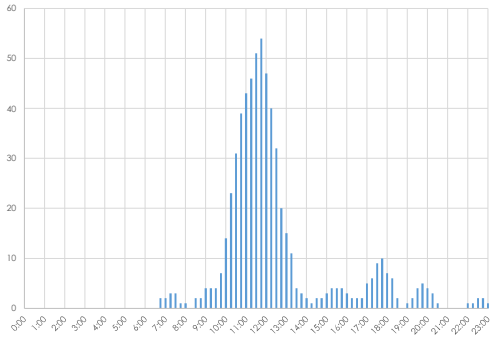


Hourly Flows		South Approach													East Approach													North Approach													West Approach												
		Conargo Rd													Sturt Hwy													<<<NAME OF ROAD>>>													Sturt Hwy												
		Left			Through			Right			U-turn				Left			Through			Right			U-turn				Left			Through			Right			U-turn				Left			Through			Right			U-turn			
Start	End	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds
0:00	1:00	0	0	0	0	0	0	1	0	1	0	0	0	0	0	4	10	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	4	9	0	0	0	0	0	0	0	0
0:15	1:15	0	0	0	0	0	0	1	0	1	0	0	0	0	0	6	12	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	6	0	0	0	0	0	0	0	0
0:30	1:30	0	0	0	0	0	0	1	0	1	0	0	0	0	0	4	9	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	4	0	0	0	0	0	0	0	0
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2:15	3:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4	0	0	0	0	0	0	0	0
2:30	3:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	7	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4	0	0	0	0	0	0	0	0
2:45	3:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	7	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4	0	0	0	0	0	0	0	0
3:00	4:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	5	0	0	0	0	0	0	0	0
3:15	4:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	6	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	3	3	0	0	0	0	0	0	0	0
3:30	4:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	8	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	3	3	0	0	0	0	0	0	0	0
3:45	4:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	4	0	0	0	0	0	0	0	0
4:00	5:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	8	1	0	1	0	0	0	0	0
4:15	5:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	11	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	8	3	0	3	0	0	0	0	0
4:30	5:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	10	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	5	7	3	0	3	0	0	0	0	0
4:45	5:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	11	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5	8	3	0	3	0	0	0	0	0
5:00	6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	13	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	2	7	4	0	4	0	0	0	0	0
5:15	6:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	16	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	4	14	2	1	3	0	0	0	0	0
5:30	6:30	1	0	1	0	0	0	0	0	0	0	0	0	0	0	15	15	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	6	17	3	1	4	0	0	0	0	0
5:45	6:45	1	0	1	0	0	0	0	0	0	0	0	0	0	2	19	12	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	7	17	6	1	7	0	0	0	0	0
6:00	7:00	1	0	1	0	0	0	0	0	0	0	0	0	0	2	20	12	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	7	20	12	1	13	0	0	0	0	0
6:15	7:15	1	1	2	0	0	0	0	0	0	0	0	0	0	3	18	13	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	7	24	15	0	15	0	0	0	0	0
6:30	7:30	2	1	3	0	0	0	0	0	0	0	0	0	0	3	21	18	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	7	32	16	1	17	0	0	0	0	0
6:45	7:45	2	1	3	0	0	0	0	0	0	0	0	0	0	1	16	18	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	9	40	15	1	16	0	0	0	0	0
7:00	8:00	2	1	3	0	0	0	0	0	0	0	0	0	0	3	23	17	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	13	44	9	1	10	0	0	0	0	0
7:15	8:15	4	0	4	0	0	0	0	0	0	0	0	0	0	2	26	16	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	11	45	7	1	8	0	0	0	0	0
7:30	8:30	2	1	3	0	0	0	0	0	0	0	0	0	0	2	26	11	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	13	52	5	0	5	0	0	0	0	0
7:45	8:45	3	1	4	0	0	0	1	0	1	0	0	0	0	2	32	13	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	11	56	4	0	4	0	0	0	0	0
8:00	9:00	4	1	5	0	0	0	1	1	2	0	0	0	0	0	35	12	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	6	56	2	1	3	0	0	0	0	0
8:15	9:15	3	1	4	0	0	0	1	1	2	0	0	0	0	1	44	16	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	9	58	1	1	2	0	0	0	0	0
8:30	9:30	3	0	3	0	0	0	1	1	2	0	0	0	0	1	45	20	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	9	60	3	1	4	0	0	0	0	0
8:45	9:45	2	1	3	0	0	0	0	1	1	0	0	0	0	1	58	22	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	12	62	3	1	4	0	0	0	0	0
9:00	10:00	1	1	2	0	0	0	0	0	0	0	0	0	0	1	53	23	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	12	70	3	0	3	0	0	0	0	0
9:15	10:15	1	1	2	0	0	0	1	0	1	0	0	0	0	1	47	21	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	12	70	3	0	3	0	0	0	0	0
9:30	10:30	1	1	2	0	0	0	1	0	1	0	0	0	0	1	42	16	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	9	62	1	0	1	0	0	0	0	0
9:45	10:45	1	0	1	0	0	0	1	1	2	0	0	0	0	1	35	13	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	8	56	0	0	0	0	0	0	0	0
10:00	11:00	2	0	2	0	0	0	2	1	3	0	0	0	0	1	46	13	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	7	50	1	0	1	0	0	0	0	0
10:15	11:15	1	0	1	0	0	0	1	1	2	0	0	0	0	2	54	10	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	5	54	3	0	3	0	0	0	0	0
10:30	11:30	2	0	2	0	0	0	1	1	2	0	0	0	0	2	62	9	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	6	58	3	2	5	0	0	0	0	0
10:45	11:45	3	1	4	0	0	0	2	1	3	0	0	0	0	1	60	9	69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	7	59	3	2	5	0	0	0	0	0
11:00	12:00	4	1	5	0	0	0	1	1	2	0	0	0	0	1	70	12	82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	13	69	2	2	4	0	0	0	0	0
11:15	12:15	4	1	5	0	0	0	1	2	3	0	0	0	0	0	61	12	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	17	69	1	2	3	0	0	0	0	0
11:30	12:30	4	1	5	0	0	0	1	2	3	0	0	0	0	0	57	14	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	18	71	1	0	1	0	0	0	0	0
11:45	12:45	5	0	5	0	0	0	0	1	1	0	0	0	0	0	65	14	79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	17	73	1	0	1	0	0	0	0	0
12:00	13:00	4	0	4	0	0	0	0	2	2	0	0	0	0	0	46	8	54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	14	78	1	1	2	0	0	0	0	0
12:15	13:15	5	0	5	0	0	0	1	1	2	0	0	0	0	0	48	11	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63	11	74	1	1	2	0	0	0	0	0
12:30	13:30	5	0	5	0	0	0	1	1	2	0	0	0	0	0	54	11	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	9	73	2	2	4	0	0	0	0	0
12:45	13:45	3	0	3	0	0	0	1	1	2	0	0	0	0	0	43	12	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	8	73	3	2	5	0	0	0	0	0
13:00	14:00	2	1	3	0	0	0	1	0	1	0	0	0	0	0	46	14	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	9	60	4	1	5	0	0	0	0	0
13:15	14:15	2	1	3	0	0	0	0	0	0	0	0	0	0	0	45	10	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	8	61	3	1	4	0	0	0	0	0
13:30	14:30	1	1	2	0	0	0	0	0	0	0	0	0	0	1	43	12	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	11	60	2	2	4	0	0	0	0	0
13:45	14:45	2	1	3	0	0	0	0	0	0	0	0	0	0	1	50	13	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	11	61	2	2	4	0	0	0	0	0
14:00	15:00	4	0	4	0	0	0	0	0	0	0	0	0	0	1	54	17	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	11	60	1	2	3	0	0	0	0	0
14:15	15:15	3	1	4	0	0	0	0	0	0	0	0	0	0	1	65	18	83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	14	57	2	2	4	0	0	0	0	0
14:30	15:30	4	1	5	0	0	0	1	1	2	0	0	0	0	0	60	16	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	11	59	2	0	2	0	0	0	0	0
14:45	15:45	4	1	5	0	0	0	1	2	3	0	0	0	0	1	59	15	74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	11	61	1	0	1	0	0	0	0	0
15:00	16:00	4	2	6	0	0	0	1	2	3	0	0	0	0	1	55	10	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	7	59	1	1	2	0	0	0	0	0
15:15	16:15	6	1	7	0	0	0	1	2	3	0	0	0	0	1	50	13	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	5	63	0	1	1	0	0	0	0	0
15:30	16:30	5	1	6	0	0	0	0	2	2	0	0	0	0	1	56	15	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	5	53	1	1	2	0	0	0	0	0
15:45	16:45	5	1	6	0	0	0	0	1	1	0	0	0	0	1	54	15	69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	5	48	2	1	3	0	0	0	0	0
16:00	17:00	3	0	3	0	0	0	0	1	1	0	0	0	0	2	49	18	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	9	47	2	0	2	0	0	0	0	0
16:15	17:15	4	0	4	0	0	0	1	1	2	0	0	0	0	2	45	15	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	9	45	3	0	3	0	0	0	0	0
16:30	17:30	6	1	7	0	0	0	1	0	1	0	0	0	0	2	44	11	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	9	56	2	0	2	0	0	0	0	0
16:45	17:45	7	2	9	0	0	0	1	1	2	0	0	0	0	2	49	10	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	9	60	1	0	1	0	0	0	0	0
17:00	18:00	7	3	10	0	0	0	2	1	3	0	0	0	0	0	56	11	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	7	62	1	0	1	0	0	0	0	0
17:15	18:15	6	4	10	0	0	0	1	1	2	0	0	0	0	0	54	9

transport planning

Job Number	23022
Intersection	Conargo Rd / N Boundary Rd
Weather	Fine
Date	Saturday, 2 March 2024
AM Peak	11:45 AM
PM Peak	12:00 PM

