Keri Keri Wind Farm

Amended Traffic & Transport Impact Assessment

Prepared for:

Acciona Energy Australia Global Pty Ltd

13 January 2026

The Transport Planning Partnership

Keri Keri Wind Farm

Amended Traffic & Transport Impact Assessment

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Table of Contents

1 Introduction 1
1.1 Overview 1
1.2 Environmental Assessment Requirements (Traffic) 2
1.2.1 Secretary's Environmental Assessment Requirements (SEARs) 2
1.2.2 Agency Submissions to EIS 2
2 Existing Conditions 11
2.1 Site Description 11
2.2 Road Network 14
2.3 Public Transport 20
2.4 Crash History 21
2.5 Existing Traffic Volumes 23
3 Proposal Description 26
3.1 Overview of the Keri Keri Wind Farm Project 26
3.2 Project Site Access 27
3.3 Oversized Over Mass (OSOM) Vehicle Haulage Route 27
3.4 Construction Vehicle Transport Routes 30
3.5 Construction Duration and Workforce 30
4 Project Traffic Generation 32
4.1 Types of Project Related Traffic Generation 32
4.2 Peak Construction Traffic Generation Assumptions 32
4.2.1 Definition of Peak Construction Period 32
4.2.2 Over Sized Over Mass (OSOM) Vehicles 33
4.2.3 Bulk Earthworks 34
4.2.4 Plant, Equipment and Materials 34
4.2.5 Water 35
4.2.6 Construction Workers 35
4.2.7 Construction Hours of Operation 36
4.2.8 Operational Phase 36
4.3 Estimated Traffic Generation of Peak Construction Period 36
4.4 Traffic Distribution of Peak Construction Period 38
4.5 Peak Construction Period Vehicle Turning Movements 38
5 Traffic Impact Assessment 42
5.1 Background Traffic Growth 42
5.2 Cumulative Traffic Assessment 42
5.3 Road Network Capacity 45

5.4 Project Site Access Arrangements 48
5.4.1 Site Access Locations 48
5.4.2 Sight Distance Assessment 48
5.4.3 Site Access Intersection Design – Turn Warrants 50
5.4.4 Site Access Intersection Improvements 57
5.4.5 Site Access Intersection Capacity 57
5.5 OSOM Temporary Intersection Treatments 59
5.6 On-Site Car Parking Arrangements 60
6 Mitigation Measures 61
6.1 Information and Communication 61
6.2 OSOM Vehicles Enabling Works 61
6.3 Reducing Project Related Traffic Generation 62
6.4 Road Safety 62
6.4.1 Safe People 63
6.4.2 Safe Vehicles 64
6.4.3 Safe Speeds 64
6.4.4 Sensitive Land Uses 64
6.4.5 Adverse Weather 64
6.5 Driver Code of Conduct 64
6.6 Dilapidation Survey 65
6.7 Road Authority Approvals for OSOM Vehicles 65
7 Conclusions 66

Tables

Table 1.1: SEARs Requirements and Relevant Report Sections 3
Table 1.2: TfNSW Submission (20 June 2024) 4
Table 1.3: Murray River Council Submission (6 February 2025) 9
Table 2.1: Traffic Volumes – TTPP Surveys (2022) 23
Table 2.2: Sturt Highway – Surveyed Traffic Flows (2024): East of Keri Keri Rd Intersection 25
Table 4.1: Peak Construction Period - Daily Project Traffic Generation 37
Table 4.2: AM Peak Construction Period – Hourly Project Traffic Generation 37
Table 4.3: Peak Construction Period – Hourly Project Traffic Generation 38
Table 5.1: Level of Service Definitions and Criteria for Mid-block Sections 46
Table 5.2: Peak Construction (2028) Keri Keri Wind Farm Traffic Generation and V/C Ratio 47
Table 5.3: Cumulative Peak Construction (2028) Traffic Generation and V/C Ratio 47

Table 5.4: Calculation of the Major Road Traffic Volume Q_M 51
Table 5.5: Sturt Hwy / Keri Keri Rd / Loorica Rd Intersection 52
Table 5.6: Sturt Hwy / Keri Keri Wind Farm Site Access Intersection 55
Table 5.7: Levels of Service Criteria - Intersection Capacity 58
Table 5.8: SIDRA Modelling Analysis - Site Access (Sturt Hwy) Intersections 59

Figures

Figure 2.1: Site Context 12
Figure 2.2: Site Location – Project Locality 13
Figure 2.3: Surrounding Road Network and Site Access Locations 15
Figure 2.4: Sturt Highway – East of Keri Keri Road (at Site's Frontage) 16
Figure 2.5: Keri Keri Road – West of Project Site (at Site's Frontage) 16
Figure 2.6: Sturt Highway at Keri Keri Road Intersection (looking east) 17
Figure 2.7: Sturt Highway at Keri Keri Road / Loorica Road Intersection (looking west) 17
Figure 2.8: Sturt Highway at Keri Keri Road Intersection (looking south from Loorica Road to Keri Keri Road) 18
Figure 2.9: Sturt Highway and Keri Keri Road / Loorica Road Layout 19
Figure 2.10: Rail and Coach Network 20
Figure 2.11: Historic Crash Data (2020-2024) 22
Figure 2.12: 2022 Surveyed Turning Movements in AM Peak Hour 24
Figure 2.13: 2022 Surveyed Turning Movements in PM Peak Hour 24
Figure 3.1: OSOM Route 1A & 1B – All Components Euston to Keri Keri Wind Farm via Murray Valley & Sturt Hwy) 29
Figure 3.2: OSOM Route 2A & 2B – Loads under 40m Overall Length Euston to Keri Keri Wind Farm (Buronga & Sturt Hwy) 29
Figure 3.3: Construction Vehicle and Workforce Traffic - Transport Routes to and from Site 31
Figure 4.1: 2028 – Base Traffic Flows 39
Figure 4.2: 2028 – Base Traffic Flows + Keri Keri Wind Farm Peak Construction Traffic 40
Figure 4.3: 2028 – Base Traffic Flows + Keri Keri Wind Farm Peak Construction Traffic + Cumulative Traffic Flows 41
Figure 5.1: Nearby Renewable Energy Developments 43
Figure 5.2: Safe Intersection Sight Distance (SISD) 48
Figure 5.3: Required Driver Sight Distances at Site Accesses 49
Figure 5.4: Warrants for Turn Treatments on Major Roads at Unsignalised Intersections 50
Figure 5.5: Calculation of the Major Road Traffic Volume Q_M 51
Figure 5.6: Warrants for Turn Treatments at Sturt Hwy / Keri Keri Rd / Loorica Rd with Keri Keri Wind Farm (Left Turn from Sturt Highway) 52

Figure 5.7: Warrants for Turn Treatments at Sturt Hwy / Keri Keri Rd / Loorica Rd with Keri Keri Wind Farm (Right Turn from Sturt Highway) 53

Figure 5.8: Warrants for Turn Treatments at Sturt Hwy / Keri Keri Rd / Loorica Rd with Keri Keri Wind Farm + Cumulative Traffic (Left Turn from Sturt Highway) 53

Figure 5.9: Warrants for Turn Treatments at Sturt Hwy / Keri Keri Rd / Loorica Rd with Keri Keri Wind Farm + Cumulative Traffic (Right Turn from Sturt Highway) 54

Figure 5.10: Warrants for Turn Treatments at Sturt Hwy / Keri Keri Wind Farm Site Access Intersection with Keri Keri Wind Farm Traffic (Left Turn from Sturt Highway) 55

Figure 5.11: Warrants for Turn Treatments at Sturt Hwy / Keri Keri Wind Farm Site Access Intersection with Keri Keri Wind Farm Traffic (Right Turn from Sturt Highway) 56

Figure 5.12: Warrants for Turn Treatments at Keri Keri Wind Farm Site Access Intersection with Keri Keri Wind Farm + Cumulative Traffic (Left Turn from Sturt Highway) 56

Figure 5.13: Warrants for Turn Treatments at Sturt Hwy Keri Keri Wind Farm Site Access Intersection with Keri Keri Wind Farm + Cumulative Traffic (Right Turn from Sturt Highway) 57

Figure 6.1: Safe Systems Approach 63

APPENDICES

A. STURT HIGHWAY TRAFFIC SURVEYS

B. KERI KERI WIND FARM 91.5M BLADE ROUTE STUDY

C. ESTIMATED PEAK CONSTRUCTION PERIOD TRAFFIC GENERATION

D. CUMULATIVE IMPACT – NEARBY WIND & SOLAR PROJECTS

E. CONCEPT DESIGN FOR INTERSECTION TREATMENTS

F. SIDRA MODELLING RESULTS

1 Introduction

1.1 Overview

Acciona Energy Australia Global Pty Ltd (the Applicant) proposes to construct and operate the Keri Keri Wind Farm which will be located about 30 kilometres (km) southeast of Balranald, within the South West Renewable Energy Zone (South West REZ).

The Keri Keri Wind Farm is located within the Murray River Council Local Government Area (LGA).

The Applicant is seeking State Significant Development (SSD) consent for the Keri Keri Wind Farm project under Part 4, Division 4.7 of the Environmental Planning & Assessment Act 1979 (EP&A Act).

In April 2024, Acciona Energy Australia Global Pty Ltd lodged a SSD application for the Keri Keri Wind Farm project seeking consent to construct up to 155 wind turbine generators (WTG) with a Battery Energy Storage System (BESS), together with associated and ancillary infrastructure. The application was accompanied by an Environmental Impact Statement (EIS) prepared by Environmental Resources Management Australia Pty Ltd (ERM) which included a Traffic Impact Assessment (TIA) prepared by The Transport Planning Partnership Pty Ltd (TTPP).

In response to submission to the SSD application, the Keri Keri Wind Farm project proposal has been amended.

With regard to traffic considerations, the amended project will reduce the number of WTGs from up to 155 to 114 WTGs. This will reduce the construction period from an anticipated 24 months to 18 months.

Furthermore, the number of site access intersections along Keri Keri Road will be reduced to a single access intersection. The proposed site access at the Sturt Highway will be maintained as part of the Amended project.

Further project planning has removed the Port of Newcastle from consideration as a source location for the transport of WTG components via Over size Over mass (OSOM) vehicles.

This Amended TIA report has been prepared to present the findings of the traffic assessment of the amended Keri Keri Wind Farm project proposal and to address comments raised in agency submissions. This Amended TIA supersedes the previous TIA prepared by TTPP dated April 2024 (Appendix J to the EIS).

1.2 Environmental Assessment Requirements (Traffic)

1.2.1 Secretary's Environmental Assessment Requirements (SEARs)

DPHI issued the Secretary's Environmental Assessment Requirements (SEARs) (SSD-38358962) for the Keri Keri Wind Farm project on 14 April 2022.

The relevant traffic and transport related SEARs and where these have been addressed in this report are set out in Table 1.1.

1.2.2 Agency Submissions to EIS

Further to the above, TfNSW and Murray River Council have provided submissions to the DPHI following the exhibition of the Keri Keri Wind Farm EIS.

The matters pertaining to traffic are listed in Table 1.2 and Table 1.3 respectively, along with how and where in this Amended TIA the issue has been addressed.

Table 1.1: SEARs Requirements and Relevant Report Sections

Traffic Matter	TTPP Response	Where Addressed in This Report
An assessment of the construction, operational and decommissioning traffic impacts of the development on the local and State road network;	This Amended TIA provides an assessment of the traffic related implications of the amended Keri Keri Wind Farm project.	Section 5
Provide details of the peak and average traffic volumes (including light, heavy and over-mass / over-dimensional vehicles) and transport and haulage routes during construction, operation and decommissioning, including traffic associated with sourcing raw materials (water, sand and gravel);	This Amended TIA provides details of peak construction and operation traffic generation of the Project, including for the type vehicle types and construction activities.	Section 4
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;	This Amended TIA provides an assessment of the potential traffic impacts associated with the Project.	Section 5
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;	This Amended TIA provides an assessment of road network capacity and its ability to accommodate Project related traffic.	Section 5 Appendix B
An assessment of the likely transport impacts to the site access and haulage routes, site access point, any rail safety issues, any Crown Land (including existing Travelling Stock Route network) particularly in relation to the capacity and conditions of the roads and use of rail level crossings (and rail safety assessment if required), and impacts to rail underbridges and overbridges;	This Amended TIA provides an assessment of potential site access and road haulage routes.	Section 5 Appendix B
A cumulative impact assessment of traffic from nearby developments;	This Amended TIA provides an assessment of the cumulative impacts based on known nearby renewable energy projects and other project.	Section 5.2
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.	This Amended TIA provides details of measures to mitigate / manage the potential impacts of the Project on the surrounding road network. This includes details pertaining to intersection upgrades, turn lane provisions and temporary works to accommodate OSOM vehicles.	Section 6

Table 1.2: TfNSW Submission (20 June 2024)

Traffic Matter	TTPP Response	Where Addressed in This Report
Traffic Generation and Data		
1. The existing project traffic volumes in the TIA only represent the light vehicles and not all the project traffic volume and vehicle types. The TIA and turn warrant assessment (see Figure 3.25 of AGTM Part 6) must be revised to account for all construction traffic volumes and vehicle types for each public and private access to the state road network. The revised turn warrants assessment is required to: a) Apply AM/PM construction traffic volumes (with a ratio of light and heavy vehicles and turning volumes) for the worst-case scenario at each public and private connection. b) Include background traffic volumes measured at AM/PM network peaks, annual growth rates applied linearly to peak construction and accumulative traffic volumes for project AM/PM peak traffic hours (for overlapping period) of any significant projects (at EIS stage or approved). c) Include input for turn warrant assessment(s) (i.e. project traffic, turning and background traffic volumes, growth rates, and accumulative traffic volumes). Data must be plotted on turn warrant nominal graphs for each public and private access to the state road network.	The Amended TIA (this report) includes an assessment for all construction vehicle traffic volumes and vehicle types for each public and private access to the state road network. This includes updated turn warrants assessment to address items requested by TfNSW: • AM/PM construction traffic volumes for worst case scenario at each public and private access; • Background traffic volumes measured in AM/PM network peaks, annual growth applied to peak construction and accumulative traffic volumes for AM/PM peak traffic hours of any significant projects (i.e., cumulative impacts); and • Inputs for turn warrant assessment/s for each public and private access to the state road network.	Traffic Generation Section 4 Background and Cumulative Traffic Section 5.2 and 5.3 Turn Warrant Assessment Section 5.4.3
2. Assess Safe Intersection Sight Distance (SISD) at each existing public and private road intersection with project related new and existing accesses to the state road network. Measures required to achieve SISD are to be provided.	This Amended TIA includes a SISD assessment for the site access intersections with the state road network (and local road), namely: • Sturt Highway / Keri Keri Rd / Loorica Rd intersection • Sturt Hwy / Site access (east of Keri Keri Rd) • Keri Keri Road / Site Access	Section 5.4.2
3. The TIA states traffic surveys were undertaken at the intersection of Keri Keri Road and Sturt Highway between 18 and 21 September 2022. The raw data collected for the traffic counts has yet to be provided as a part of the TIA. TfNSW requires the underpinning raw data collected in the September 2022 traffic	Additional details of 2022 survey data provided in the Amended TIA. Reference is also made in the TIA to more recent traffic survey data obtained by Amber Organisation and utilised in the adjacent Baldon Wind Farm TIA.	Section 2.5 Appendix A

survey for Keri Keri Road/Sturt Highway intersection to be provided as an appendix to the revised TIA.		
4. The TIA must be updated to identify the design vehicle (largest heavy and OSOM vehicles) accessing each public and private connection to the state road network.	The Amended TIA has considered the design vehicle requirements for both OSOM and non-OSOM construction vehicles. Intersection concept designs have been prepared to demonstrate the intersection design requirements.	Section 5.4 Appendix E
5. The TIA states 38 OSOM vehicle trips will occur per day during peak of construction. The TIA must identify proportion of OSOM movements attributed to high and low risk OSOM vehicles able to travel under notice under the NSW Class 1 Load Carrying Vehicle Operator's Guide.	The Amended TIA and Rex J Andrews Engineered Transportation OSOM Route Assessment provides details regarding the movement of OSOM vehicles to the Project site. The number of weekly OSOM vehicle trips to the site has been reduced from 38 to 34 trips reflecting the reduced number of WTGs. The number of daily trips by OSOM vehicles for the Amended project is estimated to be 7 trips per day.	Section 3.3 Section 4.2.2 Section 5.5 Appendix B - Rex J Andrews Engineered Transportation OSOM Route Study Assessment Report (10 December 2025)
6. The TIA must be revised to clearly distinguish light and heavy vehicle routes for all project stages and connections to the state road network.	The Amended TIA has specified the light and heavy vehicle state road network routes.	Section 3.4 Section 3.5
Workforce Accommodation Camp		
8. Identify traffic generation (and vehicle types) for workforce accommodation camp construction during AM/PM peaks.	The Amended TIA provides details regarding the workforce accommodation rosters, shifts and mode share along with traffic generation for AM and PM peaks during peak construction.	Section 4
9. Provide a turn warrant assessment for the worst-case scenario of workforce accommodation camp construction and post-completion (entire operation).	A turn warrant assessment has been undertaken for peak construction traffic generation scenarios with consideration of background growth and cumulative traffic from other developments.	Section 5.4.3
10. Identify traffic volumes required for pre-construction work that will occur in parallel.	The traffic assessment presented in this Amended TIA has considered the worst case scenario associated with Project generated traffic during peak construction.	Section 5
11. Assess operational traffic volumes for servicing accommodation camps, vehicle types, and AM/PM peak hour changes for traffic generation at each intersection with the state road network along construction transport routes.	The traffic assessment presented in this Amended TIA has considered the worst case scenario associated with Project generated traffic during peak construction.	Section 5

Road Assessment Comments		
12. Provide within the updated route study further assessment of roundabout intersections identified on the Sturt Highway (Figures 22,23 and 24 within the TIA) addressing the following: a) Clarification on whether a portion of roundabouts will be removed or if it is proposed to mount existing annulus(s). b) Swept paths and road design plans to confirm impacts on the roundabout(s). c) Identify any vegetation removal or trimming required. d) Any other infrastructure required to be removed or modified.	It is noted that the Amended Project has removed consideration of an OSOM route from Port of Newcastle. An updated OSOM vehicle route assessment (Rex J Andrews Engineered Transportation, 10 December 2025) has been prepared which includes details pertaining to OSOM vehicle swept paths and associated works to accommodate OSOM movements.	Appendix B Rex J Andrews Engineered Transportation OSOM Route Study Assessment Report (10 December 2025)
13. The removal of traffic islands at the Gillenbah Road/Sturt Highway (Figure 27 of route assessment) pinch point to facilitate the high-risk OSOM movements will conflict with the service centre conditions and infrastructure to prohibit right turns into Gillenbah Road. Alternative designs to navigate this pinch point without impacting on service centre consent conditions are required to be investigated and included within a revised route assessment (accompanied by swept paths and strategic designs).	A OSOM route through Gillenbah has been removed from the proposed Project. OSOM will access the site from the west through Balranald.	Appendix B Rex J Andrews Engineered Transportation OSOM Route Study Assessment Report (10 December 2025)
14. Timing of high-risk OSOM deliveries within the construction schedule, indicative weekly program(s), and timeframe to complete deliveries from relevant port to the site is required.	These details are provided in the update OSOM route assessment.	Appendix B Rex J Andrews Engineered Transportation OSOM Route Study Assessment Report (10 December 2025)
15. Route 2 will require loads to traverse Denman Bridge from Port of Newcastle. The Denman Bridge has a height limit of 5.6m. For loads higher than 5.6 m, the Wybong and Bengalla Road detour will be required. The route assessment must assess OSOM vehicles required to travel Wybong and Bengalla Roads and upgrades or other mitigation measures for each pinch point along this route. Note: Wybong and Bengalla are currently being reclassified as state roads.	OSOM vehicle movements from the Port of Newcastle has been removed from the Amended Project. OSOM will access the site from the west through Balranald.	Appendix B Rex J Andrews Engineered Transportation OSOM Route Study Assessment Report (10 December 2025)

16. Provide correct units of measurement for rotor diameter, as the rotor diameter is currently measured using squared metres as a unit of measurement.	Units of measurement have been corrected in the updated OSOM route assessment.	Appendix B Rex J Andrews Engineered Transportation OSOM Route Study Assessment Report (10 December 2025)
17. Strategic concept designs are required to be provided for each pinch point requiring road upgrades or modifications to the State road network.	Concept designs have been prepared for the following pinch points: • - Murray Valley Hwy / Sturt Hwy • Sturt Hwy / McCabe Rd • Sturt Hwy / Keri Keri Rd / Loorica Rd • Sturt Hwy / Site Access	Section 5.4 Appendix E
18. Dimensions of swept paths and parking plans must be provided for each pullover, layby, and rest area on OSOM routes, demonstrating applicable high-risk OSOMs can physically be accommodated and mitigate impacts to other road users. Note: Locations and identification of OSOM design vehicle will be used to access each pullover, including rest areas.	Dimensions have been indicated in the updated OSOM route assessment.	Appendix B Rex J Andrews Engineered Transportation OSOM Route Study Assessment Report (10 December 2025)
19. The route assessment must include mitigation measures to manage impacts to other road users, including OSOM movements travelling in the opposite direction and road users travelling behind high-risk OSOM vehicle(s).	High-level mitigation measures have been included in the updated OSOM vehicle route assessment. However, the detail of managing impacts to other road users will be provided in a Traffic and Transport Management Plan (TTMP). The requirements of the TTMP are specified in the Updated TIA and will be included in the Conditions of Consent for the Project.	Appendix B Rex J Andrews Engineered Transportation OSOM Route Study Assessment Report (10 December 2025)
20. The RJA route assessment and Traffic Impact Assessment (TIA) is contingent upon road upgrades provided by EnergyCo from Port of Newcastle to Elong Elong. The applicant must review pavement extents and scope of works to ensure vehicle configurations and swept paths for this project's higher-risk OSOM align with the scope of the P2R project, particularly relocation of traffic signals at George Street, Industrial Drive and Mayfield Road intersection. Evidence of the assessment of consistency with P2R project is required as a part of the revised route study.	OSOM vehicle movements from the Port of Newcastle has been removed from the Amended Project. OSOM will access the site from the west through Balranald.	Appendix B Rex J Andrews Engineered Transportation OSOM Route Study Assessment Report (10 December 2025)

21. The RJA route study does not include relevant TfNSW projects on the state road network. The route study must be updated to include TfNSW projects that have commenced or have been completed and mitigation measures to navigate any identified pinch points. The Hexham Straight is a notable project impacting Route 2 and the route assessment must be updated to assess the alternative route via Newcastle Inner City Bypass to Newcastle Road, for high-risk OSOM loads that do not exceed the vertical clearance limitations. A bridge and culvert assessments are to be completed for all bridge and culvert structures along each OSOM Route identified within the RJA route study. The proponent can request a bridge and culvert assessment to be undertaken by TfNSW Freight Operations at spu@transport.nsw.gov.au	OSOM vehicle movements from the Port of Newcastle has been removed from the Amended Project. OSOM will access the site from the west through Balranald.	Appendix B Rex J Andrews Engineered Transportation OSOM Route Study Assessment Report (10 December 2025)
Strategic Designs		
22. Strategic designs must be accompanied by swept paths for the largest vehicle required to access each public and private access with the state road network. Swept paths must demonstrate the largest heavy vehicle can turn concurrently in all turn directions without crossing into the incorrect lane, well within proposed/existing pavement and within existing intersection treatments (where applicable). Intersection upgrades are to be in accordance with Austroads and relevant TfNSW supplements.	Concept designs have been prepared for the following pinch points: • - Murray Valley Hwy / Sturt Hwy • Sturt Hwy / McCabe Rd • Sturt Hwy / Keri Keri Rd / Loorica Rd • Sturt Hwy / Site Access	Section 5.4 Appendix E
23. Strategic designs must identify any acquisition required to facilitate the scope of road upgrades and road works inclusive of pinch points. The Developer is responsible for dedication and acquisition of land, if necessary, to accommodate road infrastructure, including but not limited to footways, structures, stormwater drainage, batters, maintenance access, and utilities, to TfNSW's satisfaction. Note: The design must comply with TfNSW strategic design requirements for DAs, TfNSW technical directions, supplements, corridor strategies, Austroads, and any other applicable TfNSW policies/strategies. To assist in preparing the designs, please refer to the link below: https://roads-waterways.transport.nsw.gov.au/business-industry/partnerssuppliers/documents/planning-principles/strategic-design-fact-sheet-02-2022.pdf	Concept designs have been prepared for the following pinch points: • - Murray Valley Hwy / Sturt Hwy • Sturt Hwy / McCabe Rd • Sturt Hwy / Keri Keri Rd / Loorica Rd • Sturt Hwy / Site Access	Section 5.4 Appendix E

Rail		
24. A heavy vehicle application will need to be made for Level Crossings and Bridges that fall within the Country Regional Network to avoid damage to any rail infrastructure. Upon receipt of the NHVR route planner ID and application number, the UGL heavy vehicle team will complete a review of the route to assess Level Crossings and Bridges on the network for suitability according to OSOM requirements. The heavy vehicle team can be contacted by email at heavyvehicle@uglregionallinx.com.au for any further information or assessment.	Noted	
25. A further detailed assessment is to be provided to TfNSW at the rail underpass on Sturt Highway at Wagga Wagga before any further consideration of the proposed route. This is required as the clearances of the underpass may impact the viability of the transport route for blade components.	OSOM vehicle movements from the Port of Newcastle has been removed from the Amended Project. OSOM will access the site from the west through Balranald.	Appendix B Rex J Andrews Engineered Transportation OSOM Route Study Assessment Report (10 December 2025)

Table 1.3: Murray River Council Submission (6 February 2025)

Traffic Matter	TTPP Response	Where Addressed in This Report
The existing project traffic volumes in the TIA only represent the light vehicles and not all the project traffic volume and vehicle types. The TIA and turn warrant assessment (see Figure 3.25 of AGTM Part 6) must be revised to account for all construction traffic volumes and vehicle types for each public and private access to the state road network. The revised turn warrants assessment is required to: • Apply AM / PM construction traffic volumes (with a ratio of light and heavy vehicles and turning volumes) for the worst-case scenario at each public and private connection. • Include background traffic volumes measured at AM/PM network peaks, annual growth rates applied linearly to peak construction and accumulative traffic volumes for project	The Amended TIA has included all project related traffic in the turn warrant assessments. The assessment includes consideration of background traffic growth to the Project peak construction period (2028) and cumulative traffic generated by other developments being constructed simultaneously with the Keri Keri Wind Farm.	Traffic Generation Section 4 Background and Cumulative Traffic Section 5.2 and 5.3 Turn Warrant Assessment Section 5.4.

AM/PM peak traffic hours (for overlapping period) of any significant projects (at EIS stage or approved). • Include input for turn warrant assessment(s) (i.e. project traffic, turning and background traffic volumes, growth rates, and accumulative traffic volumes). Data must be plotted on turn warrant nominal graphs for each public and private access to the state road network.		
Assess Safe Intersection Sight Distance (SISD) at each existing public and private road intersection with project related new and existing accesses to the local road network. Measures required to achieve SISD are to be provided.	The finding of the SISD assessment are presented in the Amended TIA	Section 5.4.2
The TIA states traffic surveys were undertaken at the intersection of Keri Keri Road and Sturt Highway between 18 and 21 September 2022. This is only a short period of time and is not reflective of various harvest seasons that the construction period will cover, which should be considered. It is also recommended that the raw data to the traffic survey is provided as an appendix.	Additional details of 2022 survey data provided in the Amended TIA. Reference is also made in the TIA to more recent traffic survey data obtained by Amber Organisation and utilised in the adjacent Baldon Wind Farm TIA.	Section 2.5 Appendix A
The TIA must be updated to identify the design vehicle (largest heavy and OSOM vehicles) accessing each public and private connection to the state road network.	This information has been included in the Amended TIA and updated OSOM vehicle route assessment.	Section 4.1 Section 4.2 Rex J Andrews Engineered Transportation OSOM Route Study Assessment Report (10 December 2025)
The TIA must be revised to clearly distinguish light and heavy vehicle routes for all project stages and connections to the local road network.	This information has been included in the Amended TIA.	Section 3.2 Section 3.3 Section 4

2 Existing Conditions

2.1 Site Description

The Project is situated about 30 km southeast of Balranald, and 75 km southwest of Hay in the Murray River Local Government Area (LGA).

The Project site is approximately 800 km from Sydney, 550 km from Adelaide and 400 km from Melbourne. The location of the Project site in a broad context is shown in Figure 2.1.

The Project is located within the South West Renewable Energy Zone (REZ) and is directly south of the Sturt Highway on land that is predominately used for sheep grazing and cropping.

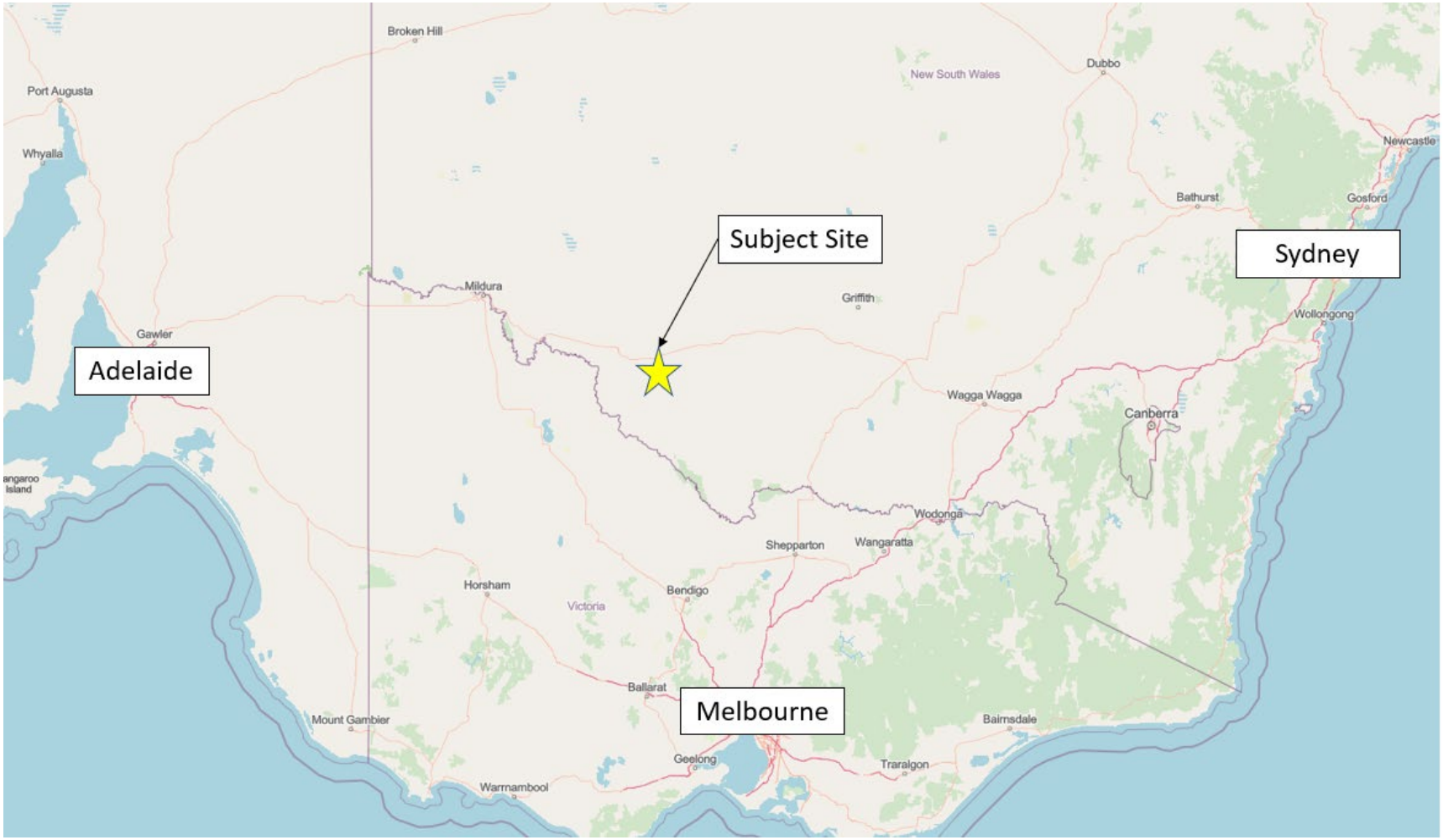
The Project extends over an area of approximately 18,006 hectares (ha) across 66 freehold land parcels (Project site).

The under-construction Project EnergyConnect (PEC) intersects the Project site. PEC is a new 900 km transmission line (interconnector) (TL) that will connect power grids across three (3) Australian states between Wagga Wagga in NSW and Robertstown in SA, with a connection to Red Cliffs in VIC. An existing TL also intersects the Project site.

The Applicant intends to connect to either PEC or the existing TL within the Project site, with a 330 kV overhead TL (PEC) or 220 kV overhead TL (existing TL).

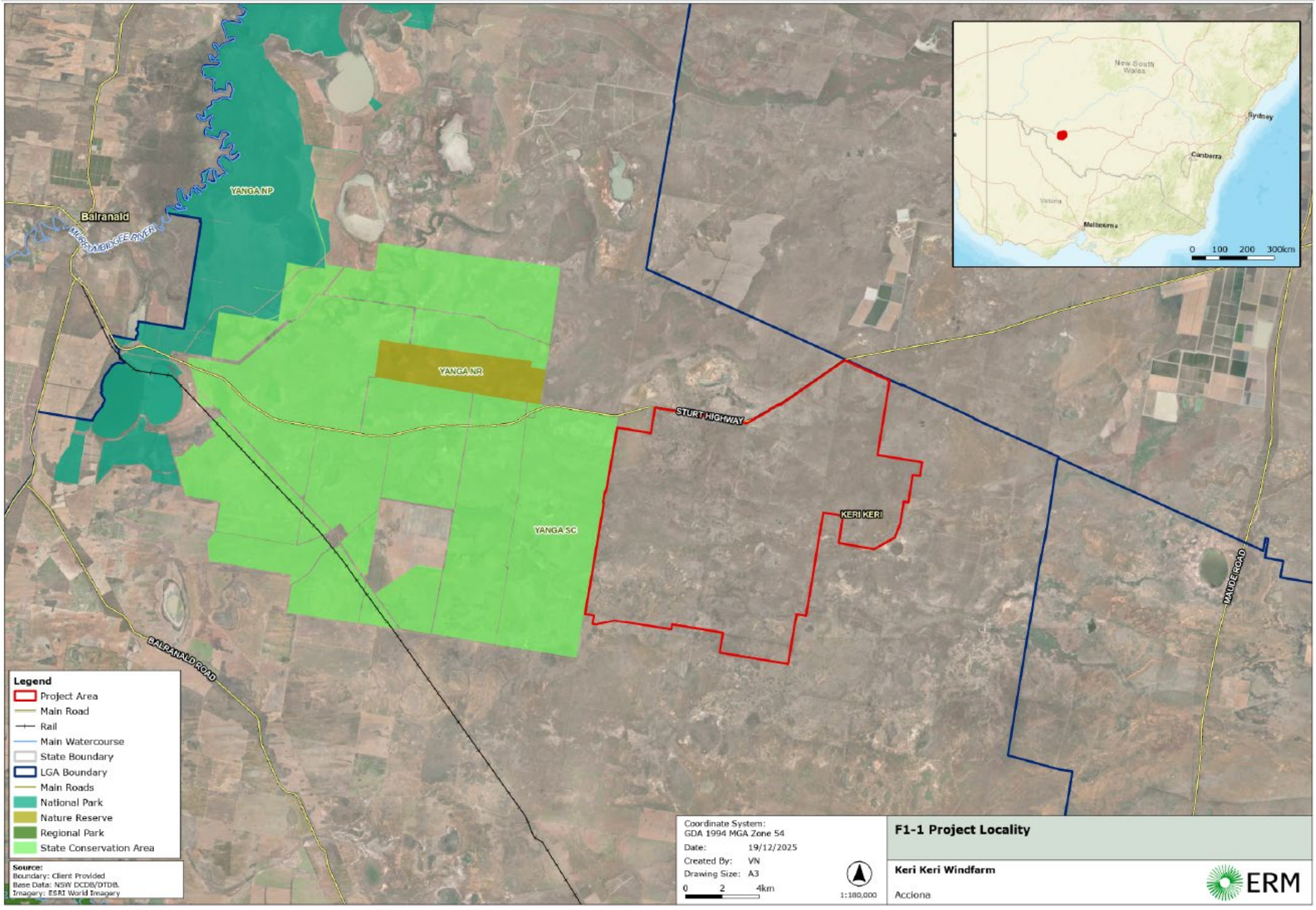
The Project site is bound by Sturt Highway to the north and Keri Keri Road to the west. The subject site location within the context of the local road network is shown in Figure 2.2.

Figure 2.1: Site Context



Basemap Source: ArcGIS Maps

Figure 2.2: Site Location – Project Locality



2.2 Road Network

The following section describes the local road network which consists of two key roads, namely the Sturt Highway and Keri Keri Road (see Figure 2.3).

The site of the proposed Keri Keri Wind Farm has road frontages to both the Sturt Highway and to Keri Keri Road.

The **Sturt Highway (A20)** is a state road which runs east-west direction between Northern Expressway (Reid, South Australia) and Hume Highway (north of Tarcutta).

Within the vicinity of the site, the Sturt Highway is a two-lane road providing a single travel lane in each direction. Each travel lane is approximately 3.5 m wide with sealed road shoulders and gravel verge provided on both sides of the road.

The alignment of the Sturt Highway is flat with extensive straight sections of road providing excellent sight distances to approaching vehicles and for those vehicles accessing the highway.

Figure 2.4 shows the Sturt Highway at a point along the site's frontage.

Keri Keri Road is a local road with a north-south alignment between Sturt Highway and Berrambong Railway Road. Keri Keri Road is an unsealed road running along the site's western boundary.

No speed limit signage is installed on Keri Keri Road.

Keri Keri Road is flat with a straight alignment offering extensive sight distances to approaching vehicles (see Figure 2.5). The width of Keri Keri Road is approximately 5 m with unsealed shoulders.

The intersection of Sturt Highway and Keri Keri Road / Loorica Road is a four-way priority-controlled intersection (give way). The layout of the intersection is shown in Figure 2.6 - Figure 2.9.

Figure 2.3: Surrounding Road Network and Site Access Locations

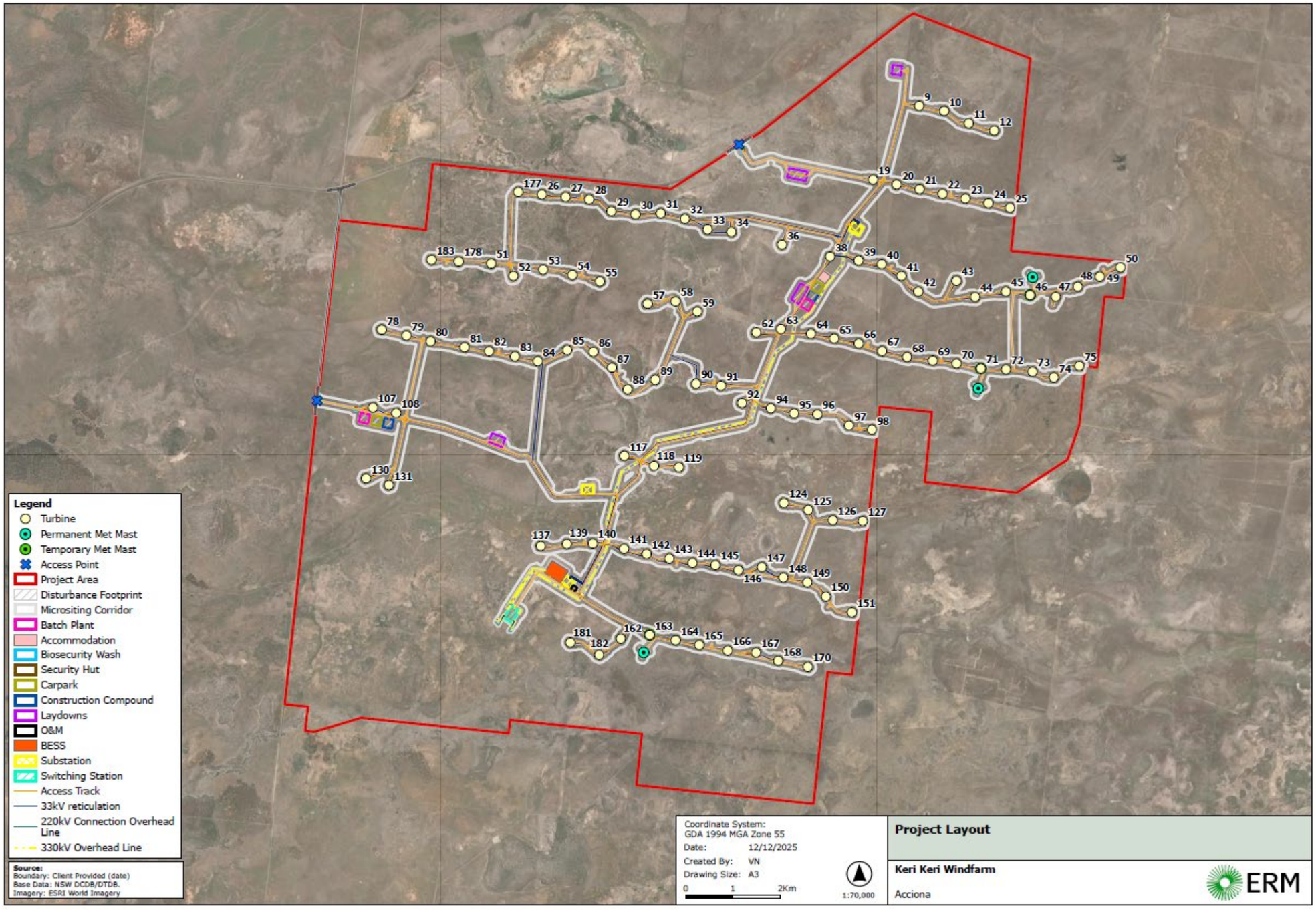


Figure 2.4: Sturt Highway – East of Keri Keri Road (at Site's Frontage)

Figure 2.5: Keri Keri Road – West of Project Site (at Site's Frontage)

Figure 2.6: Sturt Highway at Keri Keri Road Intersection (looking east)

Figure 2.7: Sturt Highway at Keri Keri Road / Loorica Road Intersection (looking west)

Figure 2.8: Sturt Highway at Keri Keri Road Intersection (looking south from Loorica Road to Keri Keri Road)

Figure 2.9: Sturt Highway and Keri Keri Road / Loorica Road Layout

Basemap Source: www.nearmap.com (accessed 2023)

2.3 Public Transport

Public transport services within the vicinity of the subject site are limited.

Regional Bus Services 725/726 operate along the Sturt Highway between Cootamundra and Mildura with stops in the townships of Balranald, Hay and Griffith. There are two services per day, typically one in the early morning and one in the evening.

Balranald Coach Stop in Market Street is the nearest bus stop and is located approximately 45km to the west of the Project site.

Griffith Railway Station is located 200 km away from the site and is served by the NSW TrainLink Regional train and coach service. The rail network in the area is shown in Figure 2.10.

The coach link between Balranald and Hay travels along the Sturt Highway past the site's frontage.

Figure 2.10: Rail and Coach Network

Source: Transport NSW – Southern NSW

2.4 Crash History

Historic crash data has been sourced from Transport for NSW (TfNSW) Centre for Road Safety online for the five-year period from 2020 to 2024 in the vicinity of the subject site.

The crash locations and degree of crashes are presented in Figure 2.11.

The historic crash data shows that there have been nine crashes recorded within the five-year period along the Sturt Highway between Hay and Balranald.

Of the nine recorded crashes, 1 was a serious injury, 3 minor injury and 5 non-casualty (tow away) crashes.

Three of the four injury crashes was a single vehicle crash where crashes were recorded as 'vehicle leaving road' on a straight section or bend in the roadway or hitting an animal. The other was a minor injury, head on crash. No crashes were recorded on Keri Keri Road for the period 2020-2024.

The crash history for the 5 year period 2020 to 2024 indicates that there are no discernible crash trends or crash 'hot spots'.

Figure 2.11: Historic Crash Data (2020-2024)

Reporting year	Crash Id	Degree of crash	RUM - code	RUM - description	Type of location	Natural lighting	Longitude	Latitude	Number killed	Number injured
2020	1222001	Non-casualty (towaway)	80	Off left/right bend	2-way undivided	Daylight	143.959454	-34.727084		
2020	1250172	Non-casualty (towaway)	72	Off road to right	2-way undivided	Daylight	144.013250	-34.699746		
2020	1254897	Minor/Other Injury	71	Off rd left => obj	2-way undivided	Daylight	143.678675	-34.730504		4
2021	1255193	Non-casualty (towaway)	20	Head on	2-way undivided	Daylight	143.872513	-34.724958		
2021	1258888	Minor/Other Injury	72	Off road to right	2-way undivided	Daylight	143.897137	-34.723365		1
2021	1259441	Non-casualty (towaway)	67	Struck animal	2-way undivided	Darkness	143.800214	-34.733102		
2023	1334926	Minor/Other Injury	20	Head on	2-way undivided	Darkness	143.824593	-34.731051		1
2023	1339752	Serious Injury	70	Off road to left	X-intersection	Daylight	143.887388	-34.725806		1
2024	1344528	Non-casualty (towaway)	87	Off lft/lft bnd=>obj	2-way undivided	Daylight	143.906314	-34.721425		

Data Source: TfNSW, Centre for Road Safety Crash Statistics, data extracted on 10/12/2025

2.5 Existing Traffic Volumes

Traffic surveys were undertaken by TTPP along the Sturt Highway and Keri Keri Road (and specifically at the Sturt Highway / Keri Keri Road / Loorica Road intersection) for the period Sunday 18 September 2022 to Wednesday 21 September 2022 (see Appendix A).

From the traffic survey data, the AM and PM peak hours have been identified to occur on Monday 19 September 2022 at the following times:

- AM Peak Hour: 9.30am to 10.30am.
- PM Peak Hour: 3.30pm to 4.30pm.

On Sturt Highway, there was surveyed (2022) to be 109 two-way movements (AM) and 96 two-way movements (PM) in the peak periods.

On Keri Keri Road, there was one movement recorded in the PM peak hour. On Loorica Road, there are no vehicle movements recorded in the peak periods.

A summary of the surveyed (2022) intersection peak hourly traffic flows is presented in Table 2.1 while traffic turning movements are shown diagrammatically in Figure 2.12 and Figure 2.13.

Table 2.1: Traffic Volumes – TTPP Surveys (2022)

Road and Direction	AM Peak (9:30 – 10:30)			PM Peak (15:30 – 16:30)		
	Light Vehicles	Heavy Vehicles	Combined	Light Vehicles	Heavy Vehicles	Combined
Sturt Highway:						
Eastbound	37	15	**52**	30	15	**45**
Westbound	36	21	**57**	36	14	**50**
Two-way Flow	**73**	**36**	**109**	**66**	**29**	**95**
Keri Keri Road:						
Northbound	0	0	**0**	1	0	**1**
Southbound	0	0	**0**	0	0	**0**
Two-way Flow	**0**	**0**	**0**	**0**	**0**	**1**

Figure 2.12: 2022 Surveyed Turning Movements in AM Peak Hour

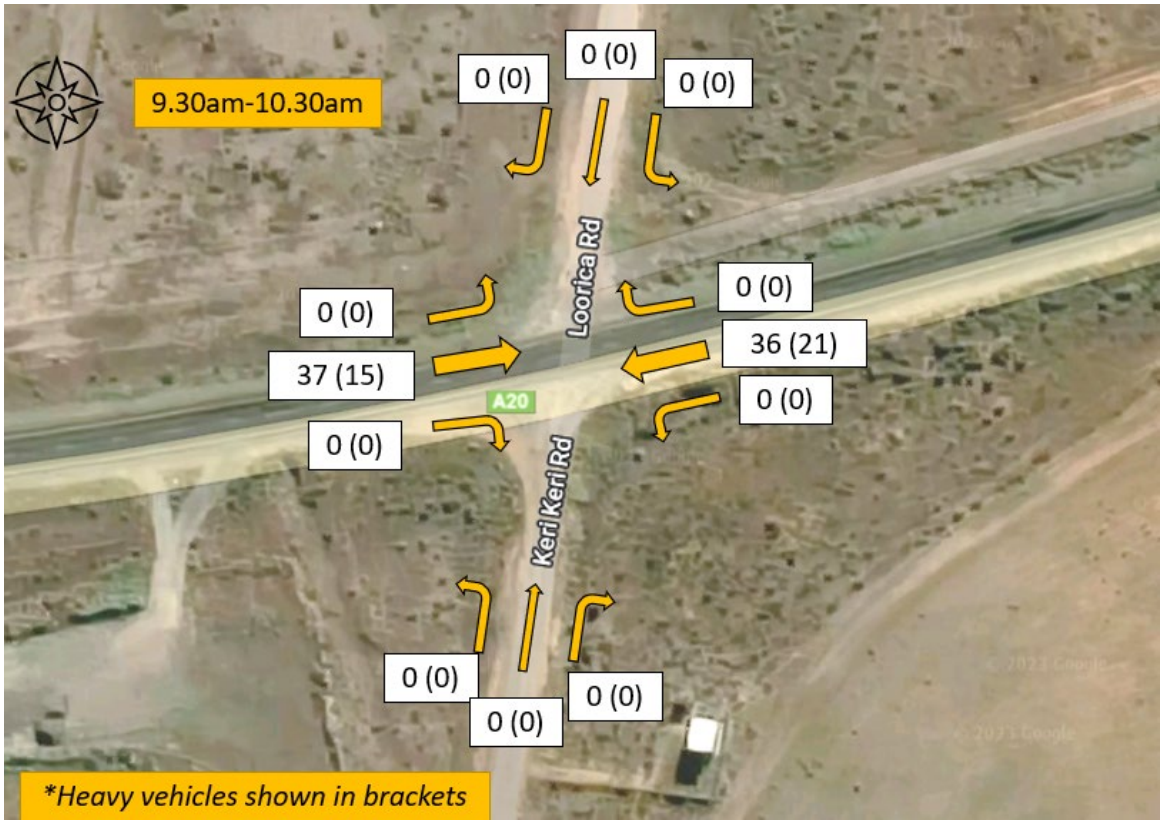
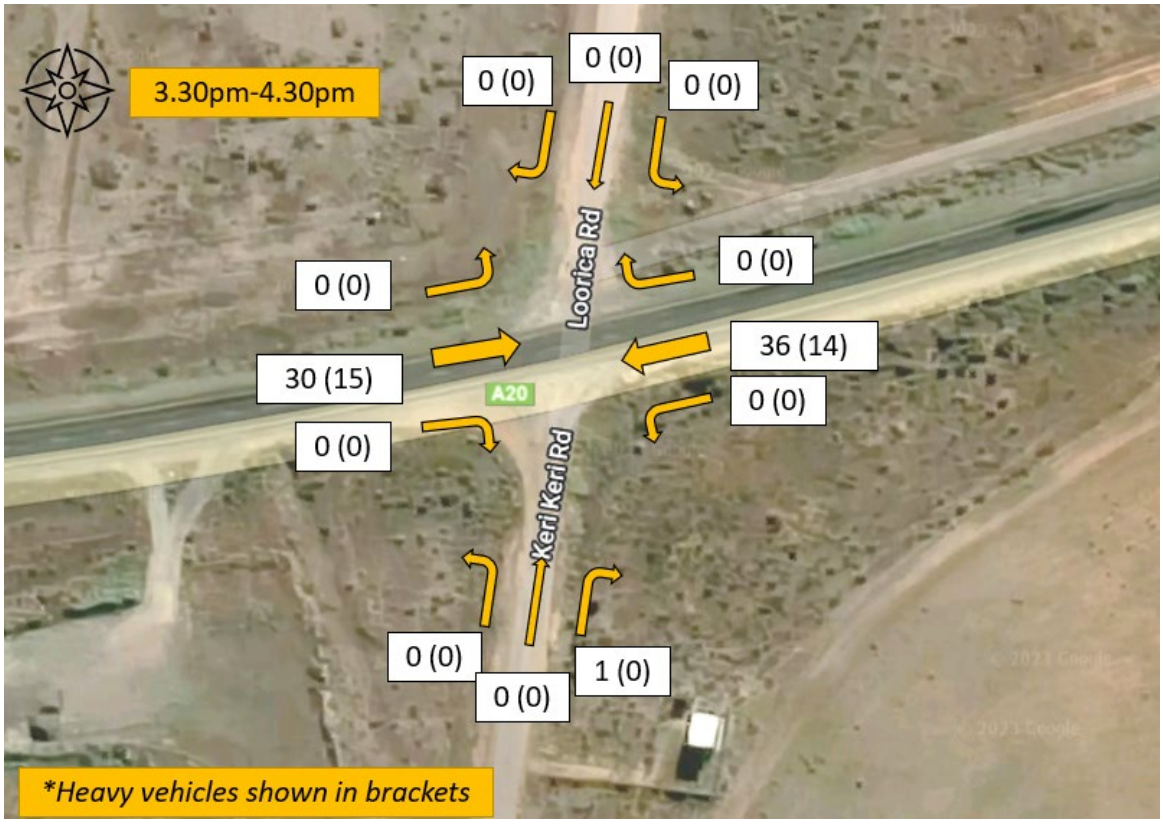


Figure 2.13: 2022 Surveyed Turning Movements in PM Peak Hour



It is acknowledged that more recent surveys (February 2024) of traffic flows along the Sturt Highway to the east of the proposed Keri Keri Wind Farm site access have been undertaken as part of the *Baldon Wind Farm EIS Traffic Impact Assessment* prepared by Amber Organisation (April 2025).

A summary of the 2024 surveyed traffic flows is presented below in Table 2.2.

