Dederang BESS

Traffic Impact Assessment

Mint Renewables Pty Ltd

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Executive summary

This traffic impact assessment has been prepared on behalf of Mint Renewables (the Proponent) to support the Planning Permit application for the development of the proposed 200 MW/4200 MWh Dederang Battery Energy Storage System (BESS) adjacent to the Dederang Terminal Station (DDTS) in Dederang (the Project).

The development is proposed to be accessed off Yackandandah-Dederang Road, via a new access (for both construction and operation vehicle access). Two access locations are currently being explored, with the location to be finalised at a later stage, prior to construction.

For normal operation and maintenance activities the assessment found that, the Projectis not expected to notably impact the capacity or safety of either Yackandandah-Dederang Road or Kiewa Valley Highway, or the surrounding road network.

During construction activities, vehicle movements will be higher than during normal operations and maintenance activities, however, the additional traffic flow on the key access roads will be subject to appropriate traffic management treatments to the satisfaction of the Responsible Authority. Therefore, construction impacts are expected to be manageable.

The largest construction vehicle (approximately 12 row transformer trailer delivery vehicle) is expected to be able to access the site via Yackandandah-Dederang Road based on the indicative concept intersection layout plans, but may require minor widening and kerb reinstatements to facilitate swept path movements along it's wider road access route. The transformer delivery vehicle access route will depend on the characteristics of the confirmed vehicle and consultation with the relevant authorities including NHVR, Regional Roads Victoria, and DTP. Specific access routes will be confirmed following selection of a preferred BESS supplier and construction contractor and detailed in an appropriate TMP.

Any required traffic management treatments and mitigation works required for construction are to be identified and addressed by way of an approved Traffic Management Plan (TMP) prepared to the satisfaction of the responsible authority.

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1 Introduction

Aurecon Pty Ltd (Aurecon) was commissioned by Mint Renewables Pty Ltd (Mint Renewables, 'the Proponent') to undertake a traffic and transport assessment to inform the development of a Battery Energy Storage System (BESS) in Dederang, Victoria (herein referred to as 'the Project') and support the planning permit application.

A planning permit is being sought for the Project, including associated connection works to the Dederang Terminal Station (DDTS).

1.1 Purpose

The purpose of the Traffic Impact Assessment (TIA) is to identify traffic and parking impacts of the proposal and to accompany a Planning Permit application to the Department of Transport and Planning (DTP). This report sets out a desktop assessment of the anticipated traffic and transport implications and parking requirements of the Project, including:

- traffic movements generated by the Project during construction, operations and maintenance, and decommissioning phases.
- adequacy of proposed access arrangements and impacts to the wider local road network, during the construction, operations and maintenance, recommissioning, and decommissioning phases.
- adequacy of the Project's proposed car parking provision and layout arrangements.

Over the course of preparing this assessment, a desktop review of the subject site and its environs has been completed, plans of the development prepared by icubed consulting reviewed (refer to Table 1-1), and relevant available traffic data sourced and analysed. Relevant standards and guidelines relied upon are noted and referenced as necessary throughout this report.

Table 1-1 icubed consulting documents reviewed

Type	Title	Document number	Revision	Date	Comments
Drawing	Dederang Road Site Entry Intersection Layout Plan Option 1	23-039-DWG-E010	C	03/04/2024	AusNet access option
			D	07/06/2024	Unused road reserve access option
Drawing	Dederang Road Site Entry Intersection Manoeuvring Plan Option 1	23-039-DWG-E011	D	16/04/2024	Swept paths on Intersection Layout Option 1 Rev A (same intersection angle as Rev C, slightly different location)
			F	13/08/2024	Swept paths on Intersection Layout Option 1 Rev D
Drawing	Dederang Road Site Entry Intersection SISD Plan Option 1	23-039-DWG-E012	F	13/08/2024	SISD plan for Intersection Layout Option 1 Rev D
Tech memo	Intersection Design Intent	-	1.0	30/08/2023	
Tech memo	Intersection Option Assessment	-	1.1	10/07/2024	Sight distance assessment

1.2 Assumptions and limitations

The information noted below was provided by the Proponent for the purposes of this assessment, unless stated otherwise in this report.