Hourly Vehicle Flows



AM PEAK

Traffic Flows (Separate Classes)

N - Conargo Rd

W - N Boundary Rd

	H	LV	↱		0	0	0	0	HV	
	0	2	→		0	0	0	0	LV	
	0	0	↴		U	↰	↓	↳		
	0	0	U							
						U	0	0		
	↰	↑	↱	U		↰	0	0		
LV	0	52	0	0		←	0	0		
HV	0	0	0	0		↲	LV	HV		

S - Conargo Rd

Traffic Flows (Totals)

N - Conargo Rd

W - N Boundary Rd

	2	↱		0	0	0	0
	0	→		U	↰	↓	↳
	0	↴					
	0	U					
					U	0	
↰	↑	↱	U		↰	0	
0	52	0	0		←	0	
					↲	0	

S - Conargo Rd

Traffic Flows (Totals with Heavies)

N - Conargo Rd

W - N Boundary Rd

	HV	Total	↱		0	0	0	0	HV
	0	2	→		0	0	0	0	Total
	0	0	↴		U	↰	↓	↳	
	0	0	U						
						U	0	0	
	↰	↑	↱	U		↰	0	0	
Total	0	52	0	0		←	0	0	
HV	0	0	0	0		↲	Total	HV	

S - Conargo Rd

PM PEAK

Traffic Flows (Separate Classes)

N - Conargo Rd

W - N Boundary Rd

	HV	LV	↱		0	0	0	0	HV	
	0	0	→		0	0	0	0	LV	
	0	0	↴		U	↰	↓	↳		
	0	0	U							
						U	0	0		
	↰	↑	↱	U		↰	0	0		
LV	0	47	0	0		←	0	0		
HV	0	0	0	0		↲	LV	HV		

S - Conargo Rd

Traffic Flows (Totals)

N - Conargo Rd

W - N Boundary Rd

	0	↱		0	0	0	0
	0	→		U	↰	↓	↳
	0	↴					
	0	U					
					U	0	
↰	↑	↱	U		↰	0	
0	47	0	0		←	0	
					↲	0	

S - Conargo Rd

Traffic Flows (Totals with Heavies)

N - Conargo Rd

W - N Boundary Rd

	HV	Total	↱		0	0	0	0	HV
	0	0	→		0	0	0	0	Total
	0	0	↴		U	↰	↓	↳	
	0	0	U						
						U	0	0	
	↰	↑	↱	U		↰	0	0	
Total	0	47	0	0		←	0	0	
HV	0	0	0	0		↲	Total	HV	

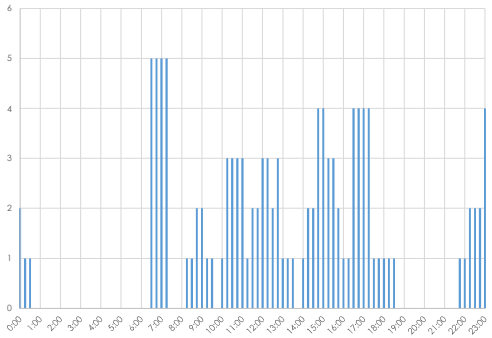
S - Conargo Rd

Hourly Flows		South Approach													East Approach												North Approach												West Approach											
		Conargo Rd													<<<NAME OF ROAD>>>												Conargo Rd												N Boundary Rd											
		Left			Through			Right			U-turn				Left			Through			Right			U-turn			Left			Through			Right			U-turn			Left			Through			Right			U-turn			
Start	End	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds
0:00	1:00	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:15	1:15	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:30	1:30	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0:45	1:45	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00	2:00	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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2:00	3:00	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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3:00	4:00	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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4:00	5:00	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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4:45	5:45	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00	6:00	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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6:00	7:00	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15	7:15	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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8:00	9:00	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	9:15	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	9:30	1	0	1	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	9:45	1	0	1	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00	10:00	1	0	1	2	0	2	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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9:30	10:30	0	0	0	4	0	4	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45	10:45	0	0	0	6	0	6	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	11:00	0	0	0	13	0	13	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	11:15	0	0	0	21	0	21	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	11:30	0	0	0	28	1	29	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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11:00	12:00	0	0	0	37	1	38	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	12:15	0	0	0	41	1	42	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	12:30	0	0	0	47	0	47	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	12:45	0	0	0	52	0	52	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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12:15	13:15	0	0	0	40	0	40	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	13:30	0	0	0	31	0	31	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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13:00	14:00	0	0	0	13	0	13	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	14:15	0	0	0	9	0	9	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	14:30	0	0	0	3	0	3	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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14:00	15:00	0	0	0	2	0	2	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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15:00	16:00	0	0	0	2	0	2	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	16:15	0	0	0	3	0	3	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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15:45	16:45	0	0	0	3	0	3	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	17:00	0	0	0	2	0	2	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	17:15	0	0	0	1	0	1	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	17:30	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	17:45	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	18:00	0	0	0	1	0	1	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	18:15	0	0	0	1	0	1	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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17:45	18:45	0	0	0	1	0	1	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18

transport planning

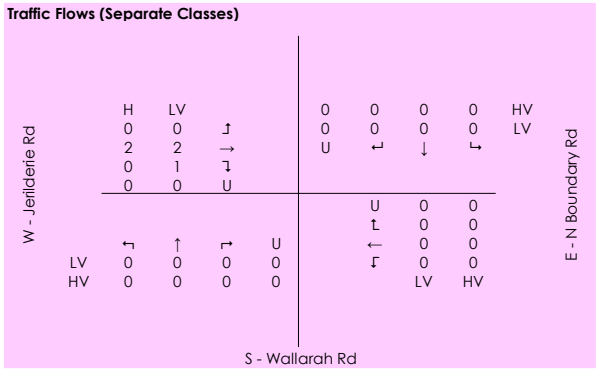
Job Number	23022
Intersection	Jerilderie Rd / N Boundary Rd / Willurah Rd
Weather	Fine
Date	Saturday, 2 March 2024
AM Peak	6:30 AM
PM Peak	2:45 PM

Hourly Vehicle Flows

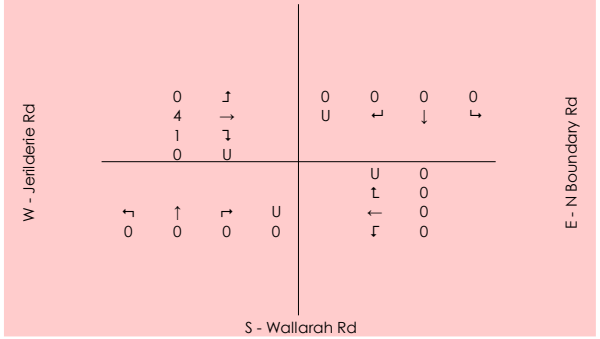


AM PEAK

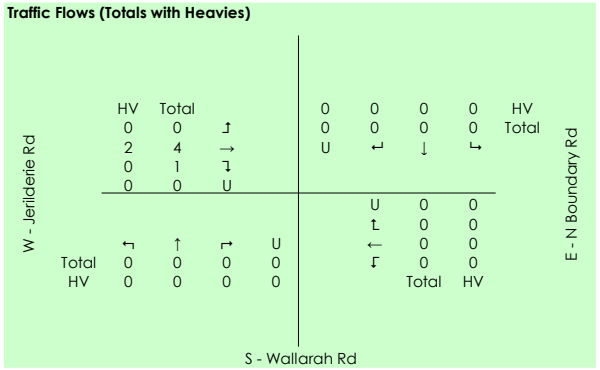
Traffic Flows (Separate Classes)



Traffic Flows (Totals)

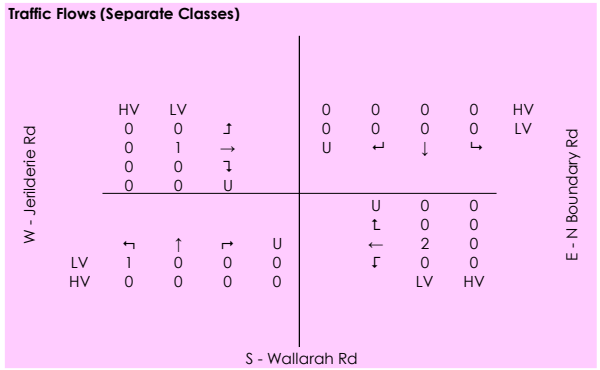


Traffic Flows (Totals with Heavies)

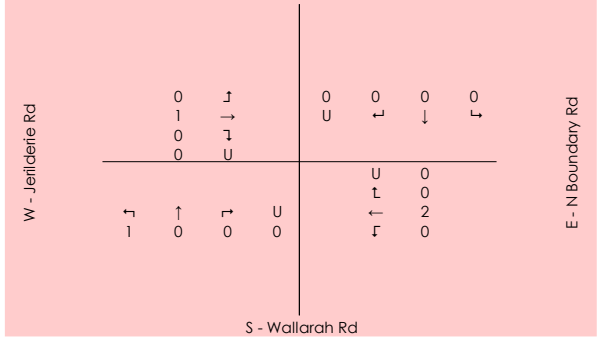


PM PEAK

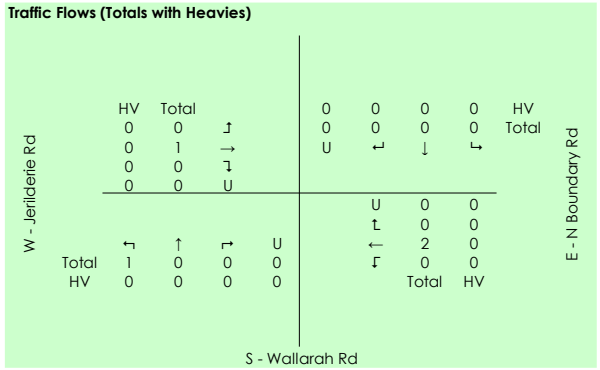
Traffic Flows (Separate Classes)