Table 2.2: Sturt Highway – Surveyed Traffic Flows (2024): East of Keri Keri Rd Intersection

	Weekday Traffic (vpd)	Weekday AM Peak 11:00 (vph)	Weekday PM Peak 13:00 (vph)	85th Percentile Sped	Heavy vehicle Percentage
Westbound	674	52	49	110 km/hr	50 %
Eastbound	615	36	50	103 km/hr	
Combined Directions	1,289	88	99	106 km/hr	

Source: Baldon Wind Farm Traffic Impact Assessment (prepared by Amber Organisation, 24 April 2025)

The 2024 Sturt Highway traffic flow surveys are generally consistent with the 2022 surveyed traffic flows for the morning and afternoon periods, with both surveys indicating that the Sturt Highway carries about 90 -110 vehicles per hour in the peak periods.

The 2024 surveyed flows indicated a peak afternoon period around 1-2pm while the 2022 surveys indicated an afternoon peak later in the day at around 3:30-4:30pm. Notwithstanding slight difference in time, the existing afternoon peak flows have been considered for the assessment of future background and with Keri Keri Wind Farm construction activity's peak afternoon generation.

The comparison of the data sets indicates that the 2022 turning movement traffic surveys are appropriate for use in the assessment of the Keri Keri Wind Farm project, and specifically to consider the implications of the development of the operation of the Sturt Highway / Keri Keri Road / Loorica Road intersection.

3 Proposal Description

3.1 Overview of the Keri Keri Wind Farm Project

The Keri Keri Wind Farm Project is a proposed wind farm that will consist of up to 114 WTGs with associated and ancillary infrastructure.

Each of the WTGs will consist of the following:

- Three blades mounted on a rotor hub (up to 200 metres high) on a nacelle above a tubular steel tower;
- Gearbox and generator housed in the nacelle
- Adjacent hardstand for use as crane pads, assembly and laydown areas.

The WTGs would be supported by ancillary infrastructure including:

- One electrical and two collector substations
- An on- site battery energy storage system (BESS)
- Overhead and underground electrical cabling
- Electrical Transmission line
- An operations and maintenance facility
- Internal vehicle access tracks

During construction of the Project, the following temporary facilities will also be provided on site:

- Construction compounds comprising site buildings and facilities for construction contractors / equipment, site offices, car parking and amenities
- Mobile concrete batching plant
- On-site workers accommodation
- External water supply – for the purpose of assessing the 'worst case' scenario with regard to water truck movement, it is assumed in this assessment report that all water to be trucked to site for construction and general use. It is acknowledged that the potential to utilise on-site groundwater boreholes is an option for the Project. The use of on-site boreholes will decrease the volume of potential heavy vehicle movements to and from the site.

Keri Keri Solar Farm (SSD-4012957) has been withdrawn following the Keri Keri Wind Farm EIS submission. The Keri Keri Solar Farm project was not included in the traffic and transport assessment during the EIS or this current revision.

3.2 Project Site Access

For both construction and operation of the Project, it is proposed that the Site will be accessed via two site accesses, namely:

- 1 @ Sturt Highway – direct access off Sturt Highway to the site
- 1 @ Keri Keri Road – accessed via the Sturt Highway / Keri Keri Road / Loorica Road intersection.

Internal site access tracks would be constructed to connect the various on-site facilities to the site accesses.

The proposed locations of the Project site access locations are shown in Figure 2.3. The assessment of these site access locations is further discussed in Section 5 of this report.

3.3 Oversized Over Mass (OSOM) Vehicle Haulage Route

The movement of OSOM vehicles for WTG components is a specialised logistics exercise and deliveries are undertaken with extensive traffic control and potentially enabling works (ie. temporary removal of street furniture, etc).

Rex J Andrews Engineered Transportation has been engaged by the proponent to undertake an investigation into feasibility and implications associated with the transport of WTG components to the Project site with port origins at Port Adelaide.

The findings of the OSOM route assessment are presented in the *Keri Keri Wind Farm 91.5m Blade Route Study* (prepared by Rex J Andrews Engineered Transportation, 10 December 2025 Rev03). A copy of this route study is provided in Appendix B of to this Amended TIA.

The route assessment presented in the EIS TIA considered the constraints associated with the movement of OSOM vehicles to the sites from the Port of Newcastle and Port Adelaide.

In responding to submissions and further refinements to the Project, the OSOM route to the Project site from Port of Newcastle has been removed from consideration.

Thus, the proposed OSOM haulage route will be from Port Adelaide, crossing the New South Wales border near the township of Euston and Buronga, travelling to the site via the Murray Valley Highway (Route 1A and 1B only) and the Sturt Highway (all routes), through the township of Balranald, approaching the Project site from the west.

The revised route assessment presented in the OSOM route assessment considers the constraints associated with the movement of OSOM vehicles to the sites from the following locations:

- Victoria border near Euston (Route 1A and 1B) – All components
- Victoria border near Buronga (Route 2A and 2B) – Loads under 40m overall length and maximum loaded height of 5.9 m.

The route of OSOM travel between the border crossings and the site as shown in the Rex J Andrews Engineered Transportation report is illustrated in Figure 3.1 and Figure 3.2.

The delivery of materials to the site by 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.

The Rex J Andrews Engineered Transportation reports provide commentary on the suitability of the potential OSOM routes and required upgrades and management measures to facilitate OSOM movements on these routes.

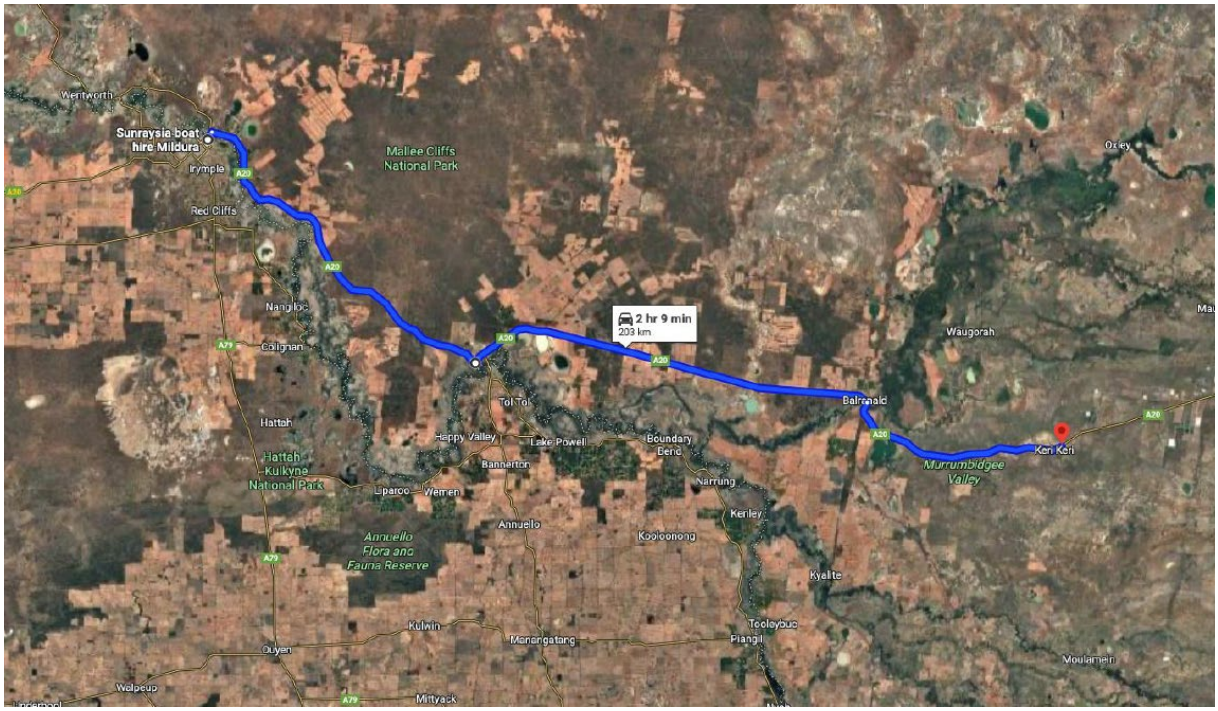
The Rex J Andrews Engineered Transportation assessment reports determined that the transport of WTG components with OSOM to the Project site from the Victorian border would require a number of modification and enabling works to facilitate OSOM deliveries to the site.

Notwithstanding the above, the Rex J Andrews Engineered Transportation assessment has concluded that the Port of Adelaide route is a feasible port location with regard to the transportation of WTG components using OSOM vehicles.

A detailed traffic management plan would be prepared for the transportation of individual WTG components prior to the commencement of construction activities.

Figure 3.1: OSOM Route 1A & 1B – All Components
Euston to Keri Keri Wind Farm (via Murray Valley Hwy & Sturt Hwy)

Figure 3.2: OSOM Route 2A & 2B – Loads under 40m Overall Length
Buronga to Keri Keri Wind Farm (via Sturt Hwy)



3.4 Construction Vehicle Transport Routes

Construction deliveries from locally sourced quarries, water supplies etc are expected to come from the nearby locations, generally to the west of the site (via Balranald) along Sturt Highway.

Similarly, materials sourced from regional locations further afield will also arrive and depart the site using the Sturt Highway.

The Project site has two proposed site access locations, one along the Sturt Highway site frontage and one along the Keri Keri Road frontage.

Due to the size of some WTG components of the development, OSOM vehicles will be required for transportation to the site. 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.

The proposed potential construction vehicle routes within the vicinity of the site access points are shown in Figure 3.3.

It is also assumed that all construction workers accessing the Project site would utilise the Sturt Highway from either Balranald or Hay.

3.5 Construction Duration and Workforce

Construction of the Project is expected to commence in late 2027 and take approximately 18 months to complete. Peak construction activity is expected to occur over a 12-month period.

It is estimated that up to 650 workers (FTE) would be engaged on the Project site during peak construction activity.

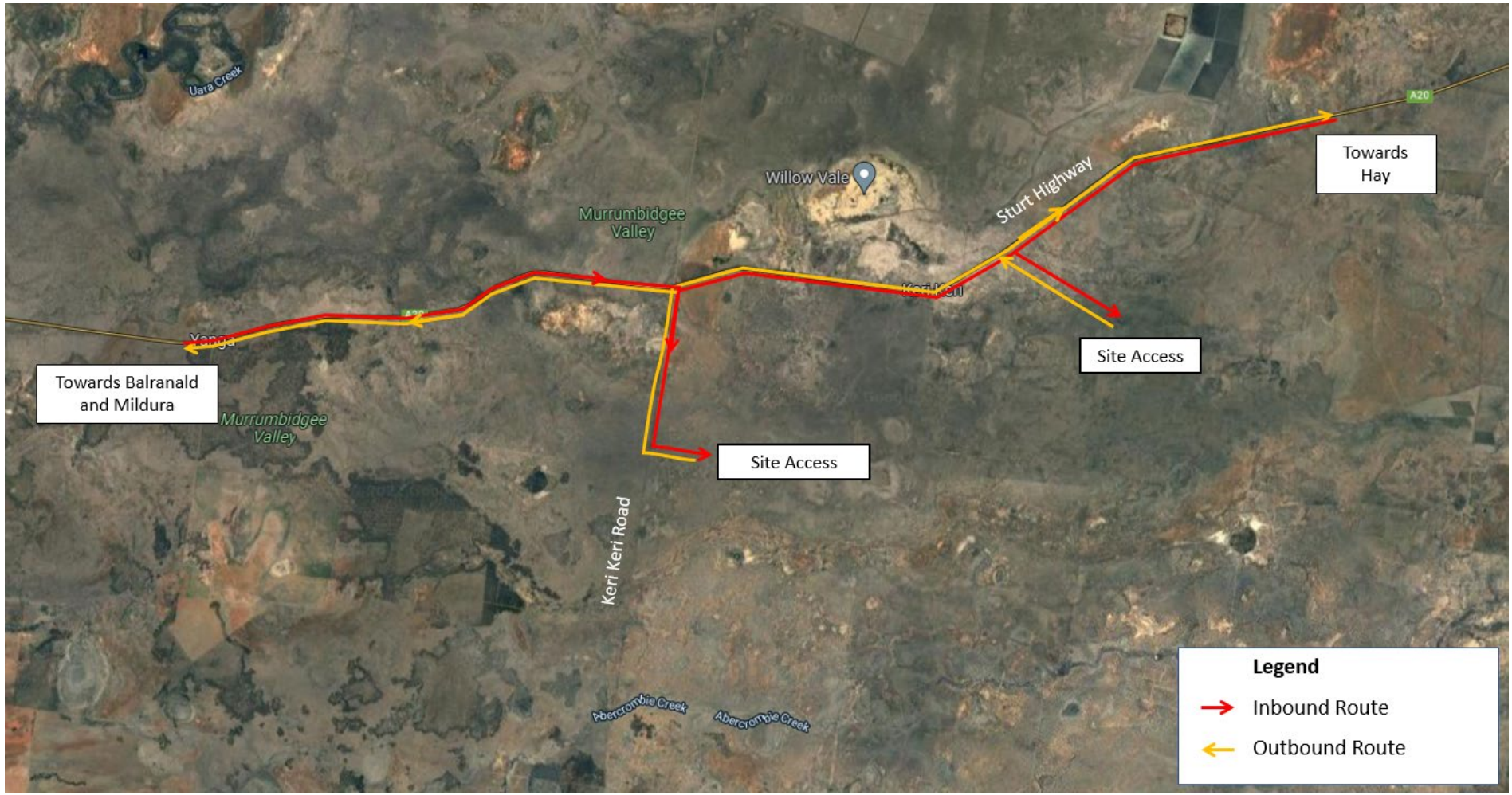
Workers will be housed within on-site accommodation working a typical 10 day on – 4 day off roster. Shift change overs are expected to occur twice a week with up to 30% of staff changing over at shift changes.

Transport of workers to / from site will include travel by:

- Shuttle bus service
- Car-pooling
- Individual (independent) travel.

For those travelling to and from the Project site via shuttle bus, the majority will be shuttled to and from Mildura Airport, thus accessing the Project site from the west and Balranald.

Figure 3.3: Construction Vehicle and Workforce Traffic - Transport Routes to and from Site



Basemap Source: Google Maps, last accessed on 22/11/2022

4 Project Traffic Generation

The following section of this report sets out details of the assumptions used to estimate the potential traffic generation characteristics for the construction, operational and decommissioning stages of the proposed Keri Keri Wind Farm Project.

4.1 Types of Project Related Traffic Generation

For the purpose of the traffic assessment presented in this report, traffic generation potential for the Project has considered three separate types, namely:

- General Construction Traffic (Non OSOM vehicles)
- OSOM Construction vehicles
- Operational Traffic

The estimated traffic generation potential for each type of the Project traffic is set out below.

4.2 Peak Construction Traffic Generation Assumptions

4.2.1 Definition of Peak Construction Period

As noted in Section 3, it is estimated that construction activities will be undertaken over a 18-month period.

The volume of construction vehicle generation will vary significantly over the period of construction as the Project moves through the various stages of construction.

For example, traffic generation of the Project site will be relatively low during site establishment and site commissioning stages of construction.

Furthermore, there are different types of traffic that will only occur during particular stages of construction. For example, the delivery of temporary equipment such as site sheds, batching plants etc would only occur during site establishment and pack up stages of construction but not during peak construction.

Similarly, the delivery of OSOM WTG components and associated materials are likely to be limited to peak construction periods.

For the purpose of assessing the worst-case scenario for construction traffic generation, the 'peak construction' period activity has been estimated and assessed.

Peak construction is estimated to occur over a 12-month period roughly in the middle of the overall 18 month construction duration.

4.2.2 Over Sized Over Mass (OSOM) Vehicles

OSOM vehicles would be used for the transportation of the various component of the wind turbine generator (WTG) including blades, tower and turbine components between the port and the Project site. OSOM vehicles will also be used to transport components associated with BESS including transformers and batteries.

The route assessment and transport logistics associated with OSOM vehicles deliveries of WTG components to the site has been prepared by Rex J Andrews Engineered Transportation.

The transportation logistics included the options of a 200 metre tower for each of the 114 proposed WTGs.

The vehicle dimensions, road upgrades and traffic management measures associated with OSOM vehicle movements are set out in the Rex J Andrews Engineered Transportation report.

OSOM vehicles to access the Site will include:

- 5x8 – 5x8 Platform Trailer (48m long x 6.25m wide)
- 91.5m Blade Transporter (104m long x 5m wide)

The Rex J Andrews Engineered Transportation report includes a draft delivery schedule for OSOM. The schedule is reproduced below.

Delivery Schedule Plan - Typical week							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
Blade	1	1	1	1	1	1	6
Nacelle			1			1	2
Hub		1			1		2
Drive Train		1			1		2
BASE TOWER	1			1			2
MID TOWER T2			1			1	2
MID TOWER T3			1			1	2
MID TOWER T4			1			1	2
MID TOWER T5		1			1		2
MID TOWER T6		1			1		2
MID TOWER T7	1			1			2
TOP TOWER	1			1			2
40 Container	1	1	1	1	1	1	6

Source: Keri Keri Wind Farm – 91.5m Blade Route Study (Rex J Andrews Engineered Transportation, 10 December 2025).

As shown in the draft schedule it is anticipated that there will be approximately 34 OSOM vehicle deliveries per week or 6-7 deliveries per day.

4.2.3 Bulk Earthworks

The Project site is extremely flat. No significant import / export of fill is envisaged to or from the site as part of the proposed construction works.

4.2.4 Plant, Equipment and Materials

Plant, equipment and materials are those items not included in the OSOM assessment and are carried with more commonly used transport units such as B-Doubles, semi-trailers (19.0m), truck and dogs or heavy rigid vehicles.

Construction materials including gravel, aggregate and sand will be required for the construction of hardstands to support the Project infrastructure, including internal access roads, wind turbine generators hardstands and laydown areas, for installation of electrical cabling and for concrete production.

It is proposed to use temporary on-site concrete batching plants for the production of concrete used in the construction of the wind turbine footings. The use of temporary on-site batching plants will reduce the number of external concrete truck vehicle movements to and from the Project site.

Importation of quarried materials including gravel, aggregate and sand will be required for the construction of hardstands and turbine foundations to support Project infrastructure including internal access roads, laydown areas and installation of electrical cabling.

Gravel, aggregate and sand have been assumed to be sourced externally from existing operating quarries. As documented in the EIS, there are a number of existing quarries located locally, however, further investigations about quality and quantity of materials are required before the location of materials to be transported to the Project site can be confirmed.

Notwithstanding the above, quarries and sources of materials to be used in the construction of the Project are located to the west of the Site. As such it is likely that all materials will approach the Site accesses from the west along the Sturt Highway.

It is anticipated that material from excavations will be recycled where suitable which will reduce the estimated traffic volumes upon confirmed geotechnical testing and construction procurement.

The types of vehicles undertaking deliveries of plant, equipment and material to and from the site will include:

- B-Doubles
- Semi-trailer
- Truck and dog

- Heavy rigid vehicle
- Median rigid vehicle
- Small rigid vehicle / vans / utilities.

For the purpose of the traffic generation assessment, it has been assumed that B-Double vehicles would not transport materials to the Site. However, it is noted that the Sturt Highway is an approved B-Double route and if there were opportunities to utilise B-doubles then the estimated traffic generation of the Project as estimated herein, would be reduced.

It is noted that the use of B-Doubles will reduce the estimated construction traffic volumes used in this assessment. The concept design for site access intersections has considered the requirements for B-Double vehicles.

4.2.5 Water

For the purpose of the traffic assessment, it has been assumed that all water for construction works, dust suppression and general use would be sourced off site and transported to the Project site via water trucks.

It is noted that investigations are being undertaken to alternatively source water from existing or newly installed bores within the Project site. If bore water is determined to be an appropriate source of water, then water trucks traffic generation would be significantly reduced.

It is noted that water saving measures for dust suppression would be investigated as part of the construction methodology.

4.2.6 Construction Workers

At peak construction, it is estimated that approximately 650 workers (FTE) will be on-site.

Workers will be accommodated on-site with on-site housing and facilities provided throughout the peak construction period.

Workers will typically work a 10 day on – 4 day off roster.

Workers would be transported to / from site at the start and end of the 10 day on shift using a combination of shuttle buses, car-pooling and single person per vehicle.

The assessment presented here has assumed the following mix of worker transport:

- Shuttle bus (20 workers per shuttle): 50% of workers
- Private Vehicle (including car pooling): 50% of workers

Shuttle buses and car pooling will operate from transport hubs suitable to the workforce locations. This will include local and broader regional hubs.

It is anticipated that shift change over days will occur twice per week. On shift change over days it is estimated that up to 30% of workers will depart the Project site and be replace by another 30% of the workers. Thus, twice a week on shift change over days during peak construction, some 195 workers will arrive, and 195 workers depart the Project site.

4.2.7 Construction Hours of Operation

Proposed typical hours of construction are understood to be:

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

It is noted that OSOM deliveries to the Project site may occur outside of these construction hours such that the movement of OSOM through townships at peak periods and the associated disruptions to traffic can be minimised.

To estimate average daily construction vehicle generation, it has been assumed that: construction will occur 24 work days per month.

4.2.8 Operational Phase

Once operational, the Project will operate 24 hours per day seven days a week. The WTG's 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 12 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.

4.3 Estimated Traffic Generation of Peak 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 site. For example, a water truck arriving at the Project site and then leaving is two trips (one arriving and one leaving).

For the peak construction period the estimated peak daily and hourly traffic generation is summarised in Table 4.1.

While it is unlikely that peak activity for each of the construction activities and material deliveries are unlikely to occur simultaneously, Table 4.1 shows the potential peak activity of components occurring simultaneously. This is considered to be the worst-case scenario assessment and would not occur throughout the peak construction period.

Further details regarding peak construction period traffic generation are provided in Appendix C.

Table 4.1: Peak Construction Period - Daily Project Traffic Generation

Type	Trips per Day (Inbound)	Trips Per Day (Outbound)	Daily Trips (Total)
General Construction	299	299	598
OSOM	7	7	14
Construction Workers	70	70	140
Total	**376**	**376**	**752**

Both general construction and WTG construction vehicles will generally arrive and depart the site throughout the daily construction period and generally be evenly spread out.

Construction workers will however arrive at site at the start of Day 1 of their 10 day shift and then depart at the end of the Day 10. The arrival and departure time of construction workers will be dependent upon flight times and shuttle bus operations. Notwithstanding, this it is assumed that construction workers vehicle movements will occur over a 2 hour period in the morning and afternoon.

The estimated hourly traffic flows for shift change over days (twice per week) during peak construction periods are summarised in Table 4.2 and Table 4.3.

Table 4.2: AM Peak Construction Period – Hourly Project Traffic Generation

Type	Vehicles / Hour (Inbound)	Vehicles / Hour (Outbound)	Total Peak Hour Trips (In & Out)
General Construction	27	27	54
OSOM	1	1	2
Construction Workers	35	0	35
Total	63	28	91

Table 4.3: Peak Construction Period – Hourly Project Traffic Generation

Type	Vehicles / Hour (Inbound)	Vehicles / Hour (Outbound)	Total Peak Hour Trips (In & Out)
General Construction	27	27	54
OSOM	1	1	2
Construction Workers	0	35	35
Total	28	63	91

4.4 Traffic Distribution of Peak Construction Period

As discussed above, it is assumed that OSOM and quarried / other materials will approach the Project site from the west along the Sturt Highway.

The assumption that OSOM and other heavy construction vehicles will approach the site form the west represents a worst case scenario with regard to the operation of traffic flows along the Sturt Highway and the potential need for intersection improvements at proposed site access intersections

For construction worker traffic flows it is assumed that the distribution of vehicles will be evenly split between east and west movements at the proposed site accesses.

4.5 Peak Construction Period Vehicle Turning Movements

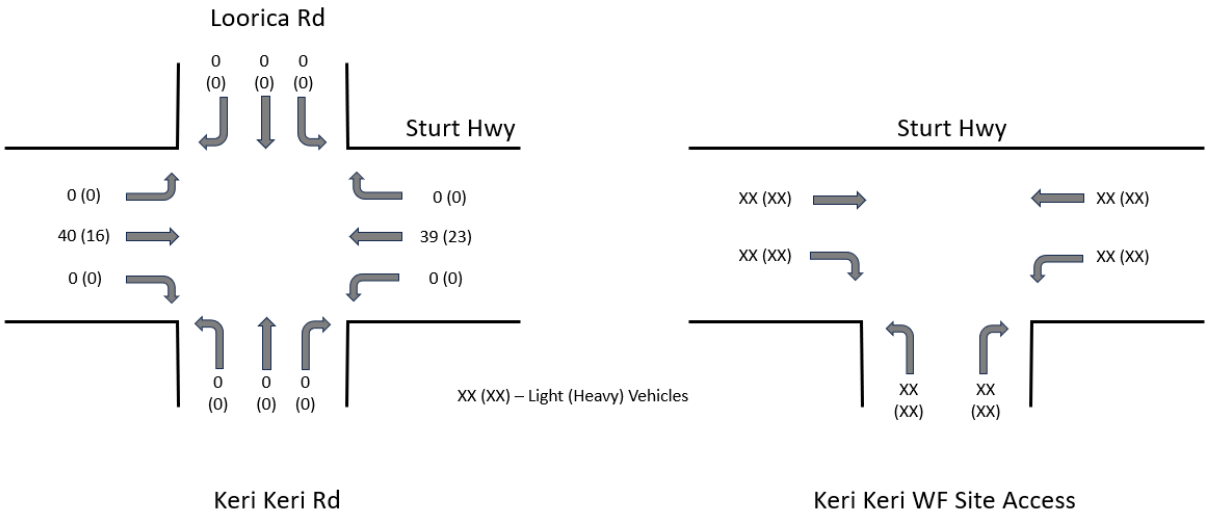
Based on the information presented above, the predicted traffic turning movements for the peak construction period (2028) at the Sturt Highway / site access and Sturt Highway / Keri Keri Road / Loorica Road intersection have been estimated for the following:

- 2028 Base Traffic Flows (surveyed flows + background growth – see Section 5.1)
- 2028 Base + Keri Keri Wind Farm construction traffic
- 2028 Base + Keri Keri Wind Farm + Cumulative Wind Farm construction traffic (see Section 5.2)

The vehicle turning movement figures for the above scenarios are presented in Figure 4.1, Figure 4.2 and Figure 4.3.

Figure 4.1: 2028 – Base Traffic Flows

AM Peak Hour



PM Peak Hour

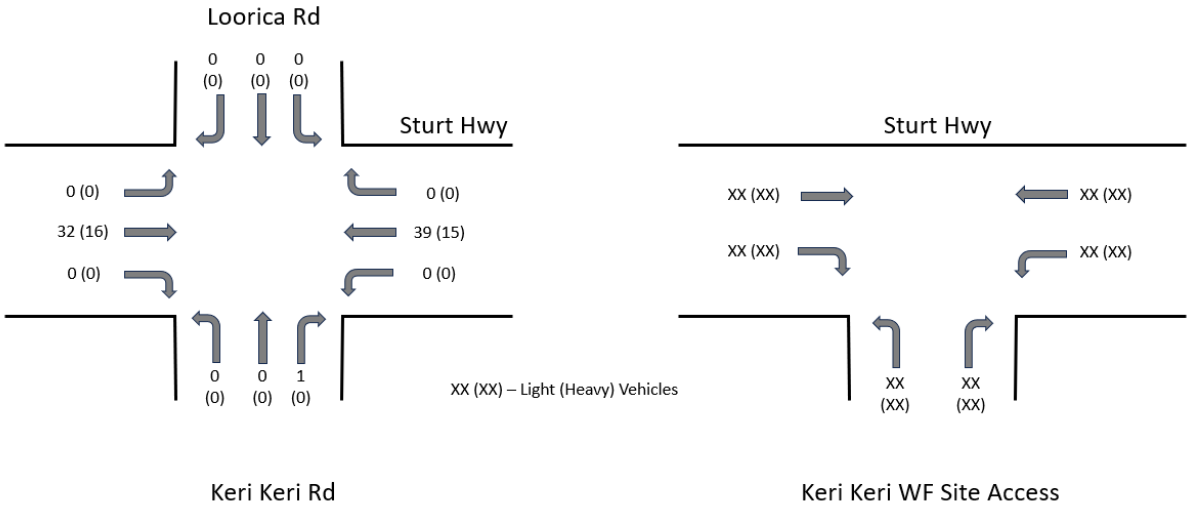
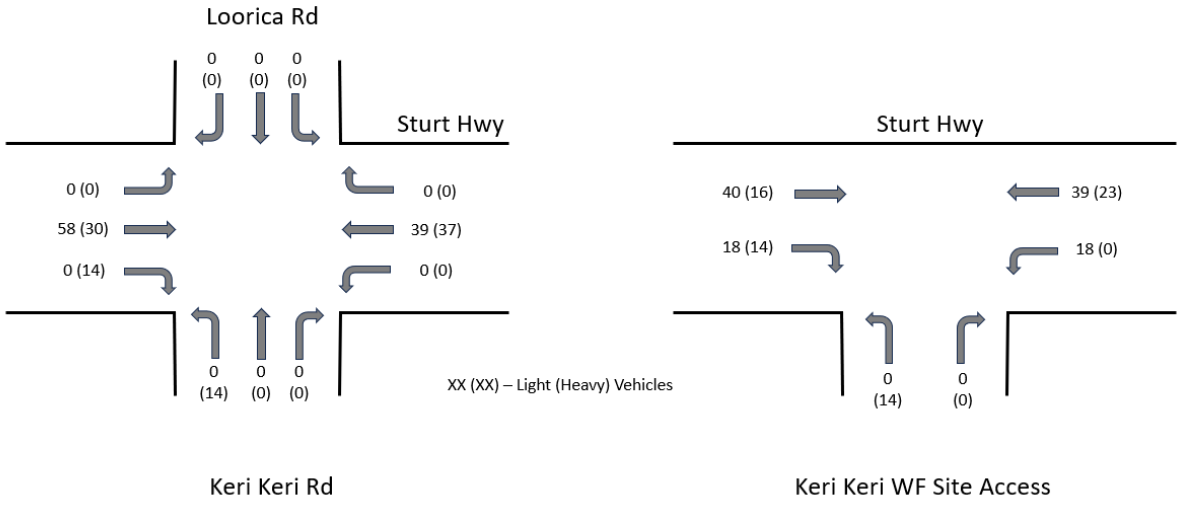


Figure 4.2: 2028 – Base Traffic Flows + Keri Keri Wind Farm Peak Construction Traffic

AM Peak Hour



PM Peak Hour

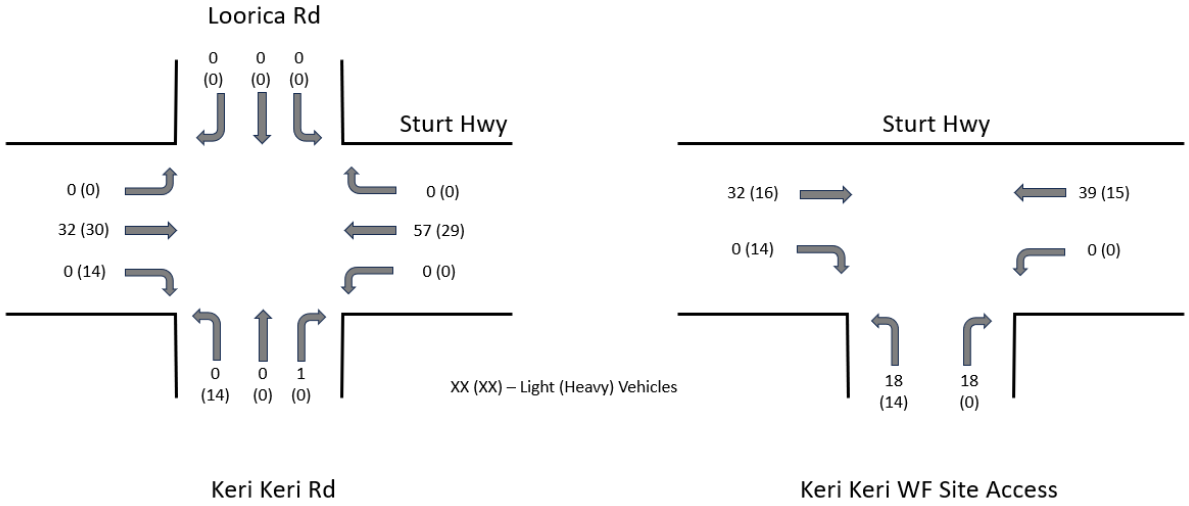
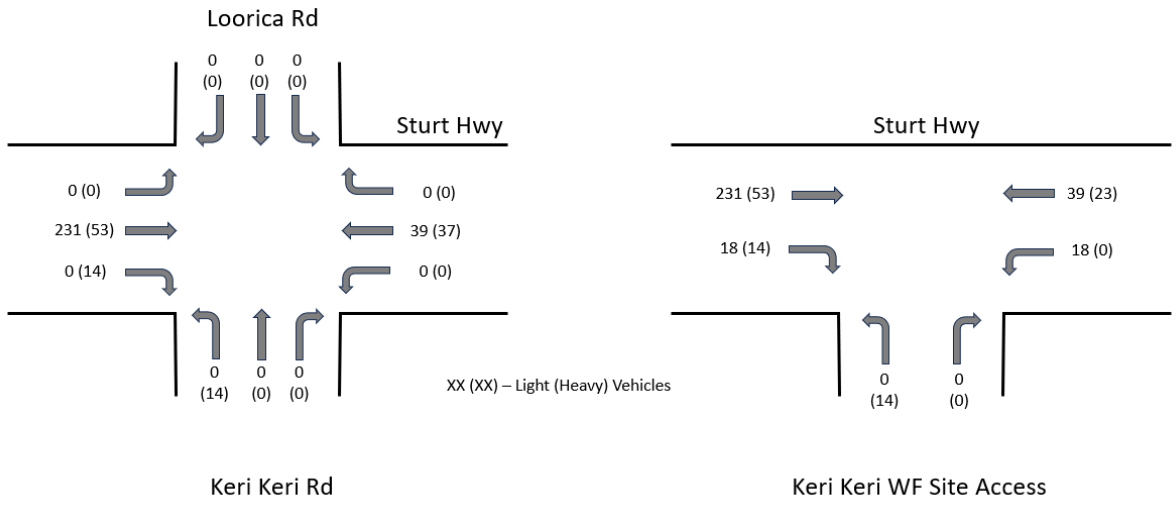
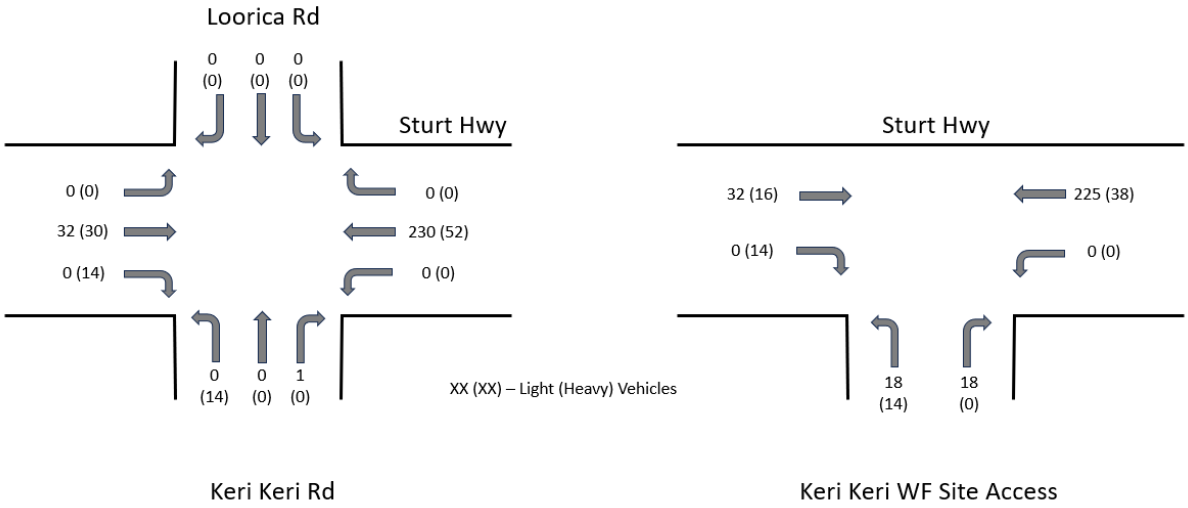


Figure 4.3: 2028 – Base Traffic Flows + Keri Keri Wind Farm Peak Construction Traffic + Cumulative Traffic Flows

AM Peak Hour



PM Peak Hour



5 Traffic Impact Assessment

5.1 Background Traffic Growth

It is noted that the peak construction period for the Keri Keri Wind Farm project is planned to occur in 2028.

To accommodate potential background traffic growth for the peak construction year, a growth factor of 1.5% per annum has been applied to surveyed traffic flows along the Sturt Highway at the site access points. The assumed background growth factor of 1.5% per annum is consistent with TfNSW advice for other wind farm project in the South West REZ.

The peak construction year of 2028 with background traffic growth has been utilised in the assessment of the traffic implications of the Keri Keri Wind Farm as presented in the following sections.

5.2 Cumulative Traffic Assessment

The proposed Keri Keri Wind Farm Project is located within the South-West Renewable Energy Zone, which comprises a number of renewable energy developments, all of which aim to increase the supply of renewable energy to the national grid and reduce emissions.

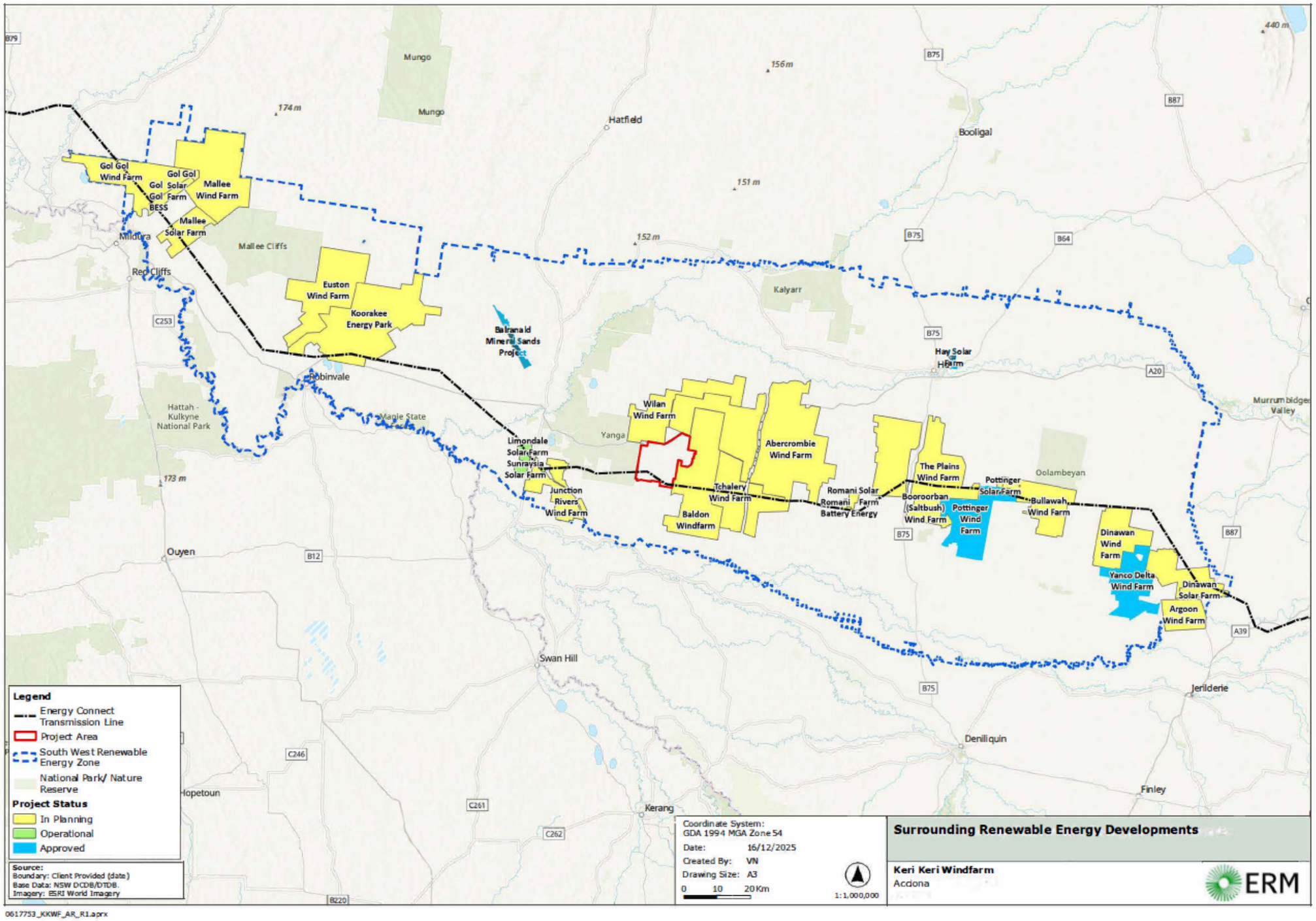
Figure 5.1 shows the nearby renewable energy developments around the Project site that are generally large in scale and of relevance in terms of potentially contributing to cumulative traffic related impacts in the area surrounding the Project site.

A detailed list of the wind and solar projects within the South – West Renewable Energy Zone are set out in Appendix D.

It is noted that some of these projects have already been approved and are under construction or operational whereas other projects are still in the various planning / proposal phases. The anticipated construction period for the various renewable energy projects in the South - West Renewable Energy Zone is typically between 12-24 months with construction completion generally slated to occur between 2026 and 2030.

Appendix D indicates the project status of these projects, estimated construction start date and construction finish date of each project and whether an overlap is anticipated.

Figure 5.1: Nearby Renewable Energy Developments



Projects within the vicinity of the Keri Keri Wind Farm site that have the potential to result in cumulative construction traffic generation impacts with the proposed Keri Keri Wind Farm are:

- Junction Rivers Wind Farm - construction timing unknown
- Wilan Wind Farm - commissioning 2028 (estimate)
- Baldon Wind Farm - construction 2025 – 2029 (estimate)
- Tchelery Wind Farm - construction 2027-2030
- Project EnergyConnect (NSW - Eastern Section)construction completed by late 2026.

As such the Wilan Wind Farm (EIS under preparation) and the Project EnergyConnect are likely to be operational prior to the commencement of construction activities at the Keri Keri Wind Farm Project site, there are no significant cumulative traffic implications associated with these projects.

It is noted that the proposed Wilan Wind Farm project is currently preparing its EIS and details regarding construction traffic generation and site access arrangements are yet to be made public. Notwithstanding this, it is anticipated that site access will include use of the Sturt Highway / Keri Keri Road / Loorica Road intersection. The need for this intersection to be potentially upgraded for Wilan Wind Farm construction vehicles has been identified in the Wilan Wind Farm Scoping Report.

The proposed Baldon Wind Farm (currently under assessment) is to be located immediately to the east of the Keri Keri Wind Farm site. Access is proposed via the Sturt Highway and as such will likely generate traffic past the Keri Keri site access.

Similarly, the proposed Tchelery Wind Farm will likely generation construction traffic along the Sturt Highway past the Keri Keri Wind Farm site.

If Baldon Wind Farm and Tchelery Wind Farm are constructed concurrently with the Keri Keri Wind Farm, then it is estimated that additional traffic flows through the Sturt Highway / Keri Keri Road / Loorica Road intersection and the Sturt Highway / Keri Keri Wind Farm site access intersection would be in the order of 177 construction workers vehicles and 23 construction vehicles (trucks) in each of the AM and PM weekday peak periods.

These additional traffic flows associated with the adjacent proposed wind farms have been assessed in the following sections of this report in order to consider the potential cumulative implications of development.

Other projects are located to the south or east of the Sturt Highway and are unlikely to generate significant traffic within the vicinity of the Project site.

Notwithstanding this, frequent consultation is proposed between the Construction Contractor for this project (once appointed) and other concurrent construction projects which would have a common route with the proposed development. This would help to minimise any

traffic impacts associated with these projects and schedule any OSOM vehicle deliveries amongst the projects.

5.3 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.

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 such as the Sturt Highway (A20).

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 the unsealed Keri Keri Road.

The criteria for evaluating road performance used in this study is Level of Service (LoS).

Table 5.1 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 the assessment of the Keri Keri Wind Farm Project, 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 5.1: 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*

The results of the V/C assessment for the peak period construction activities of the Project are shown in Table 5.2.

Table 5.2 presents the V/C findings for the 'without' and 'with' Keri Keri Wind Farm. The TTPP surveyed (2022) traffic volumes along the Sturt Highway. As the construction activities associated with the Keri Keri Wind Farm Project are expected to peak in 2028 a background traffic growth factor of 1.2% per annum has been applied to the surveyed traffic flows.

For the forecast (with construction traffic) traffic volumes it is assumed that all construction traffic associated with the Project arrives and departs in the same direction and all traffic utilises the Sturt Highway site access. This represents an absolute worst-case scenario with regard to volume / capacity ratios.

The assessment shows that the Sturt Highway would operate at Level of Service A (LoS A) during the peak of construction of the proposed Keri Keri Wind Farm.

The analysis indicates that the capacity of the Sturt Highway would not be adversely impacted by the proposed Keri Keri Wind Farm.

Table 5.2: Peak Construction (2028) Keri Keri Wind Farm Traffic Generation and V/C Ratio

Road	Period	Direction	2028 Without Keri Keri Wind Farm Construction		With Peak Keri Keri Wind Farm Construction Volumes		
			Volume (vph)	V/C	Project Generated Traffic (vph)	Total Volume (vph)	V/C
Sturt Highway	Morning Peak	Eastbound (towards Hay)	56	0.033	92	148	0.087
		Westbound (towards Balranald)	62	0.036	92	154	0.091
	Evening peak	Eastbound (towards Hay)	48	0.028	92	140	0.082
		Westbound (towards Balranald)	54	0.032	92	146	0.086

It is noted that traffic flows along Keri Keri Road are extremely low with 0 - 1 vehicles per hour surveyed in peak periods. The use of Keri Keri Road for construction access of up to 93 vehicles per hour in a peak period would represent a V/C ratio of 0.1 (LoS A).

The cumulative implications of other wind farm development proposals as described in Section 5.2 to road network capacity is set out in Table 5.3.

Table 5.3: Cumulative Peak Construction (2028) Traffic Generation and V/C Ratio

Road	Period	Direction	2028 Cumulative (Keri Keri, Baldon & Tchelery Wind Farms)	
			Volume (vph)	V/C
Sturt Highway	Morning Peak	Eastbound (towards Hay)	344	0.202
		Westbound (towards Balranald)	177	0.104
	Evening peak	Eastbound (towards Hay)	163	0.096
		Westbound (towards Balranald)	342	0.201

The cumulative analysis indicates that the Sturt Highay will continue to operate with a LoS A should all three wind farms experience peak construction simultaneously.

5.4 Project Site Access Arrangements

5.4.1 Site Access Locations

As set out in the Project description, vehicle access to and from the site is proposed via 2 site accesses, one at the Sturt Highway and one at Keri Keri Road.

The Keri Keri Road site access will be accessed via the Sturt Highway / Keri Keri Road / Loorica Road intersection. As such, the Project will generate turning vehicle flows at the Sturt Highway / Keri Keri Road / Loorica Road intersection.

For the purpose of this assessment, the operation, sight distances and turn warrant analysis, the Sturt Highway / Keri Keri Road / Loorica Road intersection has been considered and assessed as a site access location.

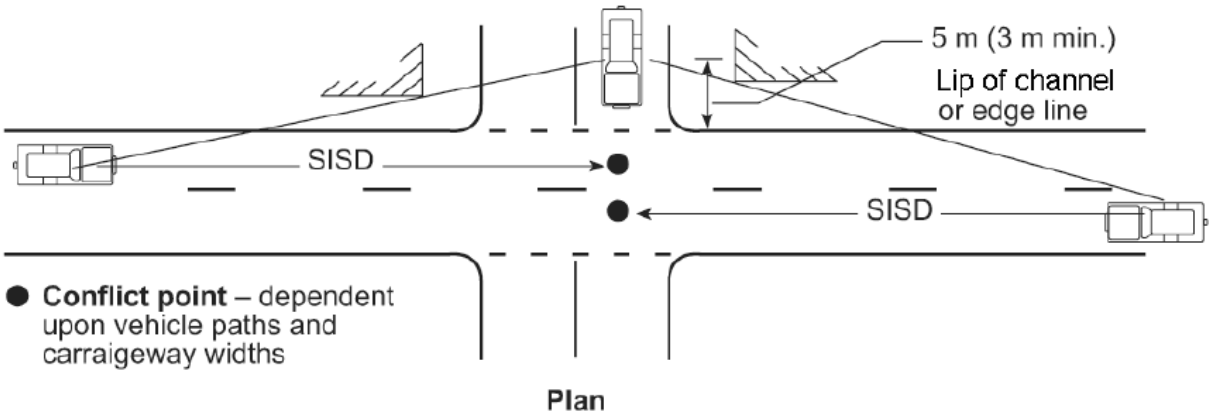
5.4.2 Sight Distance Assessment

A review of driver sight distances at each of the site access intersections has been undertaken in accordance with Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersection (2021).

In assessing the available sight distances at the proposed Project site accesses 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 5.2.

Figure 5.2: Safe Intersection Sight Distance (SISD)



Source: Austroads (2021) Guide to Road Design Part 4A: Unsignalised and Signalised Intersection

As shown in the extract from Austroads guide (see Figure 5.3), the SISD requirement increases with increasing design speed of the major road.

Figure 5.3: Required Driver Sight Distances at Site Accesses

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

For the Sturt Highway access and the Sturt Highway / Keri Keri Road intersection the appropriate design speed is 120 km/h which is +10 km/h on the posted speed limit of 110km/hr.

For the site access on Keri Keri Road, the road conditions are such that the design speed is considered to be 80 km/h.

Based on Figure 5.3, the SISD requirements for vehicles travelling along the Sturt Highway approaching the proposed site access and the Keri Keri Road intersection is 324 m.

The available sight distances for vehicles entering the Sturt Highway at the Project site access at Sturt Highway and from Keri Keri Road onto the Sturt Highway exceeds 500m at both locations and in both directions.

As such the available sight distances at the access points to the Sturt Highway comply with the minimum Austroad SISD requirements.

It is noted that at the Sturt Highway access and the Keri Keri Road intersection, the turning area is of flat terrain and straight alignment with limited vegetation to obstruct view lines.

Similarly for the proposed site accesses along Keri Keri Road, the available SISD distances exceeds the minimum Austroad SISD requirements of 181m.

Thus, the proposed site access driveways will be located and constructed such that there is adequate entering sight distance to traffic along the frontage road.

5.4.3 Site Access Intersection Design – Turn Warrants

An assessment of potential turn treatments required for the proposed site access points along the Sturt Highway have 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)*.

This assessment determines if intersection improvements, such as additional turn lane treatments, are required to accommodate turning traffic associated with the proposed Keri Keri Wind Farm project during the peak construction period.

An assessment has also been undertaken for the cumulative development scenario with other nearby wind farm project generating construction traffic simultaneously with Keri Keri Wind Farm.

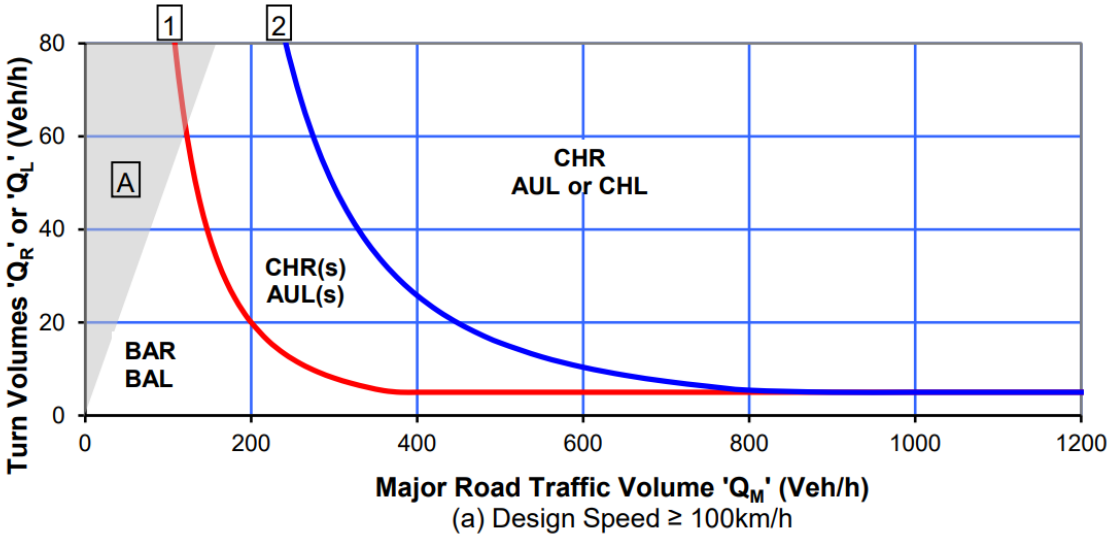
The turn warrant assessments have been undertaken for:

- Sturt Highway / Site Access (new intersection)
- Sturt Highway / Keri Keri Road / Loorica Road intersection (existing intersection)

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

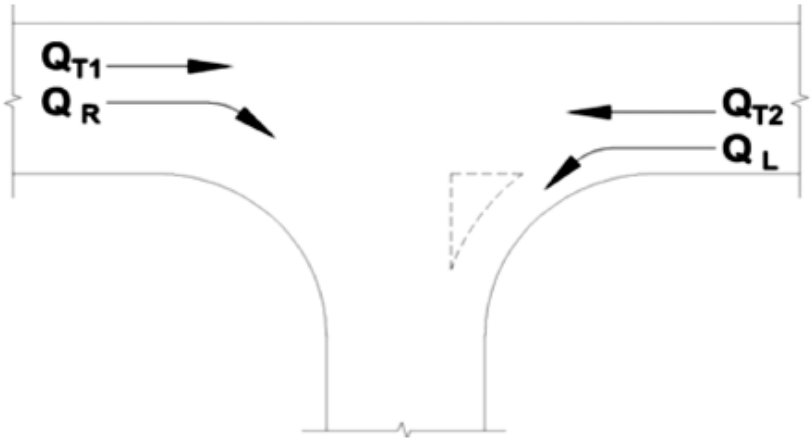
The graph used for the selection of turn treatments on roads with a design speed greater than 100 km/hr is shown in Figure 5.3, and the calculation method for major road traffic volumes is presented in Figure 5.5 and Table 5.4.