- Construction phase stages and durations.
- Construction vehicle types and number of movements during each stage.

- Transformer delivery vehicle type and example route between Port of Melbourne and the site.
- Imported and non-imported material origins.
- Construction worker origins and number of workers for each stage.

Assumptions noted in this report have been made by Aurecon for the purposes of this assessment.

2 The Project

2.1 Project description

The Proponent is proposing to build a BESS with a nominal installed capacity of 400MWh, with an indicative development footprint of approximately 9.5 ha, including 4 ha for the BESS site and 5.5 ha for access tracks and other associated infrastructure.

The Project will include:

- BESS modules, inverters and transformers
- Civil and structural works including laying of crushed rock
- Construction of internal access roads and access (and egress) points
- Underground cabling (33kV) to provide a connection between the battery modules and inverters and on-site substation
- On-site substation (including transformer to step up from 33 kV to the connection voltage (either 220 kV or 330 kV) and potential reactive power equipment)
- Underground cabling (220kV or 330kV) to connect the onsite substation to the adjoining Dederang Terminal Station (DDTS)
- Permanent operations and maintenance facility
- Water storage (including firefighting water supply and fire water runoff containment)
- Security fencing
- Car park
- Noise mitigation solutions (noise wall or other), as required
- Landscape mitigation measures, as required
- Business identification signage, at site entry.

The final location of infrastructure will be determined through the detailed design, once a BESS supplier has been determined. Additionally, works are likely to be required within the DDTS site (e.g. installation of high voltage electrical equipment and associated permanent and temporary buildings and works).