Traffic Flows (Totals)



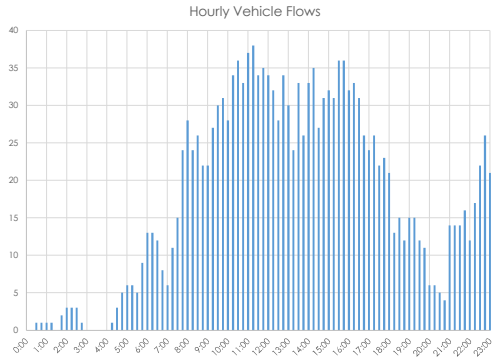
Traffic Flows (Totals with Heavies)



Hourly Flows		South Approach													East Approach												North Approach												West Approach											
		Wallarah Rd													N Boundary Rd												<<<NAME OF ROAD>>>												Jerilderie Rd											
		Left			Through			Right			U-turn				Left			Through			Right			U-turn			Left			Through			Right			U-turn			Left			Through			Right			U-turn			
Start	End	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds
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15:30	16:30	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	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	0	0	0
15:45	16:45	1	0	1	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	17:00	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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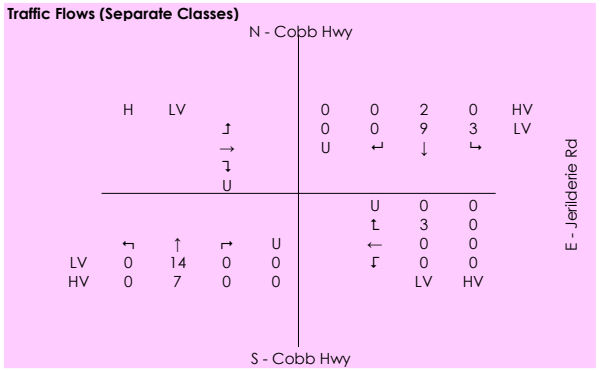
transport planning

Job Number	23022
Intersection	Cobb Hwy / Jerilderie Rd
Weather	Fine
Date	Saturday, 2 March 2024
AM Peak	11:15 AM
PM Peak	3:30 PM

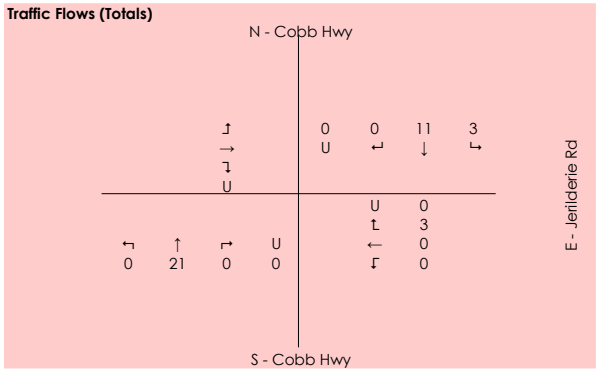


AM PEAK

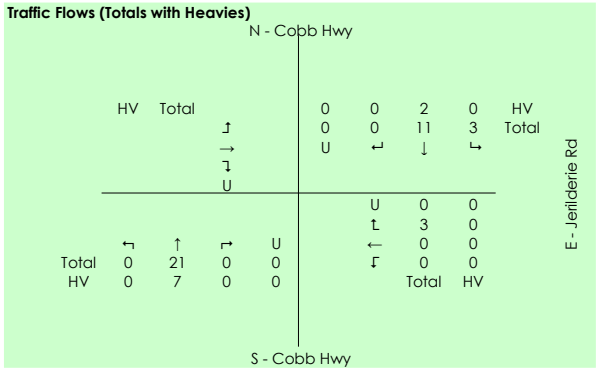
Traffic Flows (Separate Classes)



Traffic Flows (Totals)

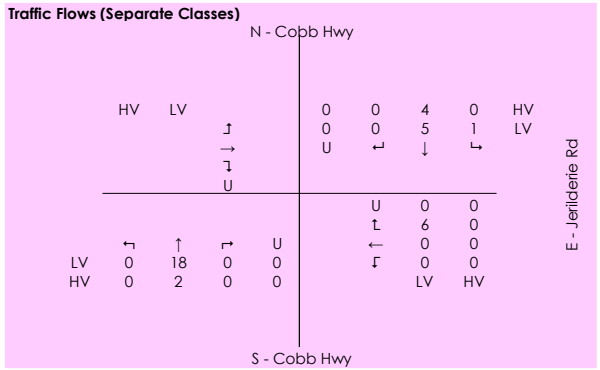


Traffic Flows (Totals with Heavies)

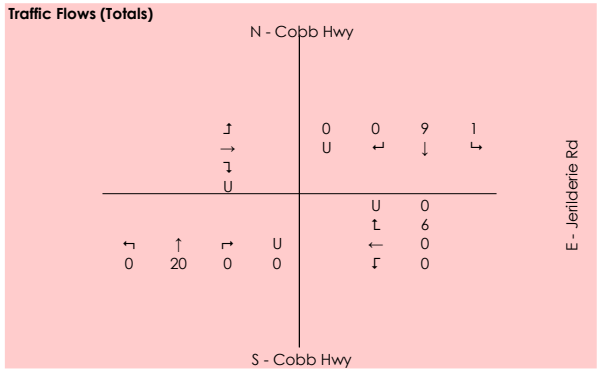


PM PEAK

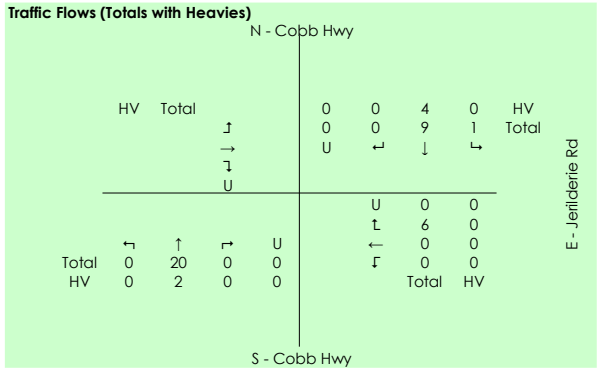
Traffic Flows (Separate Classes)



Traffic Flows (Totals)



Traffic Flows (Totals with Heavies)



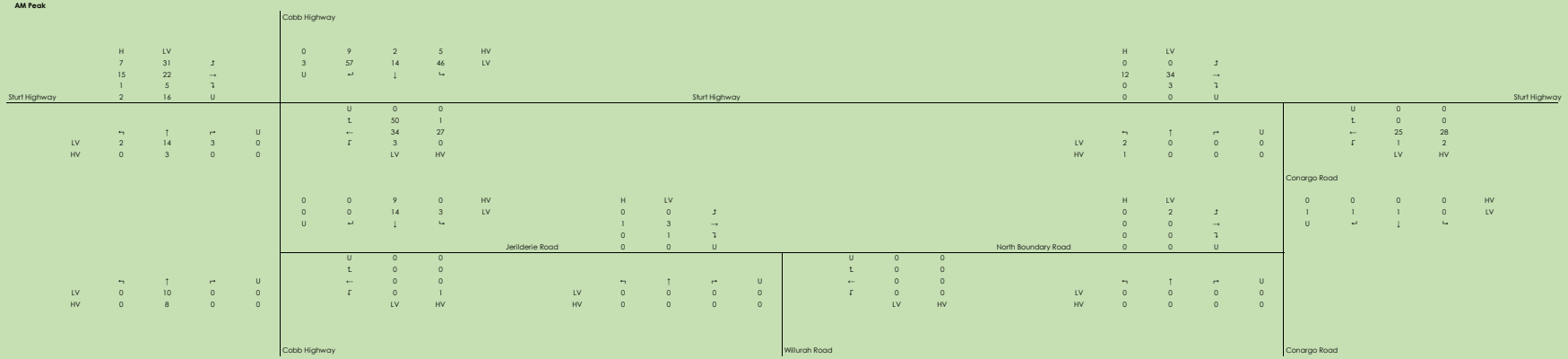
Hourly Flows		South Approach													East Approach												North Approach												West Approach											
		Cobb Hwy													Jerilderie Rd												Cobb Hwy												<<<NAME OF ROAD>>>											
		Left			Through			Right			U-turn				Left			Through			Right			U-turn			Left			Through			Right			U-turn				Left			Through			Right			U-turn			
Start	End	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	Peds
0:00	1:00	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	0	0	0	0	0	0	0	0	0	0												
0:15	1:15	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	0	0	0	0	0	0	0	0	0	0												
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0:45	1:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
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Appendix E