Figure 5.4: 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 5.5: Calculation of the Major Road Traffic Volume Q_M



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

Table 5.4: 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

For the purpose of the turn warrants assessment, the estimated vehicle turning movements for the with Keri Keri Wind Farm peak construction traffic generation and cumulative traffic generation of other wind farm developments as presented in Figure 4.2 and Figure 4.3 have been utilised.

5.4.3.1 Sturt Highway / Keri Keri Road / Loorica Road Intersection

The turn warrant assessment for the Sturt Highway / Keri Keri Road / Loorica Road intersection is set out below in Table 5.5 and Figure 5.6 - Figure 5.9.

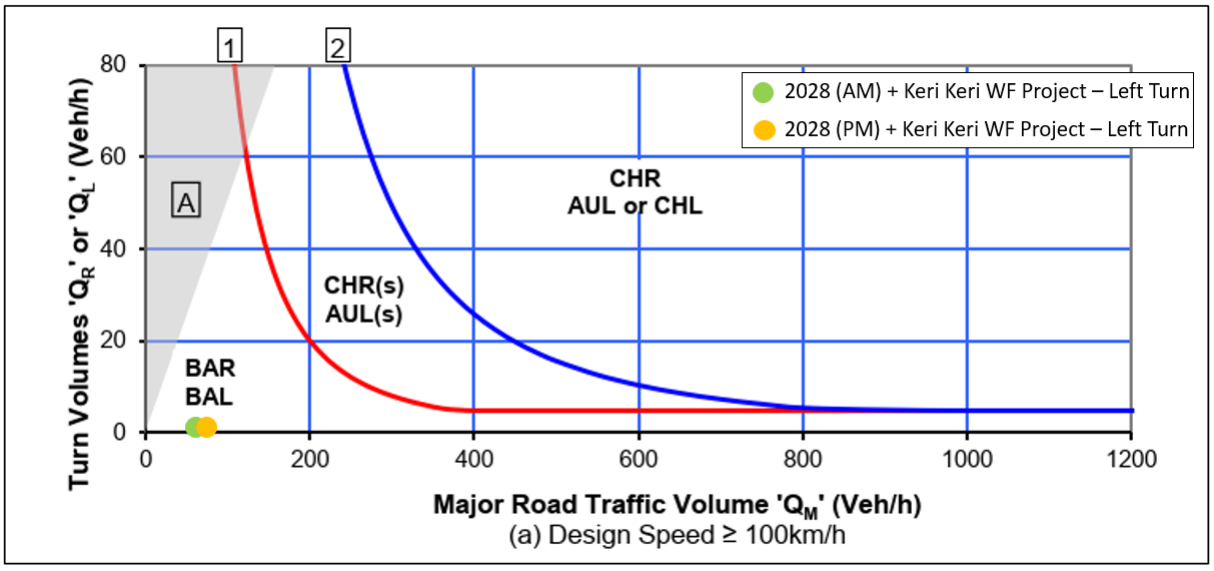
Based on the findings of the turn warrants assessment, it is evident that with the Keri Keri Wind Farm peak construction traffic generation the warrants for a Channelised Right Turn Lane (short) (CHRs) are close to being meet. With the addition of cumulative development traffic, the warrants for a CHR(s) are met.

The provision of a formal Basic Left Treatment is satisfactory for both 2028 construction traffic scenarios.

Table 5.5: Sturt Hwy / Keri Keri Rd / Loorica Rd Intersection

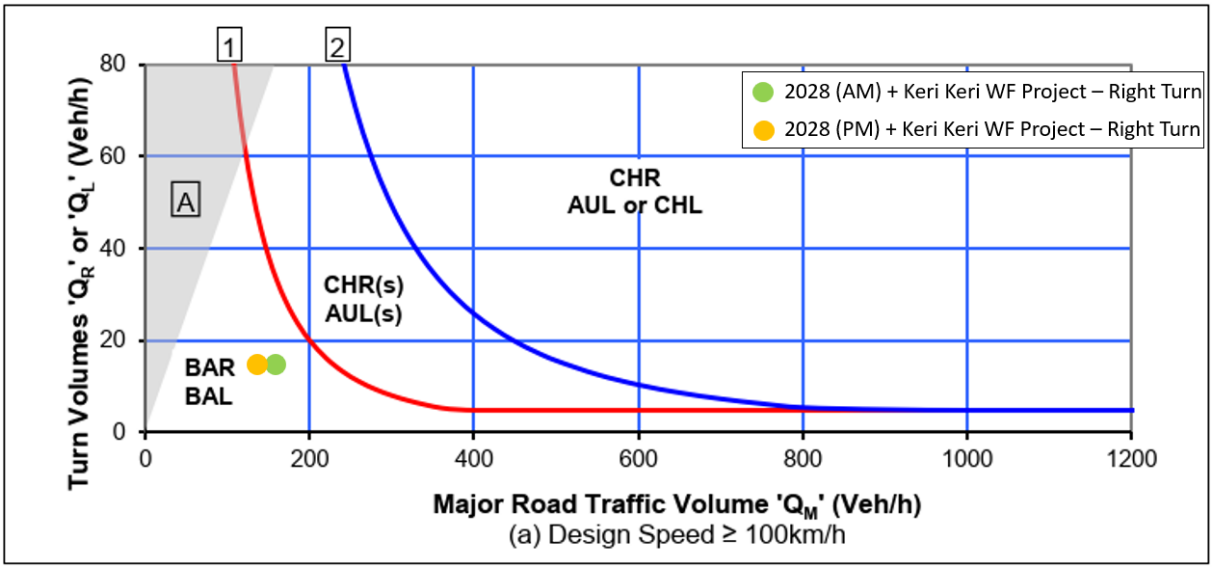
Unsignalised Intersection	AM Peak		PM Peak		Recommended Treatment
	Q_M (veh/h)	$Q_{L\ or R}$ (veh/h)	Q_M (veh/h)	$Q_{L\ or\ R}$ (veh/h)	
2028 + Keri Keri Wind Farm					
Left Turn from Sturt Hwy to Keri Keri Rd	76	0	86	0	Construction of CHR(s) and formalisation of BAL treatment
Right Turn from Sturt Hwy to Keri Keri Rd	164	14	148	14	
2028 + Keri Keri Wind Farm + Cumulative Development Traffic					
Left Turn from Sturt Hwy to Keri Keri Rd	76	0	282	0	Construction of CHR(s) and formalisation of BAL treatment
Right Turn from Sturt Hwy to Keri Keri Rd	360	14	344	14	

Figure 5.6: Warrants for Turn Treatments at Sturt Hwy / Keri Keri Rd / Loorica Rd with Keri Keri Wind Farm (Left Turn from Sturt Highway)



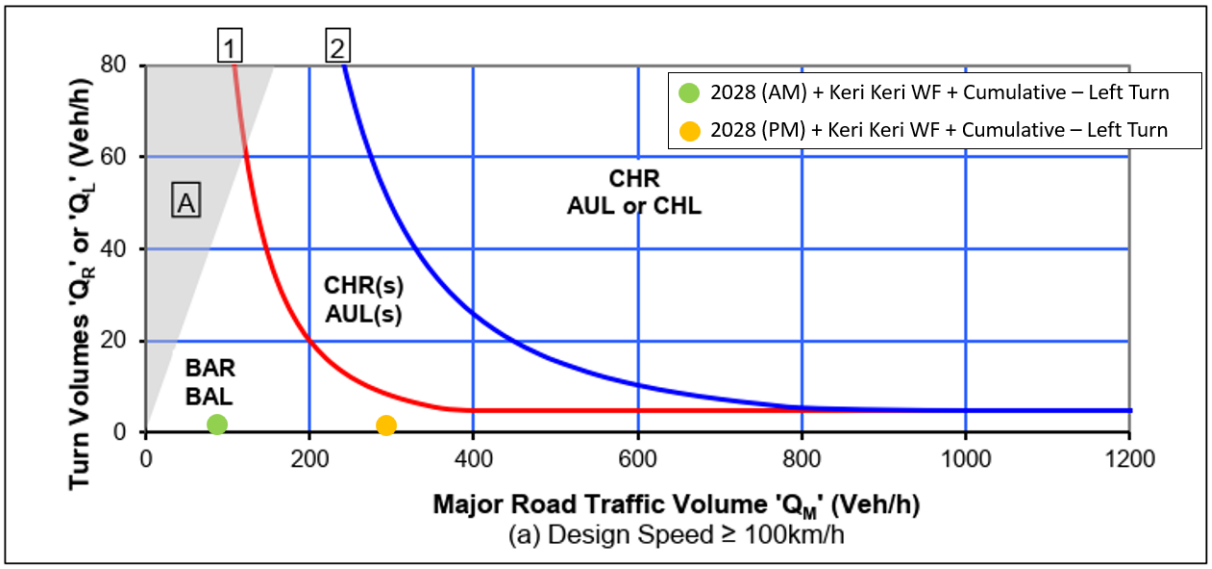
Source: Austroads Guide to Traffic Management Part 6, 2020

Figure 5.7: Warrants for Turn Treatments at Sturt Hwy / Keri Keri Rd / Loorica Rd with Keri Keri Wind Farm (Right Turn from Sturt Highway)



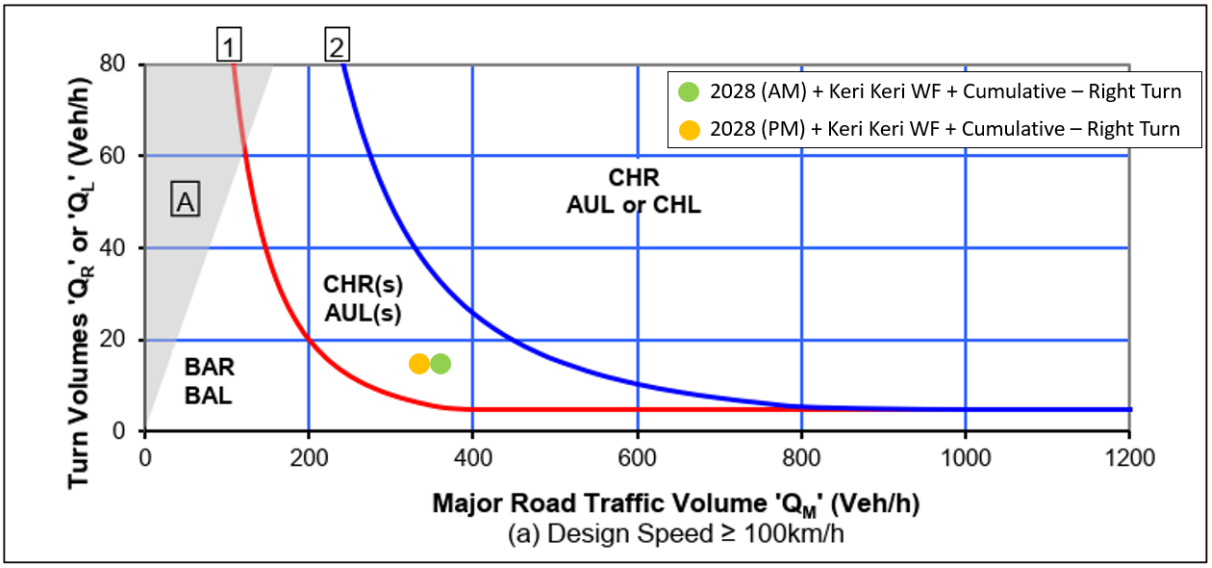
Source: Austroads Guide to Traffic Management Part 6, 2020

Figure 5.8: Warrants for Turn Treatments at Sturt Hwy / Keri Keri Rd / Loorica Rd with Keri Keri Wind Farm + Cumulative Traffic (Left Turn from Sturt Highway)



Source: Austroads Guide to Traffic Management Part 6, 2020

Figure 5.9: Warrants for Turn Treatments at Sturt Hwy / Keri Keri Rd / Loorica Rd with Keri Keri Wind Farm + Cumulative Traffic (Right Turn from Sturt Highway)



Source: Austroads Guide to Traffic Management Part 6, 2020

5.4.3.2 Sturt Highway / Keri Keri Wind Farm Site Access Road Intersection

The turn warrant assessment for the proposed Sturt Highway / Keri Keri Wind Farm site access intersection is set out below in Table 5.6 and Figure 5.10: Warrants for Turn Treatments at Sturt Hwy / Keri Keri Wind Farm Site Access Intersection with Keri Keri Wind Farm Traffic (Left Turn from Sturt Highway)Figure 5.10 -Figure 5.13.

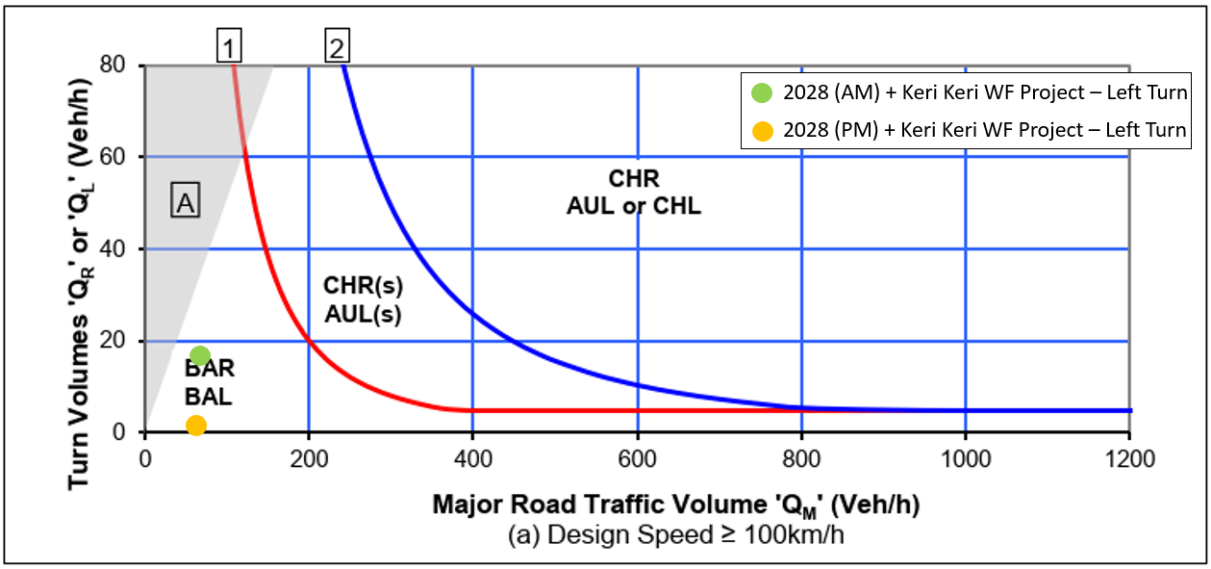
Based on the findings of the turn warrants assessment, it is evident that with the Keri Keri Wind Farm peak construction traffic generation the warrants for a Channelised Right Turn Lane (short) (CHRs) are close to being meet. With the addition of cumulative development traffic, the warrants for a CHR(s) are met.

The provision of a formal Basic Left Treatment is satisfactory for both 2028 construction traffic scenarios.

Table 5.6: Sturt Hwy / Keri Keri Wind Farm Site Access Intersection

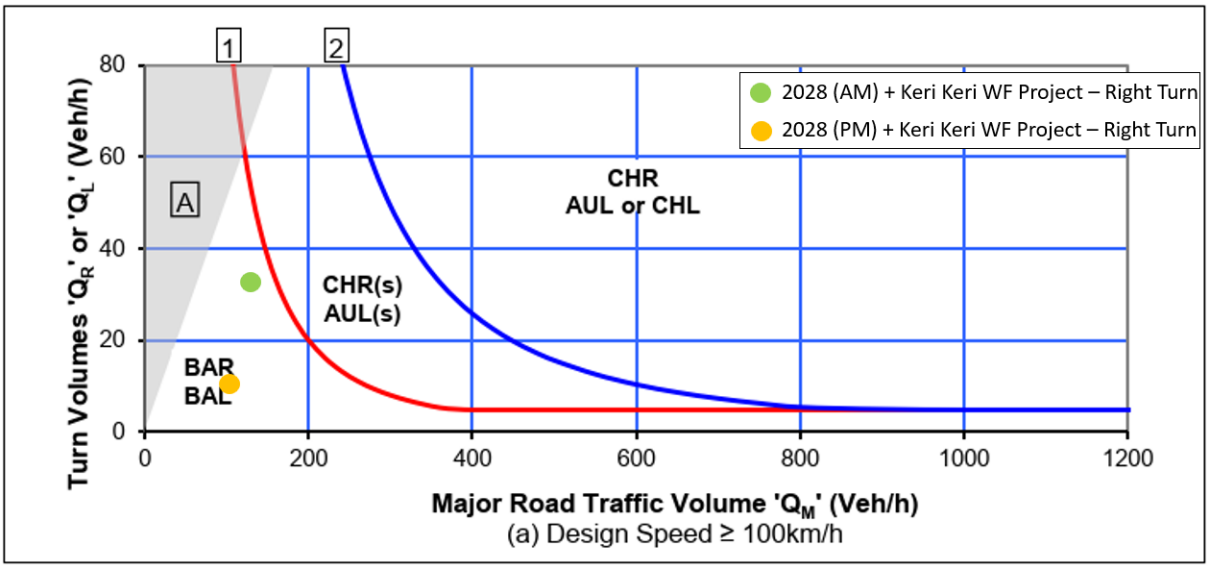
Unsignalised Intersection	AM Peak		PM Peak		Recommended Treatment
	Q_M (veh/h)	$Q_{L\ or\ R}$ (veh/h)	Q_M (veh/h)	$Q_{L\ or\ R}$ (veh/h)	
2028 + Keri Keri Wind Farm					
Left Turn from Sturt Hwy to Site	18	62	0	54	Construction of CHR(s) and formalisation of BAL treatment
Right Turn from Sturt Hwy to Site	32	136	14	102	
2028 + Keri Keri Wind Farm + Cumulative Development Traffic					
Left Turn from Sturt Hwy to Site	18	62	0	263	Construction of CHR(s) and formalisation of BAL treatment
Right Turn from Sturt Hwy to Site	32	364	14	311	

Figure 5.10: Warrants for Turn Treatments at Sturt Hwy / Keri Keri Wind Farm Site Access Intersection with Keri Keri Wind Farm Traffic (Left Turn from Sturt Highway)



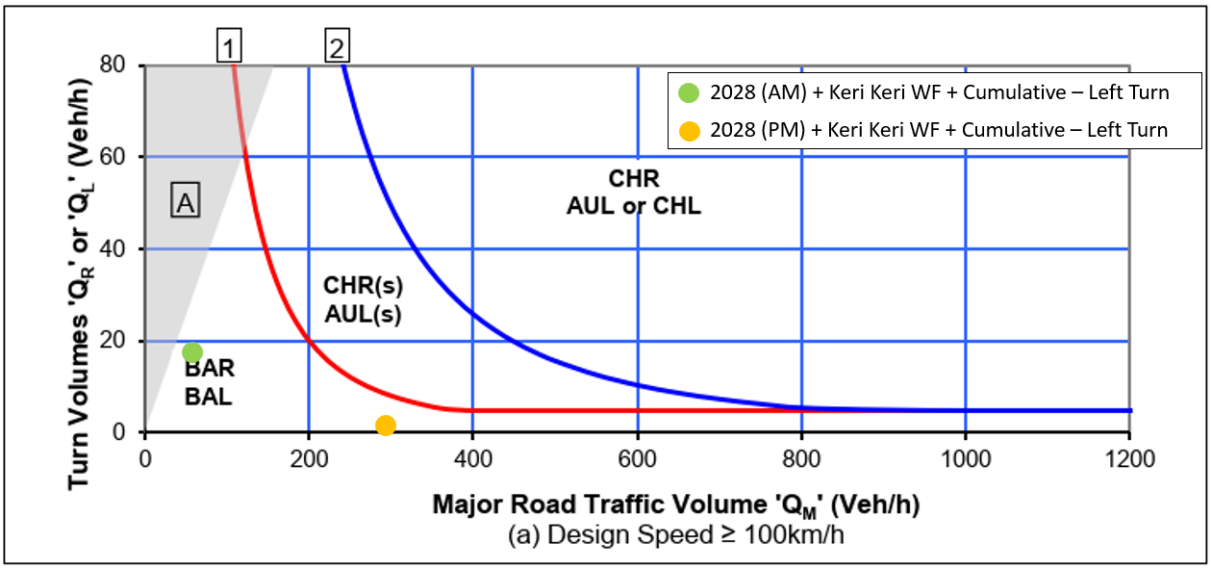
Source: Austroads Guide to Traffic Management Part 6, 2020

Figure 5.11: Warrants for Turn Treatments at Sturt Hwy / Keri Keri Wind Farm Site Access Intersection with Keri Keri Wind Farm Traffic (Right Turn from Sturt Highway)



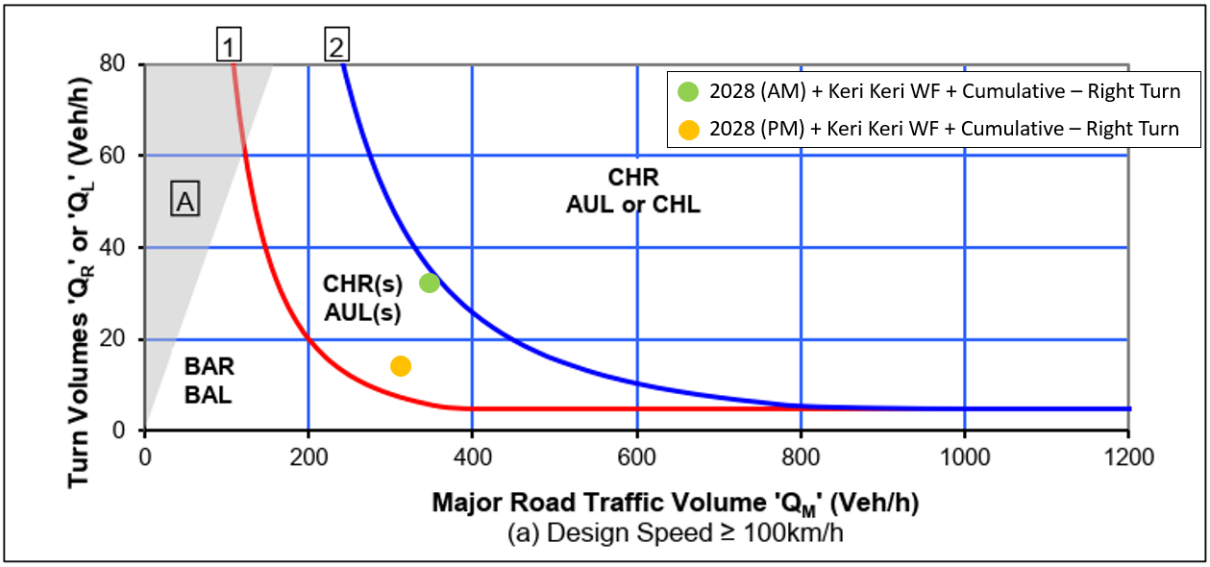
Source: Austroads Guide to Traffic Management Part 6, 2020

Figure 5.12: Warrants for Turn Treatments at Keri Keri Wind Farm Site Access Intersection with Keri Keri Wind Farm + Cumulative Traffic (Left Turn from Sturt Highway)



Source: Austroads Guide to Traffic Management Part 6, 2020

Figure 5.13: Warrants for Turn Treatments at Sturt Hwy Keri Keri Wind Farm Site Access Intersection with Keri Keri Wind Farm + Cumulative Traffic (Right Turn from Sturt Highway)



Source: Austroads Guide to Traffic Management Part 6, 2020

5.4.4 Site Access Intersection Improvements

As identified above, it is recommended that a CHR(s) be provided at both the Sturt Highway / Keri Keri Road / Loorica Road intersection and the Sturt Highway / Site Access intersection to accommodated predicted construction traffic flows associated with the peak construction period of the proposed Keri Keri Wind Farm and other cumulative development which may occur simultaneously.

Concept design layouts for both site access intersections with CHR(s) and formalised BAL treatments are provided in Appendix E.

Beyond the site access, site generated vehicles (excluding OSOM vehicles) would be utilising the regional road network and as such capacity improvements would not be required as part of the Project.

5.4.5 Site Access Intersection Capacity

To assess the capacity of a potential site access intersection along the Sturt Highway and its ability to accommodate the estimated traffic generation potential of peak period construction activity of the Project, a SIDRA intersection analysis was undertaken.

The SIDRA analysis has considered the estimated vehicle turning movements for the with Keri Keri Wind Farm peak construction traffic generation and cumulative traffic generation of other wind farm developments as presented in Figure 4.2 and Figure 4.3.

For intersection operation, TfNSW uses the performance measure level of service (LoS), to determine how efficient an intersection/network is operating under given prevailing traffic conditions. Level of service is directly related to the delays experienced by traffic travelling through the intersection.

SIDRA's level of service ranges from LoS A to LoS F, with LoS A indicating that the intersection is operating with spare capacity and LoS F indicating the intersection is operating over capacity. LoS D is the long-term desirable level of service.

The criteria that SIDRA intersection adopts in assessing the level of service is shown in Table 5.7.

Table 5.7: Levels of Service Criteria - Intersection Capacity

Level of Service (LoS)	Average Delay per vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity; at signals incidents would cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	Greater than 70	Unsatisfactory, requires additional capacity	Unsatisfactory, requires other control mode or major treatment

Source: RMS Guide to Traffic Generating Developments, 2002

The modelling results are shown in Table 5.8.

For the peak construction periods the delay and level of service for the worst performing movement is presented as the intersection result in accordance with standard practice stipulated in the RTA Guide to Traffic Generating Developments for priority and roundabout intersections.

The modelling shows that a site access intersection would perform acceptably with the peak construction traffic from the Keri Keri Wind Farm and also with cumulative traffic generation associated with other developments under construction simultaneously.

The detailed SIDRA outputs are provided in Appendix F.

Table 5.8: SIDRA Modelling Analysis - Site Access (Sturt Hwy) Intersections

Intersection	2028 Base		2028 Base + Keri Keri Wind Farm		2028 Base + Keri Keri Wind Farm + Cumulative Developments	
	Ave Delay (sec/veh)	LoS	Ave Delay (sec/veh)	LoS	Ave Delay (sec/veh)	LoS
AM Peak						
Sturt Highway/ Keri Keri Rd	9	A	11	A	12	A
Sturt Highway/ Site Access	-	-	10	A	10	A
PM Peak						
Sturt Highway/ Keri Keri Rd	9	A	11	A	13	A
Sturt Highway/ Site Access	-	-	11	A	13	A

5.5 OSOM Temporary Intersection Treatments

The Rex J Andrews Engineered Transportation OSOM route assessment has considered the turn path of a OSOM vehicle carrying a WTG blade (largest vehicle) between the border crossing at Euston and the Keri Keri Wind Farm site accesses.

The OSOM assessment has identified temporary intersection treatments at 4 locations on the route between the border crossing at Euston and the project site that would be required to accommodate OSOM vehicles transporting long loads (ie. WTG blades) to the site.

The intersections identified for temporary treatments are:

- Murray Valley Highway / Sturt Highway
- Sturt Highway / McCabe Street (Balranald)
- Sturt Highway / Keri Keri Road / Loorica Road
- Sturt Highway / Proposed Site Access

Concept designs for these temporary intersection works are provided in Appendix E.

5.6 On-Site Car Parking Arrangements

The demand for car parking associated with the construction and operation of the proposed Keri Keri Wind Farm development shall be wholly accommodated on site.

As set out in the proposed description of works, construction includes provisions for hard stand and gravel car parking areas and vehicle circulation roads.

6 Mitigation Measures

The following sets out suggested mitigation measures to management and / or mitigate the potential traffic and transport related impacts associated with the proposed Keri Keri Wind Farm project.

6.1 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.

6.2 OSOM Vehicles Enabling Works

Oversized and over mass (OSOM) vehicles would be governed by a detailed traffic management plan that should be developed before approval for transport is granted.

The traffic management plan will include:

- Procedures for escorts of OSOM vehicles.
- Traffic control plans for temporary road closures to allow vehicles to cross to 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.
- Identification of layby areas for driver breaks and co-ordination of OSOM on site arrivals.

6.3 Reducing Project Related Traffic Generation

As detailed in the previous sections of the report, the proposed construction methodology will implement a number of mitigation measures to reduce the potential volume of daily and peak hour traffic generated by construction activities associated with the Project.

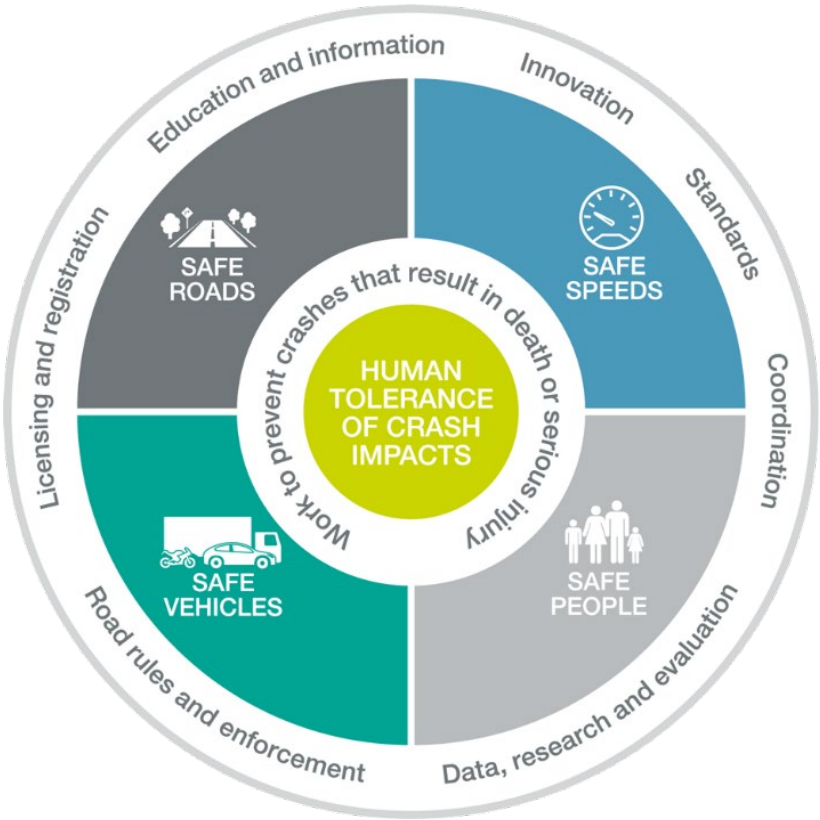
These measures include:

- Provision of on-site worker accommodation and implementation of a typical 10 day on – 4 day off shift
- Implementation of the shuttle bus service for workers travelling to and from the site.

6.4 Road Safety

Under the safe systems approach road safety is generally improved by focussing on Safe Roads, Safe Speeds, Safe People and Safe Vehicles. The safe systems approach is summarised in Figure 6.1.

Figure 6.1: Safe Systems Approach



Source: National Road Safety Strategy 2021-30 (December 2021)

6.4.1 Safe People

"Safe people" can be achieved by education of workers and policies of the work site. To this end worker site induction should include driver education of the local road conditions and an adoption of a "drivers code of conduct".

This could include:

- Training on drivers respect private property and farm gates.
- Driving to the conditions on unsealed roads.
- Avoid speeding and other dangerous behaviour. Identification and communication of known road crash cluster locations. Also, identification and warning of when roads may be affected by black ice, road damage (pot-holes) and incidents.
- A drug and alcohol policy to reduce incidents of drunk and drug driving.
- Additional caution when driving at dawn and dusk of kangaroos and other wildlife.
- Driving around livestock.
- Measures to reduce the risk of workers driving while tired.

In addition, the use of shuttle bus services would reduce the number of workers driving from the site while tired.

6.4.2 Safe Vehicles

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

6.4.3 Safe Speeds

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

6.4.4 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 so allow vehicles to wait until appropriate times for travel.

6.4.5 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.

6.5 Driver Code of Conduct

To assist in achieving safe outcomes during construction, it is recommended that a Driver Code of Conduct prepared and implemented 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.

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.

6.6 Dilapidation Survey

Dilapidation surveys covering the pavement, drainage, and bridge structures will be undertaken in consultation with TfNSW and local Councils for the proposed transport routes 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.

6.7 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.

7 Conclusions

The Keri Keri Wind Farm Project will involve the construction and operation of up to 114 WTGs and associated and ancillary infrastructure on the Project site located approximately 30km south east of Balranald in the Murray River Local Government Area.

The Project is located within the South West Renewable energy Zone (REZ) and is directly accessible to the Sturt Highway.

With regards to traffic and transport the construction of the Project will include:

- Construction duration of approximately 18 months with peak construction activity of approximately 12 months in the middle of the works
- Construction to commence in late 2027
- Up to 650 personnel on site during peak construction activities
- On-site accommodation to be provided for construction workers
- Up to 752 two way construction vehicle trips per day in peak construction
    - 598 general construction vehicles
    - 14 OSOM vehicles delivery WTG components
    - 140 worker vehicles (including shuttle buses, car pooling and private vehicles)
- General construction heavy vehicle trips will generally involve a range of vehicle sizes up to and including a 19m semi trailer.
- OSOM vehicles will be utilised to deliver WTG and BESS components to the site from the Port of Newcastle. The ability of routes to accommodate OSOM vehicles has been assessed by Rex J Andrews Engineered Transportation including identification of works to facilitate OSOM vehicle movements.

The geometric assessment of the transport route alternatives has demonstrated that routes can satisfactorily accommodate the swept path movements of the proposed construction vehicle types albeit with the need to adjust road infrastructure and intersection layouts / furniture.

The assessment of the road network operation demonstrated that the road network on the proposed transport routes has sufficient capacity to accommodate the peak construction traffic generation of the Project.

To accommodate the proposed Keri Keri Wind Farm Project (and potential cumulative traffic generated by the construction of other developments simultaneously), the following measures are recommended:

- Site access intersection improvement works at the proposed Sturt Highway / Site Access intersection.

- Intersection improvements works at the Sturt Highway / Keri Keri Road intersection to accommodate the turning path requirements of OSOM vehicles.
- Implementation of appropriate temporary works, traffic control measures and plans for OSOM (over 40m long) vehicle movements.
- Implementation of the Drivers Code of Conduct detailing expectations for driver behaviour for travel to and from the Project site.
- Preparation and implementation of a detailed Construction Traffic Management Plan (CTMP) detailing how works to the site access and ongoing construction works will be undertaken. The CTMP shall be prepared by the proponent with the works contractor in consultation with TfNSW / Council.

In conclusion, it is considered that with the mitigation measures set out in this report, that the construction and operation of the Keri Keri Wind Farm Project can be undertaken without significant adverse impacts to the operation, capacity or safety of the surrounding road network.

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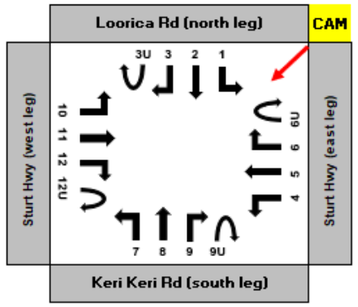
Appendix A

Sturt Highway Traffic Surveys

2022 Turning Movement Count (TTPP) @ Sturt Hwy / Keri Keri Rd / Loorica Rd intersection

2024 ATC (Amber Organisation, Baldon Wind Farm TIA, 24 April 2025)

Report Type:	
Client Job Number:	
Client Name:	The Transport Planning Partnership
Location:	Sturt Hwy / Keri Keri Rd intersection
Survey Date:	



Approach	Loorica Rd (north leg)												Sturt Hwy (west leg)												Keri Keri Rd (south leg)												Sturt Hwy (east leg)											
Movement	Movement 1 (Left Turn)			Movement 2 (Through)			Movement 3 (Right Turn)			Movement 3U (U Turn)			Movement 4 (Left Turn)			Movement 5 (Through)			Movement 6 (Right Turn)			Movement 6U (U Turn)			Movement 7 (Left Turn)			Movement 8 (Through)			Movement 9 (Right Turn)			Movement 9U (U Turn)			Movement 10 (Left Turn)			Movement 11 (Through)			Movement 12 (Right Turn)			Movement 12U (U Turn)		
Time Interval	Light	Heavy	**Total**	Light	Heavy	**Total**	Light	Heavy	**Total**	Light	Heavy	**Total**	Light	Heavy	**Total**	Light	Heavy	**Total**	Light	Heavy	**Total**	Light	Heavy	**Total**	Light	Heavy	**Total**	Light	Heavy	**Total**	Light	Heavy	**Total**	Light	Heavy	**Total**	Light	Heavy	**Total**	Light	Heavy	**Total**	Light	Heavy	**Total**	Light	Heavy	**Total**
8:00 to 8:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	2	3	**5**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	7	7	**14**	0	0	**0**	0	0	**0**
8:15 to 8:30	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	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	10	2	**12**	0	0	**0**	0	0	**0**
8:30 to 8:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	9	1	**10**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	12	9	**21**	0	0	**0**	0	0	**0**
8:45 to 9:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	6	5	**11**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	6	8	**14**	0	0	**0**	0	0	**0**
9:00 to 9:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	9	3	**12**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	3	9	**12**	0	0	**0**	0	0	**0**
9:15 to 9:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	3	2	**5**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	7	1	**8**	0	0	**0**	0	0	**0**
9:30 to 9:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	6	2	**8**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	11	7	**18**	0	0	**0**	0	0	**0**
9:45 to 10:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	13	8	**21**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	10	3	**13**	0	0	**0**	0	0	**0**
10:00 to 10:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	9	3	**12**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	8	4	**12**	0	0	**0**	0	0	**0**
10:15 to 10:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	9	2	**11**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	7	7	**14**	0	0	**0**	0	0	**0**
10:30 to 10:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	10	3	**13**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	10	2	**12**	0	0	**0**	0	0	**0**
10:45 to 11:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	12	7	**19**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	5	7	**12**	0	0	**0**	0	0	**0**
AM Total	0	0	**0**	0	0	**0**	0	0	0	0	0	**0**	0	0	**0**	90	41	**131**	0	0	0	0	0	**0**	0	0	**0**	0	0	**0**	0	0	0	0	0	**0**	0	0	**0**	96	66	**162**	0	0	0	0	0	0
15:00 to 15:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	10	3	**13**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	9	3	**12**	0	0	**0**	0	0	**0**
15:15 to 15:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	7	6	**13**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	6	8	**14**	0	0	**0**	0	0	**0**
15:30 to 15:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	11	5	**16**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	1	0	**1**	0	0	**0**	0	0	**0**	4	6	**10**	0	0	**0**	0	0	**0**
15:45 to 16:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	8	4	**12**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	10	3	**13**	0	0	**0**	0	0	**0**
16:00 to 16:15	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	7	2	**9**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	12	1	**13**	0	0	**0**	0	0	**0**
16:15 to 16:30	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	4	4	**8**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	10	4	**14**	0	0	**0**	0	0	**0**
16:30 to 16:45	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	4	8	**12**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	9	3	**12**	0	0	**0**	0	0	**0**
16:45 to 17:00	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	8	3	**11**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	6	5	**11**	0	0	**0**	0	0	**0**

Appendix B

Keri Keri Wind Farm 91.5m Blade Route Study

Prepared by Rex J Andrews Engineered Transport, December 2025 (Rev 03)

REX J ANDREWS
ENGINEERED TRANSPORTATION

ROUTE STUDY

KERI KERI WINDFARM
91.5 METRE BLADE

DECEMBER 10, 2025

CLIENT: ACCIONA

START LOCATION: NSW/VIC BORDER
EUSTON
END LOCATION: KERI KERI

REVISION: REV03

INDEX:

1.0 Version History 3
2.0 Introduction 4
2.0 Route Selection and Evaluation 5
3.0 Project Data 7
4.0 Keri Keri Wind Farm Site Location 8
5.0 Transport Summary 10
6.0 Route 1A Study: NSW/Victorian Border (Euston) to Keri Keri Windfarm Northern site entrance 11
7.0 Route 1B Study: NSW/Victorian Border (Euston) to Keri Keri Windfarm Western site entrance 20
8.0 Route 2A Study: NSW/Victorian Border (Buronga) to Keri Keri Windfarm Northern site entrance 30
9.0 Route 2B Study: NSW/Victorian Border (Buronga) to Keri Keri Windfarm Western site entrance 38
10.0 Rest Areas 47
11.0 Route: Conclusion 52
12.0 Draft Delivery Schedule 54
13.0 References 55
14.0 Revision History 56
15.0 Transport Combinations (Examples) 57
16.0 Appendix A - Transport Drawings (Possible Combinations) 58

1.0 Version History

Rev	Date	Change	Responsible	Approved
00	04/08/22	Route Assessed	C Ewin	✓
00	27/09/22	Report Compiled	W Andrews	✓
01	14/10/22	Report Completed	W Andrews	✓
01	07/03/24	Report updated to 91.5m blade	W Andrews	✓
01	07/03/24	Report updated	W Andrews	✓
02	07/11/25	Report updated	W Andrews	✓
03	10/12/25	Report updated	W Andrews	✓

2.0 Introduction

This Route Study has been prepared for the Keri Keri Wind Farm (the Project) for Acciona Energy Australia Global Pty Ltd (the Applicant).

The study is to understand the transport route constraints for the components listed in this report and assist in planning of the windfarm layout.

This document describes observations and previous experience on route and explains the transport of wind turbine equipment from the NSW/VIC border through to the Keri Keri Windfarm.

The route survey was conducted on 04/08/2022 and updated on 09/10/2025

2.0 Route Selection and Evaluation

Assessment of the proposed routes was conducted by Rex J Andrews Engineered Transportation based on onsite route surveys 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 the Keri Keri Windfarm, 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 the Keri Keri Windfarm 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.

3.0 Project Data

Date of latest Route Assessment: 09/10/2025

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

Project name: Keri Keri Wind Farm

Start location: Murray Valley Highway Euston (NSW/VIC Border)

Location: Keri Keri Wind Farm (NSW)

Turbine types: Up to 114 Wind Turbine Generators (WTG) with a hub height of 200 metres (m) and maximum height tip height of 291.5 m (vertical tip)

4.0 Keri Keri Wind Farm Site Location

The proposed Keri Keri Wind Farm is located approximately 30 kilometres (km) southeast of Balranald, and 75 km southwest of Hay in the Murray River Local Government Area (LGA).

The project is located within the Southwest Renewable Energy Zone (REZ) and is directly south of the Sturt Highway.

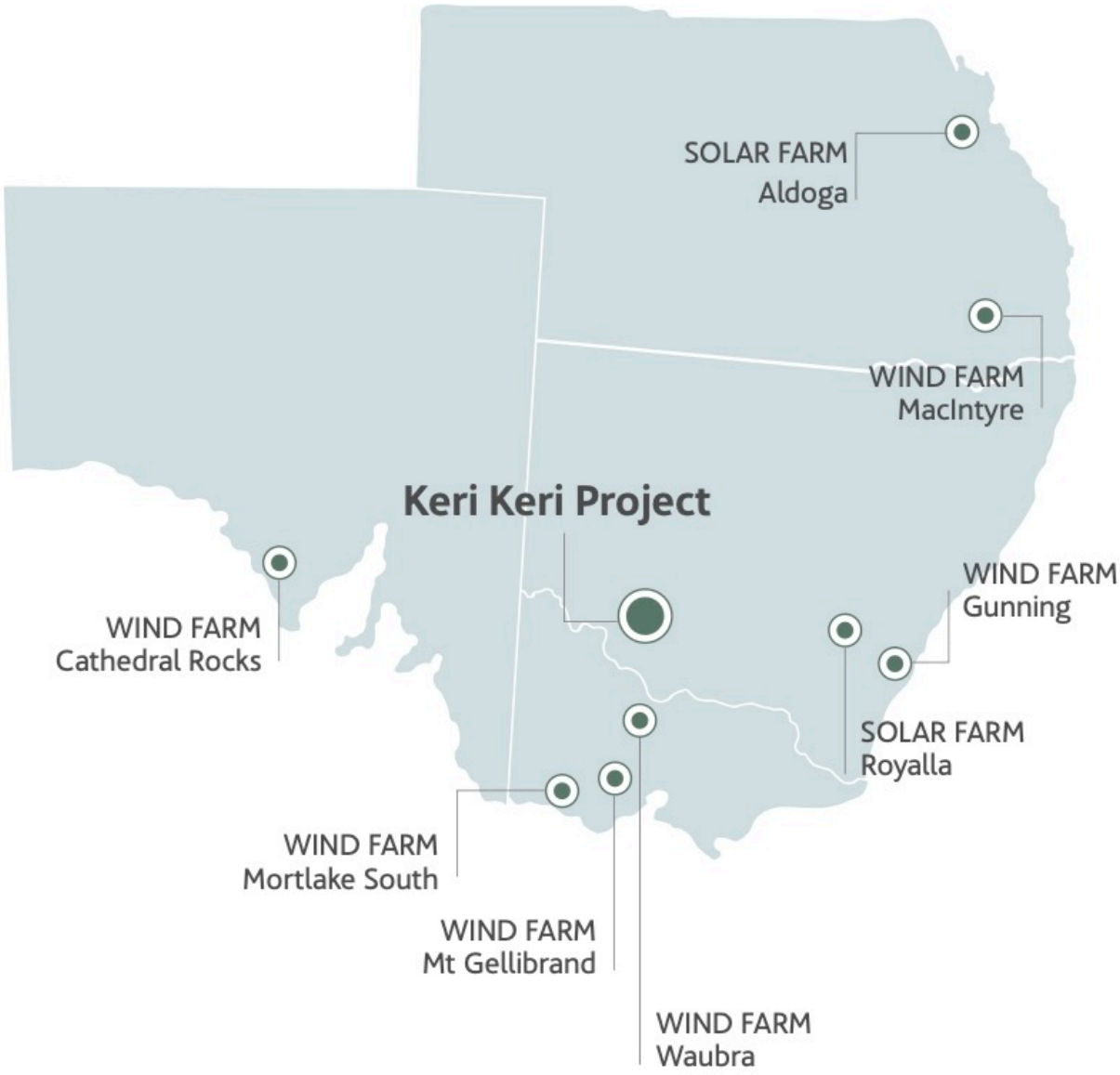


Figure 1 - Keri Keri Wind Farm Site Location

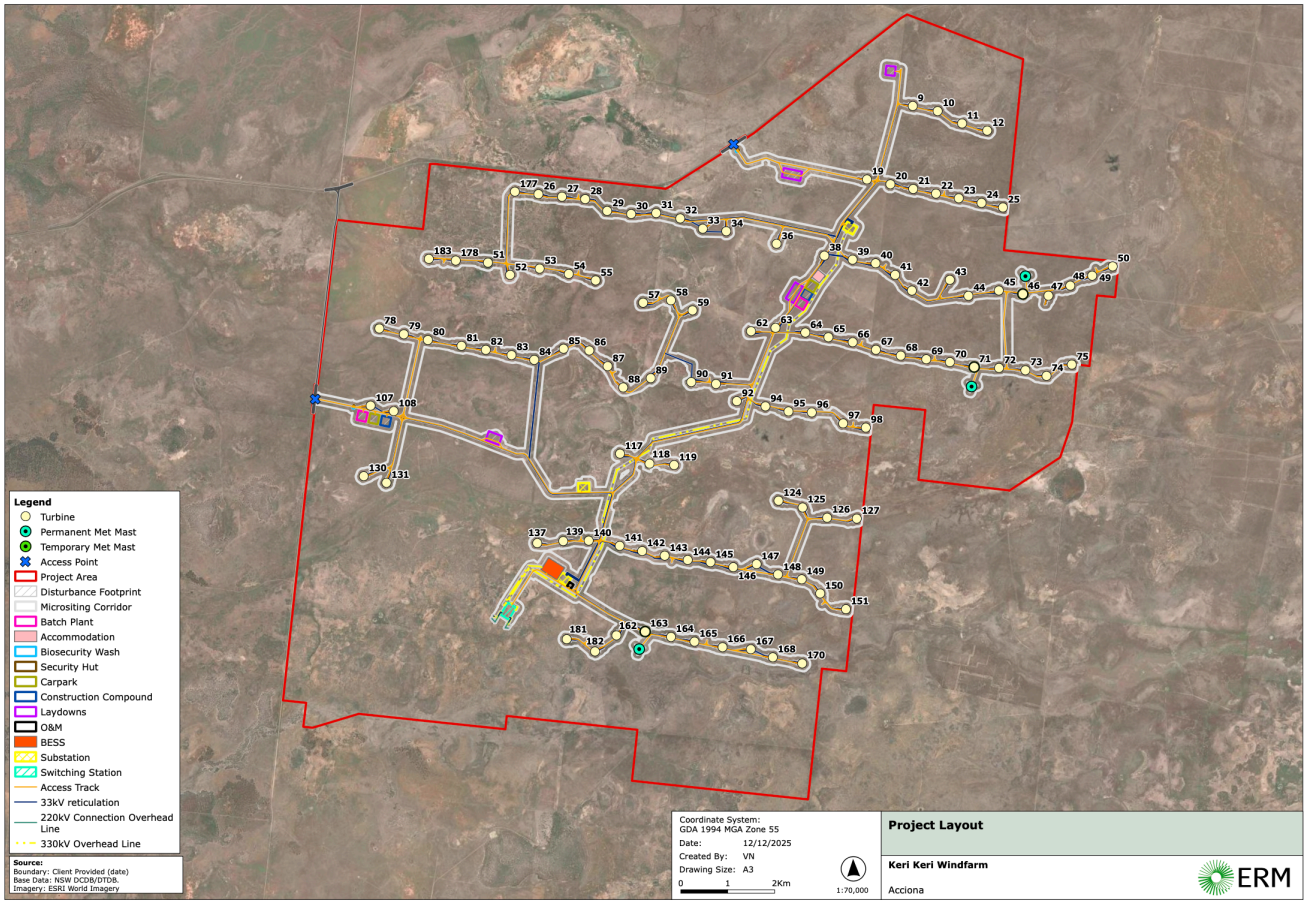


Figure 2 - Keri Keri Wind Farm Site Layout

5.0 Transport Summary

The study shows the proposed routes for the wind turbine components, and the constraints they may encounter on the routes to the Keri Keri Wind Farm from the NSW-Victorian border at Euston.
There are 2 site entrances proposed for this project. Route 1A & 2A would be used to access the Northern entrance entering the site off the Sturt Highway, and Route 1B & 2B would be used to access a Western entrance entering the site off Keri Keri Road.
Both 1A & 1B routes share the same route up until the 119.0 Km mark on the Sturt Highway intersection with Keri Keri Road.
Both 2A & 2B routes share the same route up until the 194.0 Km mark on the Sturt Highway intersection with Keri Keri Road.

ROUTE 1A: NSW/Victorian border (Euston) to Keri Keri Wind Farm North entrance
COMPONENTS: All components.
DISTANCE: 128.0 kilometres
GPS LINK: https://maps.app.goo.gl/BvfAV4YPrKBPqU8a8
ROUTE: Robinvale-Sea Lake Rd, Murray Valley Hwy, Sturt Hwy, Keri Keri Road.

ROUTE 1B: NSW/Victorian border (Euston) to Keri Keri Wind Farm Western entrance
COMPONENTS: All components.
DISTANCE: 124.0 kilometres
GPS LINK: https://maps.app.goo.gl/yM9Afx686dYqS16u8
ROUTE: Robinvale-Sea Lake Rd, Murray Valley Hwy, Sturt Hwy, Keri Keri Road.

ROUTE 2A: NSW/Victorian border (Mildura) to Keri Keri Wind Farm North entrance
COMPONENTS: Loads under 40m overall length. **Max loaded height 5.9m**
DISTANCE: 203.0 kilometres
GPS LINK: https://maps.app.goo.gl/wsdZMAwpSBvZHtaj7
ROUTE: Sturt Hwy.

ROUTE 2B: NSW/Victorian border (Mildura) Keri Keri Wind Farm Western entrance
COMPONENTS: Loads under 40m overall length. **Max loaded height 5.9m**
DISTANCE: 198.0 kilometres
GPS LINK: https://maps.app.goo.gl/ZNrJdZX8mbwNiovR6
ROUTE: Sturt Hwy, Keri Keri Road.

6.0 Route 1A Study: NSW/Victorian Border (Euston) to Keri Keri Windfarm Northern site entrance

COMPONENTS: All components.
DISTANCE: 128.0 kilometres
GPS LINK: https://maps.app.goo.gl/BvfAV4YPrKBPqU8a8
ROUTE: Robinvale-Sea Lake Rd, Murray Valley Hwy, Sturt Hwy, Keri Keri Road.

Figure 3 - Route 1A

KEY	
ROAD MODIFICATION	
CAUTION	
PARKING	

KM index	Location	Section of road	Current Measurement	Procedure	Notes
543.6	NSW-VIC Border Eucla	Murray Valley Highway over the Euston-Robinvale Bridge https://goo.gl/maps/uKnaiBJZG5yVVWJQ9	Width: 9.0m	Continue straight	This bridge has been assessed by TfNSW for similar size loads and approved for heavier axle loads than the loads listed in this report.
2.7	Euston	Murray Valley Hwy onto Sturt Hwy GPS Link: https://goo.gl/maps/rnhvnjnN6VkAWX3eA	Length: 50.0 metres Width: 8.0 metres	Right Hand Turn	Very tight corner that cuts back on itself. A large amount of hardstand is required on the inside and exit of the corner. The new alignment will need a lot of fil to bring it level with the highway. Sign to be relocated out of swept path.
9.5	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
75.5	Balranald	Sturt Highway. GPS Link: https://maps.app.goo.gl/N1ykG5V6H8a49Dvk8	Length: 108m Width: 7.7m	Left Hand Merge	Emergency parking only
82.2 to 82.4	Balranald	Sturt Hwy GPS Link: https://maps.app.goo.gl/DVbkEGBFeoUomVL29	6.0 metres wide	Travel directly ahead	Signs made removable with flush bases.
83.0	Balranald	Sturt Hwy (market st) onto Sturt Hwy GPS Link: https://goo.gl/maps/xve4ZgbuRkqqPvVr7	Length: 50.0 metres Width: 8.0 metres	Right Hand Turn	This section is very tight. Islands and foot path to be made trafficable. Landholder permission required on inside of corner. Hardstand to be installed on inside and exit of corner. Multiple Light/power poles, trees, and signs to be relocated from swept path.
86.0	Balranald	Sturt Highway GPS Link: https://maps.app.goo.gl/qoK5mgXJGFK2tqNk9	100.0 metres long 8.0 metres wide	Merge left	Emergency parking only
87.0	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.
123.0	Willowvale Rest Area Keri Keri	Sturt Hwy GPS Link: https://goo.gl/maps/JGKFZJpyurnxBhBX9	Length: 180m Width: 10.0m	Left Hand Merge	Fatigue parking Would need to be upgraded if the blades were required to use this parking bay.