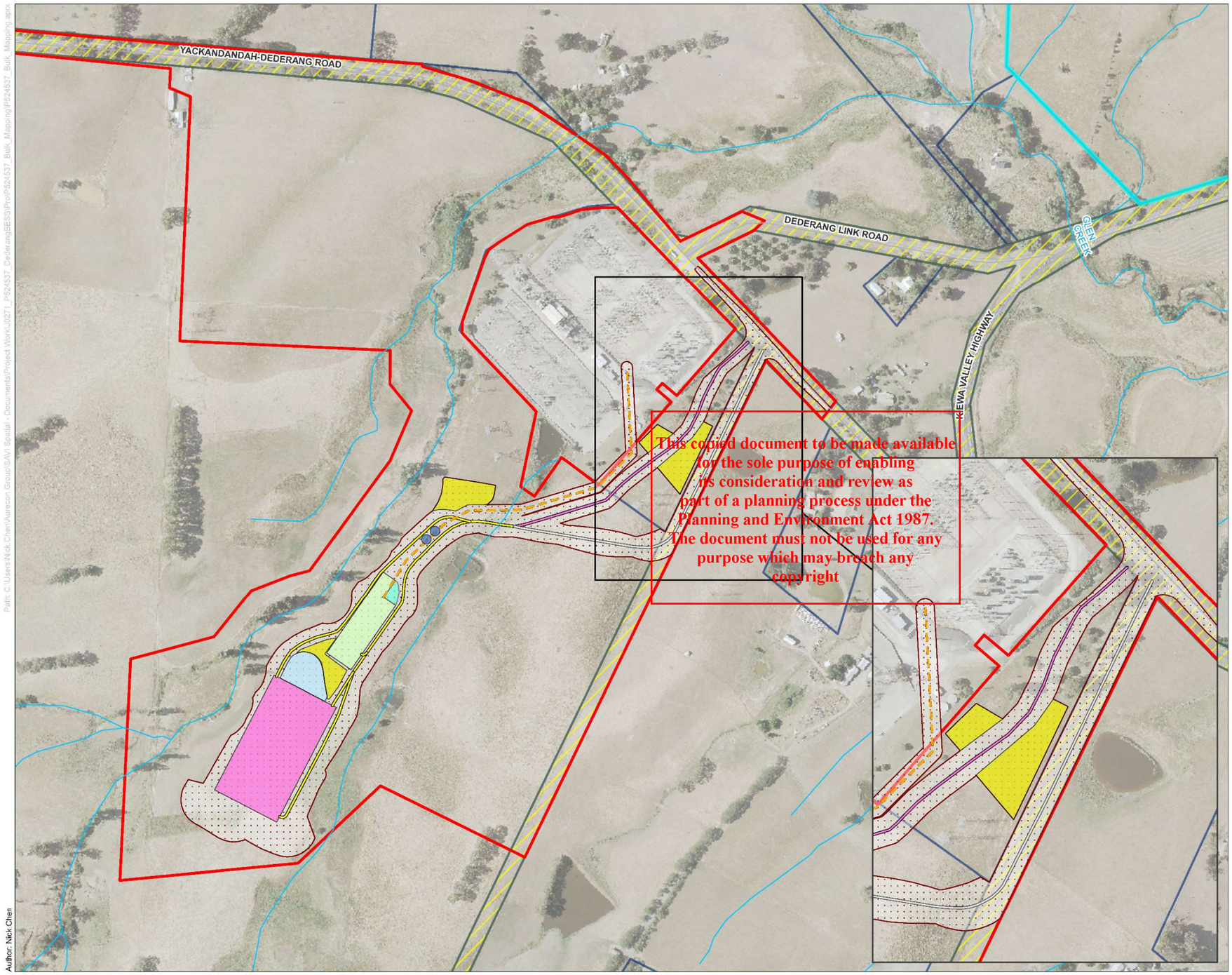
2.2 The Project area

The Project area is located in Dederang, in north-eastern Victoria, approximately 2 km northwest of the Dederang town centre, within the Alpine Shire municipality.

The Project area is located adjacent to the Dederang Terminal Station (DDTS), which is owned and operated by AusNet, and several transmission lines running through the Project area into the DDTS. The majority of the Project area is within privately owned, agricultural land. However, it also includes a small parcel of land south-east of the DDTS owned by AusNet.

Vehicle access to the site is proposed from Yackandandah-Dederang Road, which runs east to west along the northern site boundary. Two locations for the site access point (for construction and operations) are being considered.. The two options are being pursued to allow AusNet to reserve the right to use their currently unused land for upgrades to terminal station. These options have resulted in the consideration of two indicative access footprints where one will be selected prior to construction and detailed in the project Traffic Management Plan.

The final location of the BESS infrastructure will be determined through detailed design, once a BESS supplier has been selected and will be in accordance with commitments made within this planning application. The Project area and indicative layout is shown in Figure 2-1 on the following page.



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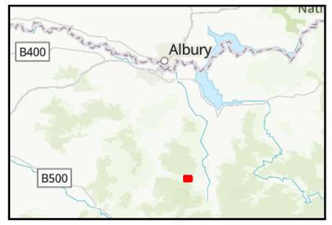


Legend

- Project area
- BESS Bench
- Run-off pond
- Run-off pond BESS Substation Bench
- BESS Substation Bench
- Temporary laydown or construction area
- Water storage
- Disturbance footprint
- Property boundary
- Road reserve
- Electricity cable - UG
- Access track - AusNet option
- Access track - Unused road reserve option
- Internal access track
- Watercourse
- Road

Notes:

Basemap: Vicmap, Esri, TomTom, Garmin, FAO, NOAA, USGS

Other data: DELWP, Aurecon

Date: 27/08/2024 Version: 2

A3 scale: 1:5,000

0 50 100 Metres

Job No: P524537

Coordinate System: GDA2020 MGA Zone 55

Dederang BESS

Project Area and Indicative Layout

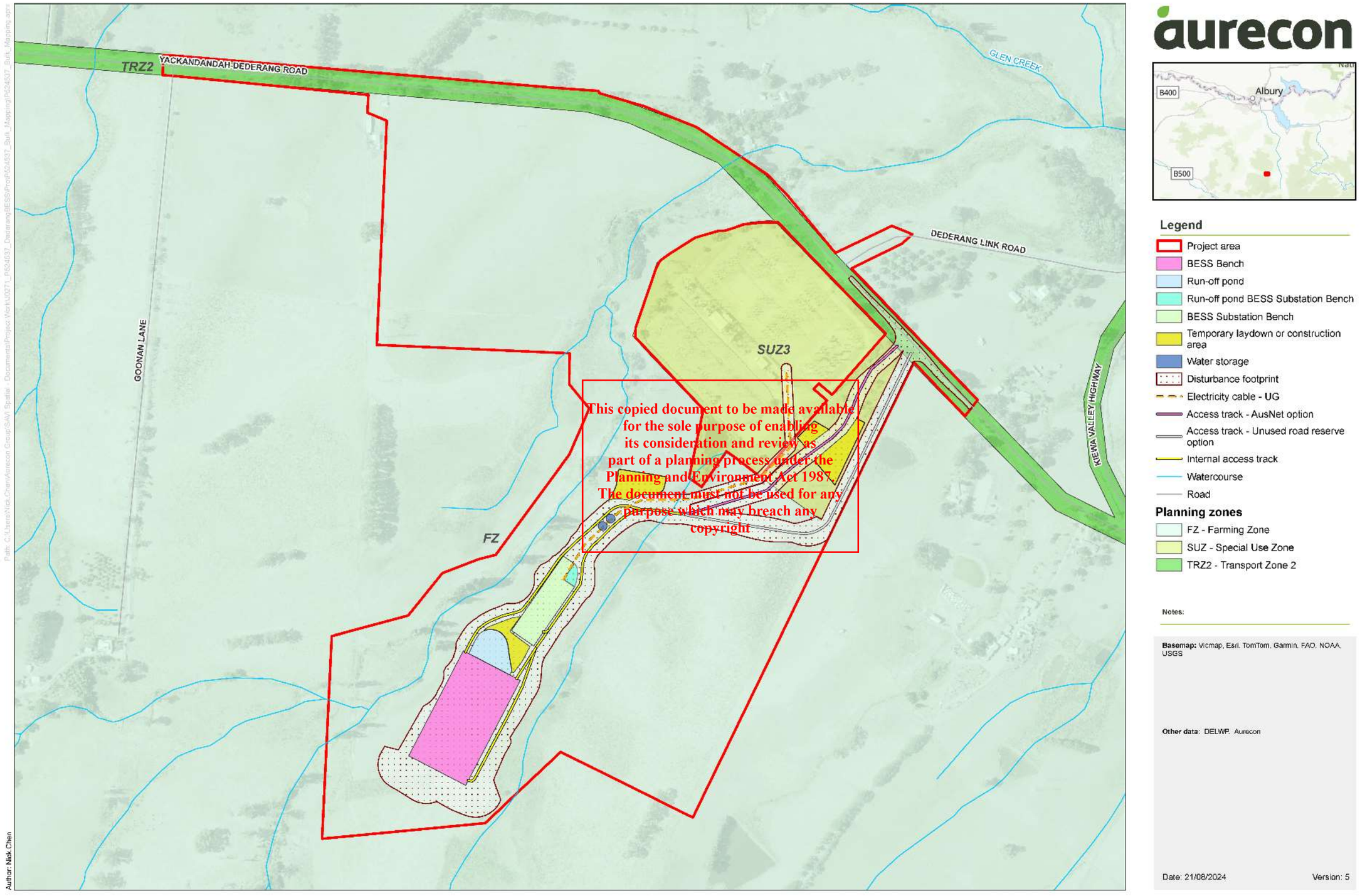
Figure 2-1 Project area and indicative layout

3 Existing conditions

3.1 Land use

The Project area is located on land used for agricultural purposes within Farming Zone (FZ), under the Alpine Planning Scheme. The adjacent DDTS is located within a Special Use Zone (SUZ3) and Yackandandah-Dederang Road and Kiewa Valley Highway are zoned as Transport Zone (TRZ2). The land use zoning is shown on Figure 3-1 on the following page.

The proposed BESS infrastructure is generally centrally located in the Project area, with a connection to the DDTS. However, the final size and location of the BESS infrastructure will be further refined once a BESS supplier is selected and in continued response to the environmental constraints of the site and the selected BESS model.