Network Diagrams

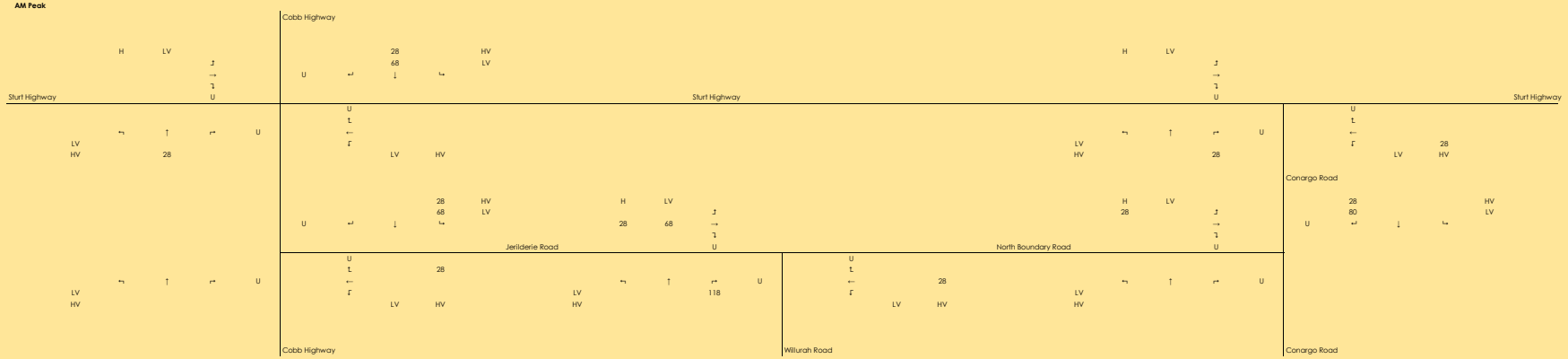
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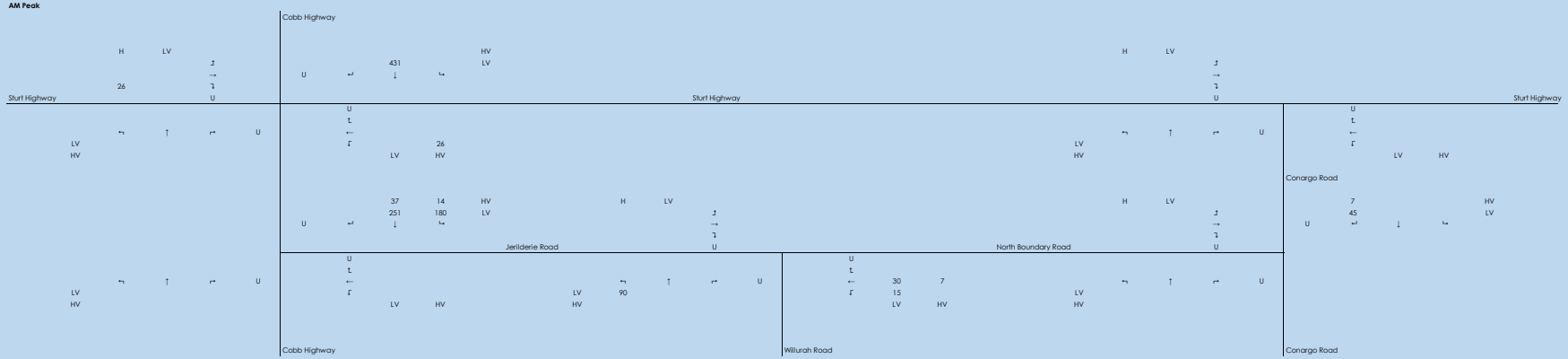
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AM Peak



Other Developments

AM Peak



Background traffic growth

Years until peak 4

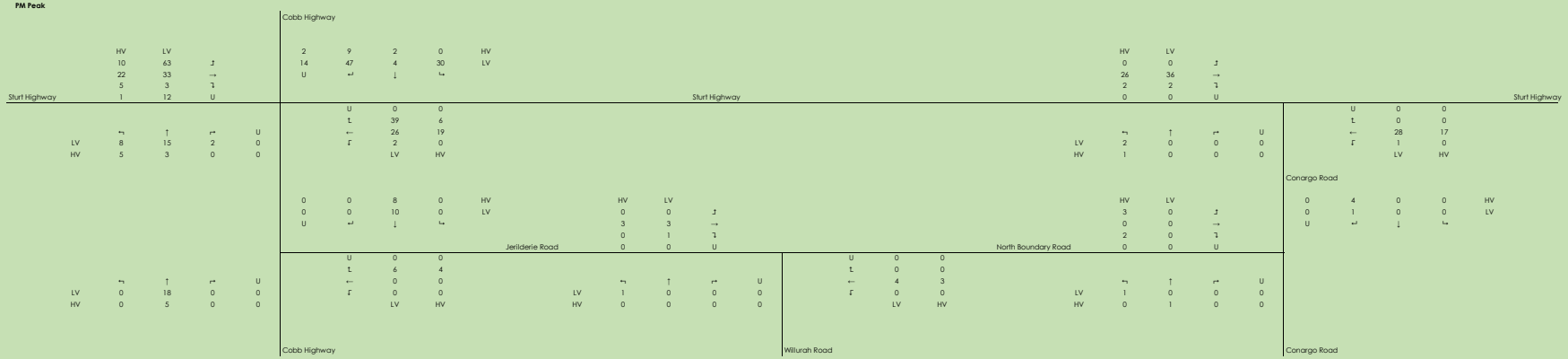
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Cobb Highway

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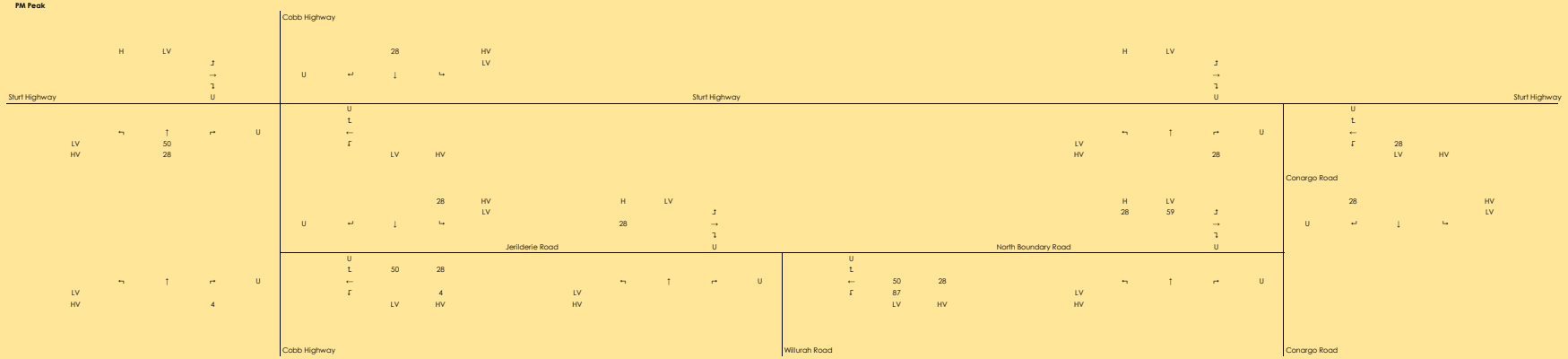
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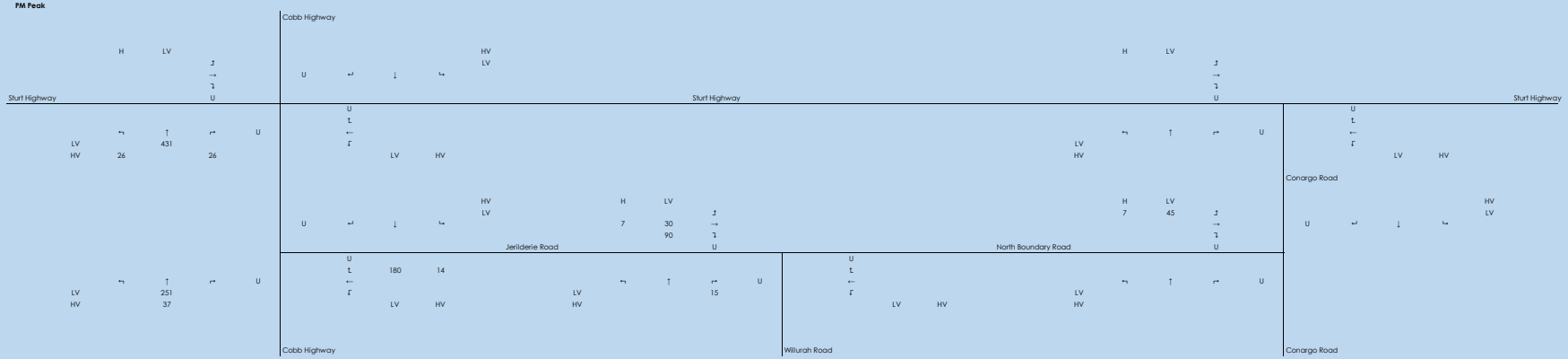
Project

PM Peak



Other Developments

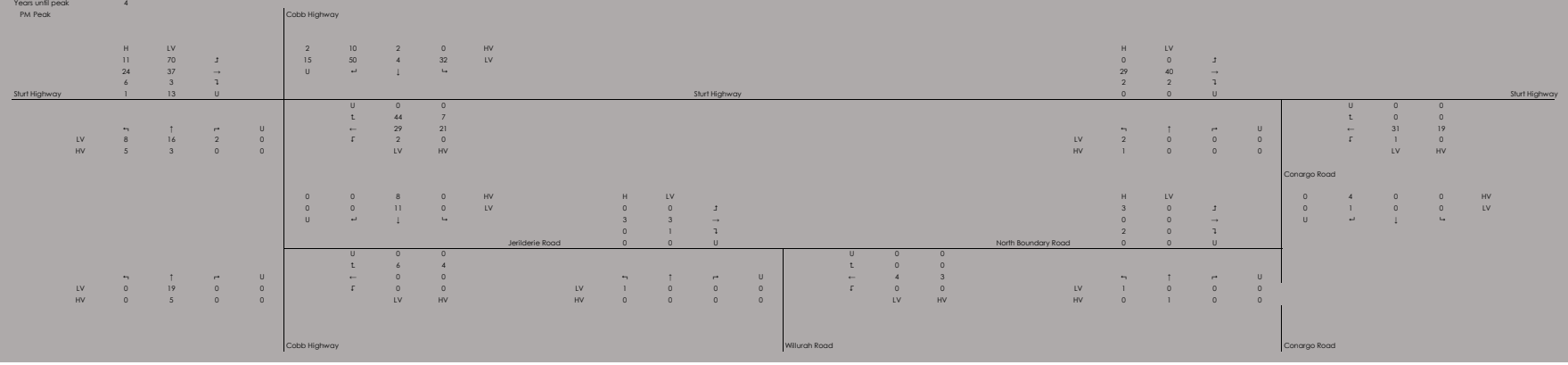
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Background traffic growth