KM index	Location	Section of road	Current Measurement	Procedure	Notes
128.0	Keri Keri	Stuart Highway into site entrance GPS Link: https://maps.app.goo.gl/RaZJLyoyaBYywJ4w7	N/A	Right hand turn into site entrance	All site access roads and entries to be constructed to appropriate standards in order to accommodate the weight, height, swept path and vertical curves (dips/crests) of all proposed loads. Roads to be maintained for the duration of deliveries.

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

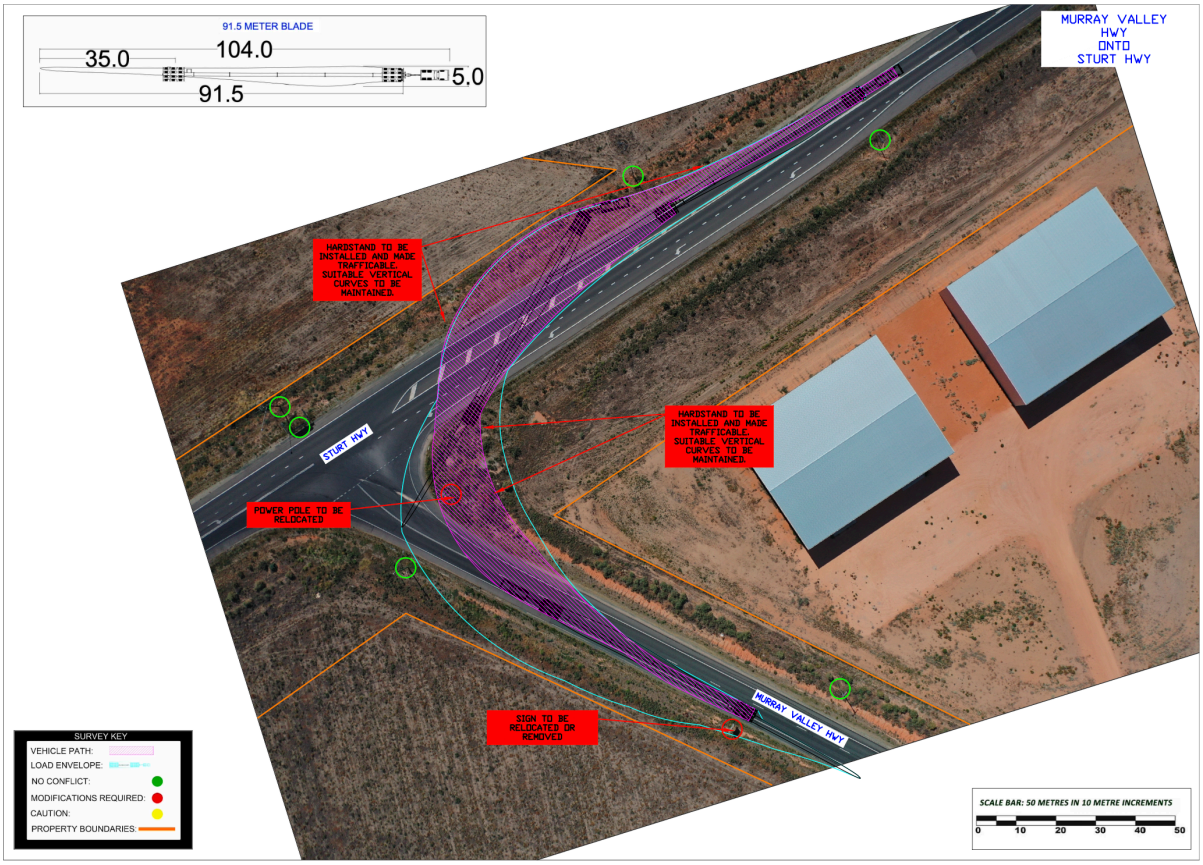


Figure 4 - Murray Valley Highway onto Sturt Highway

Figure 5 - Low Angle Shot

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/rnhvnjnN6VkAWX3eA
PROCEDURE: Right hand turn
COMMENTS: Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
ROAD MODIFICATIONS: Yes, a large amount of hardstand is required on the inside and exit of the corner. The new alignment will need a lot of fil to bring it level with the highway. A power pole will need to be relocated and a sign will need to be relocated out of swept path.

82.2 to 82.4 Km's: Sturt Highway through Balranald

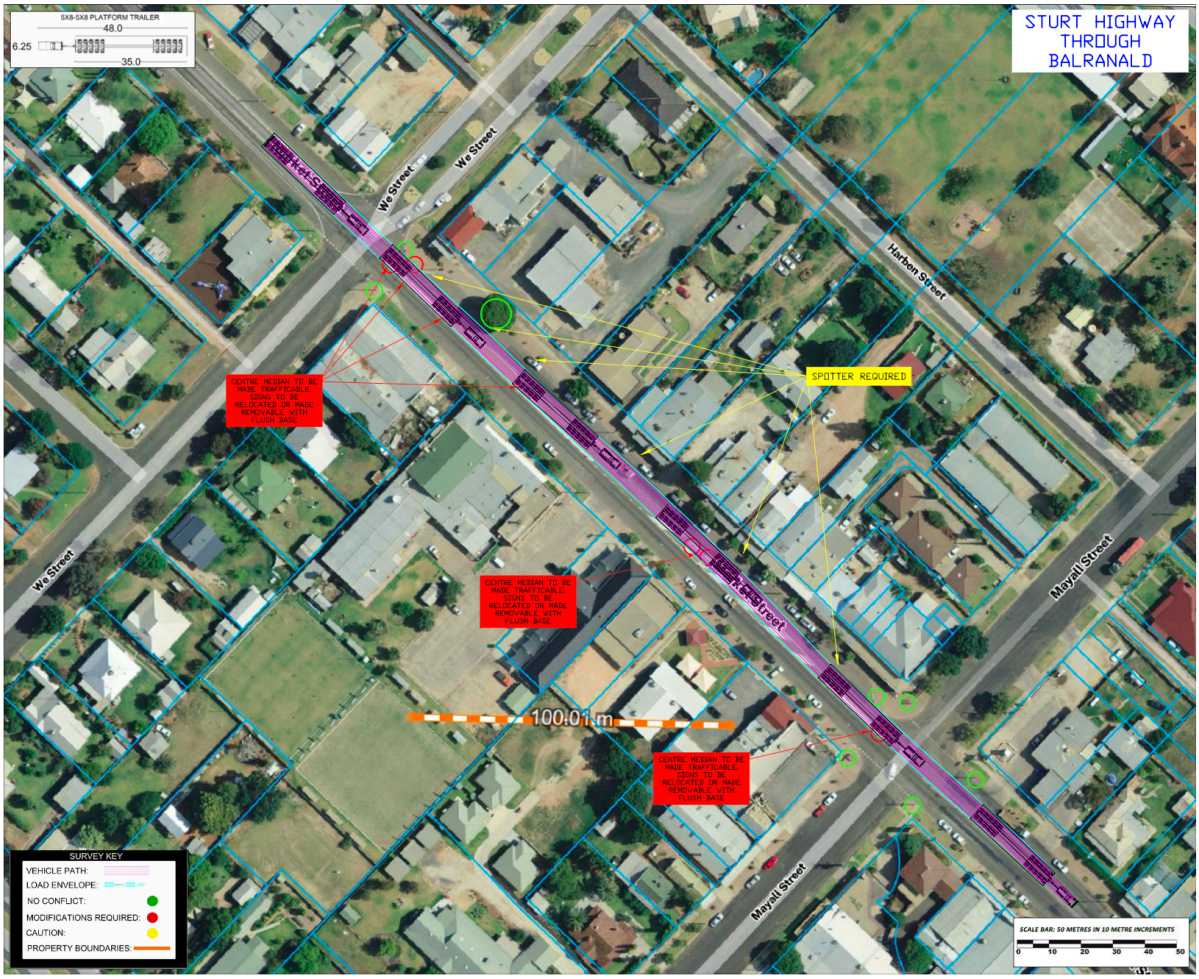


Figure 6 - Sturt Highway at Balranald centre islands

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.

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

Figure 7 - Sturt Highway intersection with McCabe St at Balranald

Figure 8 - Low Angle Shot

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/xve4ZgbuRkqqPvVr7
PROCEDURE: Right hand turn
COMMENTS: This section is very tight. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
ROAD MODIFICATIONS: Yes, Islands and foot path to be made trafficable. Landholder permission required on inside of corner. Hardstand to be installed on inside of the corner. Multiple Light/power poles, trees, and signs to be relocated from swept path.

128 Km's: Sturt Highway into Keri Keri Northern Site Entrance

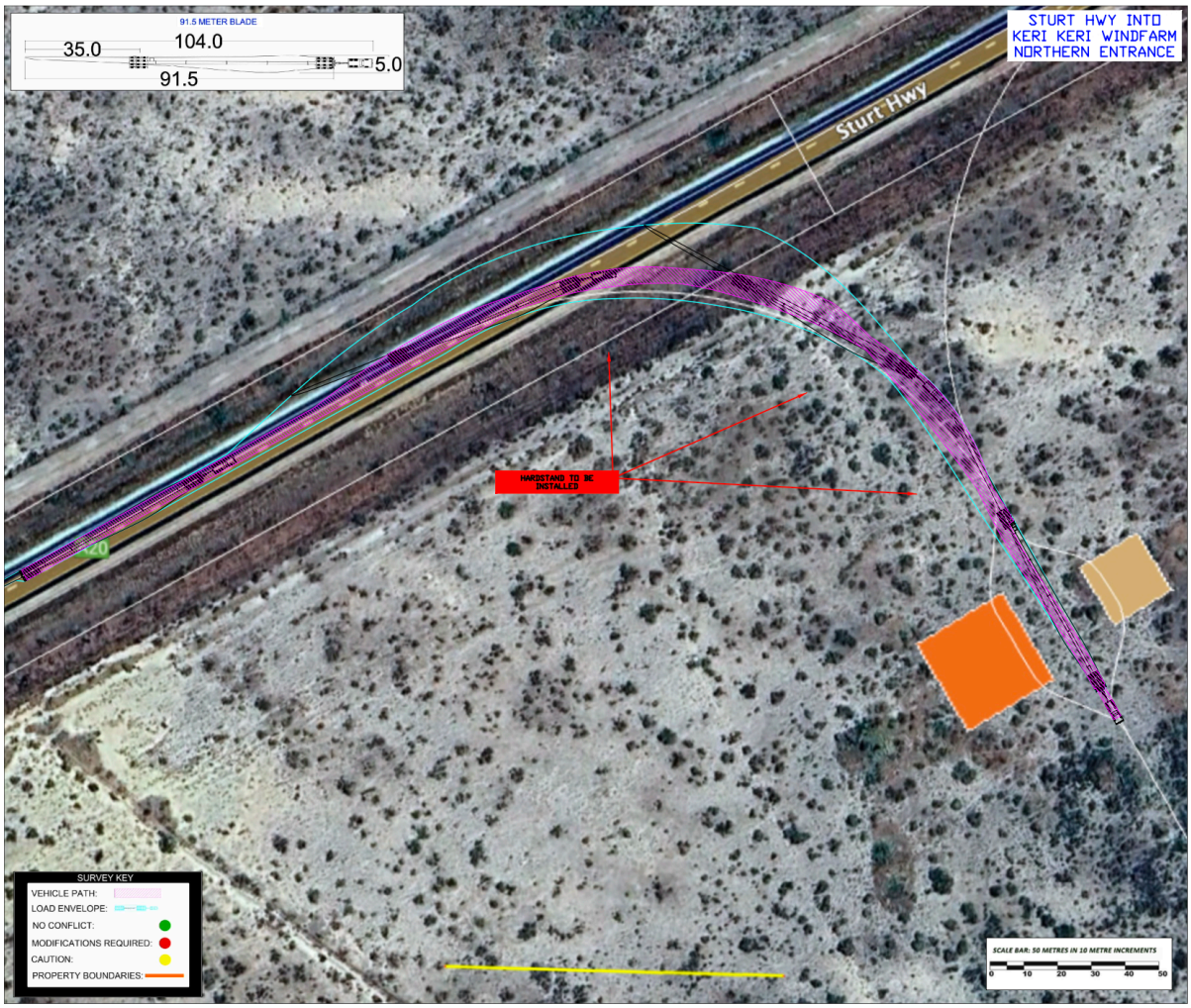


Figure 9 - Proposed Keri Keri Northern Site Entrance

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/RaZJLyoyaBYywJ4w7
PROCEDURE: Right hand turn
COMMENTS: A new site entrance is to be constructed. We have overlayed the swept path for this new entrance and it is suitable for the largest load.
ROAD MODIFICATIONS: Yes, a suitable site entrance is required for this project.

7.0 Route 1B Study: NSW/Victorian Border (Euston) to Keri Keri Windfarm Western site entrance

COMPONENTS: All components.
DISTANCE: 124.0 kilometres
GPS LINK: https://maps.app.goo.gl/yM9Afx686dYqS16u8
ROUTE: Robinvale-Sea Lake Rd, Murray Valley Hwy, Sturt Hwy, Keri Keri Road.

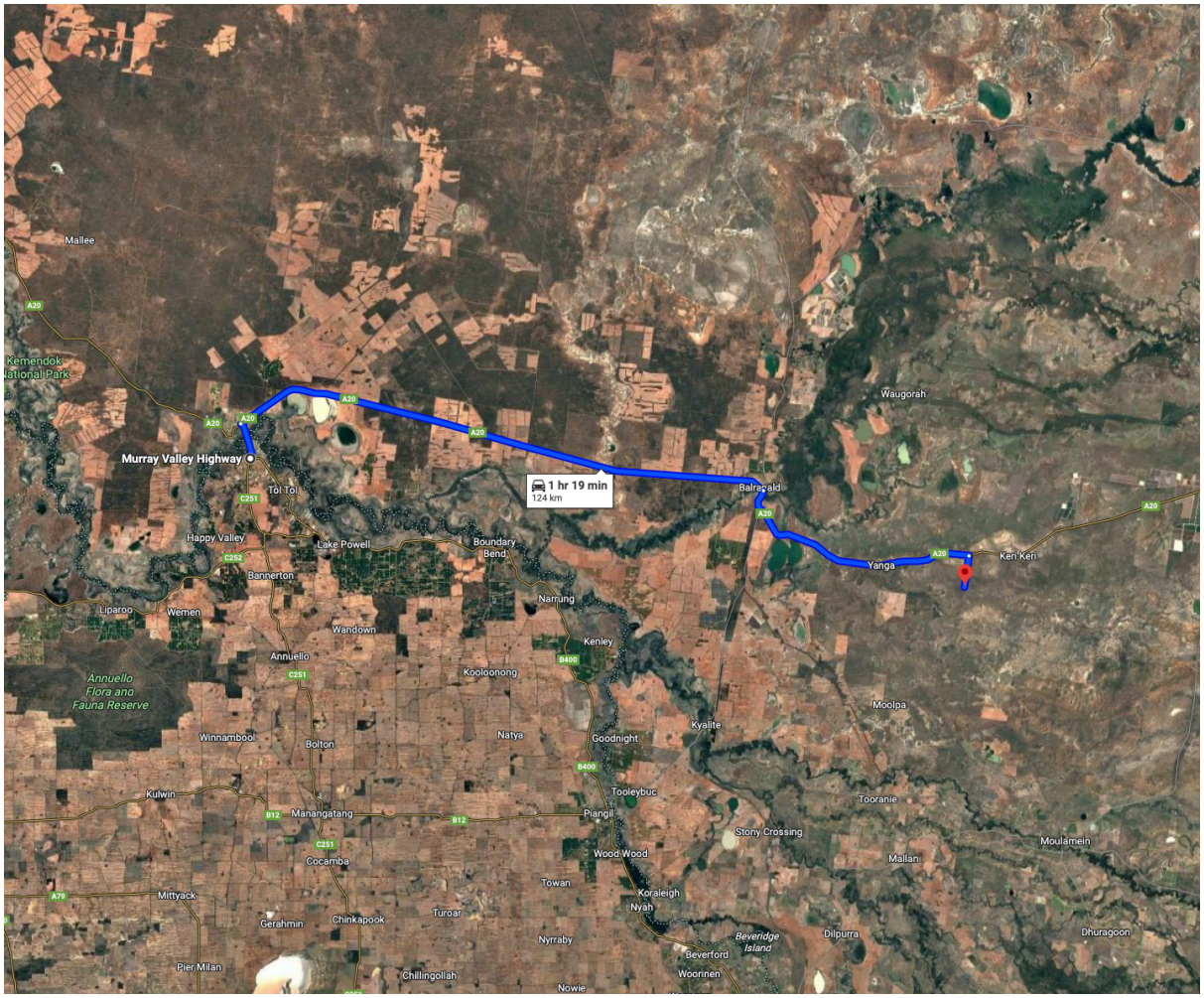


Figure 10 - Route 1B

KEY	
ROAD MODIFICATION	
CAUTION	
PARKING	

KM index	Location	Section of road	Current Measurement	Procedure	Notes
543.6	NSW-VIC Border Eucla	Murray Valley Highway over the Euston-Robinvale Bridge https://goo.gl/maps/uKnaiBJZG5yVVWJQ9	Width: 9.0m	Continue straight	Bridge assessment required
2.7	Euston	Murray Valley Hwy onto Sturt Hwy GPS Link: https://goo.gl/maps/rnhvnjnN6VkAWX3eA	Length: 50.0 metres Width: 8.0 metres	Right Hand Turn	Very tight corner that cuts back on itself. A large amount of hardstand is required on the inside and exit of the corner. The new alignment will need a lot of fil to bring it level with the highway. Sign to be relocated out of swept path.
9.5	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
75.5	Balranald	Sturt Highway. GPS Link: https://maps.app.goo.gl/N1ykG5V6H8a49Dvk8	Length: 108m Width: 7.7m	Left Hand Merge	Emergency parking only
82.2 to 82.4	Balranald	Sturt Hwy GPS Link: https://maps.app.goo.gl/DVbkEGBFeoUomVL29	6.0 metres wide	Travel directly ahead	Signs made removable with flush bases.
83.0	Balranald	Sturt Hwy (market st) onto Sturt Hwy GPS Link: https://goo.gl/maps/xve4ZgbuRkqqPvVr7	Length: 50.0 metres Width: 8.0 metres	Right Hand Turn	This section is very tight. Islands and foot path to be made trafficable. Landholder permission required on inside of corner. Hardstand to be installed on inside and exit of corner. Multiple Light/power poles, trees, and signs to be relocated from swept path.
86.0	Balranald	Sturt Highway GPS Link: https://maps.app.goo.gl/goK5mgXJGFK2tqNk9	100.0 metres long 8.0 metres wide	Merge left	Emergency parking only
87.0	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.

KM index	Location	Section of road	Current Measurement	Procedure	Notes
119.0	Keri Keri	Sturt Highway into Keri Keri Road GPS Link: https://goo.gl/maps/uH5pmWwzWvz3TJ4K6	Length: 50 Metres Width: 7.0 Metres	Right hand turn	A large area of hardstand is required on the inside of the corner. Keri keri Rd and All site access roads to be constructed to appropriate standards in order to accommodate the weight, height, swept path and vertical curves of all proposed loads. Unsealed roads to be made all weather and maintained for the duration of deliveries. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
124.0	Keri Keri	Keri Keri Road into Western site entrance GPS Link: https://maps.app.goo.gl/HpPi6pyLHwQH3fP66	N/A	Left hand turn into site entrance	All site access roads and entries to be constructed to appropriate standards in order to accommodate the weight, height, swept path and vertical curves (dips/crests) of all proposed loads. Roads to be maintained for the duration of deliveries.

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

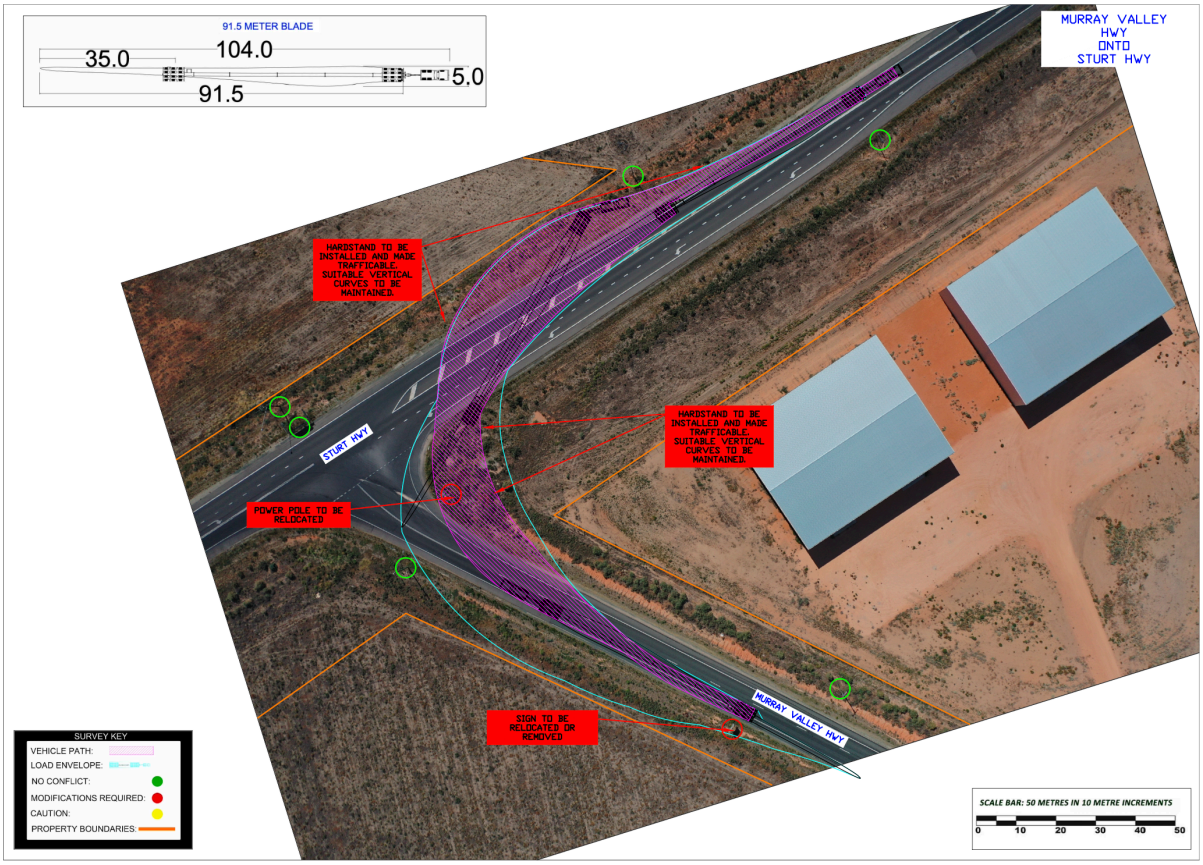


Figure 11 - Murray Valley Highway onto Sturt Highway

Figure 12 - Low Angle Shot

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/rnhvnjnN6VkAWX3eA
PROCEDURE: Right hand turn
COMMENTS: Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
ROAD MODIFICATIONS: Yes, a large amount of hardstand is required on the inside and exit of the corner. The new alignment will need a lot of fil to bring it level with the highway. A power pole will need to be relocated and a sign will need to be relocated out of swept path.

82.2 to 82.4 Km's: Sturt Highway through Balranald

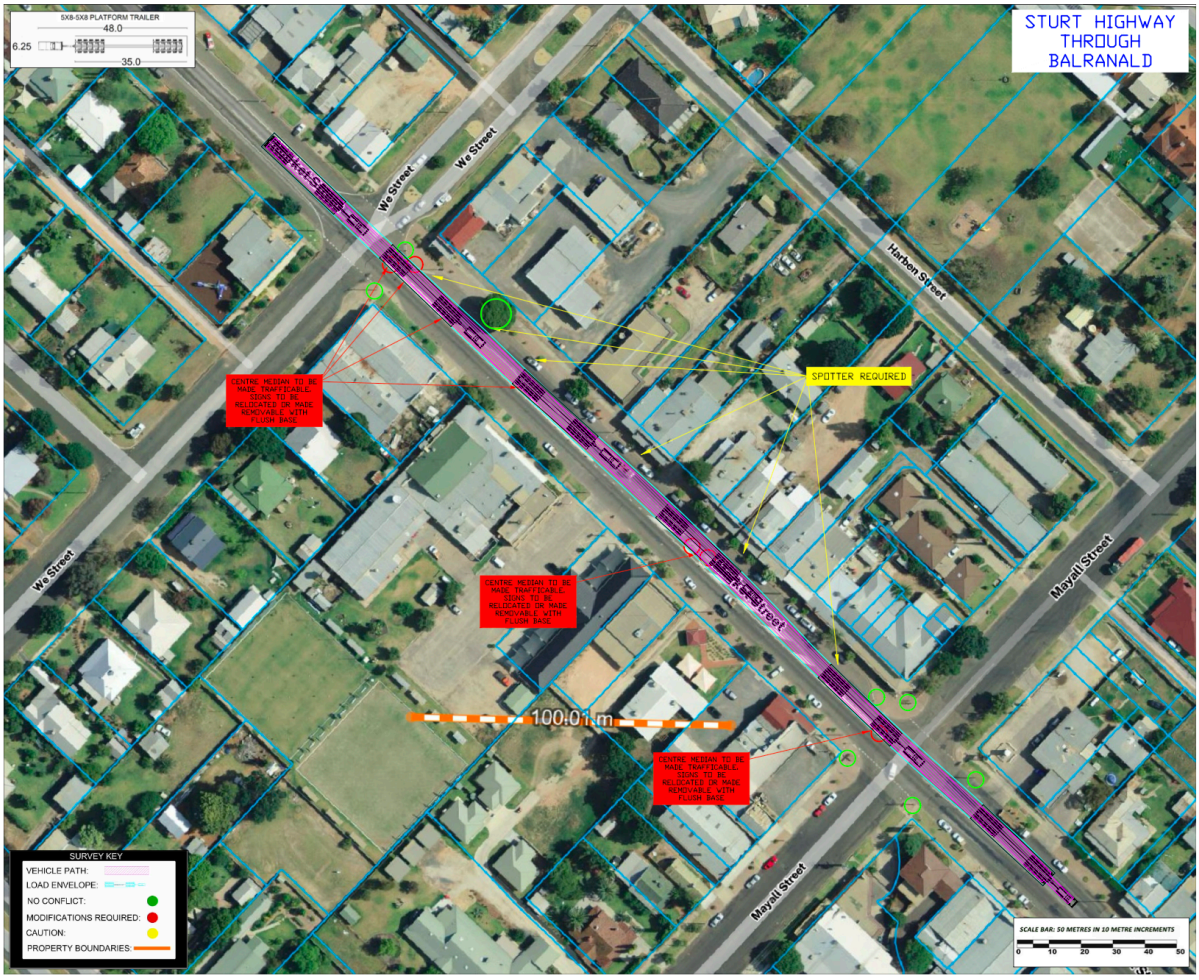


Figure 13 - Sturt Highway at Balranald centre islands

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.

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

Figure 14 - Sturt Highway intersection with McCabe St at Balranald

Figure 15 - Low Angle Shot

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/xve4ZgbuRkqqPvVr7
PROCEDURE: Right hand turn
COMMENTS: This section is very tight. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
ROAD MODIFICATIONS: Yes, Islands and foot path to be made trafficable. Landholder permission required on inside of corner. Hardstand to be installed on inside of the corner. Multiple Light/power poles, trees, and signs to be relocated from swept path.

119.0 Km's: Sturt Highway into Keri Keri Road.

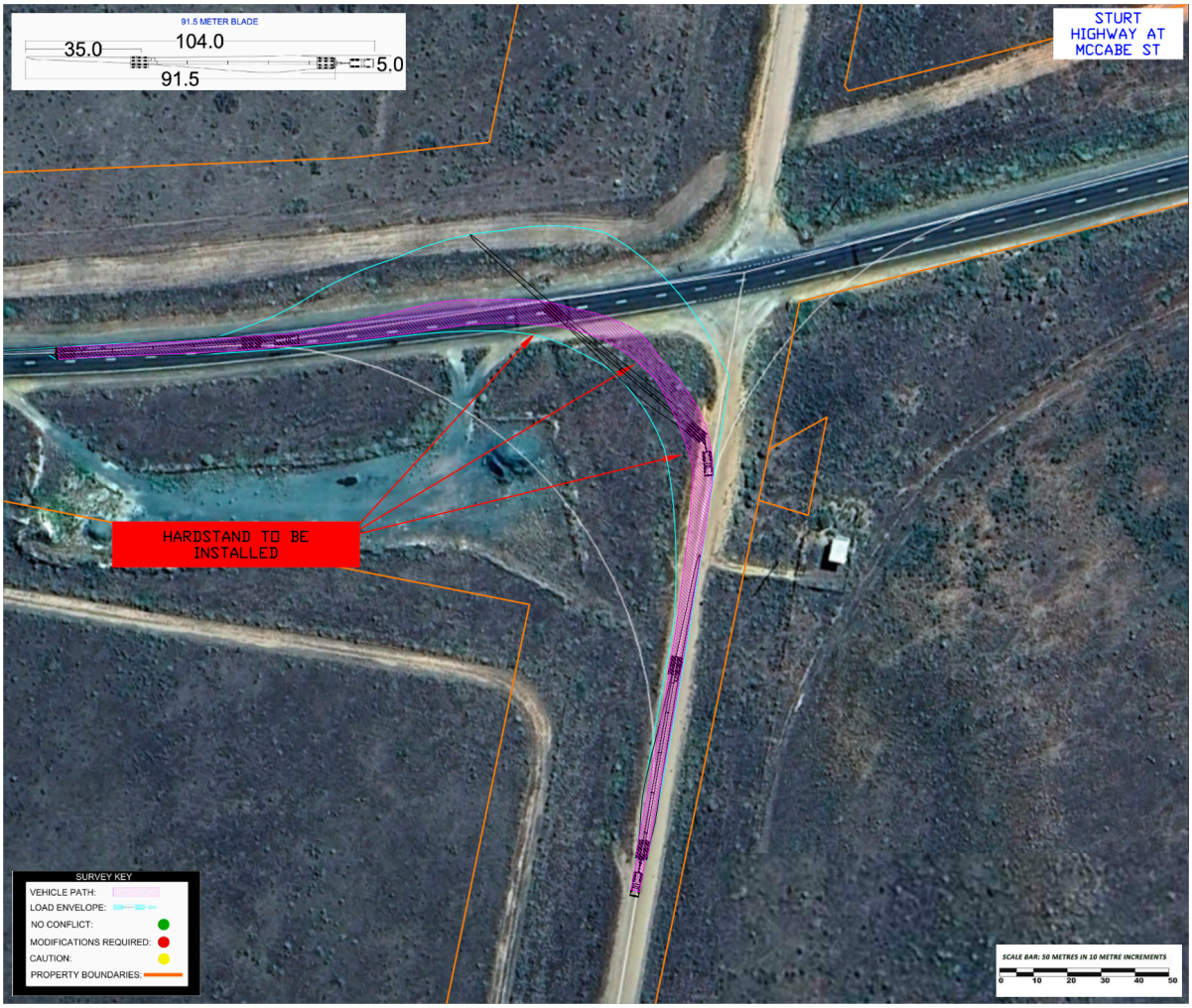


Figure 16 – Sturt Highway into Keri Keri Road.

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/uH5pmWwzWvz3TJ4K6
PROCEDURE: Right hand turn
COMMENTS: A large area of hardstand is required on the inside of the corner.
ROAD MODIFICATIONS: Yes, hardstand will be required on the inside of the corner, and any signs that are within the swept path will need to be relocated or made removable.

124.0 Km's: Keri Keri Road into Keri Keri Western Site Entrance

Figure 17 - Proposed Keri Keri Western Site Entrance

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/HpPi6pyLHwQH3fP66
PROCEDURE: Left hand turn
COMMENTS: A new site entrance is to be constructed. We have overlayed the swept path for this new entrance and it is suitable for the largest load.
ROAD MODIFICATIONS: Yes, a suitable site entrance is required for this project.

8.0 Route 2A Study: NSW/Victorian Border (Buronga) to Keri Keri Windfarm Northern site entrance

COMPONENTS: Loads under 40m overall length. **Max loaded height 5.9m**
DISTANCE: 203.0 kilometres
GPS LINK: https://maps.app.goo.gl/wsdZMAwpSBvZHtaj7
ROUTE: Sturt Hwy.

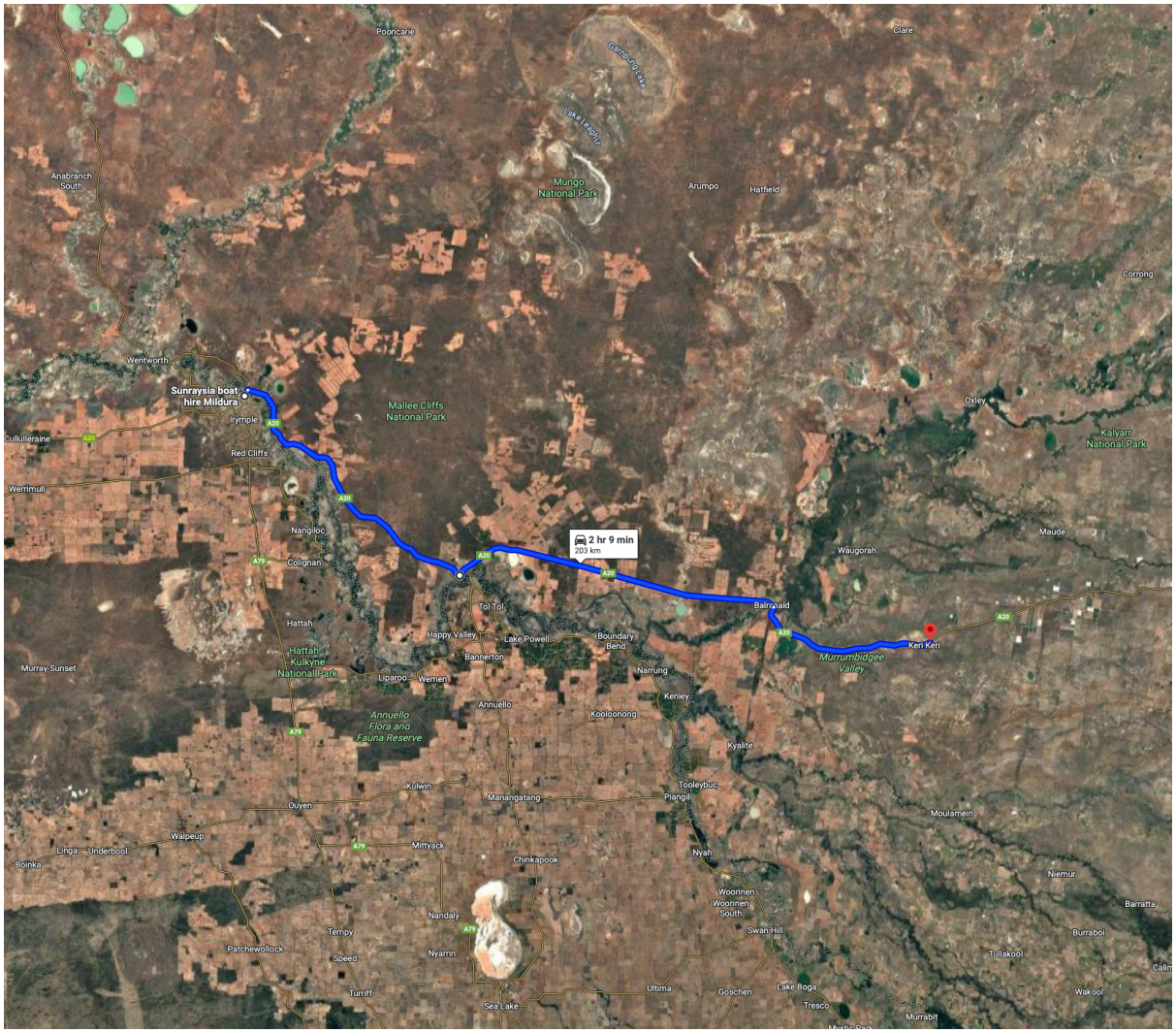


Figure 18 - Route 2A

KEY	
ROAD MODIFICATION	
CAUTION	
PARKING	

KM index	Location	Section of road	Current Measurement	Procedure	Notes
0.0	NSW-VIC Border Buronga	Sturt Highway over the Murray River https://maps.app.goo.gl/zgGgSU5YPHAK5Xje9	Width: 9.0m	Continue straight	This bridge has been assessed by TfNSW for similar size loads and approved for heavier axle loads than the loads listed in this report.
1.6	Buronga	Sturt Hwy at Silver City Highway GPS Link: https://maps.app.goo.gl/qGUgRtAJYXcq9YUw7	Length: 50.0 metres Width: 8.0 metres	Right hand turn at the roundabout	Loads to cross to the incorrect side of the roundabout and return to the correct side through the gap in the centre island.
77.0	Euston	Sturt Highway at Murray Terrace GPS Link: https://maps.app.goo.gl/MRreVrbUYjGrUBZ26	Length: 50.0 metres Width: 8.0 metres	Left hand turn at the roundabout	Loads to travel around the roundabout on the correct side of the road. Signs to be relocated or made removable and hardstand added to the inside of the corner.
84.5	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
150.5	Balranald	Sturt Highway. GPS Link: https://maps.app.goo.gl/N1ykG5V6H8a49Dvk8	Length: 108m Width: 7.7m	Left Hand Merge	Emergency parking only
157.2 to 157.4	Balranald	Sturt Hwy GPS Link: https://maps.app.goo.gl/DVbkEGBFeoUomVL29	6.0 metres wide	Travel directly ahead	Signs made removable with flush bases.
158.0	Balranald	Sturt Hwy (market st) onto Sturt Hwy GPS Link: https://goo.gl/maps/xve4ZgbuRkqqPvVr7	Length: 50.0 metres Width: 8.0 metres	Right Hand Turn	This section is very tight. Islands and foot path to be made trafficable. Landholder permission required on inside of corner. Hardstand to be installed on inside and exit of corner. Multiple Light/power poles, trees, and signs to be relocated from swept path.
161.0	Balranald	Sturt Highway GPS Link: https://maps.app.goo.gl/goK5mgXJGFK2tqNk9	100.0 metres long 8.0 metres wide	Merge left	Emergency parking only
162.0	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.
198.0	Willowvale Rest Area Keri Keri	Sturt Hwy GPS Link: https://goo.gl/maps/JGKFZJpyurnxBhBX9	Length: 180m Width: 10.0m	Left Hand Merge	Fatigue parking Would need to be upgraded if the blades were required to use this parking bay.

KM index	Location	Section of road	Current Measurement	Procedure	Notes
203.0	Keri Keri	Stuart Highway into site entrance GPS Link: https://maps.app.goo.gl/RaZJLyoyaBYywJ4w7	N/A	Right hand turn into site entrance	All site access roads and entries to be constructed to appropriate standards in order to accommodate the weight, height, swept path and vertical curves (dips/crests) of all proposed loads. Roads to be maintained for the duration of deliveries.

1.60 Km's: Sturt Highway intersection of Silver City Highway at Buronga

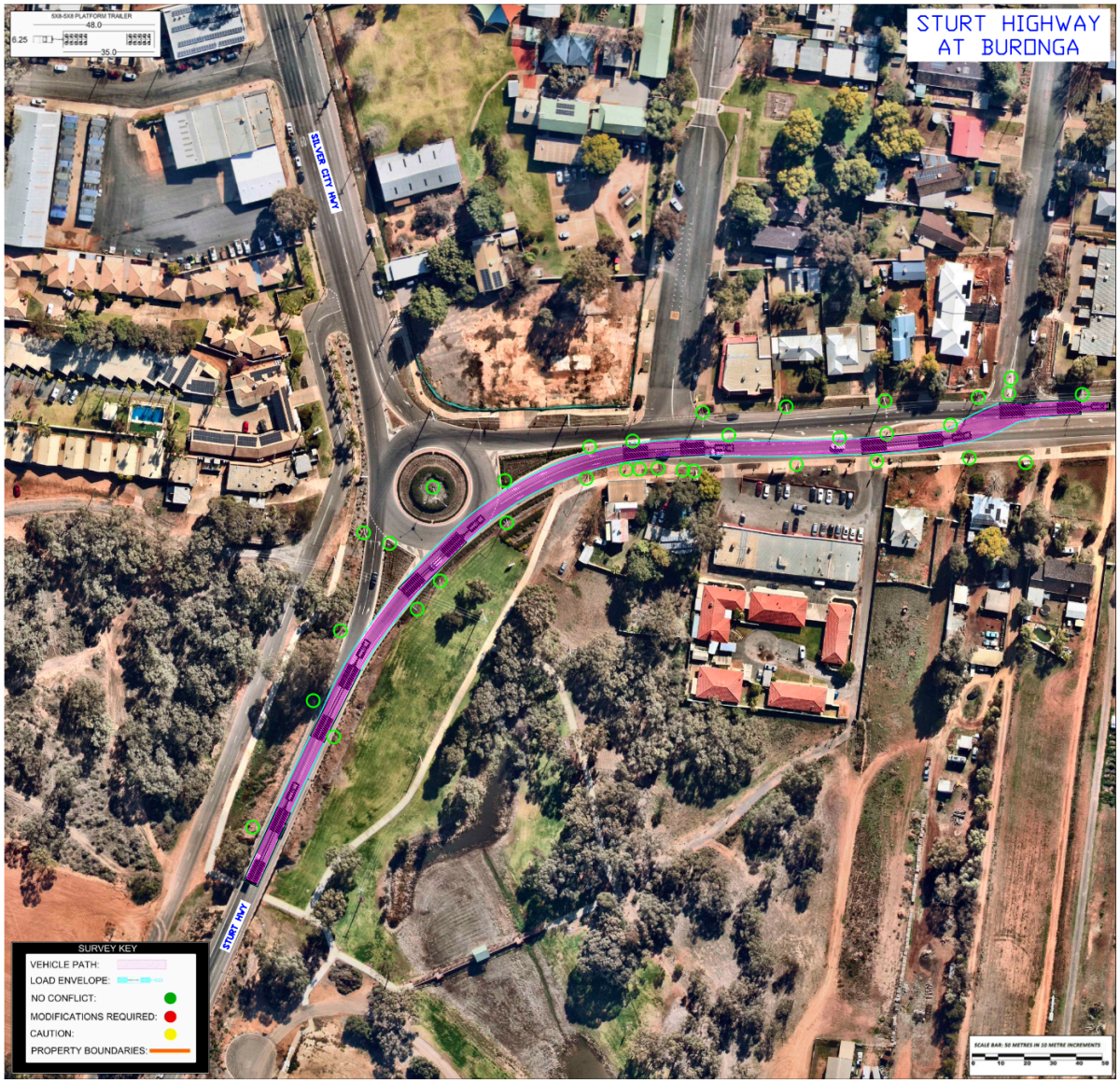


Figure 19 - Sturt Highway intersection of Silver City Highway

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/qGUgRtAJYXcq9YUw7
PROCEDURE: Load to cross to the incorrect side of the Sturt Highway on the inside of the roundabout and return to the correct side of the Highway around 150 metres east of the roundabout.
COMMENTS: Spotter to guide the load throughout the intersection. Pilots to warn all traffic.
ROAD MODIFICATIONS: No work required.

77.00 Km's: Sturt Highway at Murray Terrace in Euston

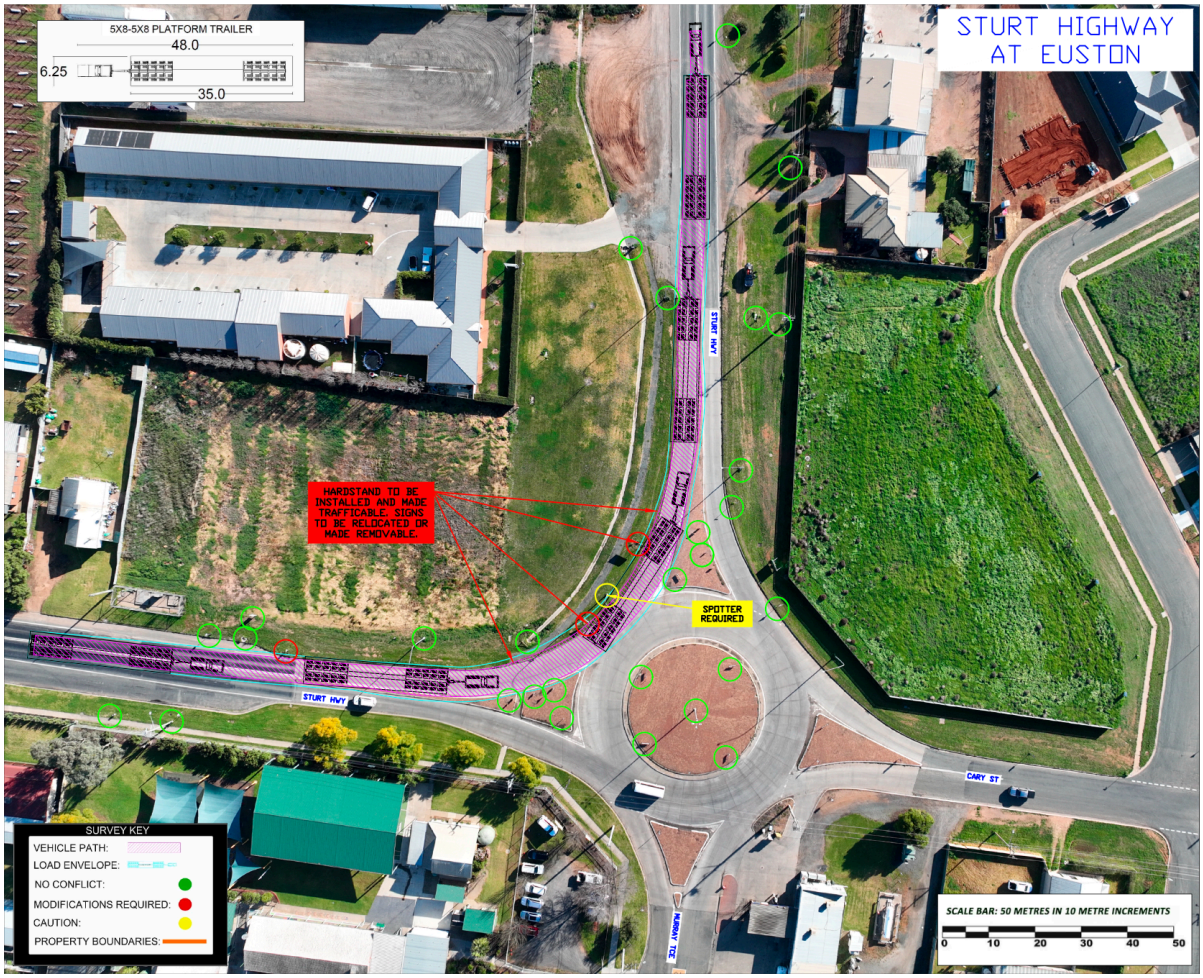


Figure 20 - Sturt Highway at Murray Terrace

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/MRreVrbUYjGrUBZ26
PROCEDURE: Left hand turn at the roundabout.
COMMENTS: Spotter to guide the load throughout the intersection. Pilots to warn all traffic.
ROAD MODIFICATIONS: Yes, a small amount of hardstand is required on the inside of the corner. Several signs will need to be relocated out of the swept path.

82.2 to 82.4 Km's: Sturt Highway through Balranald

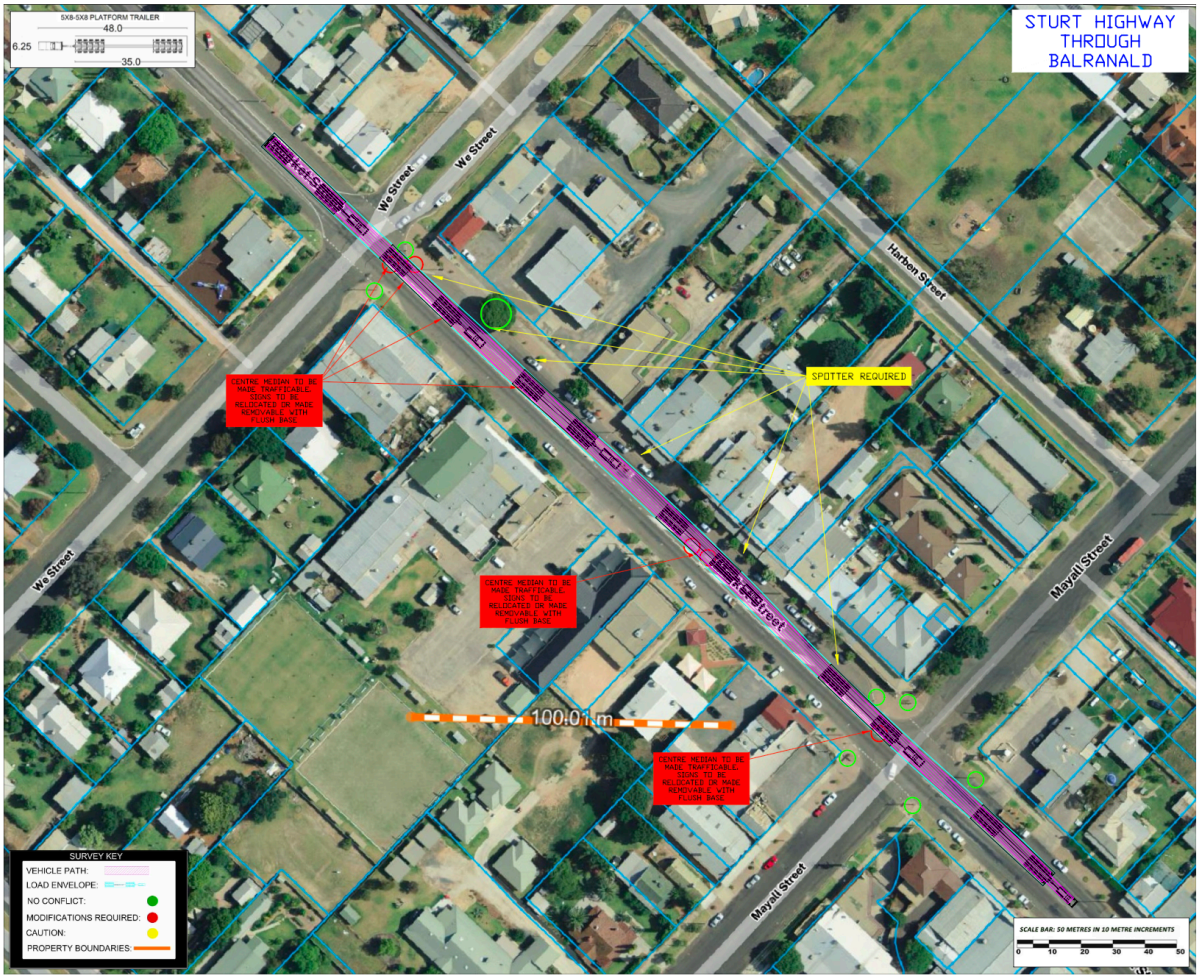


Figure 21 - Sturt Highway at Balranald centre islands

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.

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

Figure 22 - Sturt Highway intersection with McCabe St at Balranald

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/xve4ZgbuRkqqPvVr7
PROCEDURE: Right hand turn through new hardstand proposed on the inside of the corner.
COMMENTS: Spotter to guide the load throughout the intersection. Pilots to warn all traffic.
ROAD MODIFICATIONS: The works proposed for the blades are suitable for the remaining components. Powerline height on the side verges will need to be checked.