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Legend

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- Water storage
- Disturbance footprint
- Electricity cable - UG
- Access track - AusNet option
- Access track - Unused road reserve option
- Internal access track
- Watercourse
- Road

Planning zones

- FZ - Farming Zone
- SUZ - Special Use Zone
- TRZ2 - Transport Zone 2

Notes:

Basemap: Vicmap, Esri, TomTom, Garmin, FAO, NOAA, USGS

Other data: DELWP, Aurecon

Date: 21/08/2024 Version: 5

A3 scale: 1:5,000

0 50 100 Metres

Job No: P524537

Coordinate System: GDA2020 MGA Zone 55

Dederang BESS

Project Indicative Layout and Planning Zones

Figure 3-1 Project indicative layout and planning zones

3.2 Road network

There are three key roads in the vicinity of the Project area that will be used for site access and construction material deliveries. The key roads are described in the following sections.

3.2.1 Yackandandah-Dederang Road

Yackandandah-Dederang Road (also known as Dederang Road) is a two-lane, two-way undivided secondary arterial road managed by DTP, generally aligned east-west in the vicinity of the Project area. It connects to Kiewa Valley Highway to the east and Myrtleford-Yackandandah Road to the west. The road comprises a 6.4 m wide carriageway set within a 30 m road reserve (varies and approximate). Shoulders are generally limited and inconsistent with varying widths. Where present, they are typically grassed or gravel. Verges consist of grass and dirt batter.

Dederang Road has an unposted (default) speed limit of 100 km/h and carries in the order of 240 vehicles per day (vpd), of which approximately 8% are heavy vehicles[1]. Yackandandah-Dederang Road is an approved B-Double and Higher Mass Limit (HML) vehicle route. There are no provisions for active transport along the road.

3.2.2 Dederang-Kiewa Valley Link Road

Dederang-Kiewa Valley Link Road is a two-way, single lane width, access road managed by Alpine Shire Council. It connects Yackandandah-Dederang Road (opposite the DDTS site access) and Kiewa Valley Highway, approximately 450 m to 600 m from the intersection of Yackandandah-Dederang Road and Kiewa Valley Highway. The road comprises a 4 m wide carriageway set within a 30 m road reserve (varies and approximate). There are limited intermittent grassed shoulders present along the road, and verges consist of grass and dirt.

Dederang-Kiewa Valley Link Road has an unposted (default) speed limit of 100 km/h. It is not a pre-approved B-double route.

3.2.3 Tunnel Gap Road

Tunnel Gap Road is a two-lane, two-way undivided collector road managed by Alpine Shire Council, generally aligned northeast-southwest. It connects Yackandandah-Dederang Road and Myrtleford-Yackandandah Road, 6.1 km to 10.7 km south of the intersection of Yackandandah-Dederang Road and Myrtleford-Yackandandah Road.

Tunnel Gap Road comprises a 7 m wide carriageway set within a 32 m road reserve (varies and approximate). Shoulders are generally limited and inconsistent with varying widths. Where present, they are typically grassed or gravel. Verges consist of grass and dirt. It has an unposted (default) speed limit of 100 km/h. It is not a pre-approved B-double route.

3.2.4 Kiewa Valley Highway

Kiewa Valley Highway is a two-lane, two-way undivided primary arterial road managed by DTP generally aligned north-south in the vicinity of the Project area. The road comprises a 7 m wide carriageway set within a 30 m road reserve (varies and approximate). Shoulders are generally limited and inconsistent with varying widths. Where present, they are typically pavement or grassed. Verges consist of grass and dirt batter.

Kiewa Valley Highway has a posted speed limit of 100 km/h and through towns (such as Dederang) the speed limit is reduced to 60 km/h or 80 km/h. It carries in the order of 1,200 vpd, of which approximately 12% are heavy vehicles[2]. Kiewa Valley Highway is an approved B-Double, HML, and over-size over-mass (OSOM) vehicle route. There are no provisions for active transport along the road.

[1] Source: Department of Transport Open Data Hub – Traffic Volume
[2] Source: Department of Transport Open Data Hub – Traffic Volume

3.3 Public transport network

There are no regular public transport service stops in the vicinity of the site. There is one Public Transport Victoria (PTV) bus route along the Kiewa Valley Highway between Albury and Mount Beauty. However, it only runs on school days during school terms and Monday, Tuesday, Thursday and Friday during school holidays with one or two services a day towards Albury in the morning and one or two services a day towards Mount Beauty in the afternoon.