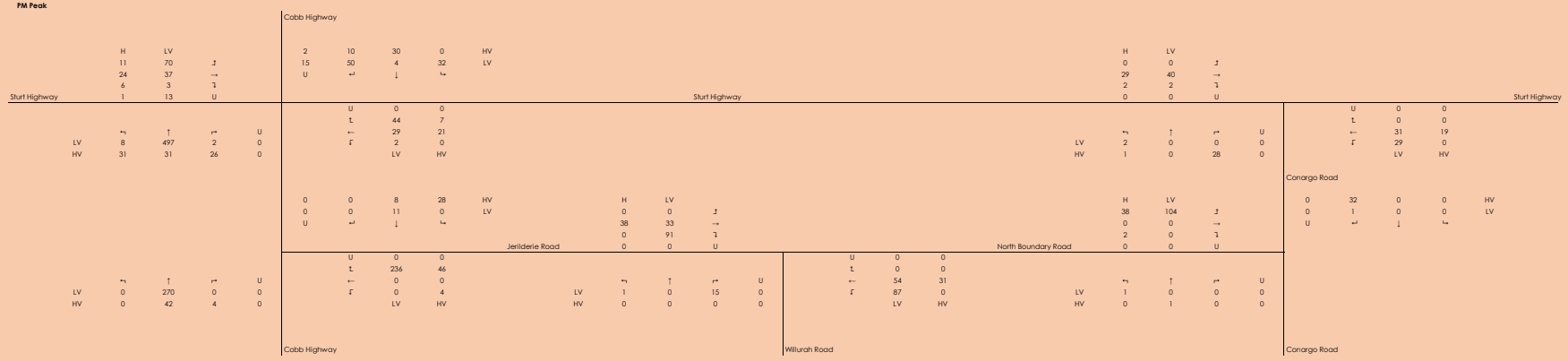
Years until peak 4

PM Peak



Total

PM Peak



Appendix F

Sturt Highway Traffic Delay Modelling Memo (23022-M01V03-250826 Traffic Delay Modelling)

Memorandum

To: Bullawah Wind Farm Pty Ltd (BWF)

From: The Transport Planning Partnership

Date: 26 August 2025

TTPP REF: 23022

CC: Umwelt (Australia) Pty Ltd (Umwelt)

RE: BULLAWAH WIND FARM - TRAFFIC DELAY MODELLING

As requested, please find herein The Transport Planning Partnership's (TTPP) methodology, approach and findings of preliminary traffic delay modelling for the proposed Bullawah Wind Farm Project (the Project), a State Significant Development (SSD) renewable energy project (SSD-50505215) located approximately 36 kilometres (km) south east of Hay, within the South West Renewable Energy Zone (South West REZ).

Background

This section has been prepared in direct response to Transport for NSW RFI REN25/00037/004, specifically Point 5 of the "*TfNSW comments and further information required in response to the inclusion of South Australia routes within the Amendment Report*".

Point 5 requests further consideration and modelling of the timing and impacts of high-risk Oversized-Overmass (OSOM) movements through the township of Hay, Balranald, along the Sturt Highway from Robinvale to Hay, and on the Cobb Highway south of Hay.

These movements were raised by TfNSW and required further assessment due to operational constraints including narrow lane widths, minimal shoulders, limited overtaking opportunities, steel barriers, and constrained spacing between rest areas, as well as the high crash rates identified along the Sturt Highway between Balranald and Darlington Point.

Approach

To address this request, rest areas between Robinvale and South Hay have been identified as formal pull-over locations in the Rex J Andrews OSOM route assessment (RJA, 2025).

Additional pull-over bays have also been identified that may provide sufficient room to allow vehicles to pass under escort or traffic control. These new locations reduce the maximum

distance between pull-over opportunities from 65 km to 38 km, improving operational performance.

Sturt Highway Pull-Over and Escort Protocol

The Sturt Highway in this section operates at a posted speed limit of 110 km/h outside of regional centres. Based on Transport for NSW Traffic Volume Viewer (2024) data, the eastbound AADT is approximately 667 vehicles per day and the westbound AADT is approximately 692 vehicles per day, with maximum observed hourly volumes in any direction not exceeding 60 vehicles and typically occurring around midday.

The proposed OSOM movements will be escorted by police and pilot vehicles using a leapfrog procedure. Under this protocol, the OSOM vehicle stops at designated pull-over locations to release queued following traffic, while the lead pilot moves ahead to the next location to hold oncoming vehicles until the OSOM arrives and clears the section.

Traffic Time Delay Modelling

In line with TfNSW guidance, this assessment models travel time delays to oncoming and passing traffic using a maximum 10-minute delay as the baseline, with mitigation measures proposed where delays exceed this threshold.

Two scenarios have been considered in line with TfNSW RFI REN25/00037/004 (Point 5):

1. Worst Case Scenario – only using the formal rest areas as control points.

2. Indicative Scenario – using example traffic management areas identified by BWF to show that acceptable delays can be achieved. These locations are examples only and will be further refined during preparation of the TMP. Numerous suitable locations are available along the corridor.

The identified rest areas are presented in Table 3, including the distance between them.

Delay Calculations

- Assumptions:
  - Lead pilot speed: 110 km/h
  - OSOM vehicle speed: 80 km/h
  - Around 42% of oncoming vehicles pass during the “open” phase between pull over locations without delay based on vehicles speeds.
  - Oncoming vehicles arriving during closure wait until OSOM clears to the next location
  - Following traffic is released at each pull over location.

For each segment, the following have been calculated:

- Lead pilot travel time (tP)
- OSOM travel time (tO)
- Average delay for oncoming vehicles
- Maximum delay for oncoming vehicles
- Average delay for passing vehicles
- Maximum delay for passing vehicles

Scenario 1: Worst Case (Formal Rest Areas Only)

In this scenario, only the formal rest areas identified along the Sturt Highway are considered as control points for OSOM pull-over and passing movements. This provides a conservative assessment of traffic delays, as it reflects the longest distances between opportunities for traffic to be released.

The formal rest areas used in the worst case scenario, including the distance between each location, are listed in Table 1.

Table 1: Formal Rest Areas

Rest Area	Distance from Previous Rest Area
Robinvale	–
Zinder Park Rest Area, Euston	13 km
Sturt Highway at Lions Park, Balranald	65 km
Willowvale Rest Area, Keri Keri	40 km
Ravensworth Rest Area, Maude	35 km
Mungadal Rest Area, South Hay	50 km

The resultant traffic time delay calculations are presented in Table 2.

Table 2: Example Delay Calculation Reduction Using Formal Rest Areas

Segment	Distance km	Lead pilot time tP min	OSOM time tO min	Average oncoming delay min	Maximum oncoming delay min	Average passing delay min	Maximum passing delay min
Robinvale – Zinder Park	13	7.1	9.8	2.8	9.8	1.3	2.7
Zinder Park – Balranald	65	35.5	48.8	14.1	48.8	6.6	13.3
Balranald – Willowvale	40	21.8	30.0	8.7	30.0	4.1	8.2
Willowvale – Ravensworth	35	19.1	26.3	7.6	26.3	3.6	7.2
Ravensworth – Mungadal	50	27.3	37.5	10.9	37.5	4.9	9.9

Scenario 2: Indicative (Example Traffic Management Areas)

This scenario uses the shorter segments between rest areas and example pull-over locations identified by BWF and confirmed with RJA. These sites are indicative only, not proposed as part of the Project at this stage, but demonstrate how delays can be reduced.

The formal rest areas and example traffic management areas used in the indicative scenario are shown below in Table 3, along with the distance between each location.

Table 3: Rest Areas and Example Traffic Management Areas

Rest Area	Distance from Previous Rest Area
Robinvale	-
Zinder Park Rest Area, Euston	13km
Meilman Rest Area (example location)	8km
Abbotts Tank Rest Area (example location)	6km
Prungle Mail Rest Area (example location)	38km
Sturt Highway at Lions Park, Balranald	14km
Yanga Creek Rest Area (Eastern Entrance) (example location)	9km
Willowvale Rest Area, Keri Keri	32km
St Paul's Rest Area (example location)	23km
Ravensworth Rest Area, Maude	31km
Pevensey Rest Area (example location)	26km
Mungadal Rest Area, South Hay	26km

The resultant traffic time delay calculations are presented in Table 4.

Table 4: Example Delay Calculation Reduction Using Traffic Management Areas

Segment	Distance km	Lead pilot time tP min	OSOM time tO min	Average oncoming delay min	Maximum oncoming delay min	Average passing delay min	Maximum passing delay min
Robinvale – Zinder Park	13	7.1	9.8	2.8	9.8	1.3	2.7
Zinder Park – Meilman	8	4.4	6.0	1.7	6.0	0.8	1.6
Meilman – Abbotts Tank	6	3.3	4.5	1.3	4.5	0.6	1.2
Abbotts Tank – Prungle Mail	38	20.7	28.5	8.2	28.5	3.9	7.8
Prungle Mail – Balranald	14	7.6	10.5	3.0	10.5	1.4	2.9
Balranald – Yanga Creek	9	4.9	6.8	2.0	6.8	0.9	1.8
Yanga Creek – Willowvale	32	17.5	24.0	6.9	24.0	3.3	6.5
Willowvale – St Paul's	23	12.5	17.2	5.0	17.2	2.4	4.7
St Paul's – Ravensworth	31	16.9	23.2	6.7	23.2	3.2	6.3
Ravensworth – Pevensey	26	14.2	19.5	5.6	19.5	2.7	5.3
Pevensey – Mungadal	26	14.2	19.5	5.6	19.5	2.7	5.3

Discussion of Results

In the worst-case scenario, where only the formal rest areas are considered as control points, the longer distances between opportunities for vehicles to pass result in higher average delays for oncoming traffic. Average oncoming delays range from 2.8 minutes on shorter sections such as Robinvale to Zinder Park, to 14.1 minutes on the longest section between Zinder Park and Balranald. These values indicate that when pull-over spacing reaches up to 65 kilometres, the 10-minute TfNSW baseline for acceptable average delay may be exceeded.