128 Km's: Sturt Highway into Keri Keri Northern Site Entrance

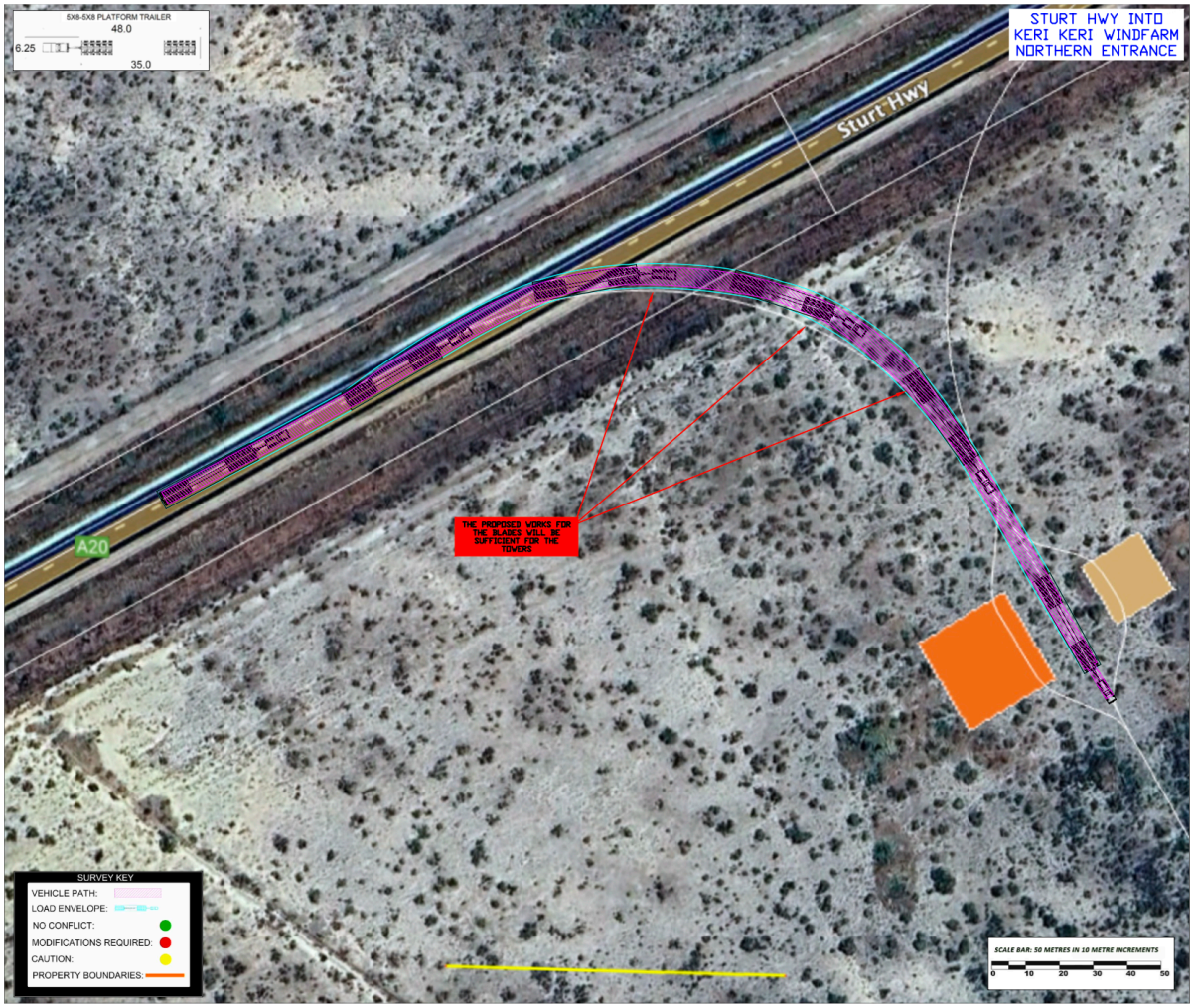


Figure 23 - Proposed Keri Keri Northern Site Entrance

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/RaZJLyoyaBYywJ4w7
PROCEDURE: Right hand turn
COMMENTS: A new site entrance is to be constructed. We have overlayed the swept path for this new entrance and it is suitable for the largest load.
ROAD MODIFICATIONS: Yes, a suitable site entrance is required for this project.

9.0 Route 2B Study: NSW/Victorian Border (Buronga) to Keri Keri Windfarm Western site entrance

COMPONENTS: Loads under 40m overall length. **Max loaded height 5.9m**
DISTANCE: 198.0 kilometres
GPS LINK: https://maps.app.goo.gl/ZNrJdZX8mbwNiovR6
ROUTE: Sturt Hwy, Keri Keri Road.

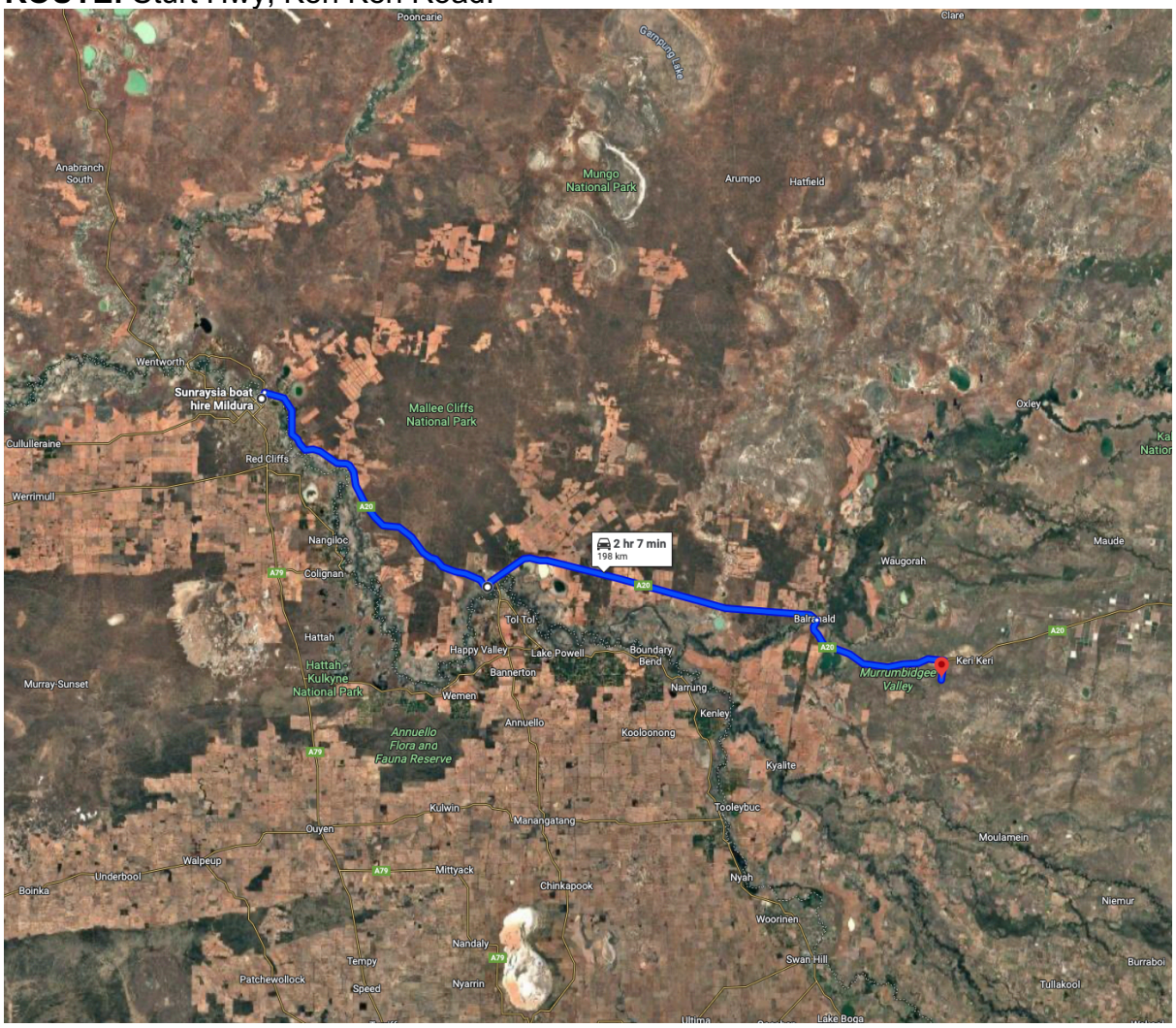


Figure 24 - Route 2B

KEY	
ROAD MODIFICATION	
CAUTION	
PARKING	

KM index	Location	Section of road	Current Measurement	Procedure	Notes
0.0	NSW-VIC Border Buronga	Sturt Highway over the Murray River https://maps.app.goo.gl/zgGgSU5YPHAK5Xje9	Width: 9.0m	Continue straight	This bridge has been assessed by TfNSW for similar size loads and approved for heavier axle loads than the loads listed in this report.
1.6	Buronga	Sturt Hwy at Silver City Highway GPS Link: https://maps.app.goo.gl/qGUgRtAJYXcq9YUw7	Length: 50.0 metres Width: 8.0 metres	Right hand turn at the roundabout	Loads to cross to the incorrect side of the roundabout and return to the correct side through the gap in the centre island.
77.0	Euston	Sturt Highway at Murray Terrace GPS Link: https://maps.app.goo.gl/MRreVrbUYjGrUBZ26	Length: 50.0 metres Width: 8.0 metres	Left hand turn at the roundabout	Loads to travel around the roundabout on the correct side of the road. Signs to be relocated or made removable and hardstand added to the inside of the corner.
84.5	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
150.5	Balranald	Sturt Highway. GPS Link: https://maps.app.goo.gl/N1ykG5V6H8a49Dvk8	Length: 108m Width: 7.7m	Left Hand Merge	Emergency parking only
157.2 to 157.4	Balranald	Sturt Hwy GPS Link: https://maps.app.goo.gl/DVbkEGBFeoUomVL29	6.0 metres wide	Travel directly ahead	Signs made removable with flush bases.
158.0	Balranald	Sturt Hwy (market st) onto Sturt Hwy GPS Link: https://goo.gl/maps/xve4ZgbuRkqqPvVr7	Length: 50.0 metres Width: 8.0 metres	Right Hand Turn	This section is very tight. Islands and foot path to be made trafficable. Landholder permission required on inside of corner. Hardstand to be installed on inside and exit of corner. Multiple Light/power poles, trees, and signs to be relocated from swept path.
161.0	Balranald	Sturt Highway GPS Link: https://maps.app.goo.gl/goK5mgXJGFK2tqNk9	100.0 metres long 8.0 metres wide	Merge left	Emergency parking only
162.0	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.

KM index	Location	Section of road	Current Measurement	Procedure	Notes
194.0	Keri Keri	Sturt Highway into Keri Keri Road GPS Link: https://goo.gl/maps/uH5pmWwzWvz3TJ4K6	Length: 50 Metres Width: 7.0 Metres	Right hand turn	A large area of hardstand is required on the inside of the corner. Keri keri Rd and All site access roads to be constructed to appropriate standards in order to accommodate the weight, height, swept path and vertical curves of all proposed loads. Unsealed roads to be made all weather and maintained for the duration of deliveries. Spotter to guide the load throughout the intersection. Police to control traffic, pilots to warn all traffic.
198.0	Keri Keri	Keri Keri Road into Western site entrance GPS Link: https://maps.app.goo.gl/HpPi6pyLHwQH3fP66	N/A	Left hand turn into site entrance	All site access roads and entries to be constructed to appropriate standards in order to accommodate the weight, height, swept path and vertical curves (dips/crests) of all proposed loads. Roads to be maintained for the duration of deliveries.

1.60 Km's: Sturt Highway intersection of Silver City Highway at Buronga

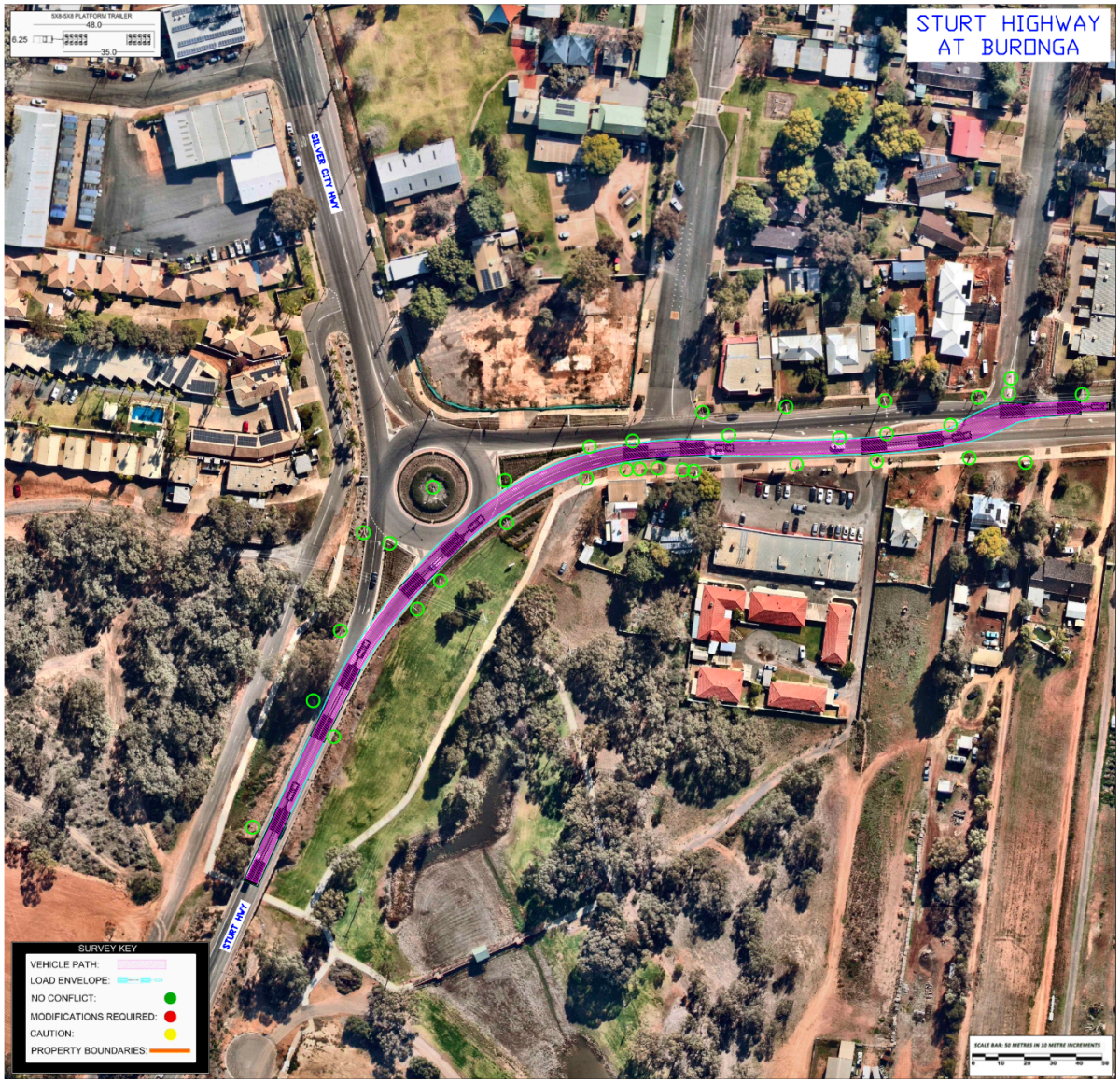


Figure 25 - Sturt Highway intersection of Silver City Highway

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/qGUgRtAJYXcq9YUw7
PROCEDURE: Load to cross to the incorrect side of the Sturt Highway on the inside of the roundabout and return to the correct side of the Highway around 150 metres east of the roundabout.
COMMENTS: Spotter to guide the load throughout the intersection. Pilots to warn all traffic.
ROAD MODIFICATIONS: No work required.

77.00 Km's: Sturt Highway at Murray Terrace in Euston

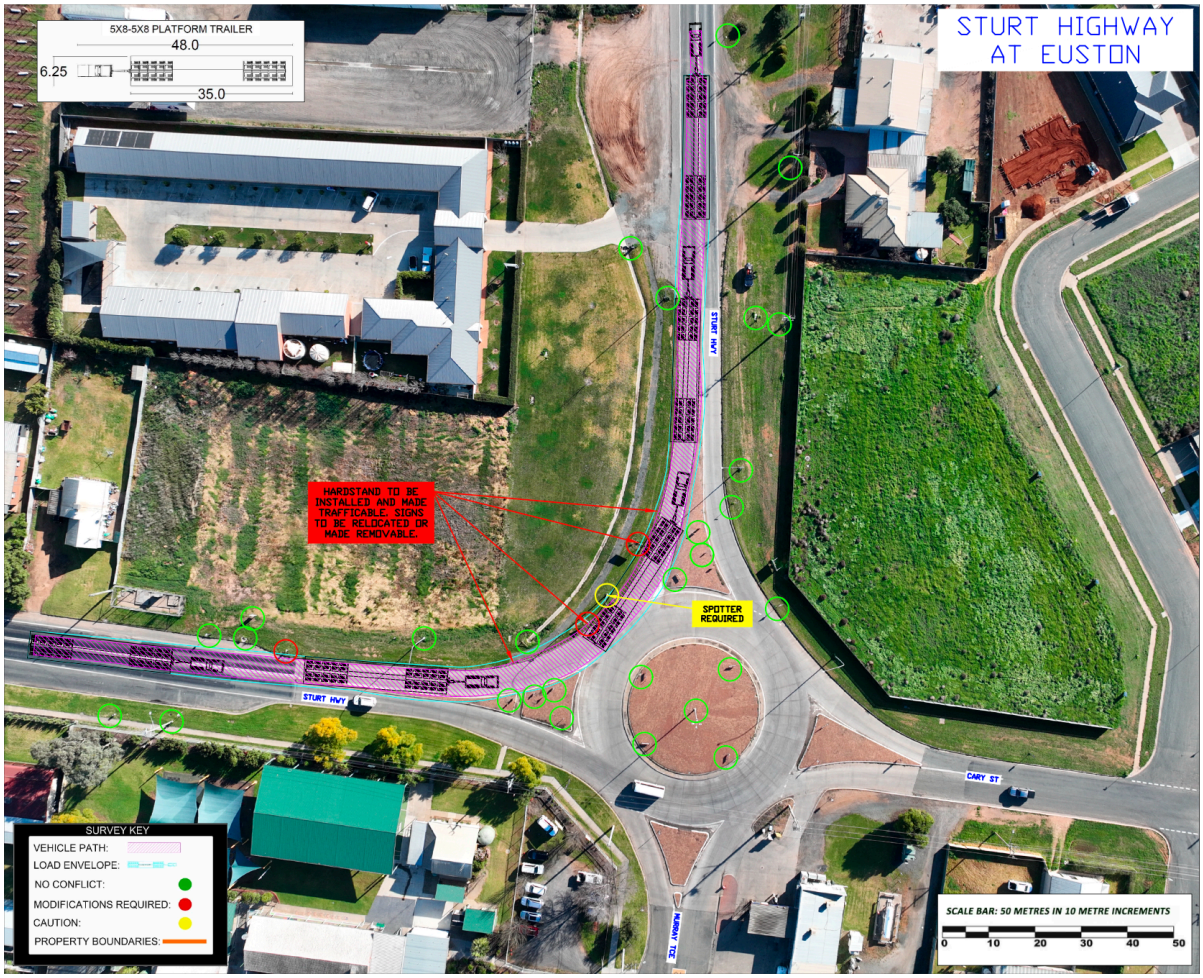


Figure 26 - Sturt Highway at Murray Terrace

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/MRreVrbUYjGrUBZ26
PROCEDURE: Left hand turn at the roundabout.
COMMENTS: Spotter to guide the load throughout the intersection. Pilots to warn all traffic.
ROAD MODIFICATIONS: Yes, a small amount of hardstand is required on the inside of the corner. Several signs will need to be relocated out of the swept path.

82.2 to 82.4 Km's: Sturt Highway through Balranald

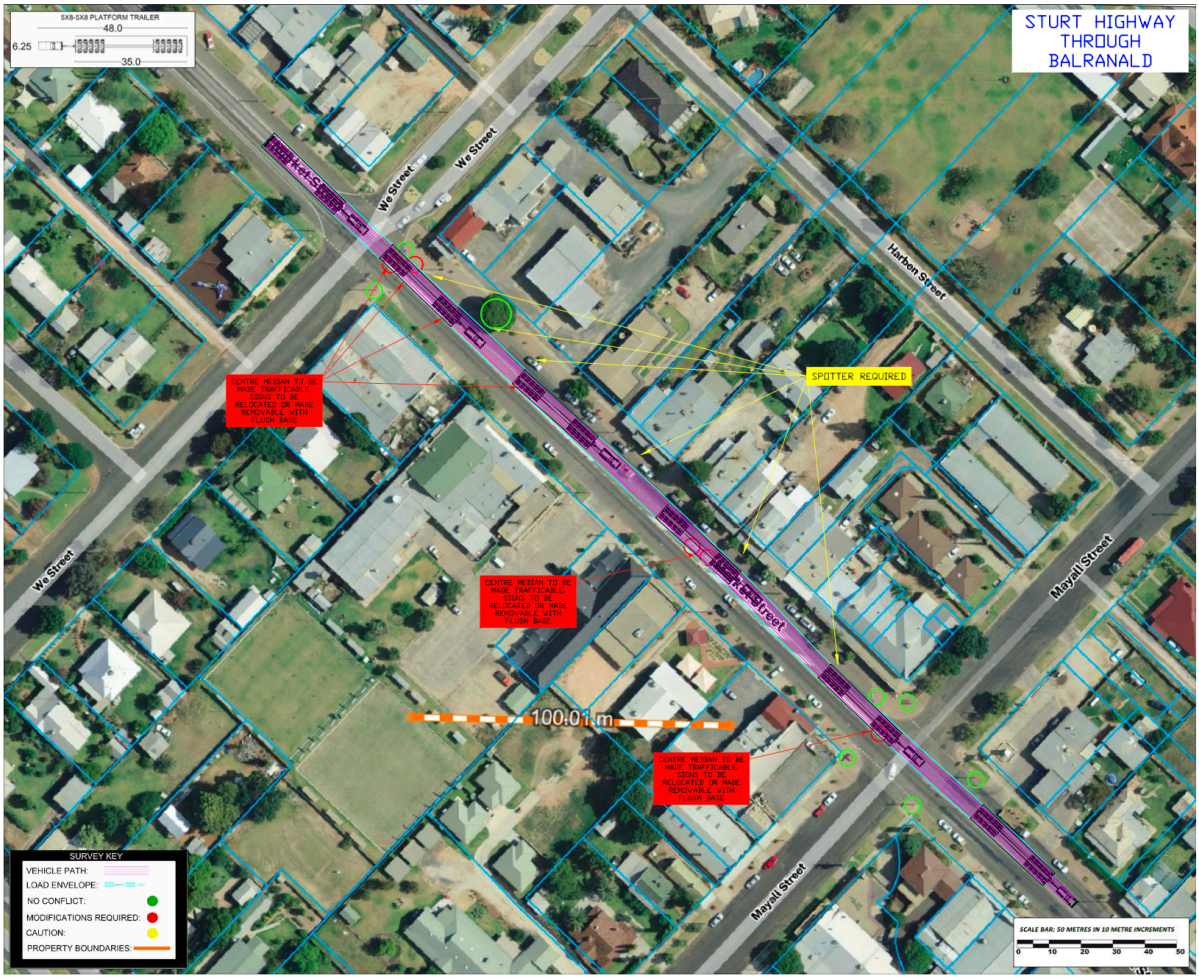


Figure 27 - Sturt Highway at Balranald centre islands

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.

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

Figure 28 - Sturt Highway intersection with McCabe St at Balranald

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/xve4ZgbuRkqqPvVr7
PROCEDURE: Right hand turn through new hardstand proposed on the inside of the corner.
COMMENTS: Spotter to guide the load throughout the intersection. Pilots to warn all traffic.
ROAD MODIFICATIONS: The works proposed for the blades are suitable for the remaining components. Powerline height on the side verges will need to be checked.

194.0 Km's: Sturt Highway into Keri Keri Road.

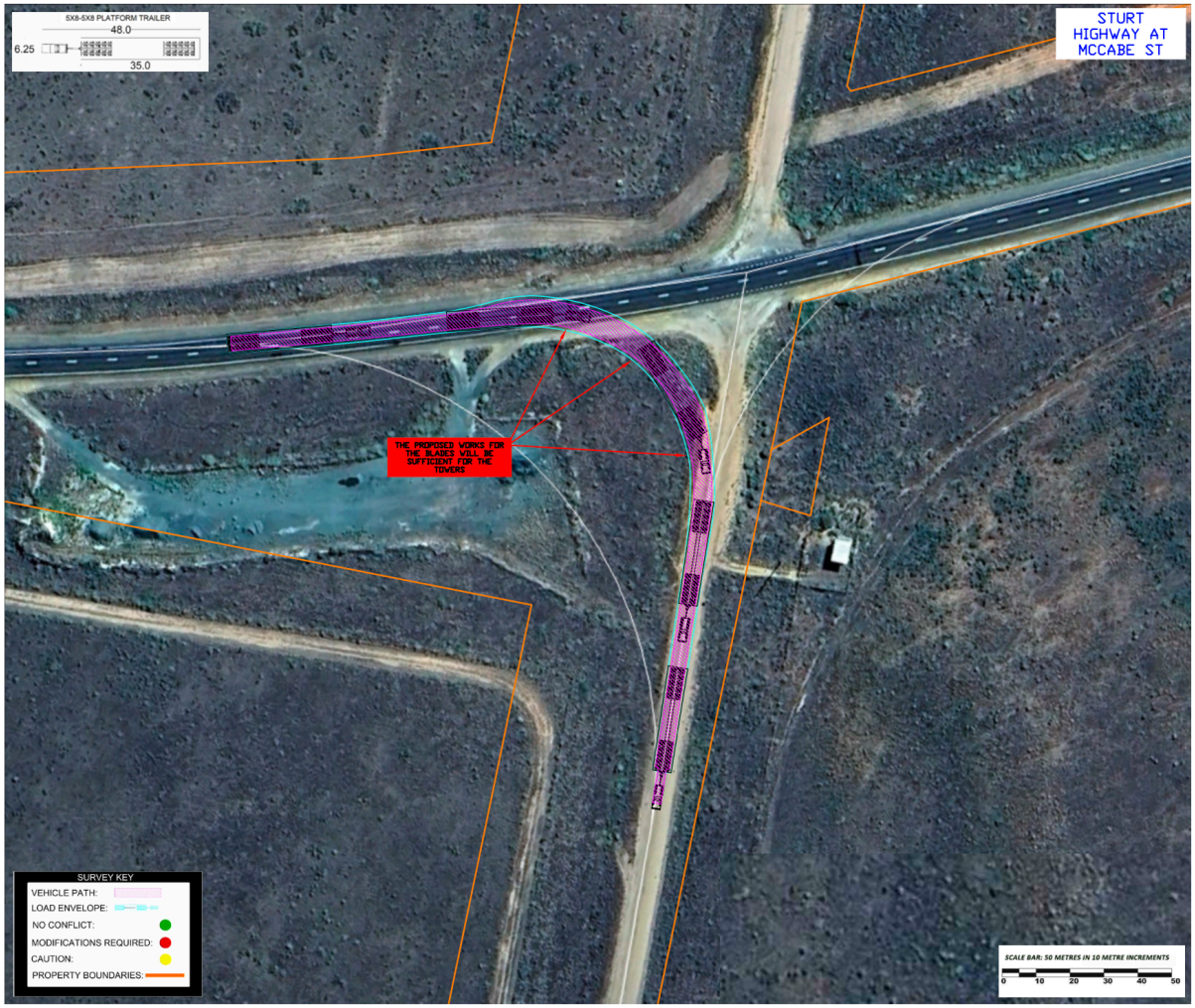


Figure 29 – Sturt Highway into Keri Keri Road.

GPS LINK FOR THIS LOCATION: https://goo.gl/maps/uH5pmWwzWvz3TJ4K6
PROCEDURE: Right hand turn through new hardstand proposed on the inside of the corner.
COMMENTS: Spotter to guide the load throughout the intersection. Pilots to warn all traffic.
ROAD MODIFICATIONS: The works proposed for the blades are suitable for the remaining components.

198.0 Km's: Keri Keri Road into Keri Keri Western Site Entrance

Figure 30 - Proposed Keri Keri Western Site Entrance

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/HpPi6pyLHwQH3fP66
PROCEDURE: Left hand turn
COMMENTS: A new site entrance is to be constructed. We have overlayed the swept path for this new entrance, and it is suitable for the largest load.
ROAD MODIFICATIONS: Yes, a suitable site entrance is required for this project.

10.0 Rest Areas

KEY	
EMERGENCY PARKING	
SUITABLE PARKING	

KM index	Location	Section of road	Rest area dimensions	Procedure	Comments
9.5	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
75.5	Balranald	Sturt Highway. GPS Link: https://maps.app.goo.gl/N1ykG5V6H8a49Dvk8	Length: 108m Width: 7.7m	Left Hand Merge	Emergency parking only
86.0	Balranald	Sturt Highway GPS Link: https://maps.app.goo.gl/goK5mqXJGFK2tqNk9	Length: 100.0m Width: 8.0m	Merge left	Emergency parking for the blades
123.0	Willowvale	Sturt Highway GPS Link: https://maps.app.goo.gl/ZiXFYJ7RwSYAneqv8	Length: 160.0m Width: 14.0m	Merge left	Suitable parking for the towers and motors.

9.5 Km's: Sturt Highway at Euston

Figure 31 – Zinder Park parking area blades

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.

75.5 Km's: Sturt Highway at Balranald

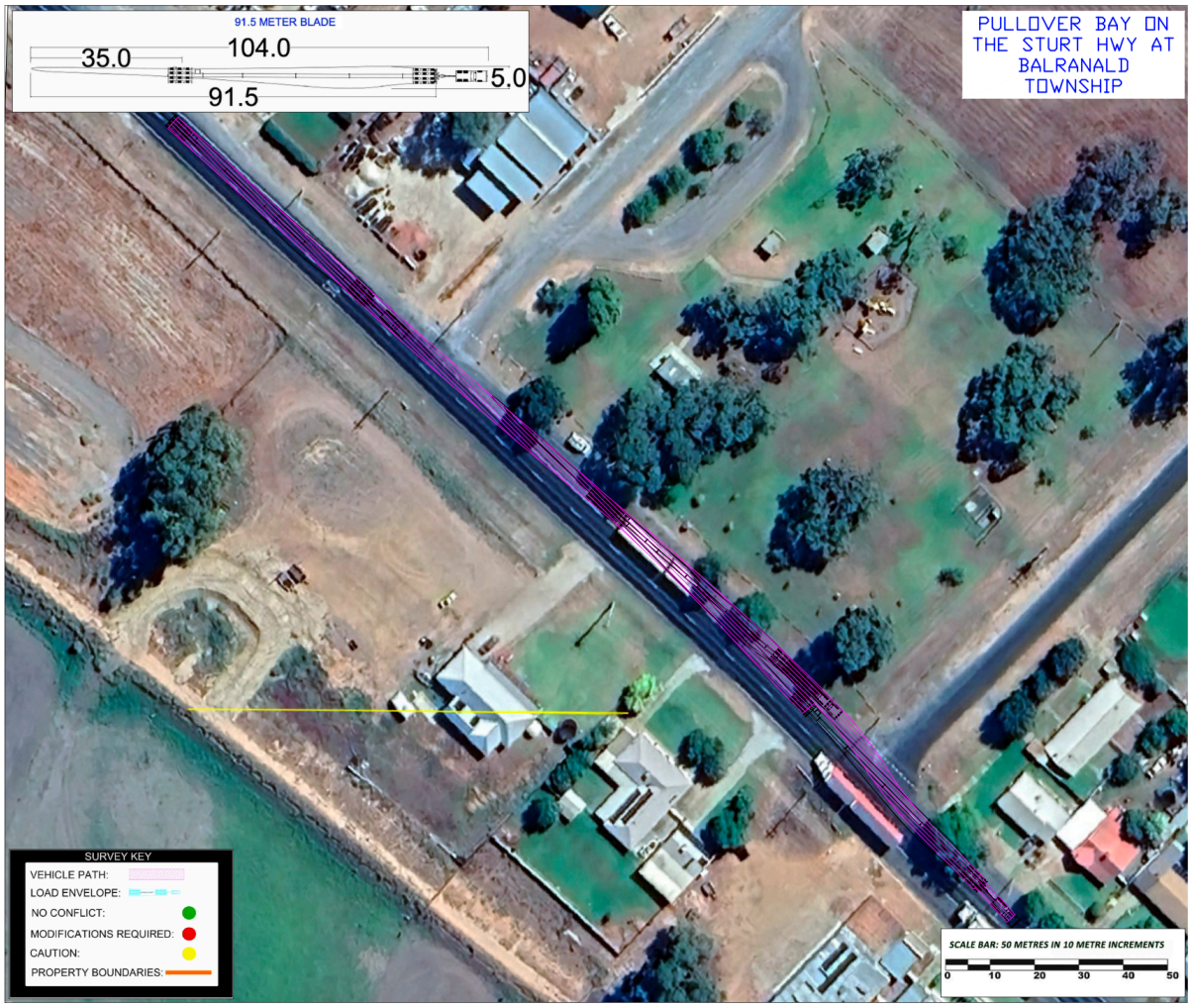


Figure 32 – Balranald Lions Park parking area

GPS LINK FOR THIS LOCATION: https://maps.app.goo.gl/N1ykG5V6H8a49Dvk8
PROCEDURE: Merge to left
COMMENTS: Can be used for emergency parking or fatigue breaks. Police and pilots to control all traffic.

86.0 Km's: Sturt Highway at Balranald

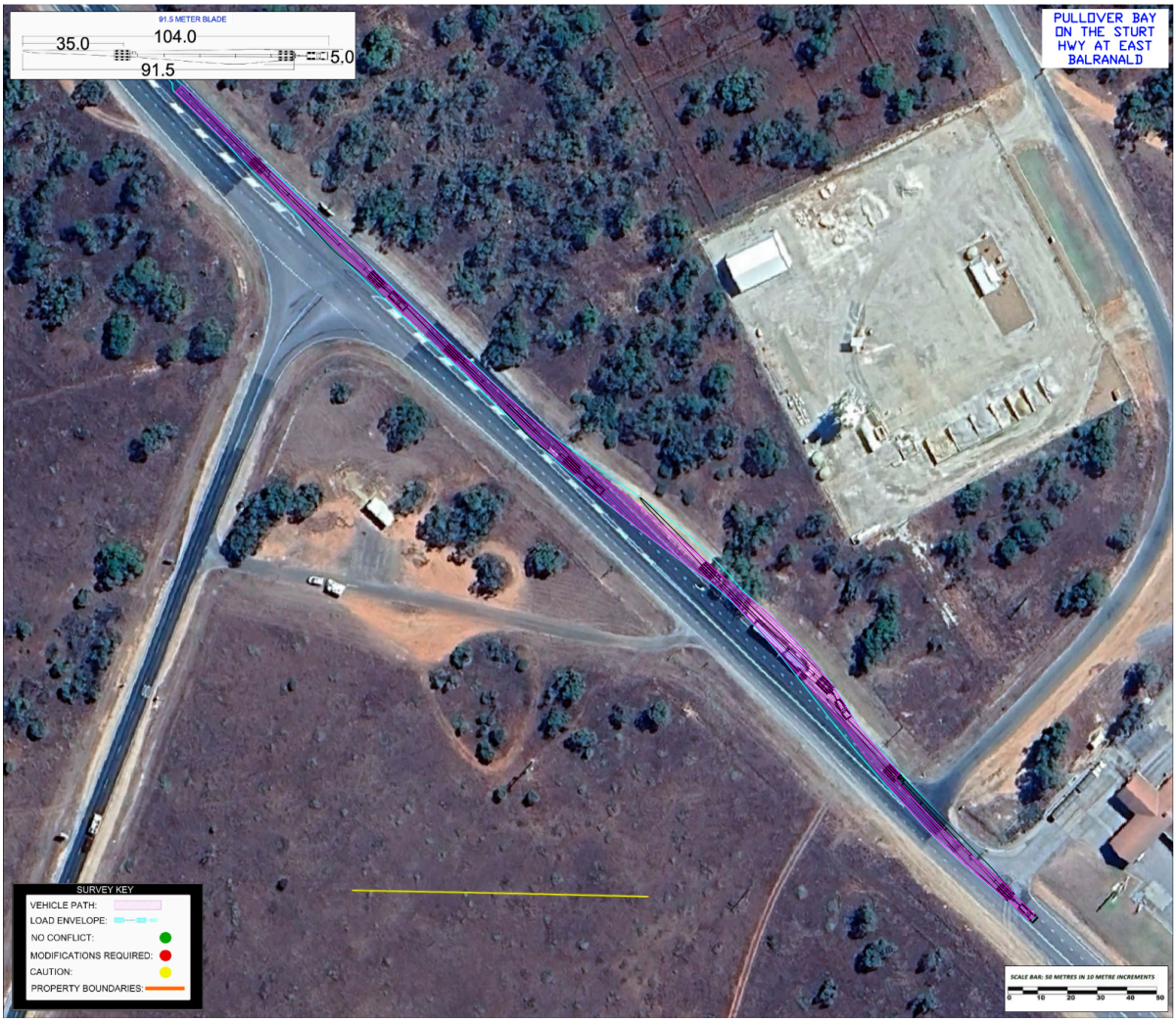


Figure 33 – Balranald parking area

GPS LINK FOR THIS LOCATION:
https://maps.app.goo.gl/YWhKDDuG8iWCezRRA
PROCEDURE: Merge to left into the Balranald parking bay.
COMMENTS: Can be used for emergency parking. Police and pilots to control all traffic.
ROAD MODIFICATIONS: Nil.

123.0 Km's: Sturt Highway at Keri Keri (Willowvale rest area)

Figure 34 – Willowvale 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. Willowvale Rest area. Police and pilots to control all traffic.
SUITABILTY: This parking bay can be used for towers and motors but not the Blades. This parking bay is asphalt and could accommodate several loads as well as multiple other vehicles.
ROAD MODIFICATIONS: No works required.

11.0 Route: Conclusion

After studying all options and undertaking a route survey, the route in its current condition requires a major 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 several sections along the route that require a moderate amount of work to allow a blade of this size to safely access the project site.
- The corners that we consider will need significant work and should be investigated early in the planning stages to avoid delays or rejections are:
  - The left hand turn on the Sturt Highway on Route 2A & 2B at Euston.
  - The right-hand turn from the Murray Valley Highway onto the Sturt Highway.
  - The Centre median strips on the Sturt Highway at Balranald.
  - The right-hand turn on the Sturt Highway and Market Street at Balranald.
  - The right-hand turn from the Sturt Highway onto Keri Keri Road.
  - Both site entry points.

OVERHEAD STRUCTURES: (6.8 Maximum loaded height)

- The lowest structure is the Safety Cam at Balranald. This safety cam is 6.8 metres in overall height.

OVERHEAD UTILITIES:

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

BRIDGES:

- A bridge assessment will be required to determine if the structures are suitable to take the axle loadings of the proposed vehicles.
- Early investigations by TfNSW appear to show that the structures on these routes will be suitable for the transport combinations listed in this report.

RAIL ASSETS:

- There are no rail assets on these routes.

VEGETATION:

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

PAVEMENT:

- The pavement on all roads has adequate highway pavement up until the Northern site entrance and Keri Keri Road.
- Keri Keri Road is a gravel road and will need to be maintained throughout the deliveries.
- Site access roads to be constructed for all weather use and to accommodate the weight and manoeuvring requirements of all proposed loads.

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.
- There are currently no major works proposed on the sections of route listed in this report.
- 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:

- All site access roads and entries to be constructed to appropriate standards in order to accommodate the weight, height, swept path and vertical curves (dips/crests) of all proposed loads. Roads to be maintained for the duration of deliveries.

12.0 Draft Delivery Schedule

Delivery Schedule Plan - Typical week							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
Blade	1	1	1	1	1	1	6
Nacelle			1			1	2
Hub		1			1		2
Drive Train		1			1		2
BASE TOWER	1			1			2
MID TOWER T2			1			1	2
MID TOWER T3			1			1	2
MID TOWER T4			1			1	2
MID TOWER T5		1			1		2
MID TOWER T6		1			1		2
MID TOWER T7	1			1			2
TOP TOWER	1			1			2
40 Container	1	1	1	1	1	1	6

13.0 References

Rex J Andrews P/L Route survey #362 REV 02
Google Earth/Maps
Nearmaps
NHVR (OSOM)
Australian Load Restraint Guide
Acciona
ERM

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.

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.

14.0 Revision History

Revision 02			
Item	**Client feedback**	**Update**	**Location**
a.	Advisory Note 2	New survey format with numerous updates	Entire document

Revision 03			
Item	**Client feedback**	**Update**	**Location**
a.	Marked up amendments to the report	Robinvale routes now listed as 1A & 1B to both site entrances. Tower route 2A & 2B added to the report to both site entrances.	Entire document
b.	Marked up amendments to the report	Swept path images now have scale bar included.	Entire document
c.	Marked up amendments to the report	Willowvale rest area showing suitability for tower loads to enter and park without the need for any upgrades.	Entire document
d.	Marked up amendments to the report	Turbine updated in report.	Entire document

15.0 Transport Combinations (Examples)

TURBINE EXAMPLES

342 x Blades (91.5l x 4.8w x 3.9h x 35.0T)
Transport configuration. Prime mover with 3x8-3x8 Blade trailer.
Overall dimensions: 105.0l x 4.8w x 4.9h x 108.5T.

114 x Hubs (4.8l x 4.8w x 4.0h x 60.0T)
Transport configuration. Prime mover with 2x8 dolly 3x8 low loader.
Overall Dimensions: 28.0l x 4.8w x 5.0h x 96.5T.

114 x Nacelle (12.0l x 4.5w x 4.2h x 75.0T)
Transport configuration. Prime mover with 2x8 dolly 5x8 low loader.
Overall Dimensions: 30.0l x 4.5w x 5.0h x 117.5T.

114 x Drive Train (7.0l x 3.5w x 3.5h x 95.0T)
Transport configuration. Prime mover with 2x8 8x8 dolly platform trailer.
Overall Dimensions: 32.0l x 4.2w x 4.5h x 157.5T.

TOWER EXAMPLES

114 x T1 tower sections (13.4 x 5.9 x 5.5 x 99T)
Transport configuration. Prime mover with 10x8 Low Platform trailer.
Overall Dimensions: 30.0l x 5.0w x 6.5h x 161.5T.

114 x T2 tower sections (19.3 x 5.5 x 5.5 x 98T)
Transport configuration. Prime mover with 10x8 Low Platform trailer.
Overall Dimensions: 30.0l x 5.0w x 6.5h x 160.5T.

114 x T3 tower sections (23.4 x 5.5 x 5.0 x 97T)
Transport configuration. Prime mover with 10x8 Low Platform trailer.
Overall Dimensions: 37.0l x 5.0w x 6.5h x 159.5T.

114 x T4 tower sections (29.5 x 5.0 x 5.0 x 98T)
Transport configuration. Prime mover with 5x8 5x8 Extending Platform trailer.
Overall Dimensions: 45.0l x 5.0w x 5.9h x 169.5T.

114 x T5 tower sections (29.9 x 5.0 x 4.1 x 86T)
Transport configuration. Prime mover with 5x8 5x8 Extending Platform trailer.
Overall Dimensions: 45.0l x 5.0w x 5.9h x 157.5T.

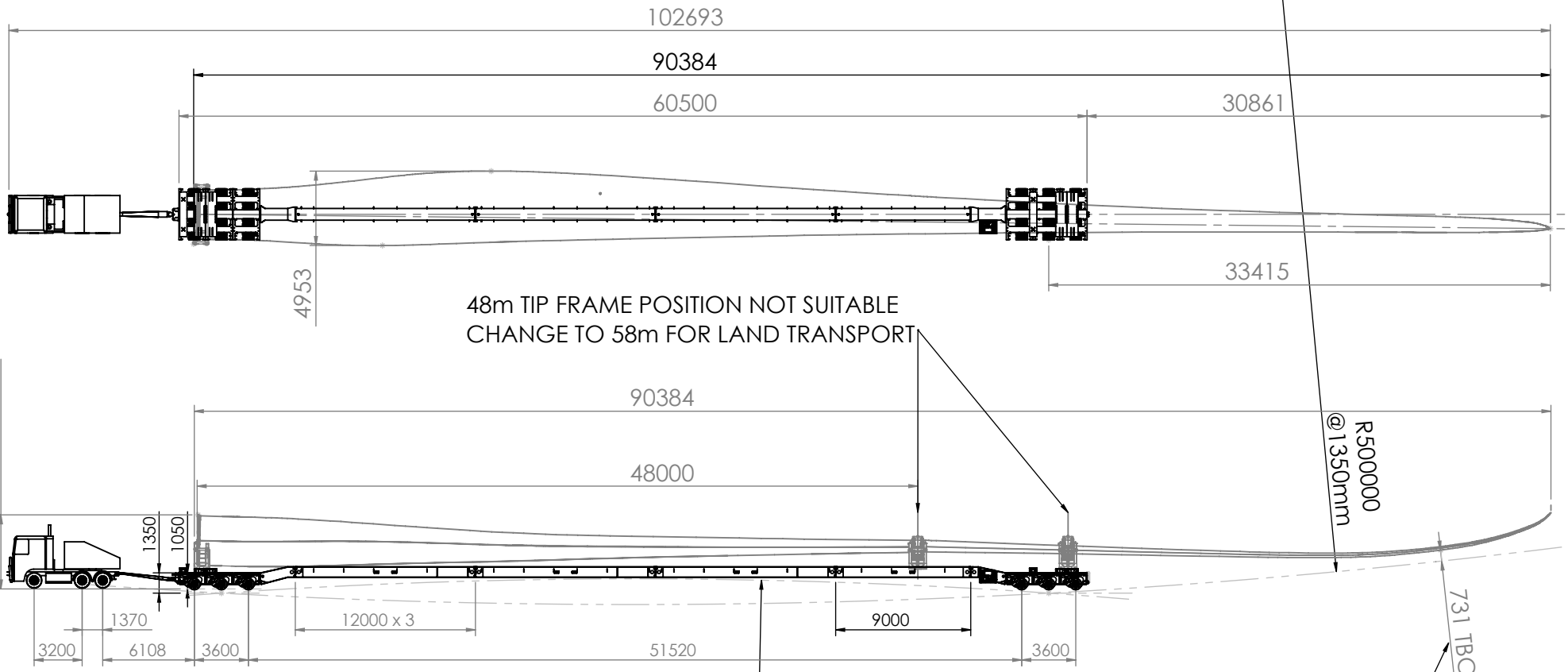
114 x T6 tower sections (29.3 x 4.1 x 3.3 x 50.5T)
Transport configuration. Prime mover with 4x4-2x8 Dolly and Jinker.
Overall Dimensions: 45.0l x 5.0w x 5.9h x 86.5T.

TRANSFORMER

Possible Transformer size (11.1l x 4.2 x 5.062 x 200T)
Configuration. Prime mover with 12x8-12x8 Beamset + 4 x Backup trucks
Overall dimensions: 140.0l x 6.5w x 5.4h x 557.5T + 4 x Backup trucks

16.0 Appendix A - Transport Drawings (Possible Combinations)

16.0 Appendix A - Transport Drawings (Possible Combinations)



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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 2.0

REV		DATE	DRN	CKD	APP
1	TIP FRAME 58m WAS 60m + VC Δ	15/05/2024	J.S	H.A	R.A
0	ISSUED FOR APPROVAL	15/05/2024	J.S	H.A	R.A
R	ISSUED FOR REVIEW	15/05/2024	J.S	H.A	

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TRANSPORT PROPOSAL

90.2m Blade

A4

DO NOT SCALE

90.2m_ 3x8_3x8

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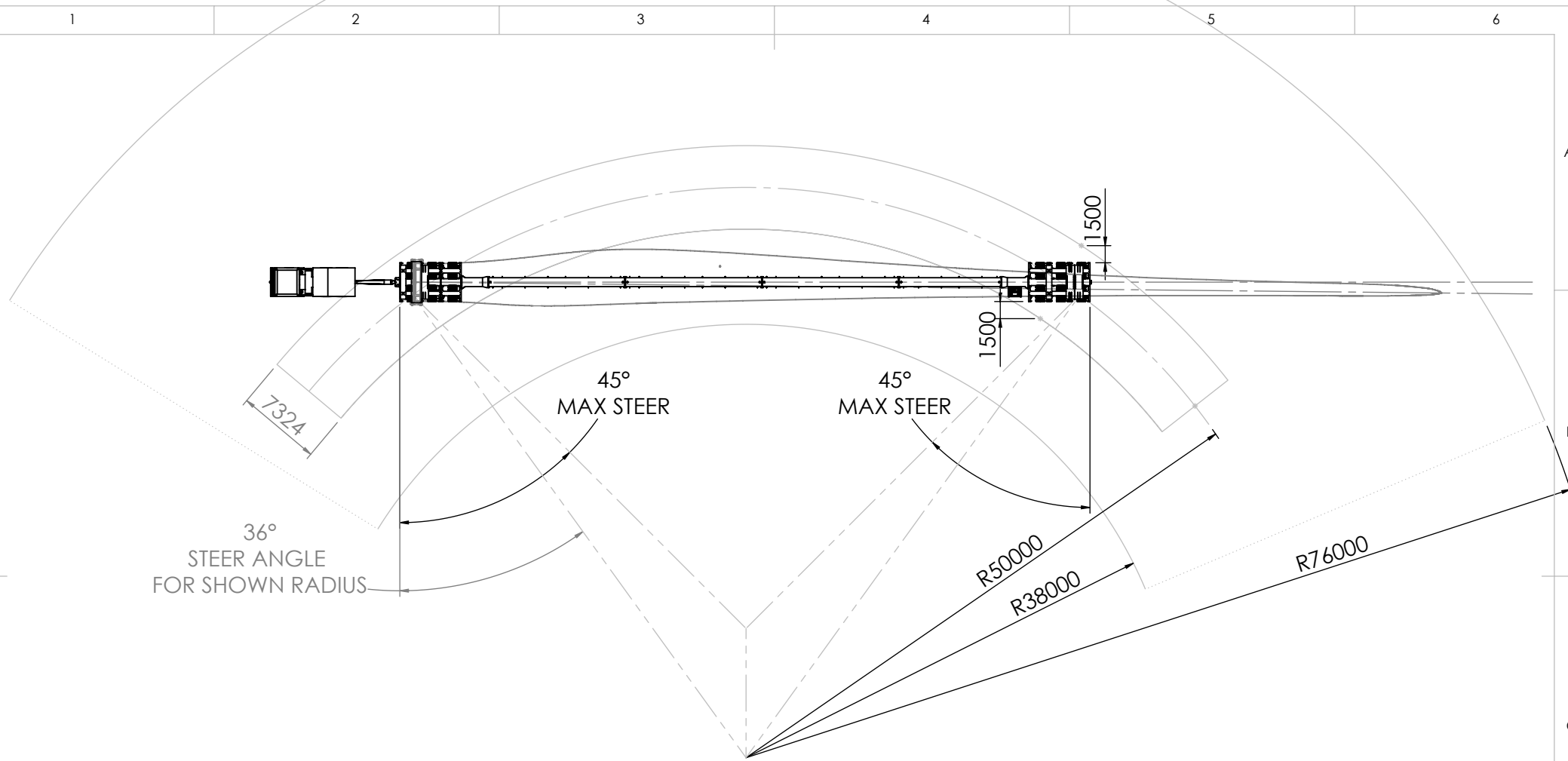

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TOLERANCES
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R	ISSUED FOR REVIEW	15/05/2024	J.S	H.A	

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TRANSPORT PROPOSAL

90.2m Blade

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DO NOT SCALE

90.2m_ 3x8_3x8

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TRAILER AND DOLLY
WIDTH DEPENDANT
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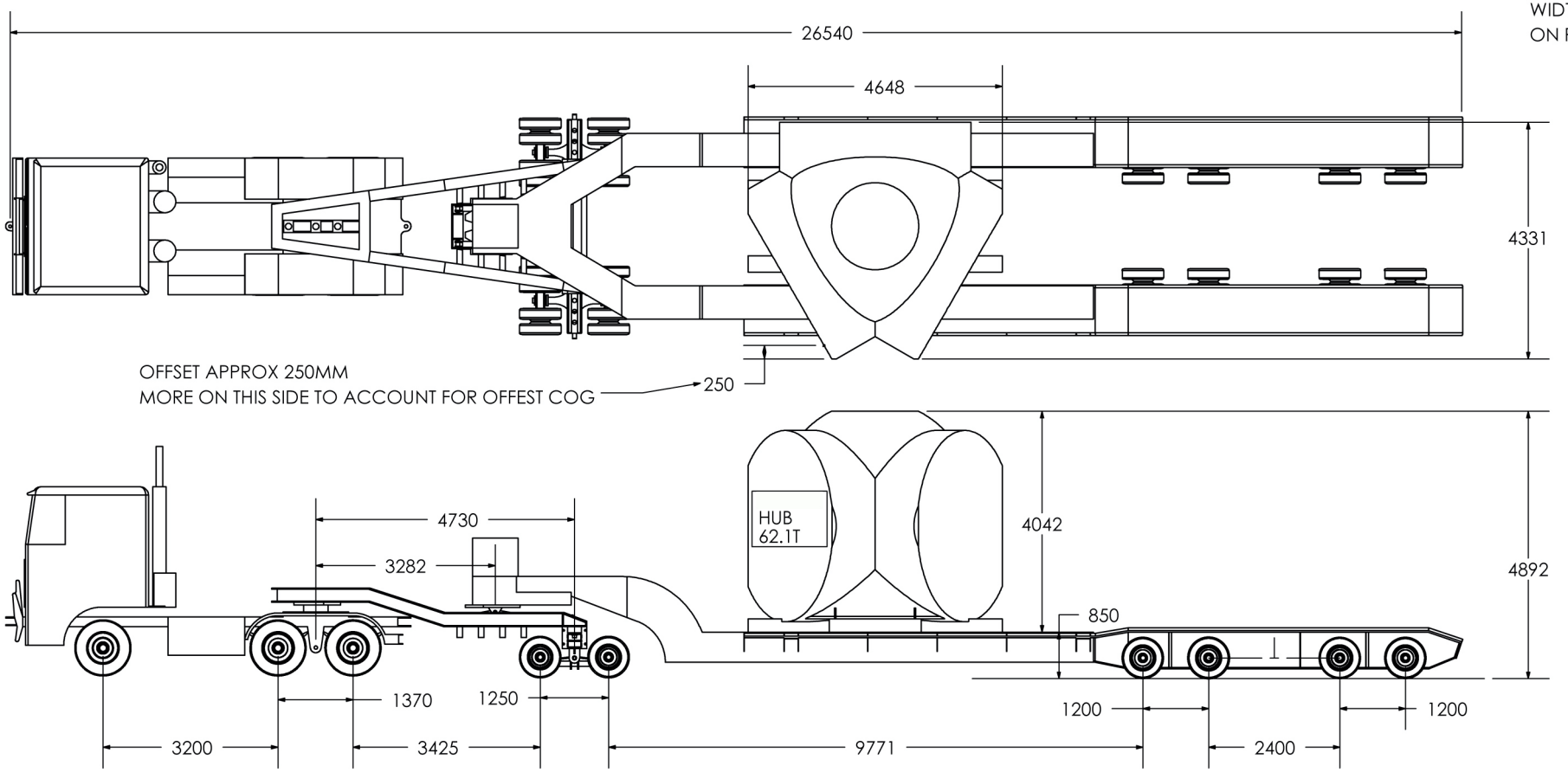

11R22.5
T 6.25T
P 0.0T
G 6.25T

11R22.5@2.4M
T 7.0T
P 10.5T
G 17.5T

215/75R17.5
T 5.0T
P 24.0T
G 29.0T (14.5T/ROW)

215/75R17.5
T 15.0T
P 27.6T
G 42.6T (10.7T/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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TOLERANCES
- LINEAR ± 5.0

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0	ISSUED FOR APPROVAL	17/11/2020	C.E	J.S	W.A
R	ISSUED FOR REVIEW	17/11/2020	C.E	J.S	

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TRANSPORT PROPOSAL

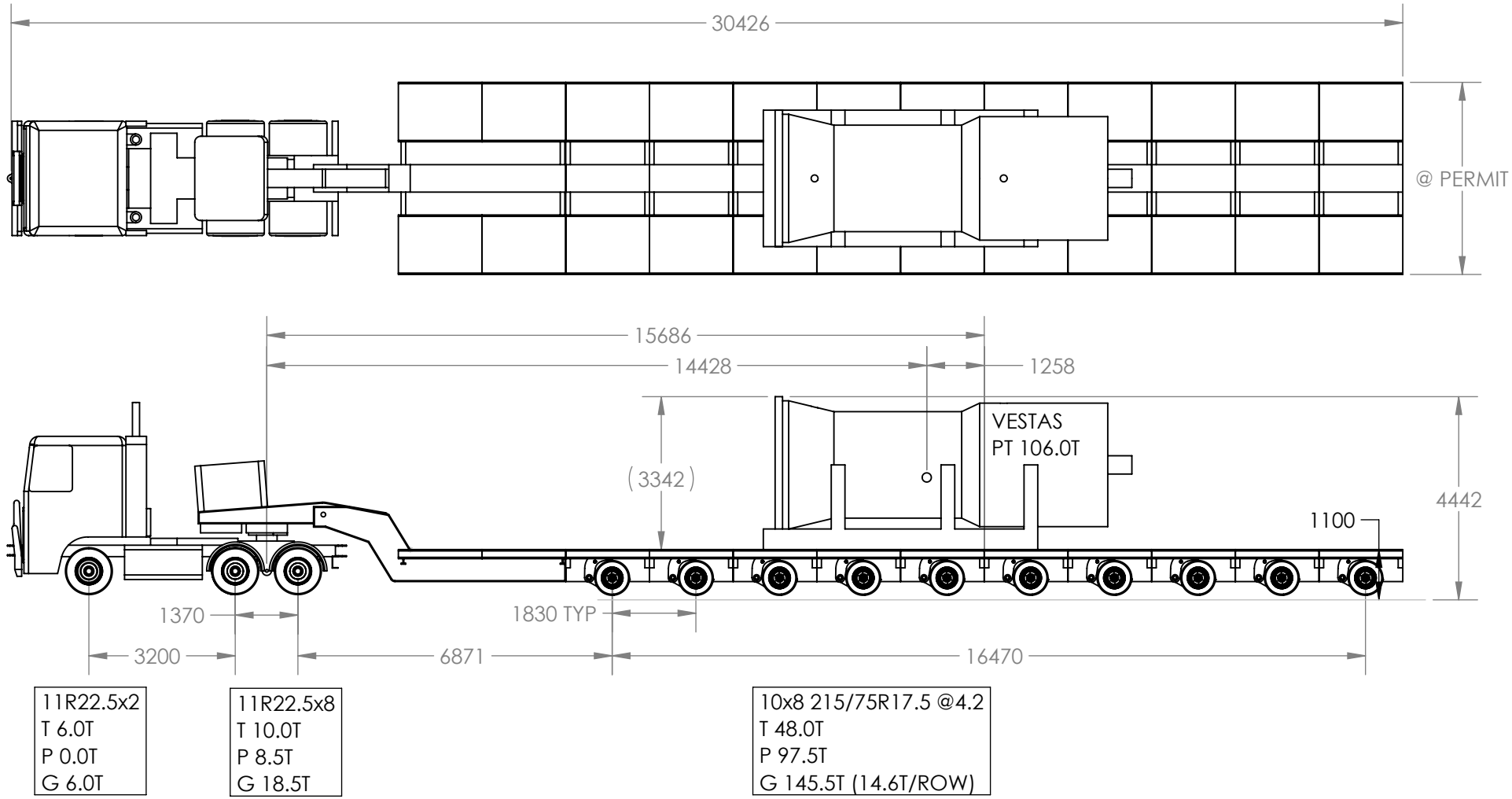
HUB 62.1T

DO NOT SCALE

DRG NO: HUB

A4

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



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TOLERANCES
- LINEAR ± 5.0

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0	ISSUED FOR APPROVAL	03/03/2023	J.S	C.E	W.A
R	ISSUED FOR REVIEW	03/03/2023	J.S	C.E	

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TRANSPORT PROPOSAL

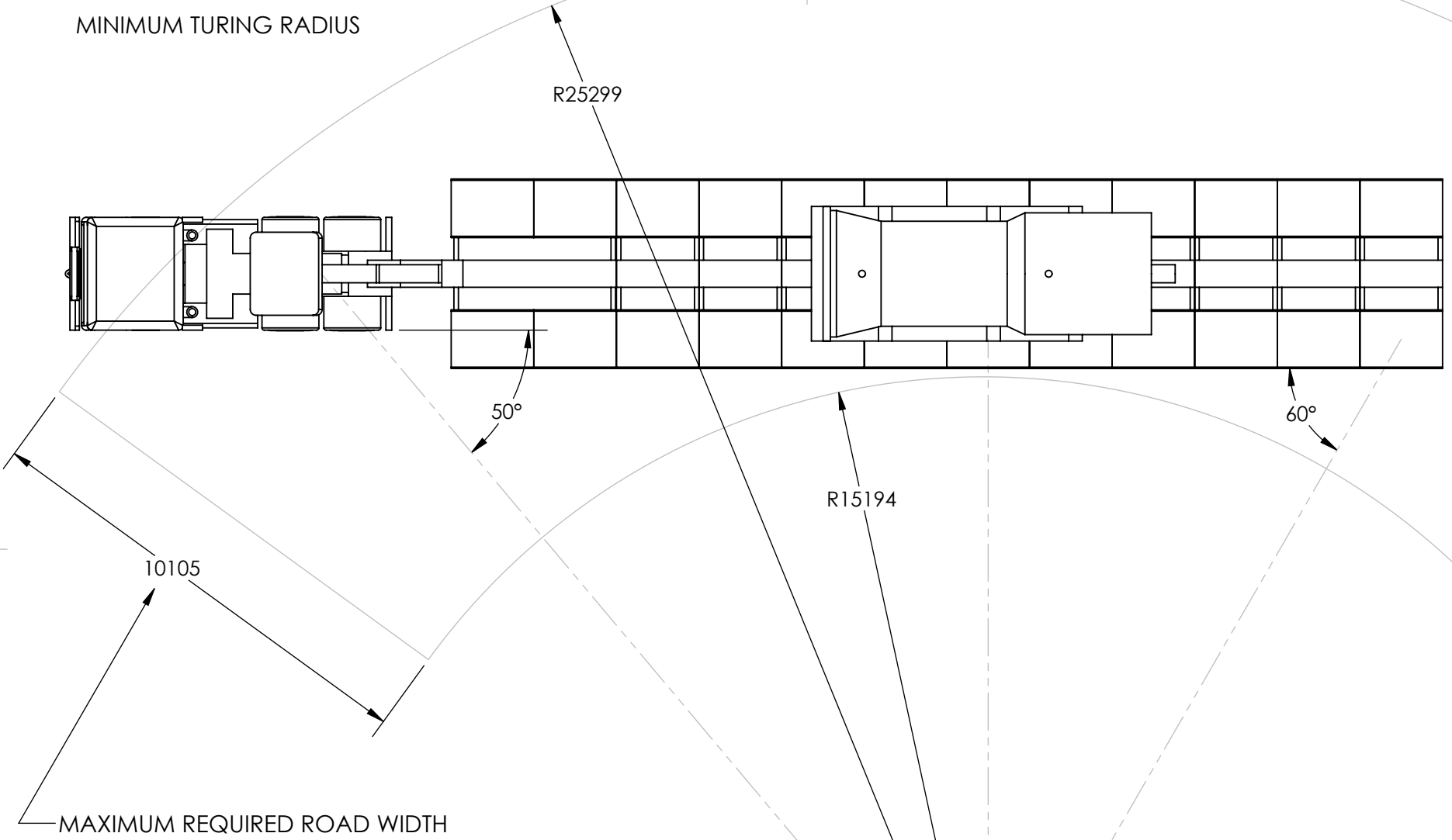
VESTAS V172
PT 106T

DO NOT SCALE

DRG NO: VEST_ENV_PT_V172

A4

MINIMUM TURING RADIUS



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R	ISSUED FOR REVIEW	03/03/2023	J.S	C.E	

THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

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TRANSPORT PROPOSAL

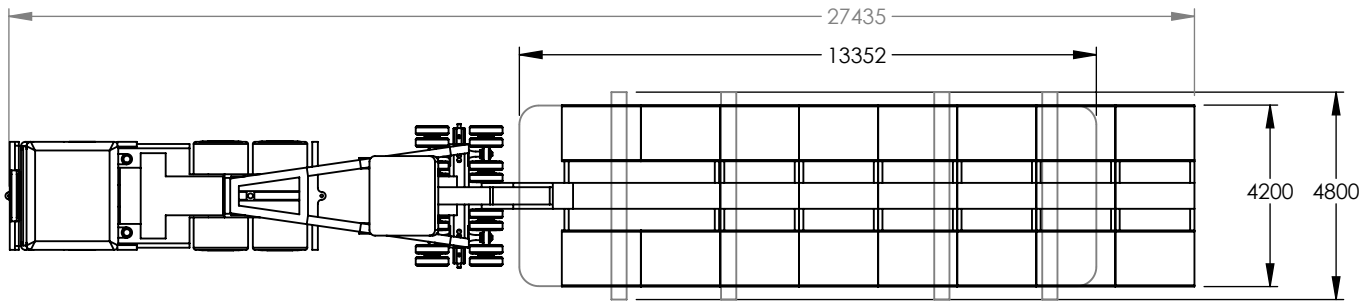
VESTAS V172
PT 106.0T

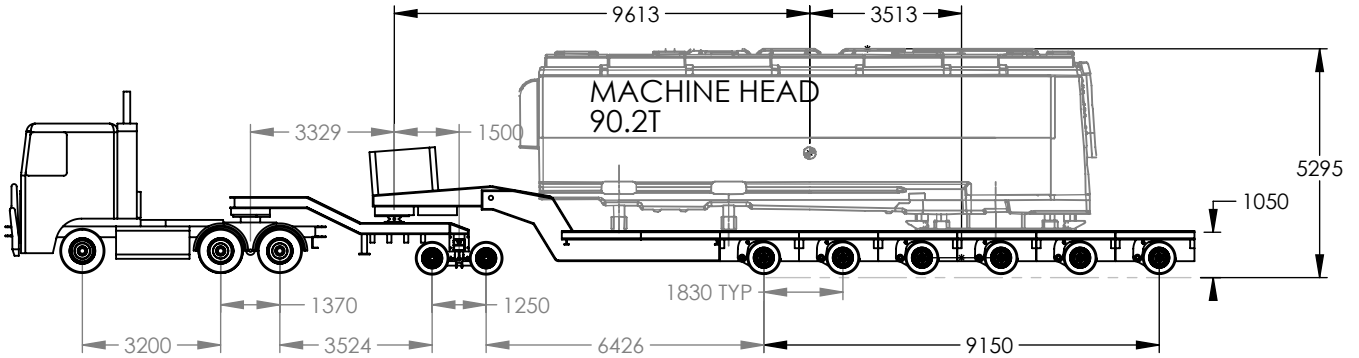
DO NOT SCALE

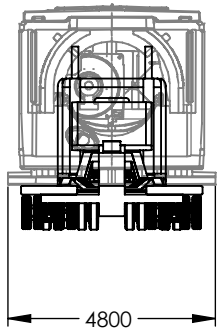
DRG NO: VEST_ENV_PT_V172

A4

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







11R22.5x2	11R22.5x8	2x8 215/75R17.5 @4.2m	6x8 215/75R17.5 @4.2m
T 6.0T	T 5+2+3=9T	T 3+4=7T	T 24.0T
P 0.0T	P 7.5T	P 16.6T	P 66.1T
G 6.0T	G 16.5T	G 23.6T (11.8T/ROW)	G 90.1T (15.0T/ROW)

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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 5.0

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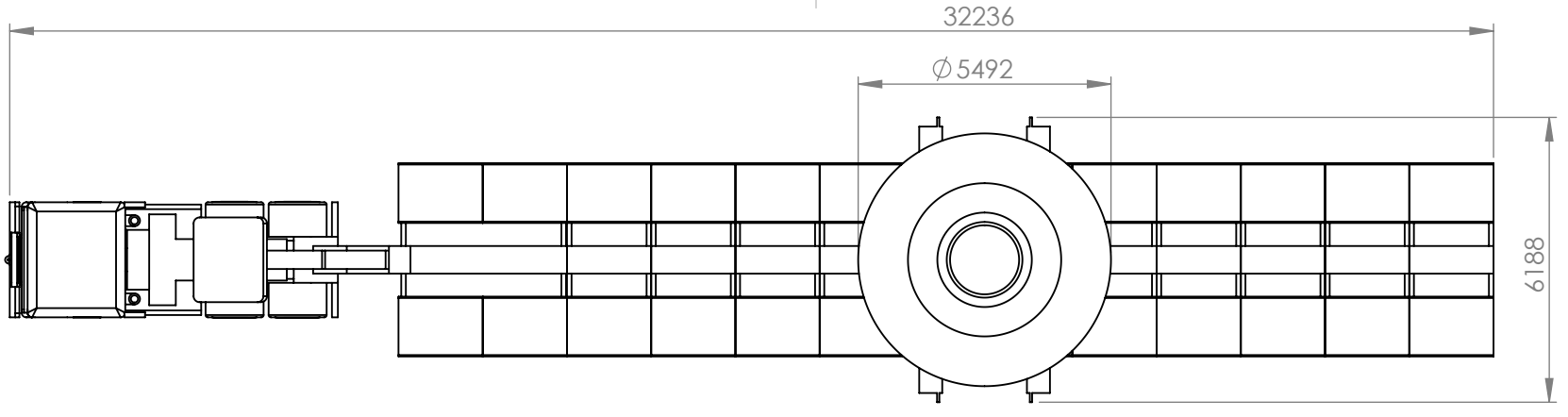
TRANSPORT PROPOSAL

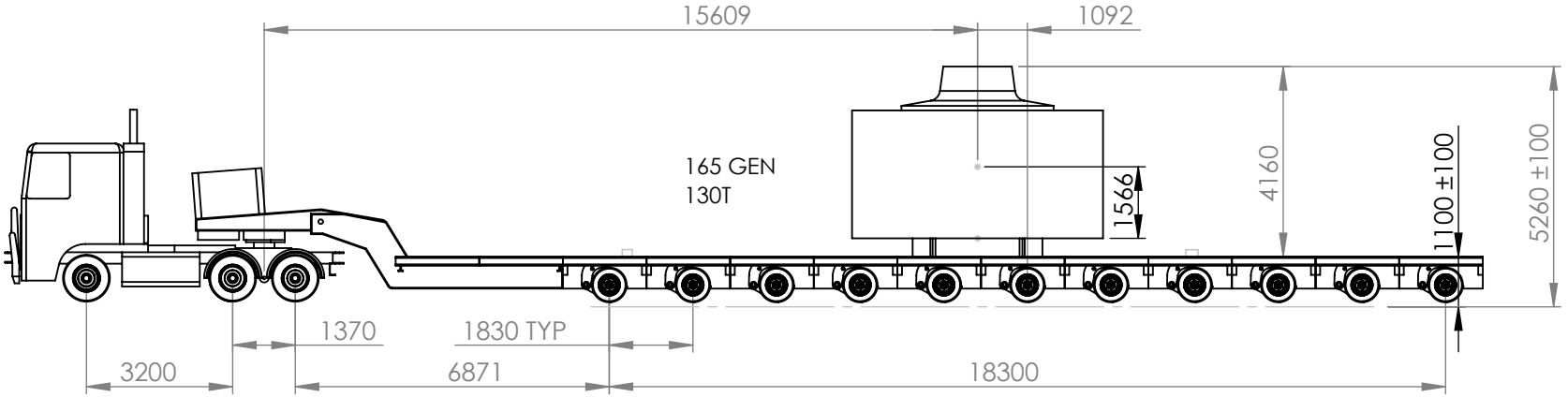
GE
164 6MW MACHINE HEAD
90.2T 2x8 6x8

DO NOT SCALE

DRG NO: GE_164 6MW_MH_2x8_6x8

A4





11R22.5x2 @2.5m T 6.0T P 0.0T G 6.0T	11R22.5x8 @2.5m T 5+1+2=8T P 10.5T G 18.5T	11x8 215/75R17.5 @ 3.7m T 52.5T P 121.5T G 174.0T (15.8T/ROW)

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TOLERANCES
- LINEAR ± 5.0

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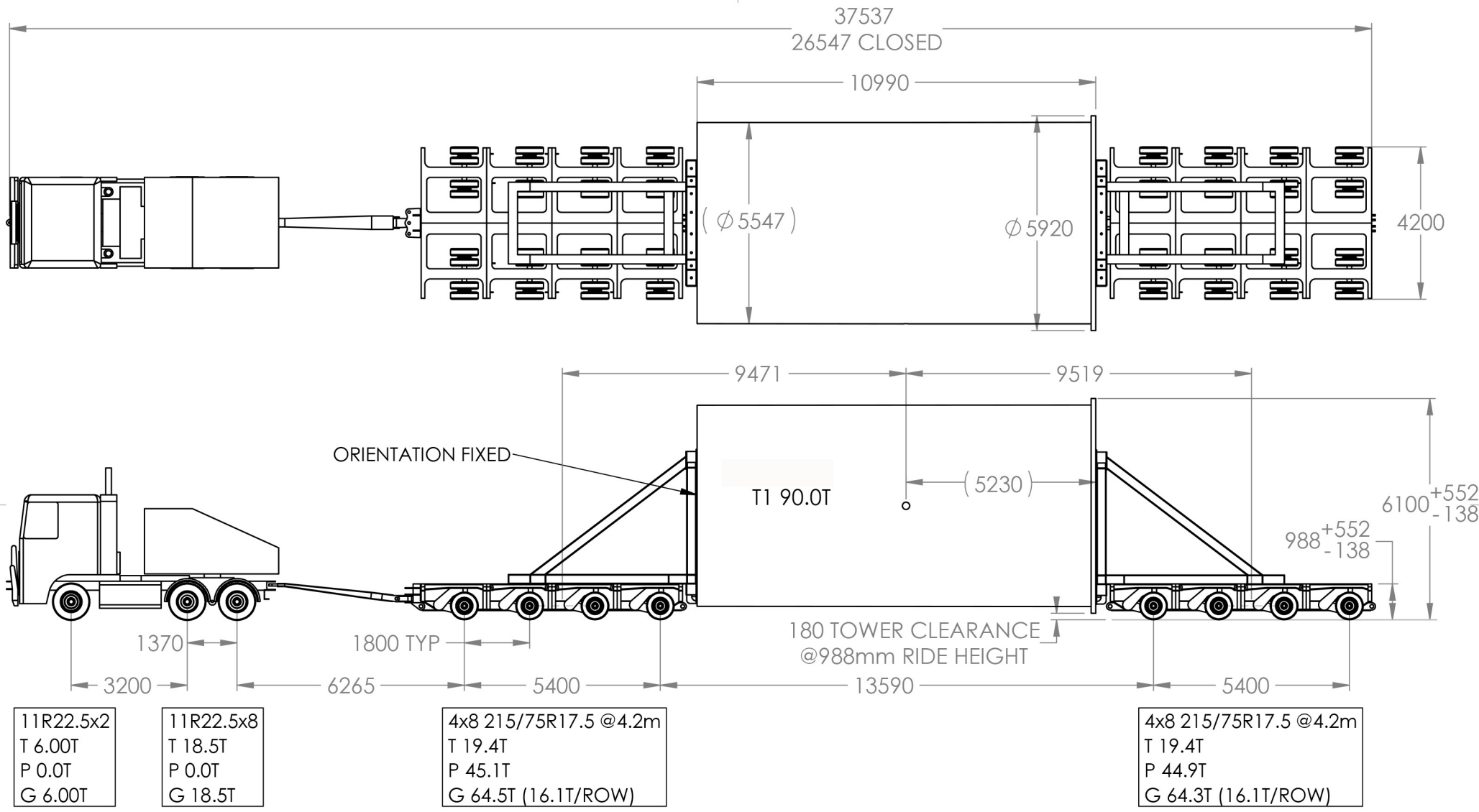
TRANSPORT PROPOSAL

GOLDWIND
165 GENERATOR
130T

DO NOT SCALE

DRG NO: GOLD_165_GEN_130T

A4



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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 2.0

REV		DATE	DRN	CKD	APP
2	SHEET 2 ADDED	18/08/2021	J.S	C.E	R.A
1	TOWER UPDATED	11/08/2021	J.S	C.E	R.A
0	ISSUED FOR APPROVAL	12/10/2020	C.E	H.A	R.A
R	ISSUED FOR REVIEW	12/10/2020	C.E	H.A	

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TRANSPORT PROPOSAL

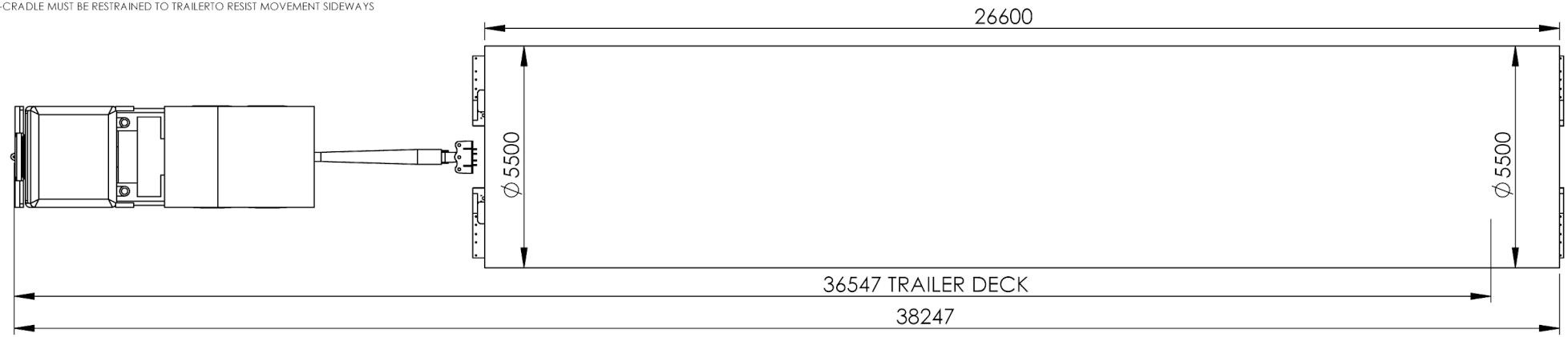
T1 - 90T

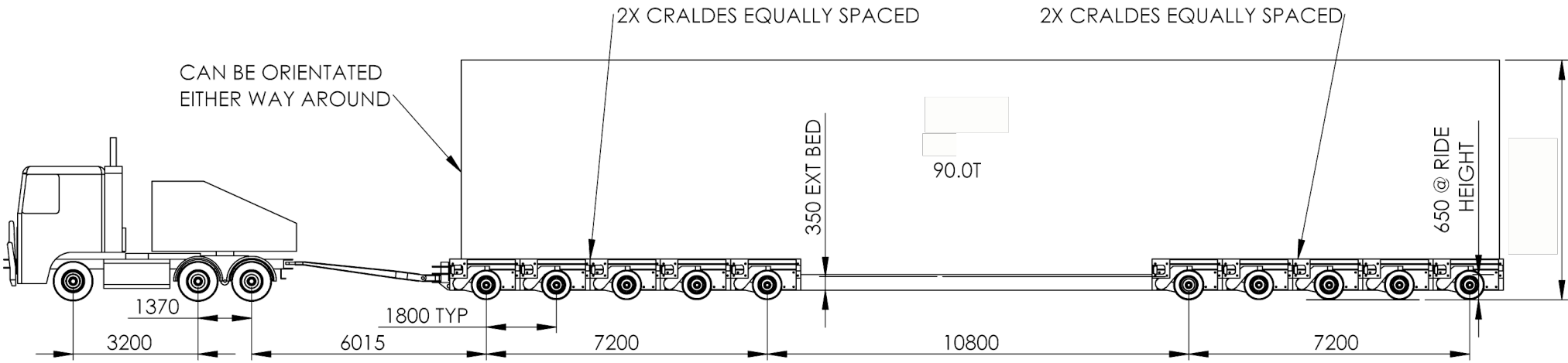
A4

DO NOT SCALE

DWG: T01

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





11R22.5X2	11R22.5X8 @2.5	5X8 215/75R17.5 @ 5.0M	5X8 215/75R17.5 @ 5.0M
T 6.00T	T 8.5T	T 27.5T	T 27.5T
P 0.0T	P 10.0T	P 45.0T	P 45.0T
G 6.00T	G 18.5T	G 72.5T (14.5T/ROW)	G 72.5T (14.5T/ROW)

-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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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 2.0

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TRANSPORT PROPOSAL

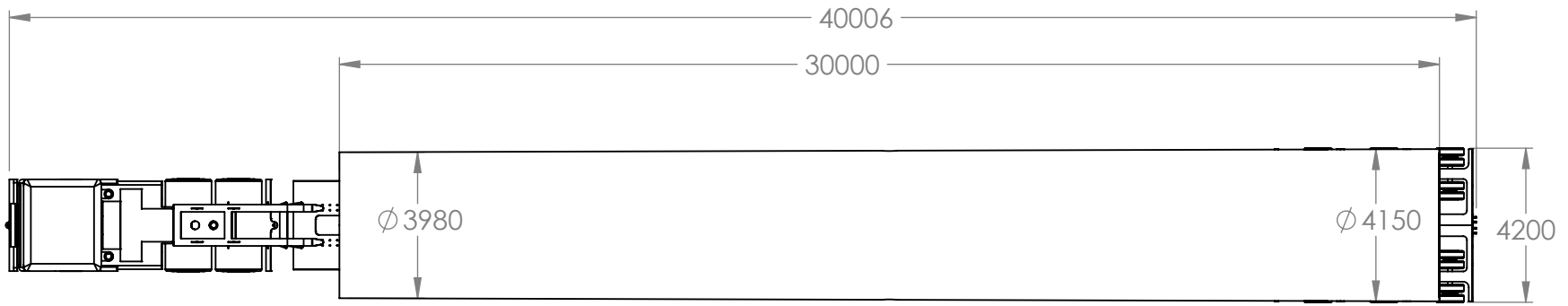
TOWER 90T
5X8-5X8 EXTENDING PLATFORM

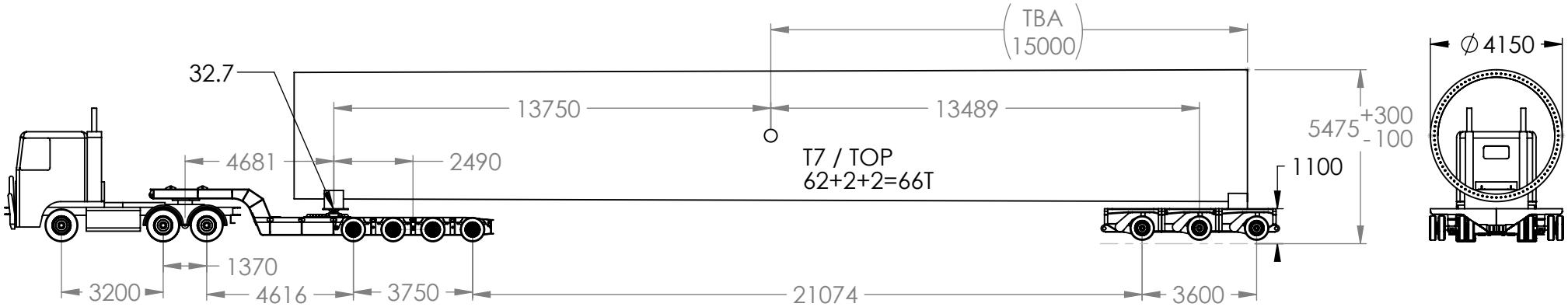
A4

DO NOT SCALE

DWG: ***TOW_90T_EXTPLA***

X:\Sworks\Projects\Blade transporters\Vestas\Vestas Tower Trailers\VEST_KBWF_T04





11R22.5	11R22.5	4x4 215/75R17.5 @2.5m
T 6.00T	T 7.0T	T 7.0T
P 0.0T	P 11.3T	P 21.4
G 6.00T	G 18.3T	G 28.4T

3x8 215/75R17.5 @4.2m
T 14T
P 33.3T
G 47.3T (15.8T/ROW)

-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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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 2.0

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TRANSPORT PROPOSAL

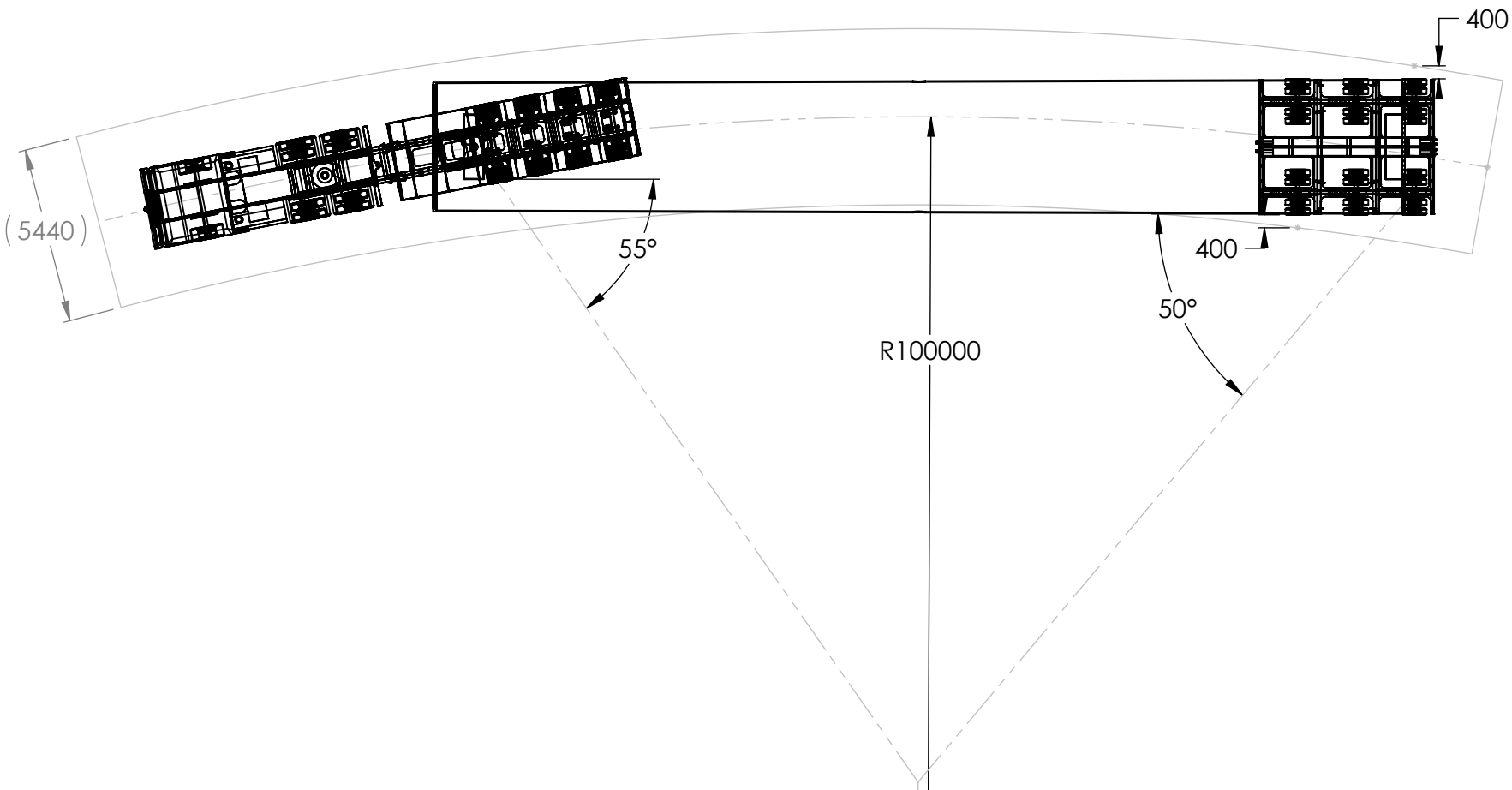
T7 / TOP TOWER 66T

A4

DO NOT SCALE

DWG: WBWF_T07A

\\SERVER\Volume_1\Sworks\Projects\Blade transporters\Vestas\Vestas Tower Trailers\VEST_WB_T07A_4x4_3x8



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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 2.0

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R	ISSUED FOR REVIEW	09/08/2023	J.S	H.A	

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TRANSPORT PROPOSAL

T7 / TOP TOWER 66T

A4

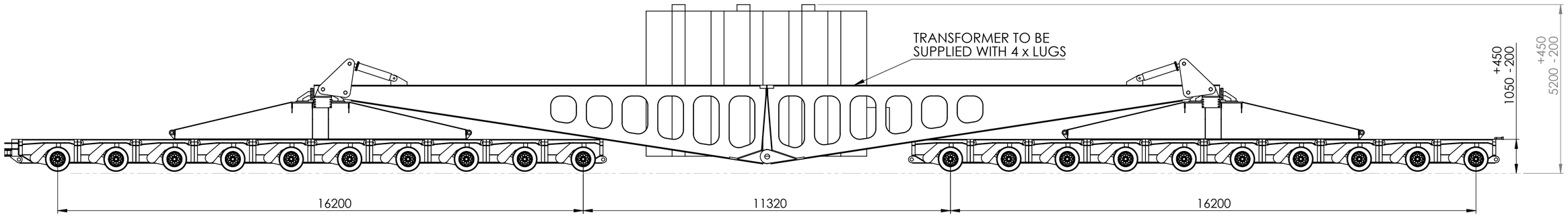
DO NOT SCALE

DWG: WBWF_T07A

\\SERVER\Volume_1\Sworks\Projects\Blade transporters\Vestas\Vestas Tower Trailers\VEST_WB_T07A_4x4_3x8

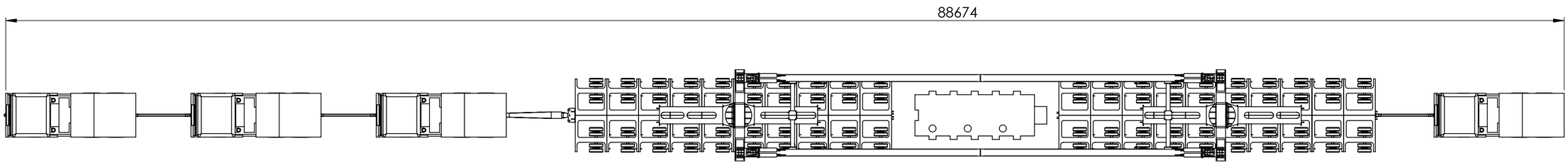
DETAIL VIEW OF TRAILERS

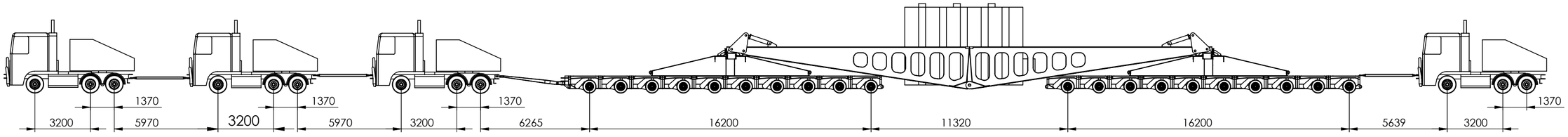
180T



10x8 215/75R17.5 @3.4m
T 10x3.6+9+9+9=63T
P 90.0T
G 153.0T (15.3T/ROW)

10x8 215/75R17.5 @3.4m
T 10x3.6+9+9+9=63T
P 90.0T
G 153.0T (15.3T/ROW)





11R22.5
T 6.25T
P 0.0T
G 6.25T

11R22.5
T 18.5T
P 0T
G 18.5T

11R22.5
T 6.25T
P 0.0T
G 6.25T

11R22.5
T 18.5T
P 0T
G 18.5T

11R22.5
T 6.25T
P 0.0T
G 6.25T

11R22.5
T 18.5T
P 0T
G 18.5T

10x8 215/75R17.5 @3.4m
T 10x3.6+9+9+9=63T
P 90.0T
G 153.0T (15.3T/ROW)

10x8 215/75R17.5 @3.4m
T 10x3.6+9+9+9=63T
P 90.0T
G 153.0T (15.3T/ROW)

11R22.5
T 6.25T
P 0.0T
G 6.25T

11R22.5
T 18.5T
P 0T
G 18.5T

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DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 2.0

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TRANSPORT PROPOSAL

180T TRANSFORMER

A2

DO NOT SCALE

TRANS_180T_946_BEAMS_10x8_10x8

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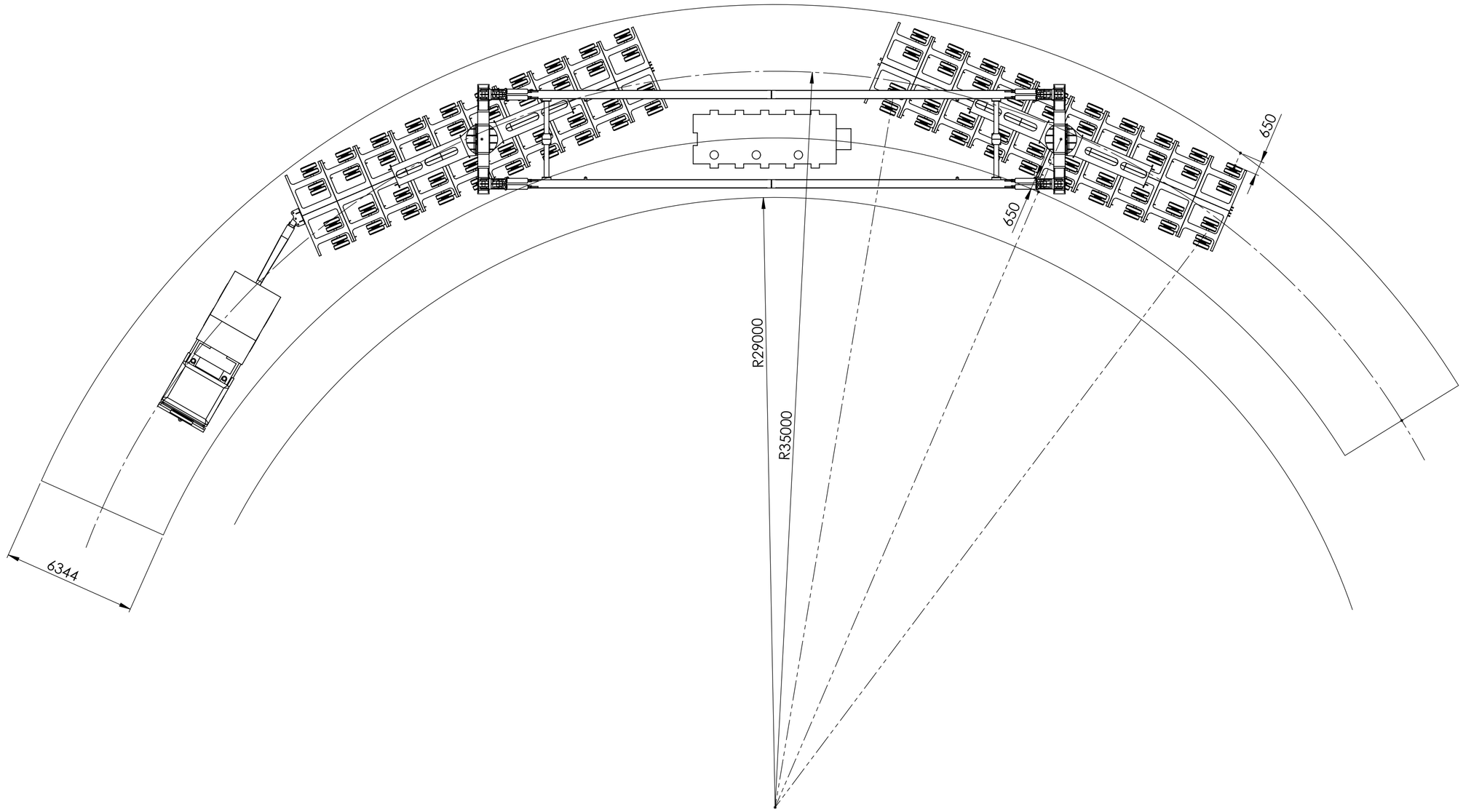

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THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES
- LINEAR ± 2.0

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180T TRANSFORMER

A2

DO NOT SCALE

TRANS_180T_946_BEAMS_10x8_10x8

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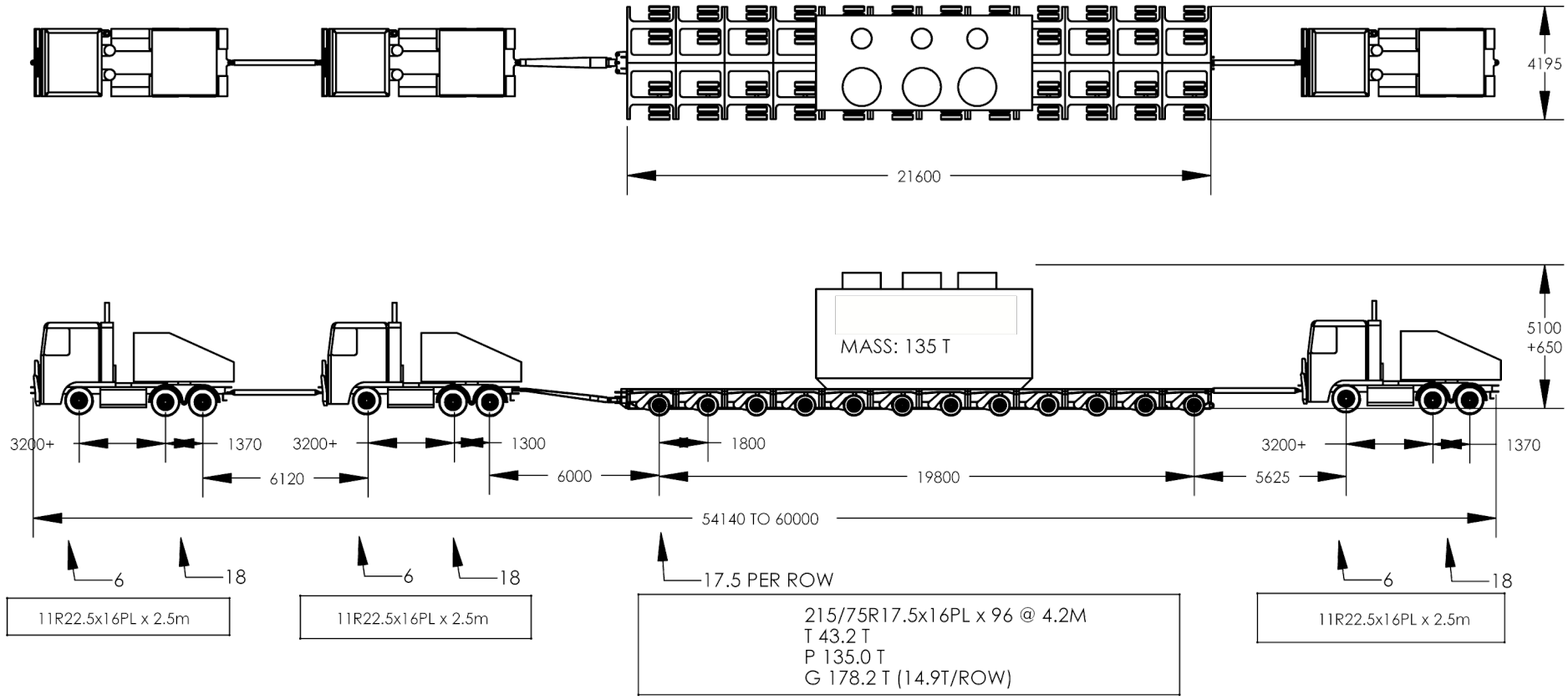

NOTES:
THIRD ANGLE PROJECTION
DIMENSIONS IN MILLIMETRES
TOLERANCES (UNLESS OTHERWISE STATED)
- LINEAR ± 200.0
- RADIAL ± 200.0

DATE
14/11/2011

DRN:
H. ANDREWS

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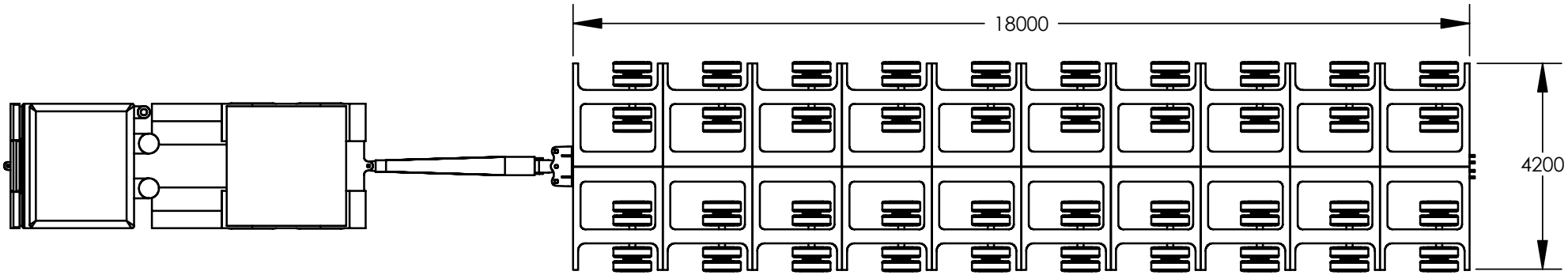
TRANSPORT PROPOSAL

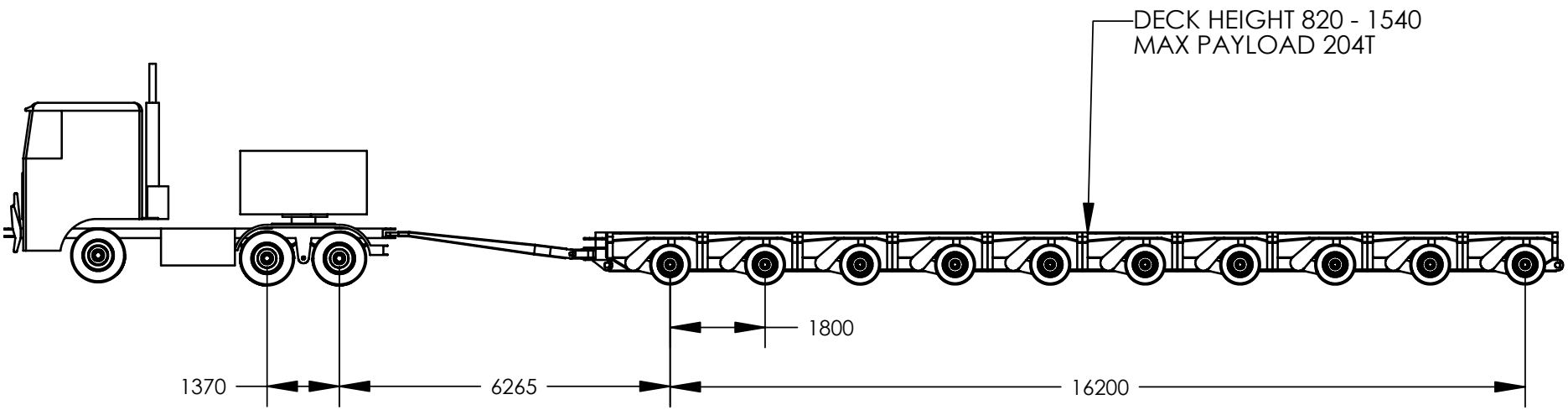
TRANSFORMER
135 TONNES

DO NOT SCALE

DRG NO: TFR01

A4





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

Appendix C

Estimated Peak Construction Period Traffic Generation

21012 Keri Keri Wind Farm - Construction Traffic Generation Estimation

No. of WTG	155
Construction Duration	24
Based on Project Discription by ERM	16-Apr-24
No. of WTG	155
Tower Height	200m

Material	Vehicle Type	Estimated No. of Vehicles to site (Total)	Staging Months	Days (based on 24 Days / month	Ave Trips to Site / day	Peak Vehicles to Site / Day	Peak Movements / Day (in & out)	Assumptions / Comments
Temporary Facilities								
Concrete Batching Plant	OSOM - Prime mover with low loader	18						Up to 2 plants on site.
Agitators	self drive	8						Temporary vehicles to bump in at commenement of construction and bump out at end. Trips not part of typical construction day
Cranes	self transportation	8						
Earth moving Equipment / site sheds / car parks etc	various	60						
	Sub total							
Construction General								
Water - Batching	18m3 Water Truck	780	M2-M23	528	1	16	32	As advised by client and based on Macintyre Wind Farm pro-rated quantities
Water - Dust Control	18m3 Water Truck	2220	M1-M24	576	4	5	10	"
Water - General Use	18m3 Water Truck	5550	M1-M24	576	10	11	22	"
Cement - Foundations	42m3 Bulk Road tanker	470	M2-M20	456	1	2	5	"
Sand Foundations	15m3 Truck and Dog	4000	M2-M20	456	9	10	20	"
Aggregate - Foundations	15m3 Truck and Dog	4000	M2-M20	456	9	10	20	"
Aggregate - Roads	15m3 Truck and Dog	44490	M1-M18	432	103	104	209	"
Aggregate - Hardstand	15m3 Truck and Dog	59953	M1-M18	432	139	140	280	"
	Sub total	121463			275	299	598	
WTGs								
WTG - Blades	OSOM - blade trailer	477	M3-M22	480	1	3	6	Based on R J Andrews Report - Pro rata vehicles trips for 155 WTG (not 176 ETG) scenario
WTG - Tower (NABRA HH 200 Option)	OSOM - Prime mover with platform trailer	3158	M3-M22	480	7	10	20	"
WTG - Hubs	OSOM - Prime mover with low loader	159	M3-M22	480	0.3	2	4	"
WTG - Narcelle	OSOM - Prime mover with platform trailer	159	M3-M22	480	0.3	2	4	"
WTG - Drive Train	OSOM - Prime mover with platform trailer	159	M3-M22	480	0.3	2	4	"
	sub total	4112			9	19	38	
Electrical								
BESS	OSOM Prime Mover with trailer	6						Vehicles to be outside of peak WTG construction period
Substations	OSOM Prime Mover with trailer	20						Vehicles to be outside of peak WTG construction period
Cabling	OSOM Prime Mover with trailer	200	M3-M23	576	0.3			
	Sub total							
Construction Workforce								
650 workers at peak	Mini bus	20 per bus	50%		5	5	10	All workers are accommodated on site and 30% of total on site 650 workers arrive and 30% deaprt site on change over day (twice a week)
	Car pool	3 per car	25%		16	16	33	Inbound trips to occur at the start of the working day with outbound trips to be at the end of the day.
	Individual	1 per car	25%		49	49	98	
				Sub Total	70	70	140	

Appendix D

Cumulative Impact – Nearby Wind & Solar Projects

Project	Description	Approximate Distance (km) [1]	Construction Period / Timeline
Wind Energy Developments			
Baldon Wind Farm (Assessment)	Nominal generating capacity 1,000 MW. Up to 162 WTGs with a maximum height of 300 m to blade tp. BESS (200 MW/800MWh) and ancillary infrastructure. Peak construction workforce 350 FTE. Operational workforce 25 FTE. Temporary workers accommodation will be established within Project Area.	13 km south-east	Construction expected to commence Q4 2025. Construction period of 3.5 years. Commissioning expected Q2 2029.
Wilan Wind Farm (Prepare EIS)	Nominal generating capacity of up to 800 MW. Up to 107 WTGs with maximum height of 300 m to blade tip. BESS (200 MW/800 MWh) and ancillary infrastructure. Peak construction workforce 400 FTE. Operational workforce 10-15 FTE. Temporary workers accommodation will be established, with the location subject to Project design and community consultation.	13 km north	Construction expected to commence early 2025. Construction period expected to take place for 24 to 30 months. Commissioning expected 2027-2028.
Tchelery Wind Farm (Response to Submissions)	Nominal generating capacity of 800 MW. Up to 120 WTGs with maximum height of 285 m to blade tip. Ancillary infrastructure and potential for BESS (not confirmed). Peak construction workforce 500 FTE. Operational workforce of up to 20 FTE. Temporary workforce accommodation to be investigated.	25 km south-east	Construction expected to commence early 2027. Construction period approximately 3 years. Commissioning expected early 2030.

[1] *Indicative direct-line distances from the approximate centre points of the Project sites*

Project	Description	Approximate Distance (km) [1]	Construction Period / Timeline
Junction Rivers Wind Farm (formerly Burrawong Wind Farm) (Assessment)	Nominal generating capacity 750 MW. Up to 107 WTGs with a maximum height of 300 m to blade tip. BESS (250 MW/500 MWh) and ancillary infrastructure. Peak construction workforce 250 FTE. Operational workforce 10-15 FTE. Existing facilities in Balranald and other options in Kyalite and surrounding region will be utilised for construction staff accommodation.	33 km south-west	Construction is expected to commence within six months of development approval. Construction period of 48 months.
The Plains Wind Farm (Assessment)	Nominal generating capacity of up to 1,800 MW. Up to 226 WTGs with maximum height of 280 m to blade tip plus ancillary infrastructure. Peak construction workforce 700 FTE. Operational workforce 40 FTE onsite and 6 FTE offsite.	56 km north-east	Construction expected to commence Q1 2027. Construction period of 40 months (peak 24 months). Commissioning expected 2028-2029.
Booroorban (Saltbush) Wind Farm (Prepare EIS)	Generating capacity of up to 400 MW. Up to 70 turbines with a maximum height of 280m to blade tip. BESS (600 MW/ 1200 MWh) and ancillary infrastructure. Peak construction workforce of approximately 280 FTE. Operational workforce of approximately 28 FTE.	130 km south east	Construction is expected to begin in 2028. Construction period of 30 months. Commissioning is expected mid-2030.
Pottinger Wind Farm (Approved)	Nominal generating capacity of 750 MW. Up to 108 WTGs with maximum height of 280 m to blade tip. BESS (500 MW/2000 MWh) and ancillary infrastructure. Peak construction workforce 450 FTE. Operational workforce 40 FTE.	99 km east	Construction estimated to commence 2026. Construction period approximately 55 months (peak construction period of 28 months). Commissioning expected 2027.