The indicative scenario incorporates example traffic management areas identified by BWF in addition to the formal rest areas, which reduces the maximum spacing between opportunities to 38 kilometres. Under this arrangement, all average oncoming delays remain below the 10-minute threshold, ranging from 1.3 minutes on the shortest segments to 8.2 minutes on the longest. This demonstrates that the inclusion of additional traffic management areas has a material benefit in keeping average oncoming delays within the TfNSW performance baseline.

Delays experienced by following traffic are substantially lower in both scenarios, with average delays of around 2.1 minutes before release at the next pull-over location.

Conclusion

The assessment demonstrates that, under a worst case scenario in which only formal rest areas are used as pull-over locations, average oncoming delays can exceed the TfNSW 10-minute baseline, with the highest average delay calculated at 14.1 minutes between Zinder Park and Balranald. However, under the indicative scenario, which incorporates additional traffic management areas, all average delays remain within the 10-minute baseline, with the highest recorded average being 8.2 minutes. Delays for following traffic remain modest in both scenarios, averaging approximately 2.1 minutes.

These results confirm that the inclusion of additional pull-over opportunities along the Sturt Highway substantially improves operational performance, reduces potential queuing impacts, and ensures compliance with TfNSW's baseline for acceptable traffic delays. While the formal rest area scenario represents the upper bound of potential delay, the indicative scenario illustrates that, in practice, average delays can be kept within required limits. Final pull-over locations will be refined during preparation of the TMP, supported by strategic concept designs to meet TfNSW requirements.

We trust the above is to your satisfaction. Should you have any queries regarding the above or require further information, please do not hesitate to contact the undersigned on 8437 7800.

Yours sincerely,



Jason Rudd
Director

Appendix G

Consolidated Road Upgrades Table

Appendix G – Consolidated Road Upgrades Table as per Response to RFI#2 (Umwelt, September 2025)

Route	Road / Intersection	Chainage	Treatment	Timing	Consultation Undertaken
Port to Hay Transport	Murray Valley Highway onto Sturt Highway at Euston, NSW.	~546 km (Route 1 from Port Adelaide)	Additional hardstand and associated fill required to bring new hardstand area level with the highway. Sign to be relocated. Refer to strategic concept design 12659863-GHD-00-00-DRG-CI-00016 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works (prior to use for OSOM transport), Tranche 5.	Letter and email sent to **Balranald Shire Council**. No concerns raised with this work, noting that the road works are proposed solely within the TfNSW road reserve.
Port to Hay Transport	Sturt Highway Balranald, NSW.	~620 km (Route 1 from Port Adelaide)	Vehicle to traverse existing traffic island. Signs to be made removable with flush base, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00019 in Appendix E of Response to RFI#2 (Umwelt, 2025). Existing traffic islands are presumed to be trafficable. Pavement to be assessed and upgraded if required (islands to be retained to ensure pedestrian safety.	Pre-construction minor works (prior to use for OSOM transport), Tranche 5.	As per response in the row below, noting that an additional concept design has been prepared at this location in response to TfNSW RFI raised as part of RFI#2.
Port to Hay Transport	Right hand bend on Sturt Highway at Balranald, NSW.	~623.7 km (Route 1 from Port Adelaide)	**Option 1:** Hardstand will be required on inside of corner along with the removal/relocation of light poles and numerous signs, and potential removal/trimming of one planted street tree. Median strips to be made trafficable/replaced with painted lines. The Project has received landowner consent from the property owner at the inside of the corner. Refer to strategic concept design 12659863-GHD-00-00-DRG-CI-00017 in Appendix E of Response to RFI#2 (Umwelt, 2025). **Option 2:** Hardstand will be required on the outside of corner along with the removal of vegetation, light poles and numerous signs. Median strips to be made trafficable/replaced with painted lines. The proposed road upgrades are contained within the TfNSW road reserve. Refer to strategic concept design 12659863-GHD-00-00-DRG-CI-00035 in Appendix E of Response to RFI#2 (Umwelt, 2025). *Note: both options are presented in the Port Adelaide to Bullawah Wind Farm Route Study (RJA, 2025) (refer to Appendix A of the Amended TIA - pages 30 and 31)*	Pre-construction minor works (prior to use for OSOM transport), Tranche 5.	BWF presented proposed road upgrades and treatments to **Balranald Shire Council** during preparation of the Amendment Report (March 2025). BWF requested confirmation (and any detail) of planned works that may be impacted by, or will impact OSOM movements, along the proposed transport route during Project construction (i.e. 2026 and 2027). Feedback from Balranald Shire Council identified their preference to avoid removing the street trees situated within the road reserve, and as such "Option 1" was progressed. Following receipt of landowner's consent for the property owner associated with "Option 1", BWF undertook additional consultation with Balranald Shire Council and in-principal agreement of the two (2) options was received via email on 22 July 2025.
Port to Hay Transport	Roundabout on Sturt Highway at Hay, NSW onto Cobb Highway.	~750 km (Route 1 from Port Adelaide)	Several light poles and signs to be removed or relocated. Hardstand to be installed on exit of corner. Refer to strategic concept design 12659863-GHD-00-00-DRG-CI-00018 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works (prior to use for OSOM transport), Tranche 5.	Consultation undertaken via email and verbal formats with **Hay Shire Council** on the proposed works at this location, and other modifications proposed within this table. In-principle support received noting further consultation and agreement will be undertaken during detailed design.
Port to Hay Transport	John Renshaw Drive onto the	~18.4 km (Route 1 from	Sign to be relocated or lowered. No road modifications proposed. Refer to page 19 of the Port of Newcastle Route Study (RJA, 2025) (Appendix A of the Amended TIA).	Pre-construction minor works (prior to use for	Letter sent to **City of Newcastle LGA** outlining the work required to local and state roads within LGA. No response received. No road modifications are

Route	Road / Intersection	Chainage	Treatment	Timing	Consultation Undertaken
	M1 at Beresfield	Port of Newcastle)		OSOM transport), Tranche 5.	proposed at this location, and as such, no concept design has been prepared.
Port to Hay Transport	Wagga Wagga – Roundabout at the corner of Edward Street and Pearson Street.	~614.6 km (Route 1 from Port of Newcastle)	Existing apron on the roundabout to be traversed by the transporter. Centre of roundabout to be made trafficable. Sign to be made removable or relocated. Refer to strategic concept design 12659863-GHD-00-00-DRG-CI-00005 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works (prior to use for OSOM transport), Tranche 5.	Letter sent to **Wagga Wagga Council** outlining the works required to state roads within their LGA. Email response and phone call received, which confirmed that TfNSW is the road authority for Sturt Highway and that a NVHR application will be required.
Port to Hay Transport	Wagga Wagga – Roundabout at the corner of Mason Street and Hammond Ave (Norton Street).	~617.3 km (Route 1 from Port of Newcastle)	Existing apron on the roundabout to be traversed by the transporter. Centre of roundabout to be made trafficable. Sign to be made removable or relocated. Refer to strategic concept design 12659863-GHD-00-00-DRG-CI-00006 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works (prior to use for OSOM transport), Tranche 5.	Letter sent to **Wagga Wagga Council** outlining the works required to state roads within their LGA. Email response and phone call received, which confirmed that TfNSW is the road authority for Sturt Highway and that a NVHR application will be required.
Port to Hay Transport	Wagga Wagga – Roundabout at the corner of Koorigal Road and Hammond Ave.	~618.4 km (Route 1 from Port of Newcastle)	Existing apron on the roundabout to be traversed by the transporter. Centre of roundabout to be made trafficable. Sign to be made removable or relocated. Refer to strategic concept design 12659863-GHD-00-00-DRG-CI-00007 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works (prior to use for OSOM transport), Tranche 5.	Letter sent to **Wagga Wagga Council** outlining the works required to state roads within their LGA. Email response and phone call received, which confirmed that TfNSW is the road authority for Sturt Highway and that a NVHR application will be required.
Port to Hay Transport	Wagga Wagga – Roundabout at the corner of Tasman Road and Hammond Ave.	~621.5 km (Route 1 from Port of Newcastle)	Existing apron on the roundabout to be traversed by the transporter. Centre of roundabout to be made trafficable. Sign to be made removable or relocated. Refer to strategic concept design 12659863-GHD-00-00-DRG-CI-00008 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works (prior to use for OSOM transport), Tranche 5.	Letter sent to **Wagga Wagga Council** outlining the works required to state roads within their LGA. Email response and phone call received, which confirmed that TfNSW is the road authority for Sturt Highway and that a NVHR application will be required.
Port to Hay Transport	Left hand bend on the Sturt Highway at Gillenbah, NSW.	~711 km (Route 1 from Port of Newcastle)	Several signs to be relocated or made removable. Light/power pole to be relocated out of swept path. Section of traffic island to be made trafficable. Suitable trailer to be used in order to straddle centre median. Refer to strategic concept design 12659863-GHD-00-00-DRG-CI-00009 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works (prior to use for OSOM transport), Tranche 5.	Letter sent to **Narrandera Council** in February 2025 outlining the works required to state roads within their LGA. No response received. Follow up consultation occurred in March 2025. No response received.
Port to Hay Transport	Golden Highway through Merriwa, NSW.	~224.5 to ~224.8 km (Route 2 from Port of Newcastle)	Pedestrian kerb crossing/ramp to be removed. Islands to be made trafficable or chevrons lines put in place. Several signs and bollards to be made removable and some vegetation to be trimmed. Refer to strategic concept design 12659863-GHD-00-00-DRG-CI-00015 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works (prior to use for OSOM transport), Tranche 5.	Consultation carried out with **Upper Hunter Shire Council** in July and August 2025 on the proposed road upgrades. Council requested that the no parking restriction to be removed. This is reflected in the strategic concept design in **Appendix E.**
Port to Hay Transport	Mitchell Highway onto Derribong Street, Narromine, NSW.	~450 km (Route 2 from Port of Newcastle)	Modifications to the existing hardstand on the outside of the corner to improve safety in all weather conditions. Refer to strategic concept design 12659863-GHD-00-00-DRG-CI-00014 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works (prior to use for OSOM transport), Tranche 5.	Consultation via email undertaken with **Narromine Council** to provide overview of the proposed road upgrades. Response received regarding direction of movement and querying if any other works proposed other than Mitchell Highway and scope of works of the intersection upgrade work. BWF responded providing additional details of