Project	Description	Approximate Distance (km) [1]	Construction Period / Timeline
	Temporary workers accommodation located within the Project Area or located offsite.		
Bullawah Wind Farm (Assessment)	Nominal generating capacity of 750 MW. 141 WTGs with maximum height of 300 m to blade tip. BESS (storage of 359 MW/718 MWh) and ancillary infrastructure. Peak construction workforce 380 FTE. Operational workforce 40 FTE. Temporary workers accommodation may be located within the Project Area (as required).	115 km east	Construction is expected to commence in Q4 2025. Construction period about 34-months. Commissioning expected 2027 (full scale operations).
Yanco Delta Wind Farm (Approved)	Nominal generating capacity of 1,500 MW. Up to 208 WTGs with maximum height of 270 m to blade tip. BESS (500 MW/500 MWh) and ancillary infrastructure Peak construction workforce 300 FTE. Operational workforce of 20-30 FTE. Workforce accommodation is expected to rely on available rental, motel and other accommodation in surrounding townships and regional centres.	151 km east	Construction expected to commence in 2027 and be completed by 2031 Construction period about 36 months. Commissioning expected late 2027.
Dinawan Wind Farm (Assessment)	Nominal generating capacity of 1,500 MW. Up to 200 WTGs with maximum height of 280 m to blade tip. BESS (300 MW/1200 MWh) and ancillary infrastructure. Peak construction workforce 800 FTE. Operational workforce up to 50 FTE. Workforce accommodation is expected to rely on available rental, motel and other accommodation in surrounding townships and regional centres.	153 km south-east	Construction expected to commence 2025. Construction period up to 36 months. Commissioning expected 2028.

Project	Description	Approximate Distance (km) [1]	Construction Period / Timeline
Argoon Wind Farm (Prepare EIS)	Estimated generating capacity of up to 901 MW. Up to 105 WTGs with maximum height of 249 m to blade tip. BESS (460 MW/2300 MWh) and ancillary infrastructure. Peak construction workforce 340 FTE. Operational workforce between 6 and 12 FTE. Temporary workforce accommodation will be included if required.	158 km east	Construction estimated to commence within one year of project approval. Construction period about 24-36 months.
Abercrombie Wind Farm (Prepare EIS)	Estimated generating capacity of up to 2.5 GW. Up to 348 WTGs with maximum height of 300 m to blade tip. BESS (500 MW/2000 MWh) and ancillary infrastructure. Peak construction workforce 600 FTE. Operational workforce between 30 and 40 FTE. Temporary workforce accommodation will be included if required.	40 km east	Construction estimated to commence within Q1 2028. Construction period approximately 5 years.
Koorakee Energy Park (Prepare EIS)	Development of a 2 GW energy park with solar farm, wind farm and BESS Up to 167 WTGs with a total height of 270 meters to blade tip. BESS (1 GW/ 12 GWh) and ancillary infrastructure. Construction workforce between 300 to 400 FTE. Operation workforce between 10 to 15 FTE.	116 km north-west	Construction is estimated to commence in late 2025. Construction period is about 24-36 months. Commissioning is expected in 2028-2029.
Euston Wind Farm (Prepare EIS)	Estimated generating capacity of up to 691 MW. Up to 96 WTGs with maximum height of 275 m to blade tip. BESS (500 MW/2000 MWh) and ancillary infrastructure. Peak construction workforce 250 FTE. Operational workforce of approximately 15 FTE.	123 km west	Construction estimated to commence in Q2 2025 Construction period about 18-24 months Commissioning in Q2 2027

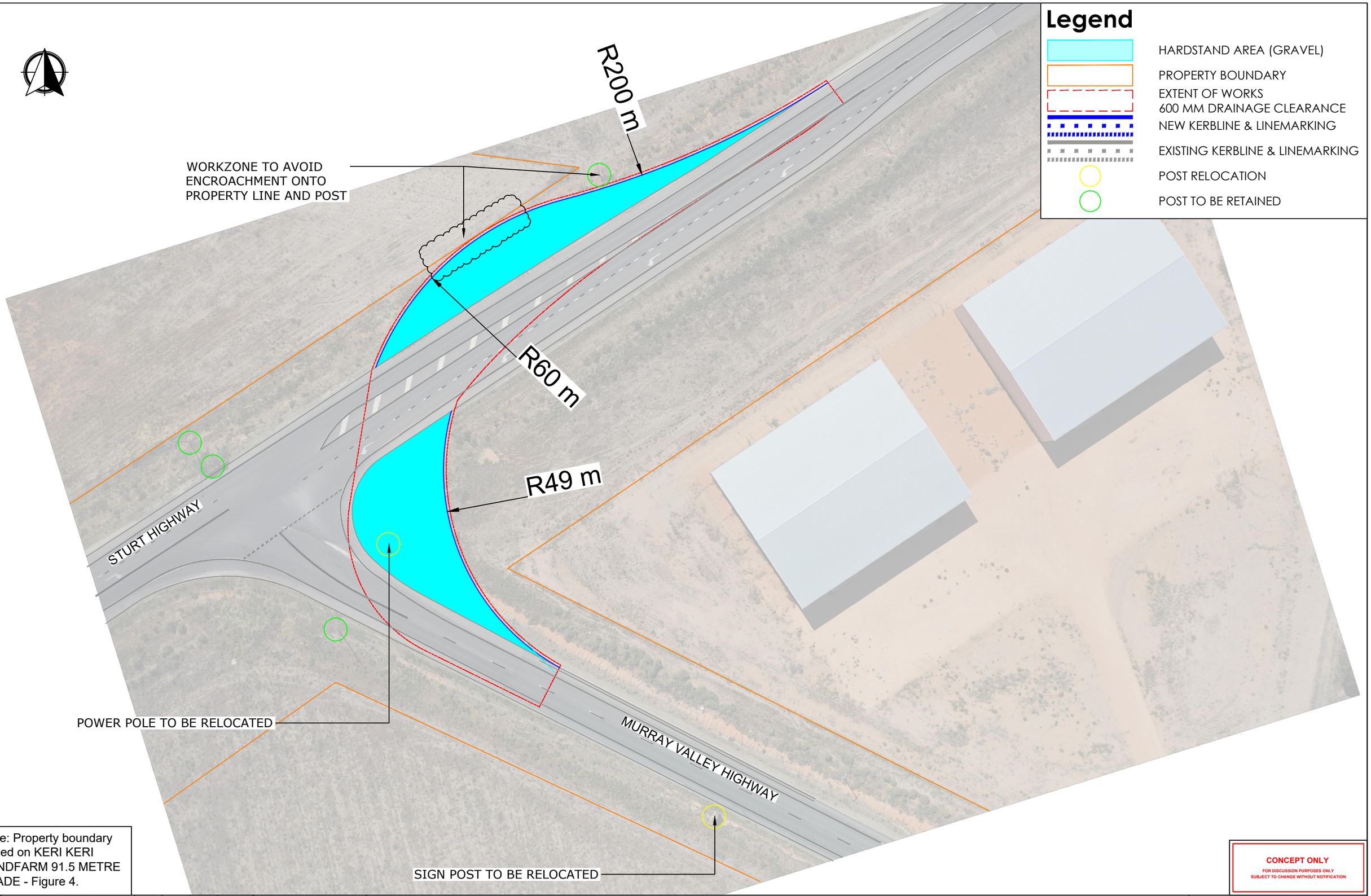
Project	Description	Approximate Distance (km) [1]	Construction Period / Timeline
Mallee Wind Farm (Response to Submissions)	Expected generating capacity of up to 402 MW. Up to 76 WTG with a maximum height of 280 m to blade tips. BESS (100 MW/ 200 MWh) and ancillary infrastructure. Peak construction workforce 400 FTE. Operational workforce of approximately 30 FTE.	90 km north-west	Construction planned to commence in 2026 for approximately 3-years.
Gol Gol Wind Farm (Prepare EIS)	Expected generating capacity of up to 840 MW. Up to 120 WTGs with a maximum height of 280 m to blade tips. Transmission and ancillary infrastructure. Peak construction workforce between 300 and 400 FTE. Operational workforce of approximately 10 to 15 FTE.	140 km north-west	Construction period approximately 24 to 36 months. Construction is estimated to commence late 2028. Commissioning expected in 2028.
Solar Energy Developments			
Limondale Solar Farm (Operational)	Generating capacity 250 MW with 868,00 solar panels. BESS and ancillary infrastructure. Peak construction workforce of 200 FTE and operational workforce of 4-7 FTE.	40 km west	Currently operational.
Sunraysia Solar Farm (Operational)	Generating capacity 200 MW. With 750,000 solar panels and ancillary infrastructure. Peak construction workforce of 250 FTE and operational workforce of at least 2 FTE.	42 km west	Currently operational.
Hay Solar Farm (Approved)	Generating capacity 110 MW with 430,000 solar panels. 150 FTE during peak construction and between 2 and 5 FTE during operation. Currently under construction.	93 km north-west	Construction period expected to last 12-months.

Project	Description	Approximate Distance (km) [1]	Construction Period / Timeline
Pottinger Solar Farm (Prepare EIS)	Generating capacity 300 MW with 750,000 solar panels. BESS (500 MW/2000 MWh) and ancillary infrastructure. Peak construction workforce of 220 FTE and operational workforce of 4 FTE. Temporary workforce accommodation to be investigated.	102 km east	Construction expected to commence in 2026. Construction period is estimated to take 24-36 months including commissioning.
Currawarra Solar Farm (Approved)	Generating capacity 195 MW with 654,000 solar panels with associated infrastructure. Workforce of approximately 200 FTE during construction and 4 FTE during operations.	140 km south-east	Construction period expected to last for 18 months.
Dinawan Solar Farm (Assessment)	Generating capacity 800 MW with 2 million solar PV panels with associated infrastructure. BESS (330MW/600 MWh) and ancillary infrastructure	240 km south-east	Construction is expected to commence in 2025. Construction period is estimated to take 18-36 months, including commissioning. Commissioning expected in 2026.
Mallee Solar Farm (Prepare EIS)	Development of an 600 MW solar farm, associated infrastructure and BESS with a capacity of 200 MW/400 MWh. Construction workforce of approximately 300 FTE Operational workforce of approximately 10 FTE	90 km north-west	Construction is expected to commence early in 2026. Construction period is estimated to take 24 to 36 months.
Gol Gol Solar Farm (Prepare EIS)	Development of a 600 MW solar farm with approximately 2 million solar PV modules and ancillary infrastructure. Construction workforce of approximately 200 FTE. Operational workforce of approximately 4 FTE.	140 km north-west	Construction period is estimated to take approximately 24 to 36 months.

Project	Description	Approximate Distance (km) [1]	Construction Period / Timeline
Other Developments			
Project EnergyConnect (NSW – Eastern Section) (Approved)	330kV transmission line 375 km of new transmission lines and associated infrastructure Up to 500 construction jobs and 5 operational jobs	0 km (transects the Project Area)	Construction and remediation work expected to be completed in September 2026.
Balranald Mineral Sands Project (Approved)	Approved proposals: • Mod-1: to undertake underground mining and minor realignment of a water pipeline; and • Mod-4: development of a 21 MW solar farm, a 10 MW/10 MWh BESS and associated ancillary components, and an additional groundwater bore. Combined construction workforce of approximately 275 FTE. Combined operational workforce of approximately 155 FTE.	40 km west	Construction and operational period for Mod-1 expected to commence late 2025 and last approximately seven – eight years. Construction for Mod-4 expected to commence late 2025 and take approximately nine months,
Gol Gol Battery Energy Storage System (Prepare EIS)	Development of a 1,500 MW/12 GW-hour BESS. Construction workforce of approximately 150 FTE. Operational workforce of approximately 10 – 15 FTE.	140 km north-west	Construction period expected to last 12 – 24 months. No expected start date for commencement of construction.
Romani Battery Energy Storage System (Response to Submissions)	Development of a 250 MW/800 MWh BESS and ancillary infrastructure. Peak construction workforce of 80 to 100 FTE. Temporary workforce accommodation to be investigated.	70 km west	Construction expected to commence in mid-2026. Construction period of over 20 months, including commissioning.

Appendix E

Concept Design for Intersection Treatments



Note: Property boundary based on KERI KERI WINDFARM 91.5 METRE BLADE - Figure 4.

CONCEPT ONLY
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT: KERI KERI WIND FARM

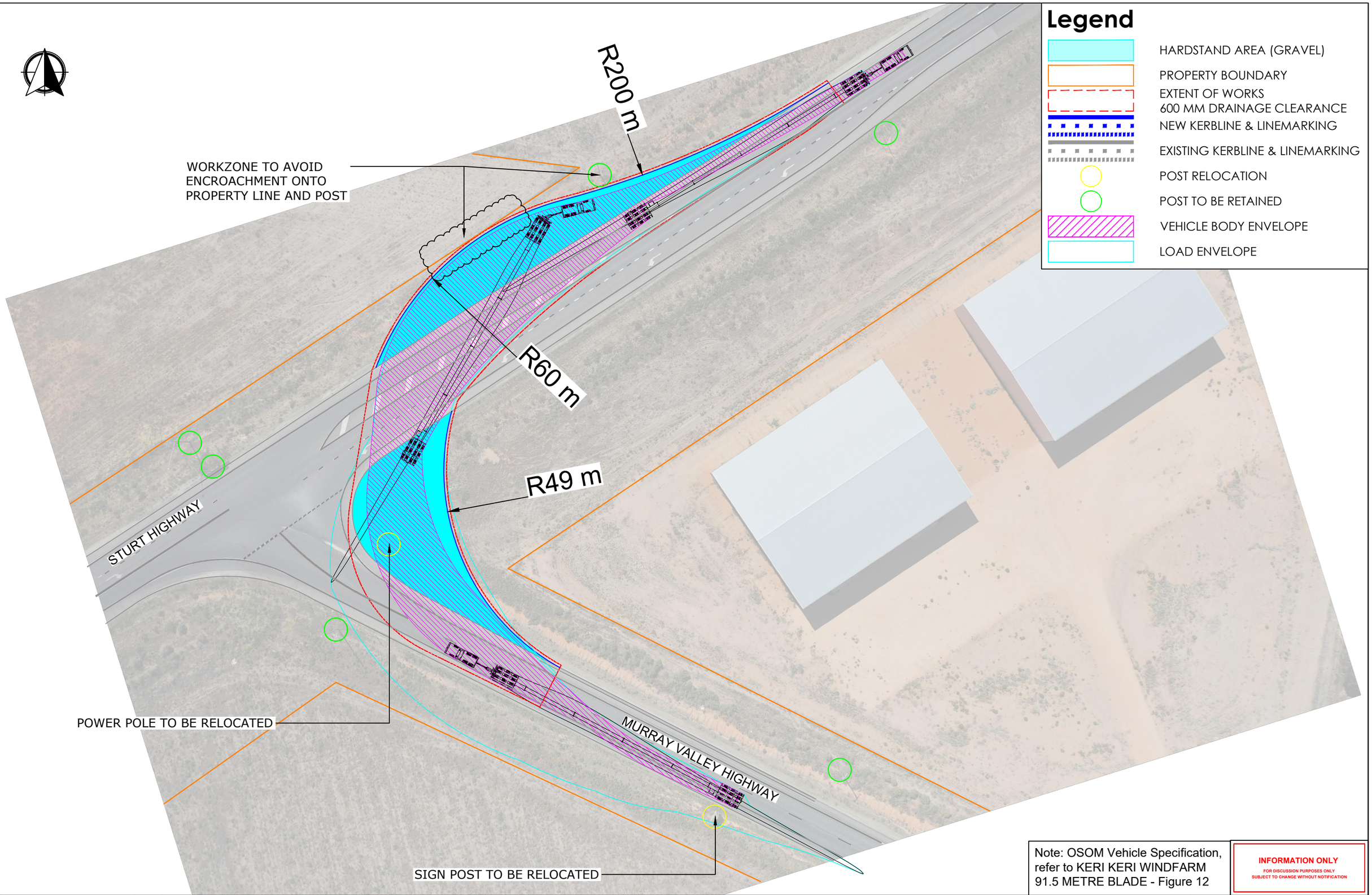
TITLE: CONCEPT DESIGN - STURT HIGHWAY & MURRAY VALLEY HIGHWAY, EUSTON

DWG No. 21012CAD003 FIGURE (1)

DATE STAMP 13 January 2026

PROJECT No. 21012 | SCALE 1:750 @A3 | REV. C

Filename: 21012CAD003-260113-Concept Design



Note: OSOM Vehicle Specification, refer to KERI KERI WINDFARM 91.5 METRE BLADE - Figure 12

INFORMATION ONLY
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT: KERI KERI WIND FARM

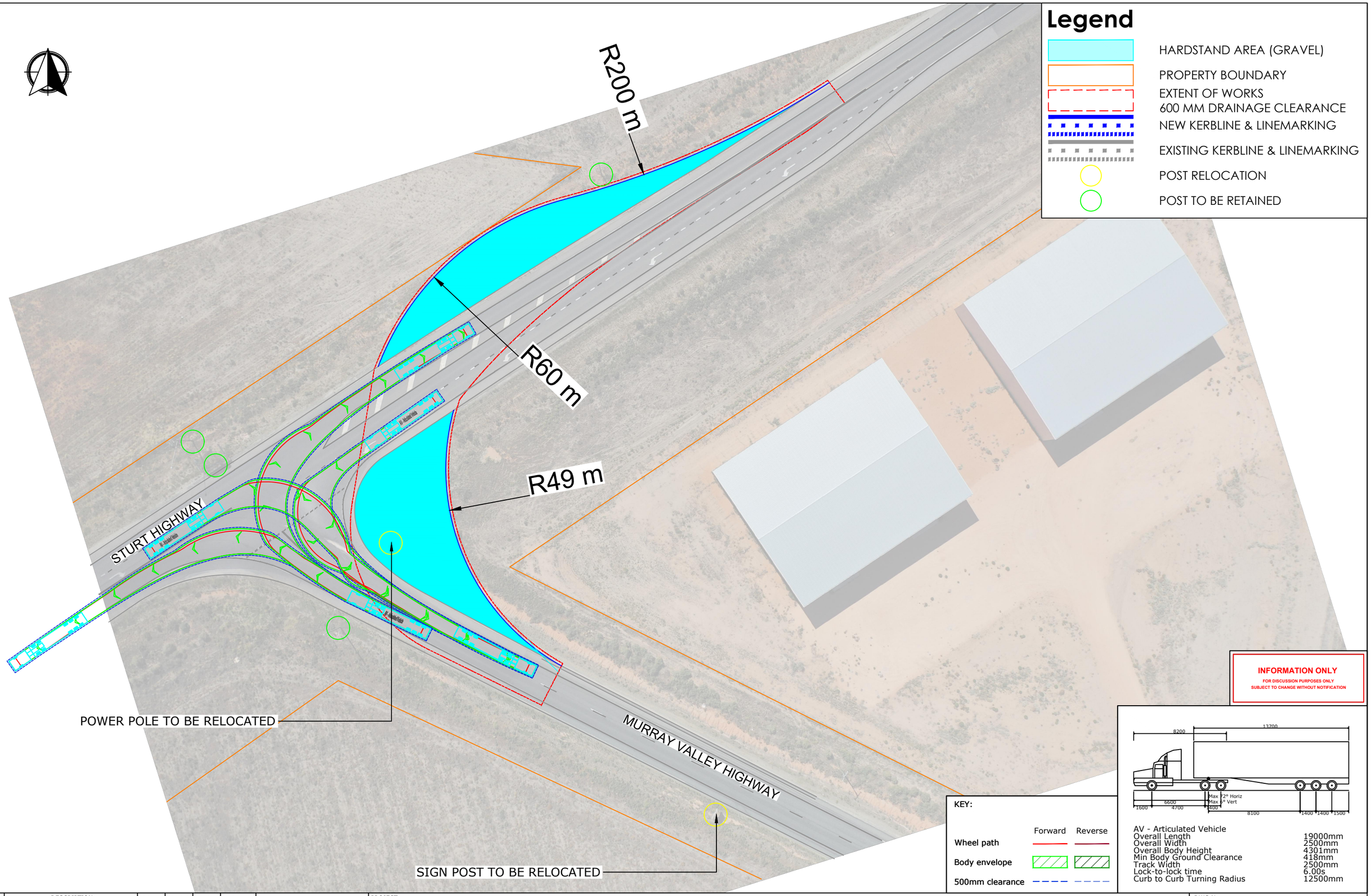
TITLE: SWEPT PATH ANALYSIS - STURT HIGHWAY & MURRAY VALLEY HIGHWAY, EUSTON
OVERSIZE / OVERMASS VEHICLE

DWG No. 21012CAD003
FIGURE (2)

DATE STAMP 13 January 2026

PROJECT No. 21012 | SCALE 1:750 @A3 | REV. C

Filename: 21012CAD003-260113-Concept Design



Legend

- HARDSTAND AREA (GRAVEL)
- PROPERTY BOUNDARY
- EXTENT OF WORKS
- 600 MM DRAINAGE CLEARANCE
- NEW KERBLINE & LINEMARKING
- EXISTING KERBLINE & LINEMARKING
- POST RELOCATION
- POST TO BE RETAINED

INFORMATION ONLY

FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
500mm clearance		

AV - Articulated Vehicle

Overall Length	19000mm
Overall Width	2500mm
Overall Body Height	4301mm
Min Body Ground Clearance	418mm
Track Width	2500mm
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12500mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT: KERI KERI WIND FARM

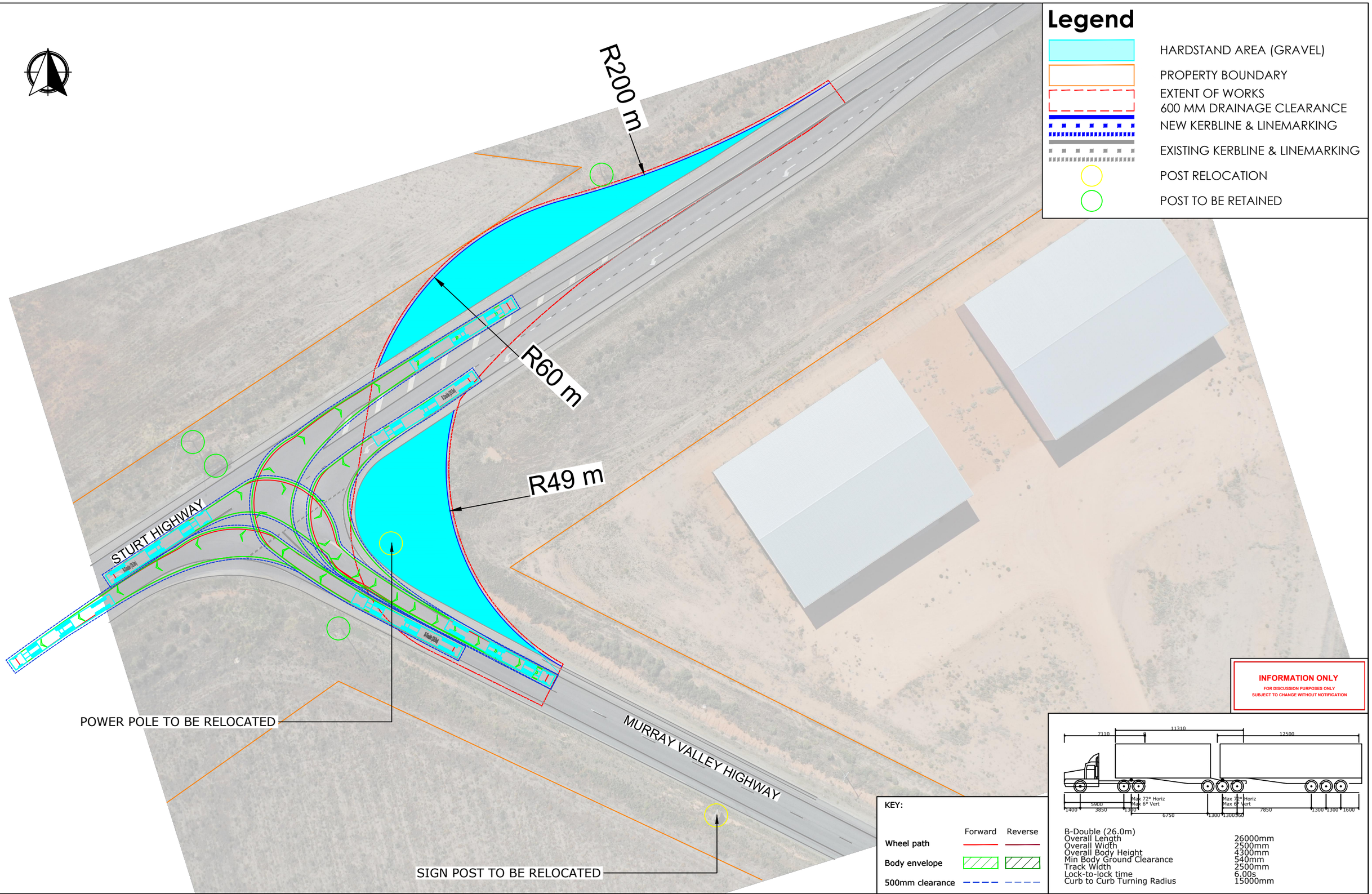
TITLE: SWEPT PATH ANALYSIS - STURT HIGHWAY & MURRAY VALLEY HIGHWAY, EUSTON
19 M ARTICULATED VEHICLE

DWG No. 21012CAD003 FIGURE (3)

DATE STAMP 13 January 2026

PROJECT No.	SCALE	REV.
21012	1:750 @A3	C

Filename: 21012CAD003-260113-Concept Design



Legend

- HARDSTAND AREA (GRAVEL)
- PROPERTY BOUNDARY
- EXTENT OF WORKS
- 600 MM DRAINAGE CLEARANCE
- NEW KERBLINE & LINEMARKING
- EXISTING KERBLINE & LINEMARKING
- POST RELOCATION
- POST TO BE RETAINED

INFORMATION ONLY

FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
500mm clearance		

B-Double (26.0m)	
Overall Length	26000mm
Overall Width	2500mm
Overall Body Height	4300mm
Min Body Ground Clearance	540mm
Track Width	2500mm
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15000mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT: KERI KERI WIND FARM

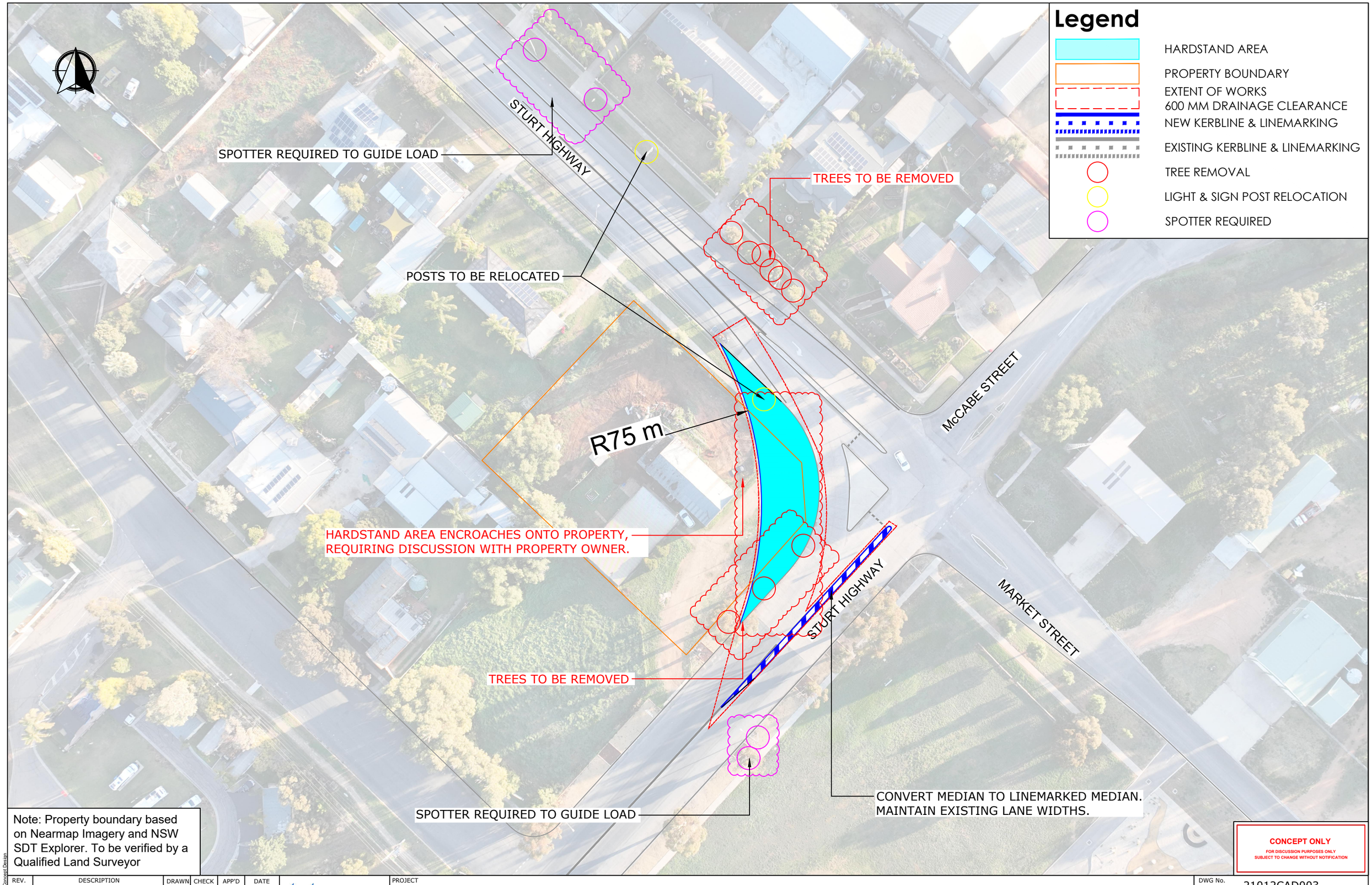
TITLE: SWEPT PATH ANALYSIS - STURT HIGHWAY & MURRAY VALLEY HIGHWAY, EUSTON
26 M B-DOUBLE VEHICLE

DWG No. 21012CAD003
FIGURE (4)

DATE STAMP: 13 January 2026

PROJECT No. 21012 | SCALE 1:750 @A3 | REV. C

Filename: 21012CAD003-260113-Concept Design



Note: Property boundary based on Nearmap Imagery and NSW SDT Explorer. To be verified by a Qualified Land Surveyor

CONCEPT ONLY
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT: KERI KERI WIND FARM

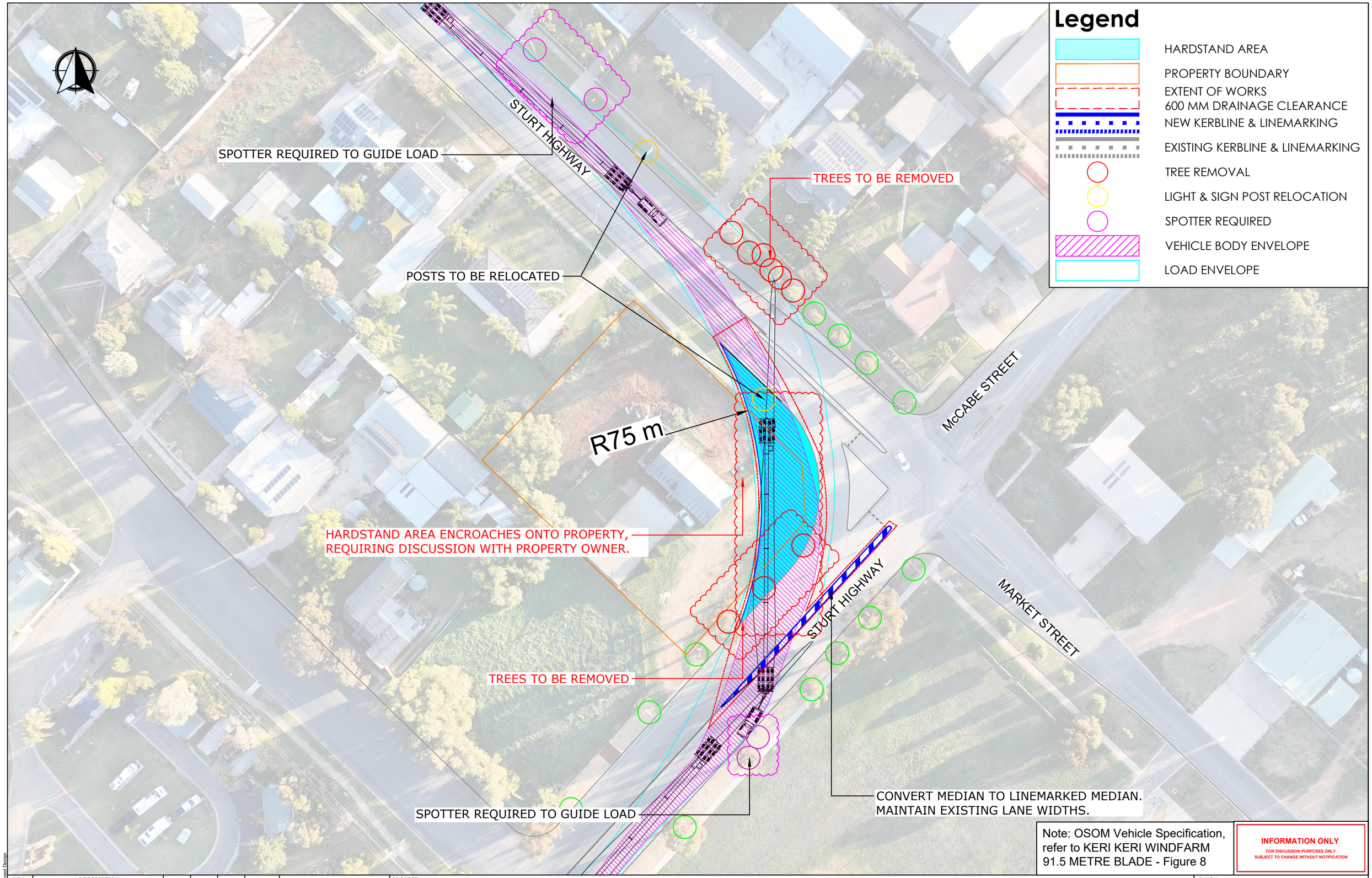
TITLE: CONCEPT DESIGN - STURT HIGHWAY & MARKET STREET, BALRANALD

DWG No. 21012CAD003 FIGURE (5)

DATE STAMP 13 January 2026

PROJECT No. 21012 | SCALE 1:750 @A3 | REV. C

Filename: 21012CAD003-260113-Concept Design



Note: OSOM Vehicle Specification, refer to KERI KERI WINDFARM 91.5 METRE BLADE - Figure 8

INFORMATION ONLY
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT: KERI KERI WIND FARM

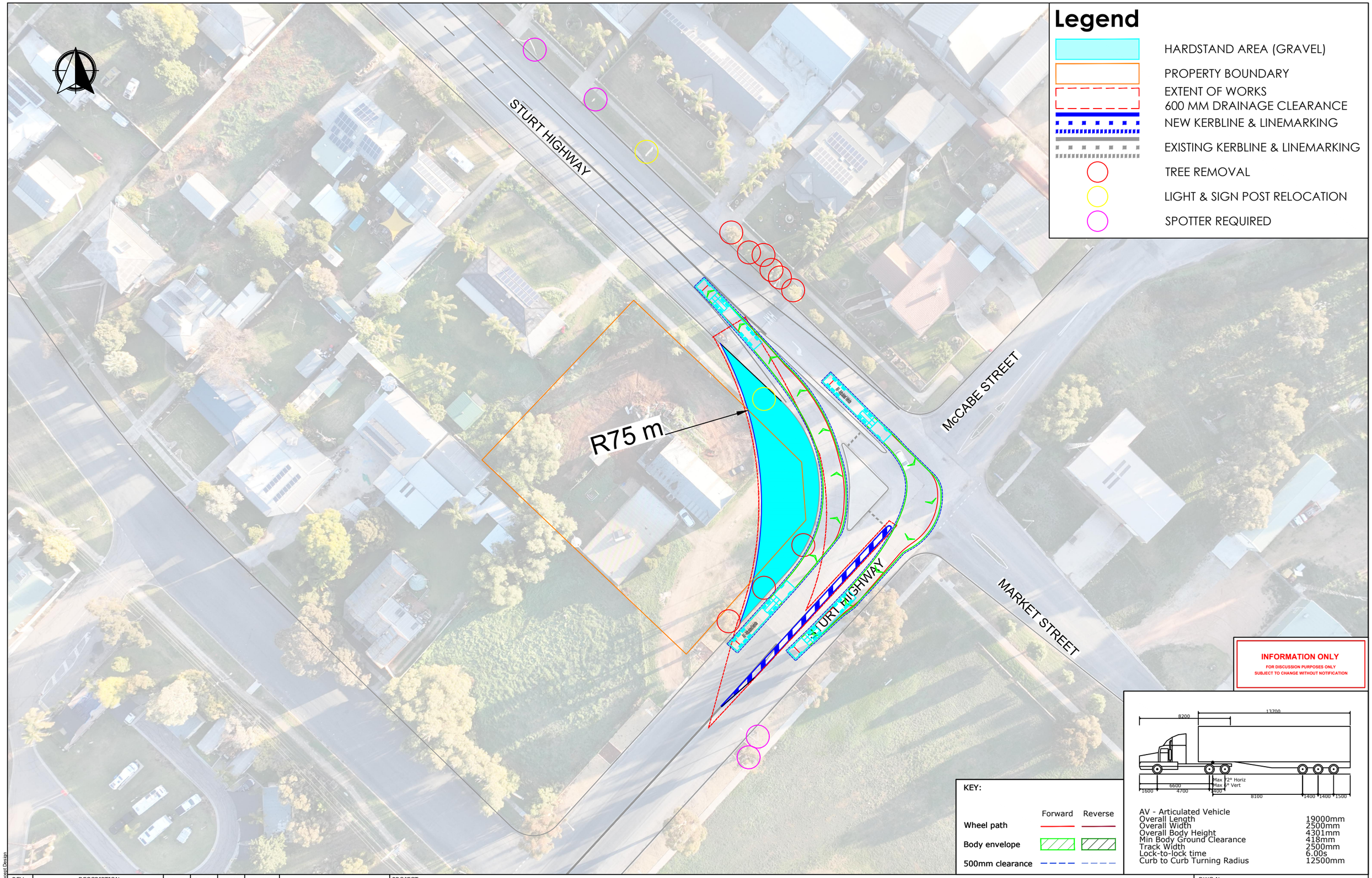
TITLE: SWEPT PATH ANALYSIS - STURT HIGHWAY & MARKET STREET, BALRANALD
OVERSIZE / OVERMASS VEHICLE

DWG No. 21012CAD003
FIGURE (6)

DATE STAMP 13 January 2026

PROJECT No. 21012 | SCALE 1:750 @A3 | REV. C

Filename: 21012CAD003-260113-Concept Design



Legend

- HARDSTAND AREA (GRAVEL)
- PROPERTY BOUNDARY
- EXTENT OF WORKS
- 600 MM DRAINAGE CLEARANCE
- NEW KERBLINE & LINEMARKING
- EXISTING KERBLINE & LINEMARKING
- TREE REMOVAL
- LIGHT & SIGN POST RELOCATION
- SPOTTER REQUIRED

INFORMATION ONLY

FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
500mm clearance		

AV - Articulated Vehicle

Overall Length	19000mm
Overall Width	2500mm
Overall Body Height	4301mm
Min Body Ground Clearance	418mm
Track Width	2500mm
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12500mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT: KERI KERI WIND FARM

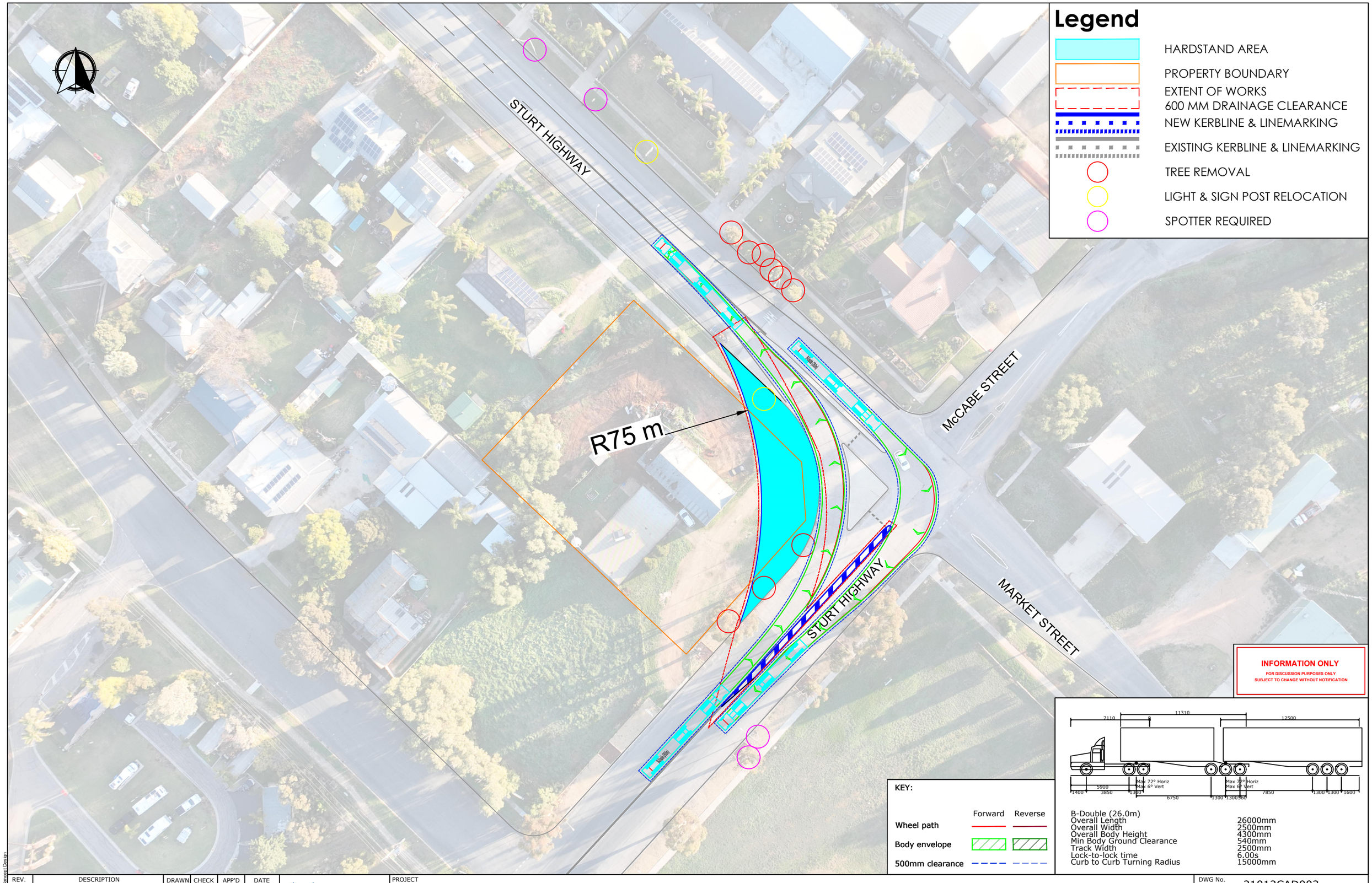
TITLE: SWEPT PATH ANALYSIS - STURT HIGHWAY & MARKET STREET, BALRANALD
19 M ARTICULATED VEHICLE

DWG No. 21012CAD003
FIGURE (7)

DATE STAMP 13 January 2026

PROJECT No. 21012 | SCALE 1:750 @A3 | REV. C

Filename: 21012CAD003-260113-Concept Design



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT

KERI KERI WIND FARM

TITLE

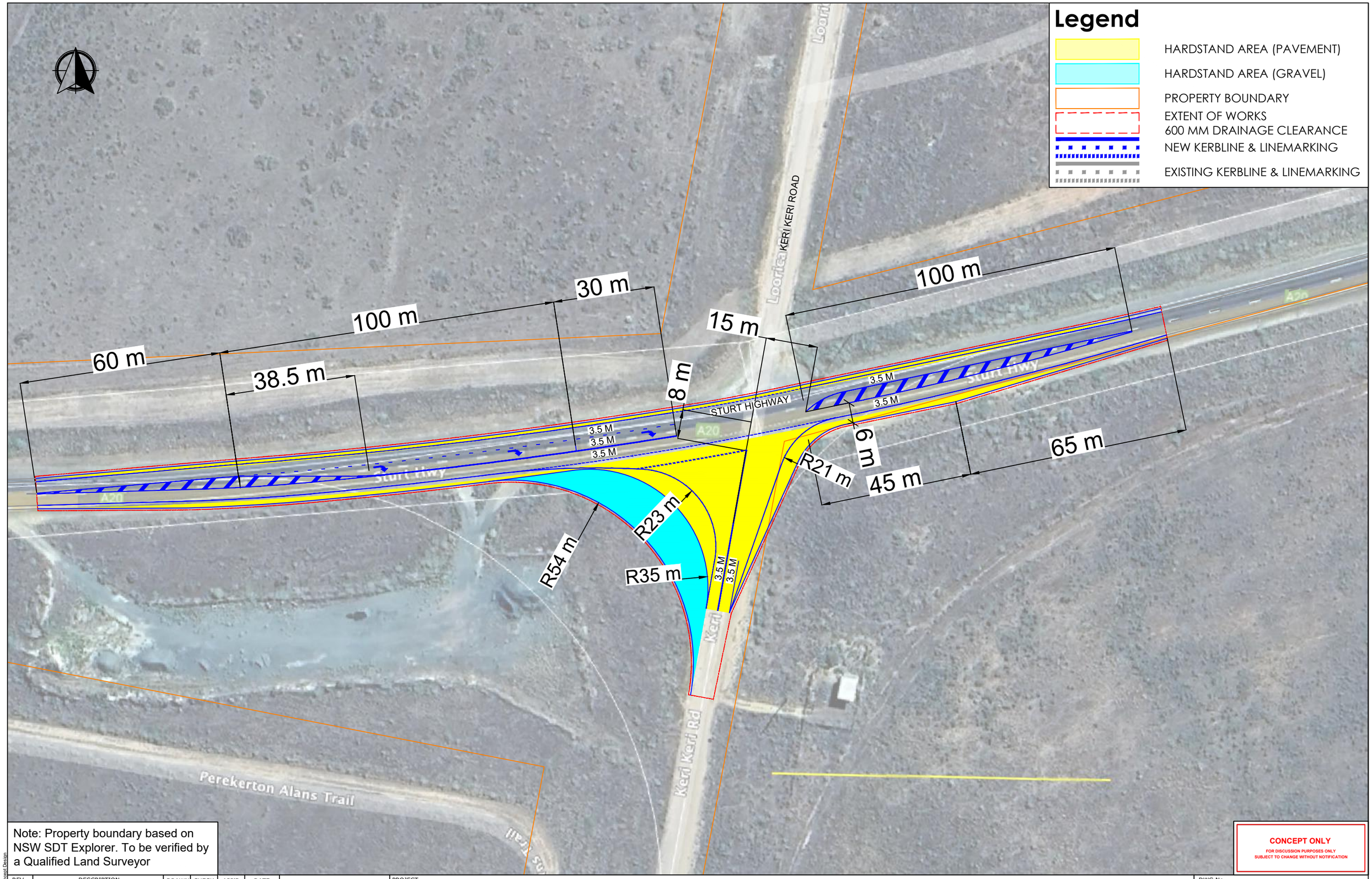
SWEPT PATH ANALYSIS - STURT HIGHWAY & MARKET STREET, BALRANALD
26 M B-DOUBLE VEHICLE

DWG No. 21012CAD003
FIGURE (8)

DATE STAMP 13 January 2026

PROJECT No.	SCALE	REV.
21012	1:750 @A3	C

Filename: 21012CAD003-260113-Concept Design



Note: Property boundary based on NSW SDT Explorer. To be verified by a Qualified Land Surveyor

CONCEPT ONLY
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REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT: KERI KERI WIND FARM

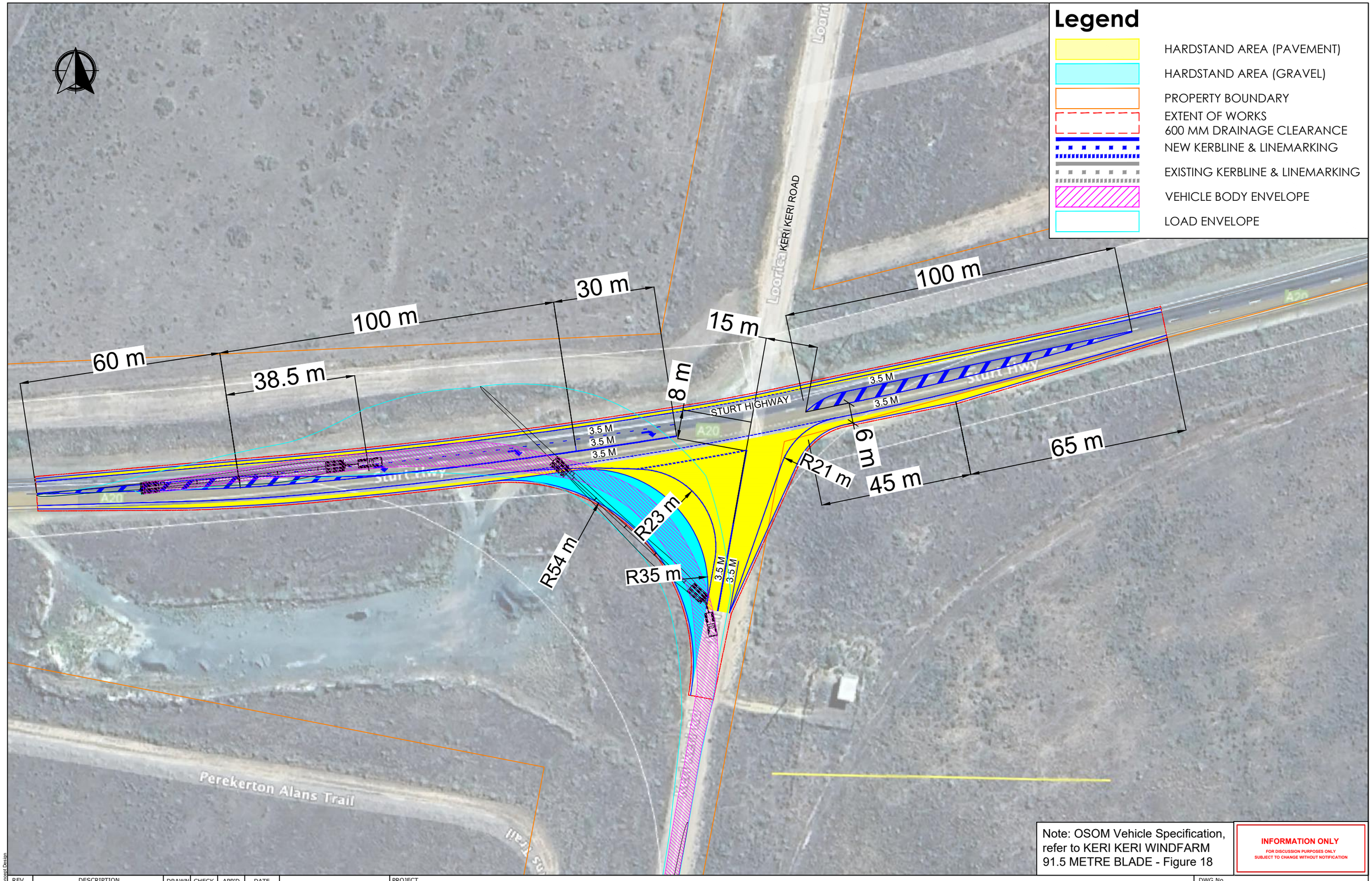
TITLE: CONCEPT DESIGN - STURT HIGHWAY & KERI KERI ROAD, KERI KERI

DWG No. 21012CAD003 FIGURE (9)

DATE STAMP 13 January 2026

PROJECT No.	SCALE	REV.
21012	1:1000 @A3	C

Filename: 21012CAD003-260113-Concept Design



Note: OSOM Vehicle Specification, refer to KERI KERI WINDFARM 91.5 METRE BLADE - Figure 18

INFORMATION ONLY
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT: KERI KERI WIND FARM

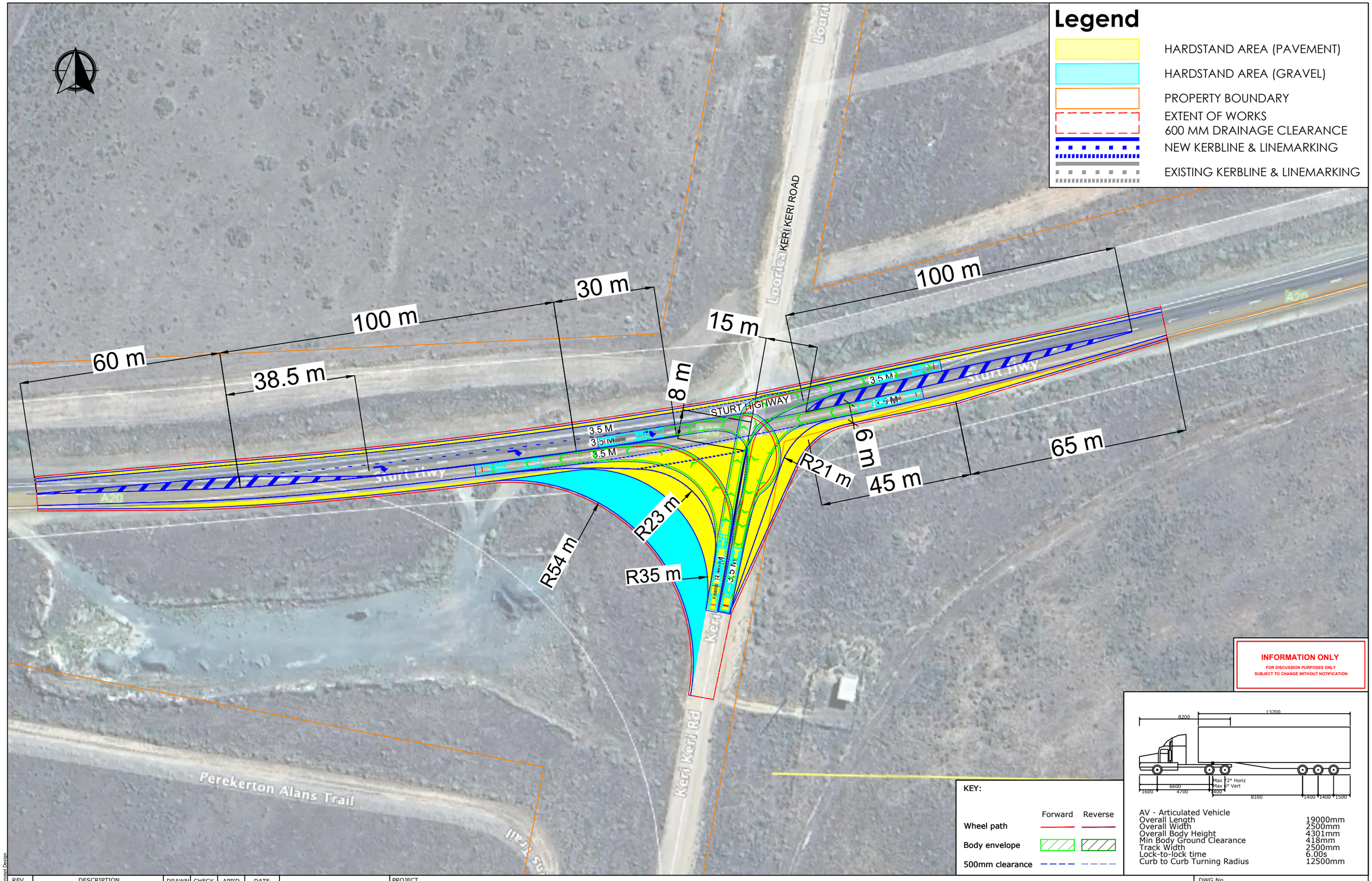
TITLE: SWEPT PATH ANALYSIS - STURT HIGHWAY & KERI KERI ROAD, KERI KERI
OVERSIZE / OVERMASS VEHICLE

DWG No. 21012CAD003
FIGURE (10)

DATE STAMP 13 January 2026

PROJECT No.	SCALE	REV.
21012	1:1000 @A3	C

Filename: 21012CAD003-260113-Concept Design



INFORMATION ONLY
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

KEY:

	Forward	Reverse
Wheel path		
Body envelope		
500mm clearance		

AV - Articulated Vehicle	
Overall Length	19000mm
Overall Width	2500mm
Overall Body Height	4301mm
Min Body Ground Clearance	418mm
Track Width	2500mm
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12500mm

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT
KERI KERI WIND FARM

TITLE
SWEPT PATH ANALYSIS - STURT HIGHWAY & KERI KERI ROAD, KERI KERI
19 M ARTICUALTED VEHICLE

DWG No. 21012CAD003
FIGURE (11)

DATE STAMP 13 January 2026

PROJECT No.	SCALE	REV.
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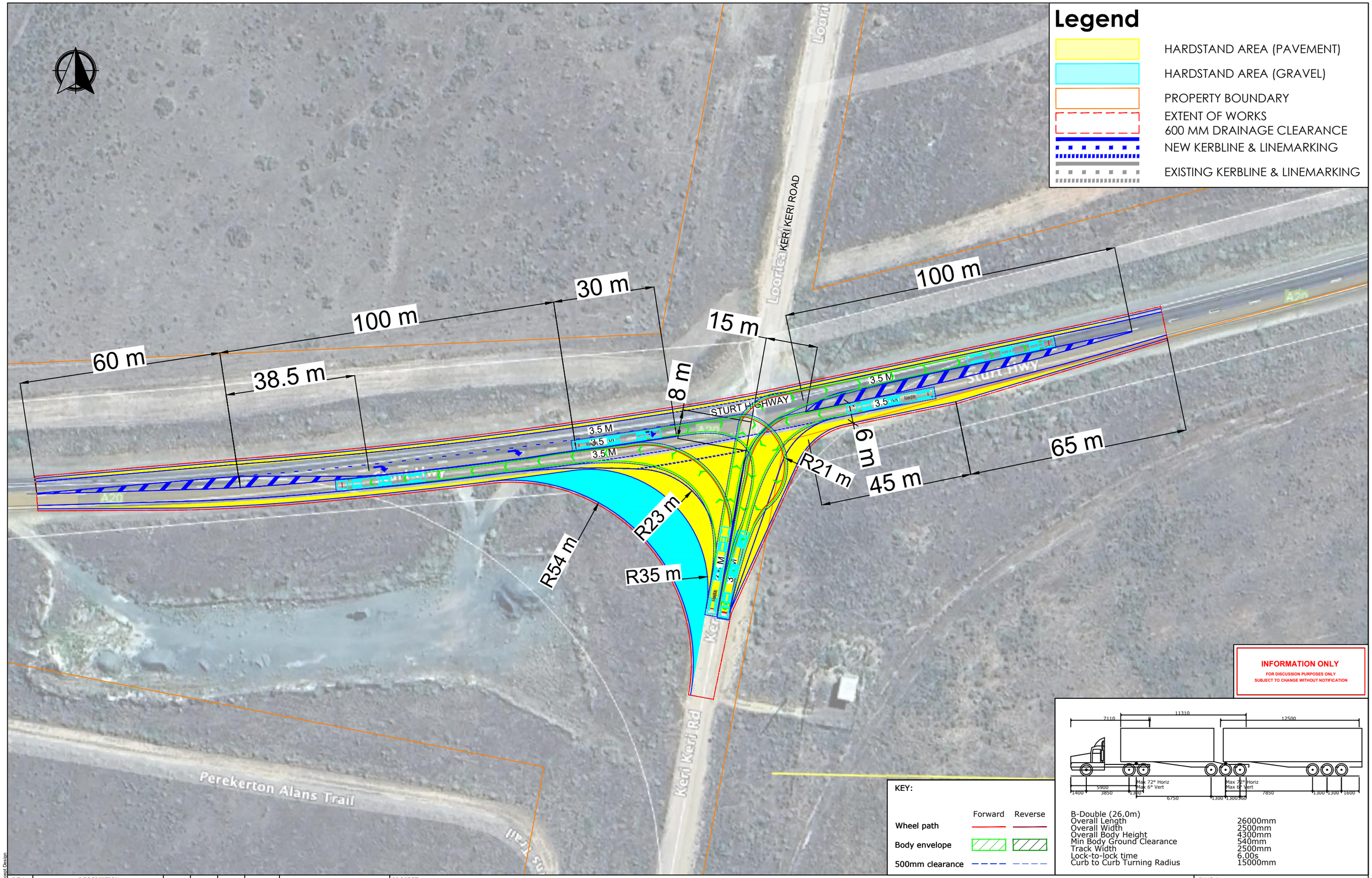
Filename: 21012CAD003-260113-Concept Design



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
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B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT
KERI KERI WIND FARM

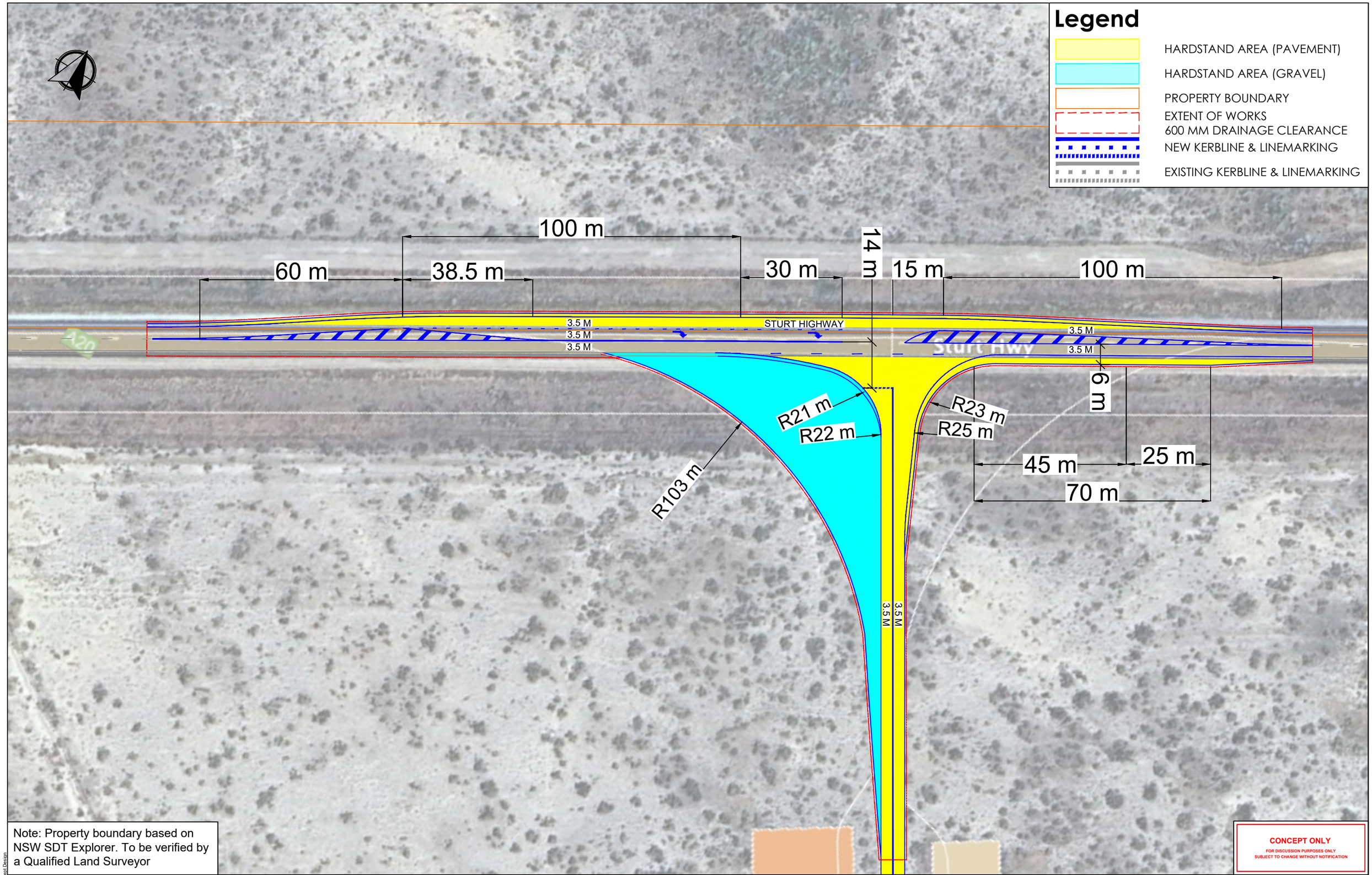
TITLE
SWEPT PATH ANALYSIS - STURT HIGHWAY & KERI KERI ROAD, KERI KERI
26 M B-DOUBLE VEHICLE

DWG No. 21012CAD003
FIGURE (12)

DATE STAMP 13 January 2026

PROJECT No. 21012 | SCALE 1:1000 @A3 | REV. C

Filename: 21012CAD003-260113-Concept Design



Note: Property boundary based on NSW SDT Explorer. To be verified by a Qualified Land Surveyor

CONCEPT ONLY
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT
KERI KERI WIND FARM

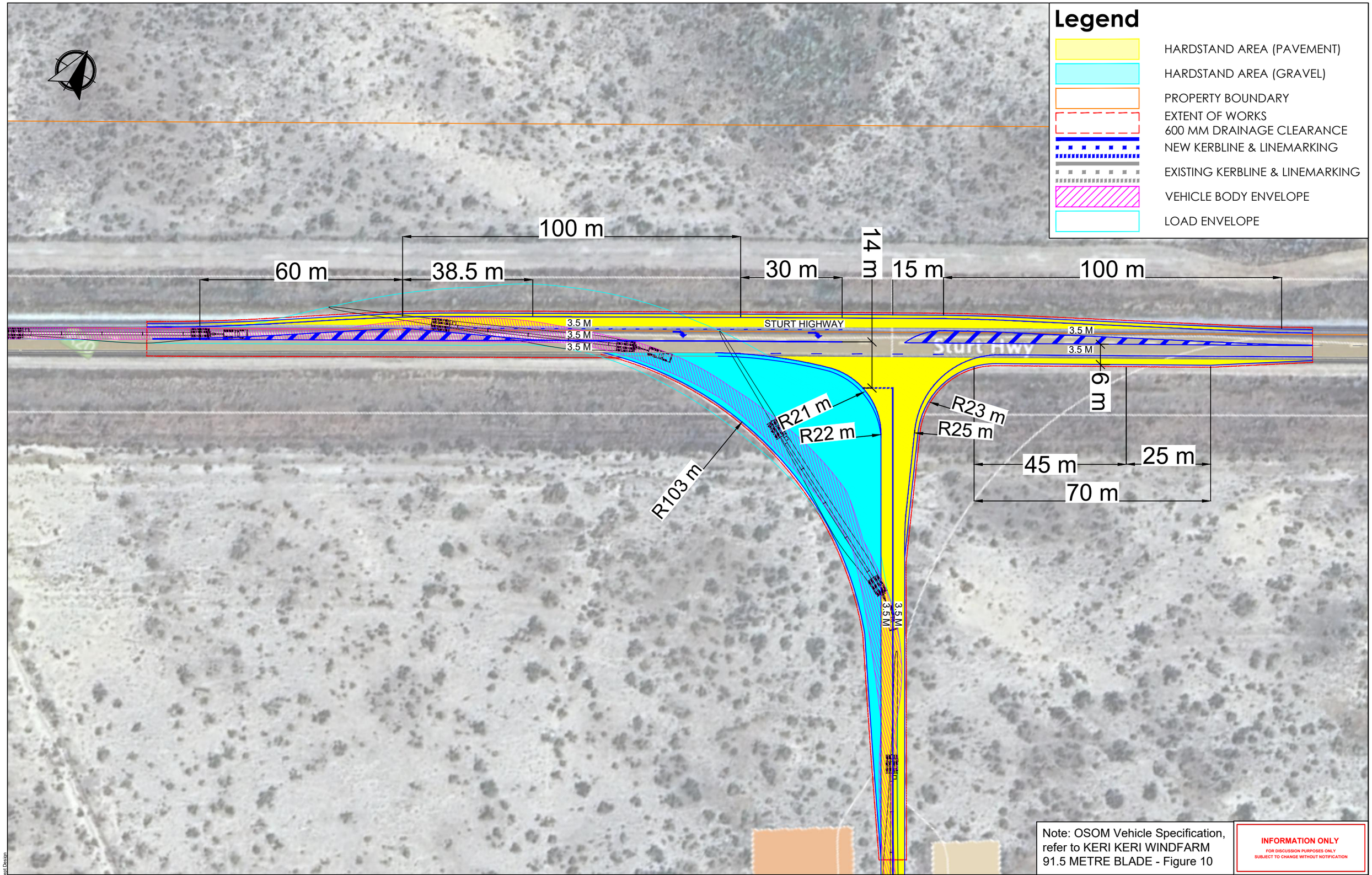
TITLE
CONCEPT DESIGN -
STURT HIGHWAY & NORTHERN SITE ACCESS

DWG No. 21012CAD003
FIGURE (13)

DATE STAMP 13 January 2026

PROJECT No.	SCALE	REV.
21012	1:1000 @A3	C

Filename: 21012CAD003-260113-Concept Design



Note: OSOM Vehicle Specification, refer to KERI KERI WINDFARM 91.5 METRE BLADE - Figure 10

INFORMATION ONLY
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

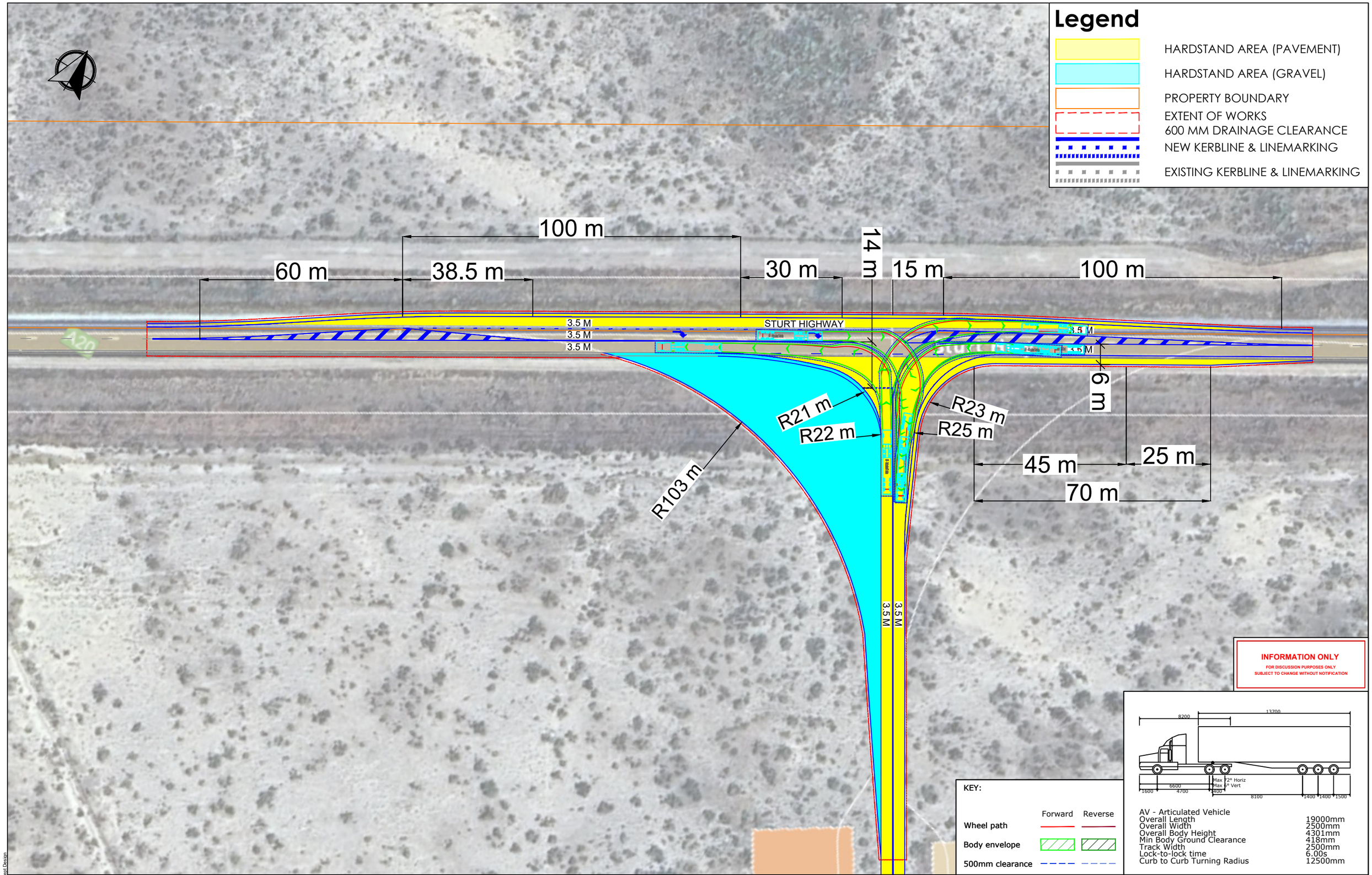
ttpp transport planning

PROJECT
KERI KERI WIND FARM

TITLE
SWEPT PATH ANALYSIS - STURT HIGHWAY & NORTHERN SITE ACCESS
OVERSIZE / OVERMASS VEHICLE

DWG No. 21012CAD003 FIGURE (14)
DATE STAMP 13 January 2026
PROJECT No. 21012
SCALE 1:1000 @A3
REV. C

Filename: 21012CAD003-260113-Concept Design



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT

KERI KERI WIND FARM

TITLE

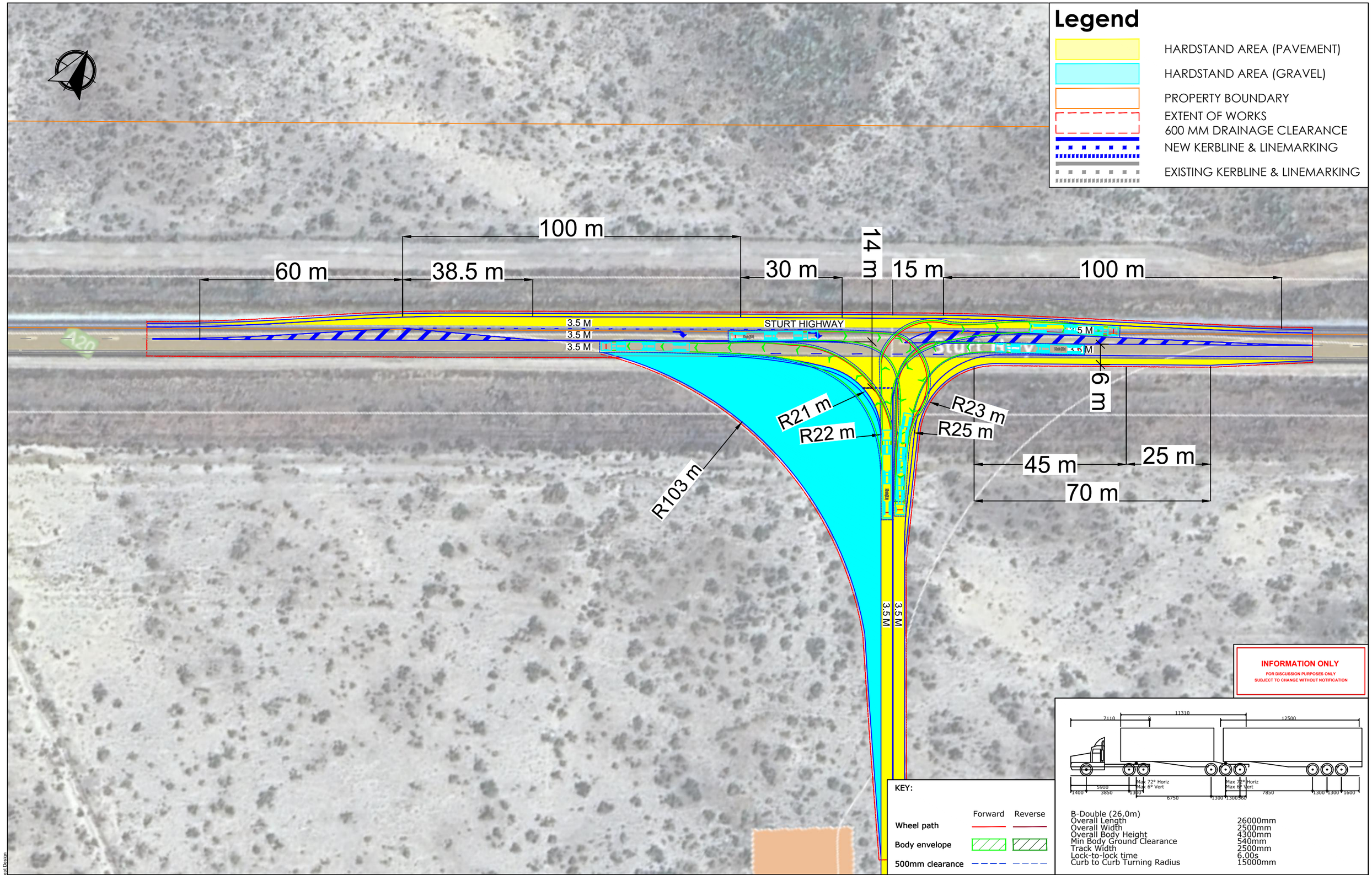
SWEPT PATH ANALYSIS - STURT HIGHWAY & NORTHERN SITE ACCESS
19 M ARTICULATED VEHICLE

DWG No. 21012CAD003
FIGURE (15)

DATE STAMP 13 January 2026

PROJECT No.	SCALE	REV.
21012	1:1000 @A3	C

Filename: 21012CAD003-260113-Concept Design



REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT

KERI KERI WIND FARM

TITLE

SWEPT PATH ANALYSIS - STURT HIGHWAY & NORTHERN SITE ACCESS
26 M B-DOUBLE VEHICLE

DWG No. 21012CAD003
FIGURE (16)

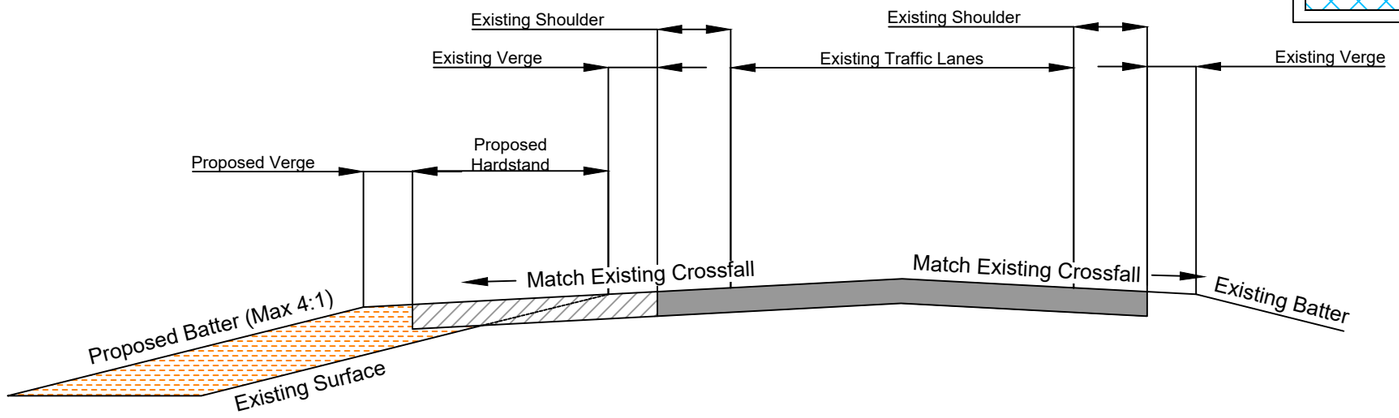
DATE STAMP 13 January 2026

PROJECT No. 21012 | SCALE 1:1000 @A3 | REV. C

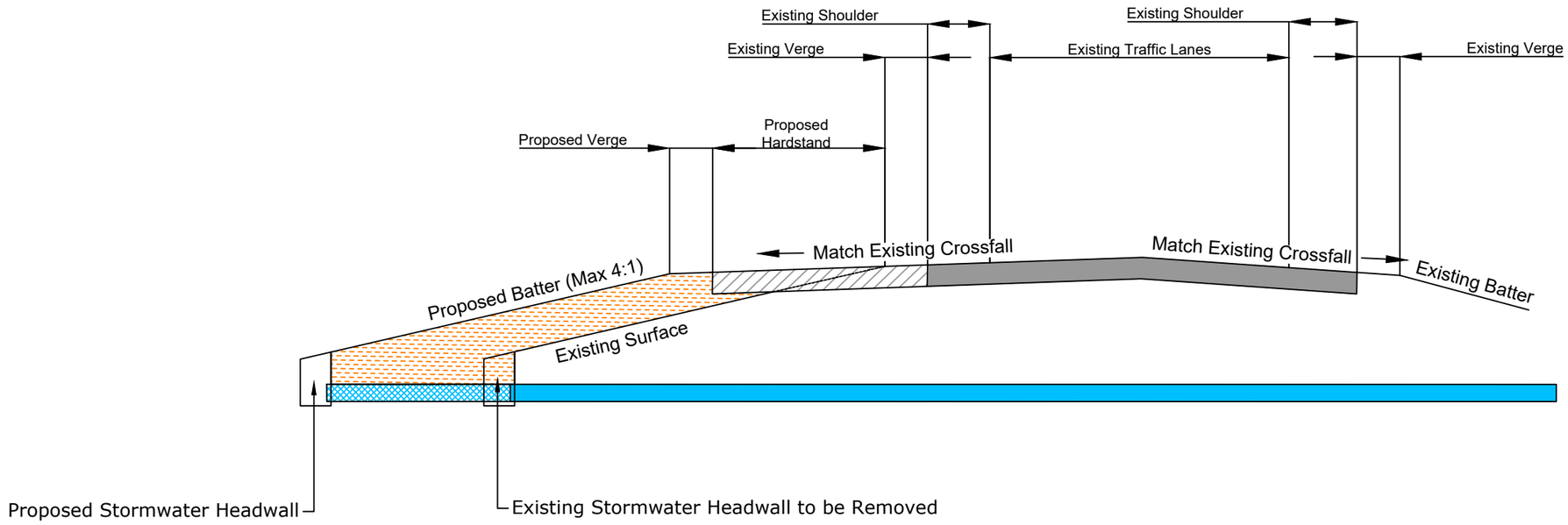
Filename: 21012CAD003-260113-Concept Design

Legend

- EXISTING PAVEMENT
- PROPOSED PAVEMENT
- EARTHFILL
- EXISTING STORMWATER PIPE(S)
- PROPOSED STORMWATER PIPE(S) EXTENSION



Typical Cross Section



Typical Cross Section - Culvert

INFORMATION ONLY
FOR DISCUSSION PURPOSES ONLY
SUBJECT TO CHANGE WITHOUT NOTIFICATION

REV.	DESCRIPTION	DRAWN	CHECK	APP'D	DATE
A	ISSUE FOR DISCUSSION	AL	JR	JR	10/12/25
B	PLAN UPDATE	AL	JR	JR	12/12/25
C	PLAN UPDATE	AL	JR	JR	13/01/26

ttpp transport planning

PROJECT: KERI KERI WIND FARM

TITLE: TYPICAL CROSS SECTION

DWG No. 21012CAD003 FIGURE (17)

DATE STAMP 13 January 2026

PROJECT No. 21012 | SCALE NTS | REV. C

Filename: 21012CAD003-260113-Concept Design

Appendix F

SIDRA Modelling Results

MOVEMENT SUMMARY

Site: [101 (2)] Sturt Hwy-Keri Keri Rd (AM Peak) (2028 Base (No Project Traffic))

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Keri Keri Rd (S)															
1	L2	All MCs	1	0.0	1	0.0	0.003	8.0	LOS A	0.0	0.1	0.23	0.58	0.23	73.0
2	T1	All MCs	1	0.0	1	0.0	0.003	7.8	LOS A	0.0	0.1	0.23	0.58	0.23	71.3
3	R2	All MCs	1	0.0	1	0.0	0.003	8.6	LOS A	0.0	0.1	0.23	0.58	0.23	72.9
Approach			3	0.0	3	0.0	0.003	8.2	LOS A	0.0	0.1	0.23	0.58	0.23	72.4
East: Sturt Hwy (E)															
4	L2	All MCs	1	0.0	1	0.0	0.042	8.2	LOS A	0.0	0.1	0.01	0.02	0.01	89.8
5	T1	All MCs	65	37.1	65	37.1	0.042	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	108.2
6	R2	All MCs	1	0.0	1	0.0	0.042	8.1	LOS A	0.0	0.1	0.01	0.02	0.01	89.8
Approach			67	35.9	67	35.9	0.042	0.3	NA	0.0	0.1	0.01	0.02	0.01	107.5
North: Keri Keri Rd (N)															
7	L2	All MCs	1	0.0	1	0.0	0.003	8.0	LOS A	0.0	0.1	0.23	0.58	0.23	72.9
8	T1	All MCs	1	0.0	1	0.0	0.003	7.8	LOS A	0.0	0.1	0.23	0.58	0.23	71.2
9	R2	All MCs	1	0.0	1	0.0	0.003	8.6	LOS A	0.0	0.1	0.23	0.58	0.23	72.8
Approach			3	0.0	3	0.0	0.003	8.1	LOS A	0.0	0.1	0.23	0.58	0.23	72.3
West: Sturt Hwy (W)															
10	L2	All MCs	1	0.0	1	0.0	0.036	8.2	LOS A	0.0	0.0	0.00	0.01	0.00	61.0
11	T1	All MCs	59	28.6	59	28.6	0.036	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	109.3
12	R2	All MCs	1	0.0	1	0.0	0.001	7.9	LOS A	0.0	0.0	0.17	0.60	0.17	75.1
Approach			61	27.6	61	27.6	0.036	0.3	NA	0.0	0.0	0.00	0.02	0.00	107.0
All Vehicles			135	30.5	135	30.5	0.042	0.6	NA	0.0	0.1	0.02	0.05	0.02	104.9

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101] Sturt Hwy-Site Access (AM Peak) (2028 Base (No Project Traffic))

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	1	0.0	1	0.0	0.002	4.8	LOS A	0.0	0.0	0.20	0.49	0.20	56.1
3	R2	All MCs	1	0.0	1	0.0	0.002	5.3	LOS A	0.0	0.0	0.20	0.49	0.20	56.0
Approach			2	0.0	2	0.0	0.002	5.0	LOS A	0.0	0.0	0.20	0.49	0.20	56.1
East: Sturt Highway (E)															
4	L2	All MCs	1	0.0	1	0.0	0.042	8.2	LOS A	0.0	0.0	0.00	0.01	0.00	84.1
5	T1	All MCs	65	37.1	65	37.1	0.042	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	109.3
Approach			66	36.5	66	36.5	0.042	0.1	NA	0.0	0.0	0.00	0.01	0.00	108.8
West: Sturt Highway (W)															
11	T1	All MCs	59	28.6	59	28.6	0.035	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	110.0
12	R2	All MCs	1	0.0	1	0.0	0.001	7.9	LOS A	0.0	0.0	0.17	0.60	0.17	57.1
Approach			60	28.1	60	28.1	0.035	0.1	NA	0.0	0.0	0.00	0.01	0.00	108.2
All Vehicles			128	32.0	128	32.0	0.042	0.2	NA	0.0	0.0	0.00	0.02	0.00	106.9

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101 (3)] Sturt Hwy-Keri Keri Rd (PM Peak) (2028 Base (No Project Traffic))

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Keri Keri Rd (S)															
1	L2	All MCs	1	0.0	1	0.0	0.003	8.0	LOS A	0.0	0.1	0.21	0.58	0.21	73.2
2	T1	All MCs	1	0.0	1	0.0	0.003	7.7	LOS A	0.0	0.1	0.21	0.58	0.21	71.6
3	R2	All MCs	1	0.0	1	0.0	0.003	8.5	LOS A	0.0	0.1	0.21	0.58	0.21	73.2
Approach			3	0.0	3	0.0	0.003	8.1	LOS A	0.0	0.1	0.21	0.58	0.21	72.7
East: Sturt Hwy (E)															
4	L2	All MCs	1	0.0	1	0.0	0.035	8.2	LOS A	0.0	0.1	0.01	0.03	0.01	89.9
5	T1	All MCs	57	27.8	57	27.8	0.035	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	108.3
6	R2	All MCs	1	0.0	1	0.0	0.035	8.0	LOS A	0.0	0.1	0.01	0.03	0.01	89.9
Approach			59	26.8	59	26.8	0.035	0.3	NA	0.0	0.1	0.01	0.03	0.01	107.5
North: Keri Keri Rd (N)															
7	L2	All MCs	1	0.0	1	0.0	0.003	8.0	LOS A	0.0	0.1	0.21	0.58	0.21	73.2
8	T1	All MCs	1	0.0	1	0.0	0.003	7.7	LOS A	0.0	0.1	0.21	0.58	0.21	71.5
9	R2	All MCs	1	0.0	1	0.0	0.003	8.5	LOS A	0.0	0.1	0.21	0.58	0.21	73.1
Approach			3	0.0	3	0.0	0.003	8.1	LOS A	0.0	0.1	0.21	0.58	0.21	72.6
West: Sturt Hwy (W)															
10	L2	All MCs	1	0.0	1	0.0	0.032	8.2	LOS A	0.0	0.0	0.00	0.01	0.00	61.0
11	T1	All MCs	51	33.3	51	33.3	0.032	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	109.2
12	R2	All MCs	1	0.0	1	0.0	0.001	7.9	LOS A	0.0	0.0	0.15	0.61	0.15	75.2
Approach			53	32.0	53	32.0	0.032	0.3	NA	0.0	0.0	0.00	0.03	0.00	106.5
All Vehicles			118	27.7	118	27.7	0.035	0.7	NA	0.0	0.1	0.02	0.06	0.02	104.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [101 (4)] Sturt Hwy-Site Access (PM Peak) (2028 Base (No Project Traffic))

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	1	0.0	1	0.0	0.002	4.7	LOS A	0.0	0.0	0.18	0.49	0.18	56.2
3	R2	All MCs	1	0.0	1	0.0	0.002	5.1	LOS A	0.0	0.0	0.18	0.49	0.18	56.2
Approach			2	0.0	2	0.0	0.002	4.9	LOS A	0.0	0.0	0.18	0.49	0.18	56.2
East: Sturt Highway (E)															
4	L2	All MCs	1	0.0	1	0.0	0.035	8.2	LOS A	0.0	0.0	0.00	0.01	0.00	84.1
5	T1	All MCs	57	27.8	57	27.8	0.035	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	109.3
Approach			58	27.3	58	27.3	0.035	0.2	NA	0.0	0.0	0.00	0.01	0.00	108.7
West: Sturt Highway (W)															
11	T1	All MCs	52	32.7	52	32.7	0.032	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	110.0
12	R2	All MCs	1	0.0	1	0.0	0.001	7.9	LOS A	0.0	0.0	0.15	0.61	0.15	57.1
Approach			53	32.0	53	32.0	0.032	0.2	NA	0.0	0.0	0.00	0.01	0.00	108.0
All Vehicles			113	29.0	113	29.0	0.035	0.2	NA	0.0	0.0	0.00	0.02	0.00	106.5

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101 (5)] Sturt Hwy-Keri Keri Rd (AM Peak) (2028 Base + Project Traffic)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Keri Keri Rd (S)															
1	L2	All MCs	16	93.3	16	93.3	0.018	10.9	LOS A	0.1	0.9	0.24	0.61	0.24	47.8
2	T1	All MCs	1	0.0	1	0.0	0.018	8.4	LOS A	0.1	0.9	0.24	0.61	0.24	70.0
3	R2	All MCs	1	0.0	1	0.0	0.018	9.3	LOS A	0.1	0.9	0.24	0.61	0.24	66.0
Approach			18	82.4	18	82.4	0.018	10.6	LOS A	0.1	0.9	0.24	0.61	0.24	49.6
East: Sturt Hwy (E)															
4	L2	All MCs	1	0.0	1	0.0	0.055	8.2	LOS A	0.0	0.1	0.01	0.02	0.01	89.6
5	T1	All MCs	80	48.7	80	48.7	0.055	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	107.9
6	R2	All MCs	1	0.0	1	0.0	0.055	8.1	LOS A	0.0	0.1	0.01	0.02	0.01	89.6
Approach			82	47.4	82	47.4	0.055	0.2	NA	0.0	0.1	0.01	0.02	0.01	107.3
North: Keri Keri Rd (N)															
7	L2	All MCs	1	0.0	1	0.0	0.003	8.1	LOS A	0.0	0.1	0.31	0.58	0.31	71.7
8	T1	All MCs	1	0.0	1	0.0	0.003	8.3	LOS A	0.0	0.1	0.31	0.58	0.31	70.1
9	R2	All MCs	1	0.0	1	0.0	0.003	9.4	LOS A	0.0	0.1	0.31	0.58	0.31	71.6
Approach			3	0.0	3	0.0	0.003	8.6	LOS A	0.0	0.1	0.31	0.58	0.31	71.1
West: Sturt Hwy (W)															
10	L2	All MCs	1	0.0	1	0.0	0.058	8.2	LOS A	0.0	0.0	0.00	0.01	0.00	61.1
11	T1	All MCs	93	34.1	93	34.1	0.058	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	109.5
12	R2	All MCs	16	93.3	16	93.3	0.015	11.3	LOS A	0.1	0.8	0.25	0.63	0.25	48.6
Approach			109	42.3	109	42.3	0.058	1.7	NA	0.1	0.8	0.04	0.10	0.04	92.2
All Vehicles			213	47.0	213	47.0	0.058	2.0	NA	0.1	0.9	0.05	0.12	0.05	90.1

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101 (6)] Sturt Hwy-Site Access (AM Peak) (2028 Base + Project Traffic)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	16	93.3	16	93.3	0.017	5.8	LOS A	0.1	0.8	0.20	0.49	0.20	43.5
3	R2	All MCs	1	0.0	1	0.0	0.017	5.6	LOS A	0.1	0.8	0.20	0.49	0.20	51.9
Approach			17	87.5	17	87.5	0.017	5.8	LOS A	0.1	0.8	0.20	0.49	0.20	43.9
East: Sturt Highway (E)															
4	L2	All MCs	19	0.0	19	0.0	0.051	8.2	LOS A	0.0	0.0	0.00	0.16	0.00	79.8
5	T1	All MCs	65	37.1	65	37.1	0.051	0.0	LOS A	0.0	0.0	0.00	0.16	0.00	102.0
Approach			84	28.8	84	28.8	0.051	1.8	NA	0.0	0.0	0.00	0.16	0.00	96.0
West: Sturt Highway (W)															
11	T1	All MCs	59	28.6	59	28.6	0.035	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	110.0
12	R2	All MCs	34	43.8	34	43.8	0.025	9.5	LOS A	0.1	1.1	0.22	0.63	0.22	55.4
Approach			93	34.1	93	34.1	0.035	3.5	NA	0.1	1.1	0.08	0.23	0.08	80.9
All Vehicles			194	36.4	194	36.4	0.051	3.0	NA	0.1	1.1	0.06	0.22	0.06	80.5

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101 (7)] Sturt Hwy-Keri Keri Rd (PM Peak) (2028 Base + Project Traffic)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Keri Keri Rd (S)															
1	L2	All MCs	16	93.3	16	93.3	0.018	10.9	LOS A	0.1	0.9	0.25	0.61	0.25	47.9
2	T1	All MCs	1	0.0	1	0.0	0.018	8.1	LOS A	0.1	0.9	0.25	0.61	0.25	70.1
3	R2	All MCs	1	0.0	1	0.0	0.018	9.0	LOS A	0.1	0.9	0.25	0.61	0.25	66.1
Approach			18	82.4	18	82.4	0.018	10.6	LOS A	0.1	0.9	0.25	0.61	0.25	49.6
East: Sturt Hwy (E)															
4	L2	All MCs	1	0.0	1	0.0	0.057	8.2	LOS A	0.0	0.1	0.00	0.02	0.00	90.2
5	T1	All MCs	91	33.7	91	33.7	0.057	0.0	LOS A	0.0	0.1	0.00	0.02	0.00	108.8
6	R2	All MCs	1	0.0	1	0.0	0.057	8.0	LOS A	0.0	0.1	0.00	0.02	0.00	90.2
Approach			93	33.0	93	33.0	0.057	0.2	NA	0.0	0.1	0.00	0.02	0.00	108.3
North: Keri Keri Rd (N)															
7	L2	All MCs	1	0.0	1	0.0	0.003	8.0	LOS A	0.0	0.1	0.24	0.58	0.24	71.8
8	T1	All MCs	1	0.0	1	0.0	0.003	8.0	LOS A	0.0	0.1	0.24	0.58	0.24	70.2
9	R2	All MCs	1	0.0	1	0.0	0.003	9.1	LOS A	0.0	0.1	0.24	0.58	0.24	71.7
Approach			3	0.0	3	0.0	0.003	8.4	LOS A	0.0	0.1	0.24	0.58	0.24	71.2
West: Sturt Hwy (W)															
10	L2	All MCs	1	0.0	1	0.0	0.032	8.2	LOS A	0.0	0.0	0.00	0.01	0.00	61.0
11	T1	All MCs	51	33.3	51	33.3	0.032	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	109.2
12	R2	All MCs	16	93.3	16	93.3	0.015	11.3	LOS A	0.1	0.8	0.26	0.63	0.26	48.6
Approach			67	46.9	67	46.9	0.032	2.8	NA	0.1	0.8	0.06	0.16	0.06	83.7
All Vehicles			181	42.4	181	42.4	0.057	2.3	NA	0.1	0.9	0.05	0.14	0.05	87.6

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [101 (8)] Sturt Hwy-Site Access (PM Peak) (2028 Base + Project Traffic)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	34	43.8	34	43.8	0.045	5.2	LOS A	0.2	1.6	0.19	0.50	0.19	47.6
3	R2	All MCs	19	0.0	19	0.0	0.045	5.3	LOS A	0.2	1.6	0.19	0.50	0.19	51.9
Approach			53	28.0	53	28.0	0.045	5.3	LOS A	0.2	1.6	0.19	0.50	0.19	49.1
East: Sturt Highway (E)															
4	L2	All MCs	1	0.0	1	0.0	0.035	8.2	LOS A	0.0	0.0	0.00	0.01	0.00	84.1
5	T1	All MCs	57	27.8	57	27.8	0.035	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	109.3
Approach			58	27.3	58	27.3	0.035	0.2	NA	0.0	0.0	0.00	0.01	0.00	108.7
West: Sturt Highway (W)															
11	T1	All MCs	52	32.7	52	32.7	0.032	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	110.0
12	R2	All MCs	16	93.3	16	93.3	0.014	11.0	LOS A	0.1	0.8	0.19	0.64	0.19	54.2
Approach			67	46.9	67	46.9	0.032	2.6	NA	0.1	0.8	0.05	0.15	0.05	88.6
All Vehicles			178	34.9	178	34.9	0.045	2.6	NA	0.2	1.6	0.07	0.21	0.07	75.2

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101 (9)] Sturt Hwy-Keri Keri Rd (AM Peak) (2028 Base + Project Traffic + Nearby Developments)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Keri Keri Rd (S)															
1	L2	All MCs	16	93.3	16	93.3	0.019	10.9	LOS A	0.1	0.9	0.26	0.61	0.26	47.3
2	T1	All MCs	1	0.0	1	0.0	0.019	10.2	LOS A	0.1	0.9	0.26	0.61	0.26	69.0
3	R2	All MCs	1	0.0	1	0.0	0.019	11.6	LOS A	0.1	0.9	0.26	0.61	0.26	65.1
Approach			18	82.4	18	82.4	0.019	10.9	LOS A	0.1	0.9	0.26	0.61	0.26	49.0
East: Sturt Hwy (E)															
4	L2	All MCs	1	0.0	1	0.0	0.055	8.5	LOS A	0.0	0.1	0.01	0.03	0.01	87.0
5	T1	All MCs	80	48.7	80	48.7	0.055	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	104.2
6	R2	All MCs	1	0.0	1	0.0	0.055	8.6	LOS A	0.0	0.1	0.01	0.03	0.01	87.0
Approach			82	47.4	82	47.4	0.055	0.2	NA	0.0	0.1	0.01	0.03	0.01	103.6
North: Keri Keri Rd (N)															
7	L2	All MCs	1	0.0	1	0.0	0.004	8.8	LOS A	0.0	0.1	0.48	0.62	0.48	69.0
8	T1	All MCs	1	0.0	1	0.0	0.004	10.0	LOS A	0.0	0.1	0.48	0.62	0.48	67.6
9	R2	All MCs	1	0.0	1	0.0	0.004	11.6	LOS A	0.0	0.1	0.48	0.62	0.48	69.0
Approach			3	0.0	3	0.0	0.004	10.2	LOS A	0.0	0.1	0.48	0.62	0.48	68.5
West: Sturt Hwy (W)															
10	L2	All MCs	1	0.0	1	0.0	0.171	8.2	LOS A	0.0	0.0	0.00	0.00	0.00	61.2
11	T1	All MCs	299	18.7	299	18.7	0.171	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	109.8
12	R2	All MCs	16	93.3	16	93.3	0.015	11.3	LOS A	0.1	0.8	0.25	0.63	0.25	48.6
Approach			316	22.3	316	22.3	0.171	0.6	NA	0.1	0.8	0.01	0.03	0.01	103.1
All Vehicles			419	29.6	419	29.6	0.171	1.0	NA	0.1	0.9	0.03	0.06	0.03	98.2

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101 (10)] Sturt Hwy-Site Access (AM Peak) (2028 Base + Project Traffic + Nearby Developments)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	16	93.3	16	93.3	0.017	5.8	LOS A	0.1	0.8	0.21	0.49	0.21	43.3
3	R2	All MCs	1	0.0	1	0.0	0.017	7.1	LOS A	0.1	0.8	0.21	0.49	0.21	51.6
Approach			17	87.5	17	87.5	0.017	5.9	LOS A	0.1	0.8	0.21	0.49	0.21	43.7
East: Sturt Highway (E)															
4	L2	All MCs	19	0.0	19	0.0	0.051	8.2	LOS A	0.0	0.0	0.00	0.16	0.00	79.8
5	T1	All MCs	65	37.1	65	37.1	0.051	0.0	LOS A	0.0	0.0	0.00	0.16	0.00	102.0
Approach			84	28.8	84	28.8	0.051	1.8	NA	0.0	0.0	0.00	0.16	0.00	96.0
West: Sturt Highway (W)															
11	T1	All MCs	265	15.5	265	15.5	0.148	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	110.0
12	R2	All MCs	34	43.8	34	43.8	0.025	9.5	LOS A	0.1	1.1	0.22	0.63	0.22	55.4
Approach			299	18.7	299	18.7	0.148	1.1	NA	0.1	1.1	0.02	0.07	0.02	99.0
All Vehicles			400	23.7	400	23.7	0.148	1.4	NA	0.1	1.1	0.03	0.11	0.03	93.4

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [101 (11)] Sturt Hwy-Keri Keri Rd (PM Peak) (2028 Base + Project Traffic + Nearby Developments)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Keri Keri Rd (S)															
1	L2	All MCs	16	93.3	16	93.3	0.025	12.7	LOS A	0.1	1.1	0.45	0.68	0.45	46.2
2	T1	All MCs	1	0.0	1	0.0	0.025	9.8	LOS A	0.1	1.1	0.45	0.68	0.45	66.6
3	R2	All MCs	1	0.0	1	0.0	0.025	11.1	LOS A	0.1	1.1	0.45	0.68	0.45	63.0
Approach			18	82.4	18	82.4	0.025	12.5	LOS A	0.1	1.1	0.45	0.68	0.45	47.8
East: Sturt Hwy (E)															
4	L2	All MCs	1	0.0	1	0.0	0.170	8.2	LOS A	0.0	0.1	0.00	0.01	0.00	90.8
5	T1	All MCs	297	18.4	297	18.4	0.170	0.0	LOS A	0.0	0.1	0.00	0.01	0.00	109.7
6	R2	All MCs	1	0.0	1	0.0	0.170	8.0	LOS A	0.0	0.1	0.00	0.01	0.00	90.8
Approach			299	18.3	299	18.3	0.170	0.1	NA	0.0	0.1	0.00	0.01	0.00	109.5
North: Keri Keri Rd (N)															
7	L2	All MCs	1	0.0	1	0.0	0.004	8.0	LOS A	0.0	0.1	0.32	0.57	0.32	67.8
8	T1	All MCs	1	0.0	1	0.0	0.004	9.7	LOS A	0.0	0.1	0.32	0.57	0.32	66.4
9	R2	All MCs	1	0.0	1	0.0	0.004	11.2	LOS A	0.0	0.1	0.32	0.57	0.32	67.8
Approach			3	0.0	3	0.0	0.004	9.6	LOS A	0.0	0.1	0.32	0.57	0.32	67.3
West: Sturt Hwy (W)															
10	L2	All MCs	1	0.0	1	0.0	0.032	8.2	LOS A	0.0	0.0	0.00	0.01	0.00	61.0
11	T1	All MCs	51	33.3	51	33.3	0.032	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	109.2
12	R2	All MCs	16	93.3	16	93.3	0.020	13.1	LOS A	0.1	1.1	0.47	0.68	0.47	46.9
Approach			67	46.9	67	46.9	0.032	3.2	NA	0.1	1.1	0.11	0.17	0.11	82.5
All Vehicles			387	26.1	387	26.1	0.170	1.3	NA	0.1	1.1	0.04	0.07	0.04	97.6

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: [101 (12)] Sturt Hwy-Site Access (PM Peak) (2028 Base + Project Traffic + Nearby Developments)

Output produced by SIDRA INTERSECTION Version: 10.0.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Site Access															
1	L2	All MCs	34	43.8	34	43.8	0.059	6.5	LOS A	0.2	2.0	0.41	0.60	0.41	46.4
3	R2	All MCs	19	0.0	19	0.0	0.059	6.9	LOS A	0.2	2.0	0.41	0.60	0.41	50.5
Approach			53	28.0	53	28.0	0.059	6.6	LOS A	0.2	2.0	0.41	0.60	0.41	47.8
East: Sturt Highway (E)															
4	L2	All MCs	1	0.0	1	0.0	0.147	8.2	LOS A	0.0	0.0	0.00	0.00	0.00	84.5
5	T1	All MCs	263	15.2	263	15.2	0.147	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	109.8
Approach			264	15.1	264	15.1	0.147	0.0	NA	0.0	0.0	0.00	0.00	0.00	109.7
West: Sturt Highway (W)															
11	T1	All MCs	52	32.7	52	32.7	0.032	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	110.0
12	R2	All MCs	16	93.3	16	93.3	0.019	12.7	LOS A	0.1	1.0	0.44	0.67	0.44	52.1
Approach			67	46.9	67	46.9	0.032	3.0	NA	0.1	1.0	0.10	0.16	0.10	87.2
All Vehicles			384	22.5	384	22.5	0.147	1.5	NA	0.2	2.0	0.07	0.11	0.07	89.7

Site Level of Service (LOS) Method: Delay (NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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