Route	Road / Intersection	Chainage	Treatment	Timing	Consultation Undertaken
Port to Hay Transport	Newell Highway intersection with Dowling Street at Forbes, NSW.	~590 km (Route 2 from Port of Newcastle)	No parking area to be instated. No physical road modifications proposed. Refer to page 78 of the Port of Newcastle Route Study (RJA, 2025) (Appendix A of the Amended TIA).	Pre-construction minor works (prior to use for OSOM transport), Tranche 5.	Consultation undertaken via email with **Forbes Shire Council** to provide an overview of the proposed road works including the proposed 'no parking area', and a request for council to provide details of any projects occurring withing their LGA. Council confirmed no planned works which would conflict with the proposed 'no parking' restriction and that approval will be required from TfNSW for the implementation of the 'no parking' restriction. Forbes Shire Council requested that consultation continue with them during detailed design. No road modifications are proposed at this location, and as such, no concept design has been prepared.
Port to Hay Transport	Newell Highway (Cadell St) at Narrandera, NSW.	~824-827 km (Route 2 from Port of Newcastle)	Trees to be trimmed. No road modifications proposed.	Pre-construction minor works (prior to use for OSOM transport), Tranche 5.	Email correspondence sent on 15 February 2025 and 15 March 2025 to **Narrandera Shire Council**, in which there was no response received. Noting that no road modifications are proposed at this location. No road modifications are proposed at this location, and as such, no concept design has been prepared.
Port to Hay Transport	Newell Highway onto Sturt Highway at Gillenbah, NSW.	~829 km (Route 2 from Port of Newcastle)	Sign to be relocated or made removable. Refer to page 83 of the Port of Newcastle Route Study (RJA, 2025) (Appendix A of the Amended TIA)	Pre-construction minor works (prior to use for OSOM transport), Tranche 5.	Email correspondence sent on 15 February 2025 and 15 March 2025 to **Narrandera Shire Council**, in which there was no response received. Noting that no road modifications are proposed at this location. No road modifications are proposed at this location, and as such, no concept design has been prepared.
Local Transport	Intersection of Jerilderie Road and Cobb Highway, within the Hay LGA.	~758 km (Route 1 from Port Adelaide) ~889 km (Route 1 from Port of Newcastle)	Tranche 1 pre-construction works scenario (semi-trailer): Existing conditions, prior to and during proposed upgrade, as per swept path 12659863-GHD-00-00-DRG-CI-00036 (refer to left hand image) in Appendix E of Response to RFI#2 (Umwelt, 2025). Tranche 2 pre-construction works scenario (using semi-trailer): With auxiliary left-turn – short turn lane (AUL(s)) treatment constructed, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00036 (refer to right hand image) in Appendix E of Response to RFI#2 (Umwelt, 2025). OSOM upgrades: AUL(s) treatment installed on inside corner, including installation of hardstand (all undertaken in Tranche 1). All proposed disturbance will be located within a total area of 0.41 ha shown in Figure 1.9 of the Amended Project Description (Appendix F of Response to RFI#2) (Umwelt, 2025). Refer to strategic concept design 12659863-GHD-00-00-DRG-CI-00010 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works (prior to use for OSOM transport), Tranche 1 & 2	Consultation undertaken via email and verbal formats with **Hay Shire Council** on numerous occasions in relation to the upgrade works associated with this intersection. In-principle support received noting further consultation and agreement will be undertaken during detailed design.
Local Transport	North Boundary Road, within the Edward River LGA.	~809 km from (Route 1 from Port Adelaide) ~940 km (Route 1 from Port of Newcastle)	Widening a 10 km long segment of North Boundary Road to a four (4) m wide carriageway, with one (1) m wide shoulders on both sides, plus additional disturbance for roadside drainage. All proposed disturbance will be located within the 19 m wide corridor shown in Figure 1.9 of the Amended Project Description (Appendix F of Response to RFI#2) (Umwelt, 2025). • Refer to strategic concept design 12659863-GHD-00-00-DRG-CI-00060 in Appendix E of Response to RFI#2 (Umwelt, 2025). • Refer the typical rural road cross section supplied by Edward River Council (during consultation for RFI#2) as reproduced in Figure 2.2 of Response to RFI#2 (Umwelt, September 2025). This varies to the typical rural road cross section adopted by BWF in the Amendment Report	Pre-construction minor works (prior to use for OSOM transport), Tranche 4	Consultation undertaken via email and verbal formats with respect to proposed road upgrades within **Edward River LGA**. Council raised the requirements for a minimum 6% grade on the pavement design and an indicative pavement design was provided by BWF to Edward River Council. An updated typical rural road cross section was supplied by Edward River Council, and designs updated in response. In-principle support received noting further consultation and agreement will be undertaken during detailed design.

Route	Road / Intersection	Chainage	Treatment	Timing	Consultation Undertaken
			(Umwelt, April 2025) (refer Appendix 2, Part 4). The primary difference being an increase in finished surface width from 6 m to 8 m. Accordingly, Project designs have been updated in response as reflected in the above-mentioned strategic concept design (12659863-GHD-00-00-DRG-CI-00060) provided in Appendix E of Response to RFI#2 (Umwelt, 2025). The additional finished surface width does not result in any increase in impacts for the Project and is accommodated within the Disturbance Footprint already assessed i.e. there is no change in the actual disturbance area required for the Project.		
Local Transport	Road-side parking areas (Jerilderie Road), within the Hay LGA.	~780 km and ~793 km from (Route 1 from Port Adelaide), respectively ~912 km and ~930 km (Route 1 from Port of Newcastle), respectively	Maintenance and use of two (2) existing road-side parking areas on Jerilderie Road during the construction period. Proposed disturbance is contained to approximately 0.2 ha and 0.3 ha, as shown in Figure 1.9 of the Amended Project Description (refer to Appendix F of Response to RFI#2) (Umwelt 2025). Works would involve slashing of roadside vegetation; no hardstand is proposed and as such no strategic concept design has been prepared.	Pre-construction minor works (prior to use for OSOM transport), Tranche 1	Consultation carried out with **Hay Shire Council** on the potential use of existing areas on road reserve for storage of material for upgrade works along Jerilderie Road. In-principle support received noting further consultation and agreement will be undertaken during detailed design.
Site Access Point	Site access point 1, Jerilderie Road, within the Hay LGA.	~800 km (Route 1 from Port Adelaide) ~937 km (Route 1 from Port of Newcastle)	Tranche 2 pre-construction works scenario (semi-trailer): Temporary gravel treatment to be provided to accommodate semi-trailer as per swept path 12659863-GHD-00-00-DRG-CI-00037 in Appendix E of Response to RFI#2 (Umwelt, 2025). OSOM upgrades (Tranche 3): Formalisation of proposed intersection turning left from Jerilderie Road to accommodate OSOM vehicles, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00021 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works, Tranche 2 & 3	Consultation undertaken via email and verbal formats with **Hay Shire Council** in relation to the upgrade works associated with the proposed site access points within the Hay Shire LGA. In-principle support received noting further consultation and agreement will be undertaken during detailed design.
Site Access Point	Site access point 2, Jerilderie Road, within the Hay LGA.	~801 km (Route 1 from Port Adelaide) ~938 km (Route 1 from Port of Newcastle)	Tranche 2 pre-construction works scenario (semi-trailer): Temporary gravel treatment to be provided to accommodate semi-trailer as per swept path 12659863-GHD-00-00-DRG-CI-00038 in Appendix E of Response to RFI#2 (Umwelt, 2025). OSOM upgrades (Tranche 3): Formalisation of proposed intersection turning left from Jerilderie Road to accommodate OSOM vehicles, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00022 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works, Tranche 2 & 3	Consultation undertaken via email and verbal formats with **Hay Shire Council** in relation to the upgrade works associated with the proposed site access points within the Hay Shire LGA. In-principle support received noting further consultation and agreement will be undertaken during detailed design.
Site Access Point	Site access point 3, Jerilderie Road, within the Hay LGA.	~804 km (Route 1 from Port Adelaide) ~941 km (Route 1 from Port of Newcastle)	Tranche 2 pre-construction works scenario (semi-trailer): Temporary gravel treatment to be provided to accommodate semi-trailer as per swept path 12659863-GHD-00-00-DRG-CI-00039 in Appendix E of Response to RFI#2 (Umwelt, 2025). OSOM upgrades (Tranche 3): Formalisation of proposed intersection turning right from Jerilderie Road to accommodate OSOM vehicles, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00023 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works, Tranche 2 & 3	Consultation undertaken via email and verbal formats with **Hay Shire Council** in relation to the upgrade works associated with the proposed site access points within the Hay Shire LGA. In-principle support received noting further consultation and agreement will be undertaken during detailed design.

Route	Road / Intersection	Chainage	Treatment	Timing	Consultation Undertaken
Site Access Point	Site access point 4, Jerilderie Road, within the Hay LGA.	~806 km (Route 1 from Port Adelaide) ~943 km (Route 1 from Port of Newcastle)	Tranche 2 pre-construction works scenario (semi-trailer): Temporary gravel treatment to be provided to accommodate semi-trailer as per swept path 12659863-GHD-00-00-DRG-CI-00040 in Appendix E of Response to RFI#2 (Umwelt, 2025). OSOM upgrades (Tranche 3): Formalisation of proposed intersection turning right from Jerilderie Road to accommodate OSOM vehicles, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00024 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works, Tranche 2 & 3	Consultation undertaken via email and verbal formats with **Hay Shire Council** in relation to the upgrade works associated with the proposed site access points within the Hay Shire LGA. In-principle support received noting further consultation and agreement will be undertaken during detailed design.
Site Access Point	Site access point 5, North Boundary Road, within the Edward River LGA	~811 km (Route 1 from Port Adelaide) ~948 km (Route 1 from Port of Newcastle)	Tranche 6 (semi-trailer): Temporary gravel treatment to be provided to accommodate semi-trailer as per swept path 12659863-GHD-00-00-DRG-CI-00041 in Appendix E of Response to RFI#2 (Umwelt, 2025). OSOM upgrades (Tranche 7): Formalisation of proposed intersection turning right from North Boundary Road to accommodate OSOM vehicles, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00025 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works, Tranche 6 & 7	Consultation undertaken via email and verbal formats with **Edward River Council** in relation to the upgrade works associated with the proposed site access points within the Edward River LGA. In-principle support received noting further consultation and agreement will be undertaken during detailed design.
Site Access Point	Site access point 6, North Boundary Road, within the Edward River and Murrumbidgee LGAs	~812 km (Route 1 from Port Adelaide) ~949 km (Route 1 from Port of Newcastle)	Tranche 2 pre-construction works scenario (semi-trailer): Temporary gravel treatment to be provided to accommodate semi-trailer as per swept path 12659863-GHD-00-00-DRG-CI-00042 in Appendix E of Response to RFI#2 (Umwelt, 2025). OSOM upgrades (Tranche 3): Formalisation of proposed intersection turning left from North Boundary Road to accommodate OSOM vehicles, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00026 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works, Tranche 2 & 3	Consultation undertaken via email and verbal formats with **Edward River Council** in relation to the upgrade works associated with the proposed site access points within the Edward River LGA. In-principle support received noting further consultation and agreement will be undertaken during detailed design.
Site Access Point	Site access point 7, North Boundary Road, within the Edward River LGA	~817 km (Route 1 from Port Adelaide) ~953 km (Route 1 from Port of Newcastle)	Tranche 1 pre-construction works scenario (semi-trailer): establishment of semi-trailer U-turn on North Boundary Road as per swept path 12659863-GHD-00-00-DRG-CI-00057 in Appendix E of Response to RFI#2 (Umwelt, 2025). Tranche 2 pre-construction works scenario (semi-trailer): Temporary gravel treatment to be provided to accommodate semi-trailer as per swept path 12659863-GHD-00-00-DRG-CI-00043 in Appendix E of Response to RFI#2 (Umwelt, 2025). OSOM upgrades (Tranche 3): Formalisation of proposed intersection turning right from North Boundary Road to accommodate OSOM vehicles, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00027 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works, Tranche 1, 2 & 3	Consultation undertaken via email and verbal formats with **Edward River Council** in relation to the upgrade works associated with the proposed site access points within the Edward River LGA. In-principle support received noting further consultation and agreement will be undertaken during detailed design.

Route	Road / Intersection	Chainage	Treatment	Timing	Consultation Undertaken
Site Access Point	Site access point 8, North Boundary Road, within the Edward River and Murrumbidgee LGAs	~818 km (Route 1 from Port Adelaide) ~954 km (Route 1 from Port of Newcastle)	Tranche 2 pre-construction works scenario (semi-trailer): Temporary gravel treatment to be provided to accommodate semi-trailer as per swept path 12659863-GHD-00-00-DRG-CI-00044 in **Error! Reference source not found.**. OSOM upgrades (Tranche 3): Formalisation of proposed intersection turning left from North Boundary Road to accommodate OSOM vehicles, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00028 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works, Tranche 2 & 3	Consultation undertaken via email and verbal formats with **Edward River Council** in relation to the upgrade works associated with the proposed site access points within the Edward River LGA. In-principle support received noting further consultation and agreement will be undertaken during detailed design.
Site Access Point	Site access point 9, Bullewah Road, within the Edward River LGA	~819 km (Route 1 from Port Adelaide) ~955 km (Route 1 from Port of Newcastle)	Tranche 6 (semi-trailer): Temporary gravel treatment to be provided to accommodate semi-trailer as per swept path 12659863-GHD-00-00-DRG-CI-00045 in Appendix E of Response to RFI#2 (Umwelt, 2025). OSOM upgrades (Tranche 7): Formalisation of proposed intersection turning left from Bullewah Road to accommodate OSOM vehicles, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00029 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works, Tranche 6 & 7	Consultation undertaken via email and verbal formats with **Edward River Council** in relation to the upgrade works associated with the proposed site access points within the Edward River LGA. In-principle support received noting further consultation and agreement will be undertaken during detailed design.
Site Access Point	Site access point 10, Bullewah Road, within the Edward River LGA	~819 km (Route 1 from Port Adelaide) ~955 km (Route 1 from Port of Newcastle)	Tranche 6 (semi-trailer): Temporary gravel treatment to be provided to accommodate semi-trailer as per swept path 12659863-GHD-00-00-DRG-CI-00046 in Appendix E of Response to RFI#2 (Umwelt, 2025). OSOM upgrades (Tranche 7): Formalisation of proposed intersection turning right from Bullewah Road to accommodate OSOM vehicles, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00030 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works, Tranche 6 & 7	Consultation undertaken via email and verbal formats with **Edward River Council** in relation to the upgrade works associated with the proposed site access points within the Edward River LGA. In-principle support received noting further consultation and agreement will be undertaken during detailed design.
Site Access Point	Site access point 11, Bullewah Road, within the Edward River LGA	~823 km (Route 1 from Port Adelaide) ~959 km (Route 1 from Port of Newcastle)	Tranche 6 (semi-trailer): Temporary gravel treatment to be provided to accommodate semi-trailer as per swept path 12659863-GHD-00-00-DRG-CI-00047 in Appendix E of Response to RFI#2 (Umwelt, 2025). OSOM upgrades (Tranche 7): Formalisation of proposed intersection turning right and left from Bullewah Road to accommodate OSOM vehicles, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00031 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works, Tranche 6 & 7	Consultation undertaken via email and verbal formats with **Edward River Council** in relation to the upgrade works associated with the proposed site access points within the Edward River LGA. In-principle support received noting further consultation and agreement will be undertaken during detailed design.
Site Access Point	Site access point 12, Bullewah Road, within the Edward River LGA	~824 km (Route 1 from Port Adelaide) ~960 km (Route 1 from Port of Newcastle)	Tranche 6 (semi-trailer): Temporary gravel treatment to be provided to accommodate semi-trailer as per swept path 12659863-GHD-00-00-DRG-CI-00048 in **Error! Reference source not found.**. OSOM upgrades (Tranche 7): Formalisation of proposed intersection turning right from Bullewah Road to accommodate OSOM vehicles, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00032 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works, Tranche 6 & 7	Consultation undertaken via email and verbal formats with **Edward River Council** in relation to the upgrade works associated with the proposed site access points within the Edward River LGA. In-principle support received noting further consultation and agreement will be undertaken during detailed design.
Site Access Point	Site access point 13, Bullewah Road, within the Edward River LGA	~825 km (Route 1 from Port Adelaide) ~961 km (Route 1 from Port of Newcastle)	Tranche 6 (semi-trailer): Temporary gravel treatment to be provided to accommodate semi-trailer as per swept path12659863-GHD-00-00-DRG-CI-00049 in Appendix E of Response to RFI#2 (Umwelt, 2025). OSOM upgrades (Tranche 7): Formalisation of proposed intersection turning left from Bullewah Road to accommodate OSOM vehicles, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00033 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works, Tranche 6 & 7	Consultation undertaken via email and verbal formats with **Edward River Council** in relation to the upgrade works associated with the proposed site access points within the Edward River LGA. In-principle support received noting further consultation and agreement will be undertaken during detailed design.

Route	Road / Intersection	Chainage	Treatment	Timing	Consultation Undertaken
Site Access Point	Site access point 14, an on-site access point for the TWA, within the Edward River LGA	~821 km (Route 1 from Port Adelaide) ~957 km (Route 1 from Port of Newcastle)	Tranche 2 and 3 pre-construction works scenario: Temporary gravel treatment to be provided to accommodate semi-trailer onto site (Tranche 2). Formalisation of access (Tranche 3), turning right from Bullewah Road, to provide semi-trailer access to the proposed on-site Temporary Workers Accommodation (TWA) camp, as per strategic concept design 12659863-GHD-00-00-DRG-CI-00050 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works, Tranche 2 & 3	Consultation undertaken via email and verbal formats with **Edward River Council** in relation to the upgrade works associated with the proposed site access points within the Edward River LGA. In-principle support received noting further consultation and agreement will be undertaken during detailed design.
Local Quarry Transport	Willurah Road/Carratho ol Road intersection, within the Edward River LGA	~48km south of the Project	Basic left-turn (BAL) treatment, including line marking and repaving works (unless alternative treatment is agreed by Edward River Council during detailed design). No road widening is required. Refer to strategic concept design 12659863-GHD-00-00-DRG-CI-00065 in Appendix E of Response to RFI#2 (Umwelt, 2025).	Pre-construction minor works, Tranche 3	Consultation undertaken via email and verbal formats with **Edward River Council** in relation to the upgrade works associated with the quarry transport route. In-principle support received noting further consultation and agreement will be undertaken during detailed design as an alternative treatment may be sought by Council.

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