3.4 Active transport network

There is no formal pedestrian or cyclist infrastructure in the vicinity of the site.

3.5 Crash history

There was one crash reported in the vicinity of the site in the last five years of available records (to 30 November 2023)[3]. The crash was an 'other injury' single-vehicle crash at the Yackandandah-Dederang Road (C528) / Kiewa Valley Highway (C531) intersection involving one motorcycle.

[3] Source: DataVic – Victoria Road Crash Data

4 Development proposal

4.1 Site access

The development is proposed to be accessed off Yackandandah-Dederang Road. The Proponent engaged icubed consulting to provide concept intersection designs, which were completed in June 2024 (refer to Appendix A for full drawings and Table 1-1 in Section 1.1 for a list of the icubed consulting documents).

The concept layouts developed by icubed consulting comprise new priority-controlled intersection with a rural basic right (BAR) turn treatment and rural basic left (BAL) turn treatment. Two site access locations (to be utilised for both construction and operations) are currently being considered, with the location to be finalised at a later stage in the project, prior to construction (to the satisfaction of the relevant Responsible Authority).

- **AusNet access option:** access via AusNet owned land adjacent to the DDTS (outside the fenced terminal station), approximately 135 m south of DDTS, to a proposed 6 m wide access road. The access layout is a 90° T-intersection (Intersection Layout Plan Option 1 Rev C, refer to Figure 4-1).
- **Unused road reserve option:** access via an existing unused road reserve which runs between the AusNet owned land and adjoining property to the east approximately 155 m south of DDTS access, to a proposed 6 m wide access road, with a crossover from the newly formed road directly to the BESS site property. The local road at this new T-intersection is angled at approximately 70 ° (Intersection Layout Plan Option 1 Rev D, refer to Figure 4-2). In principle support will be sought from Council by the Proponent prior to formal lodgement of the planning permit application. Should this option be chosen, the final arrangement of the new road and intersection will be determined through further discussions with the relevant Responsible Authority.

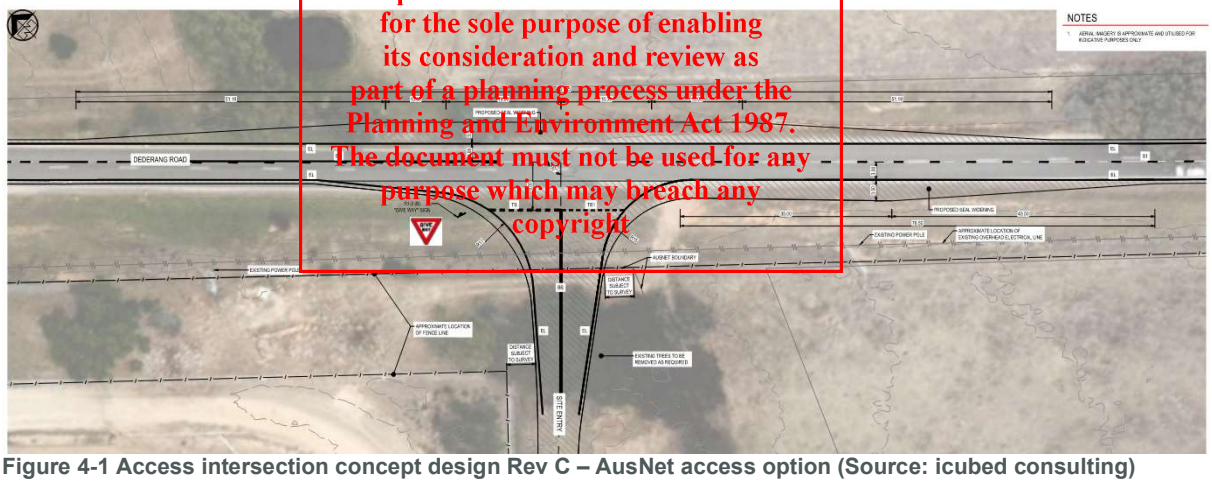


Figure 4-1 Access intersection concept design Rev C – AusNet access option (Source: icubed consulting)

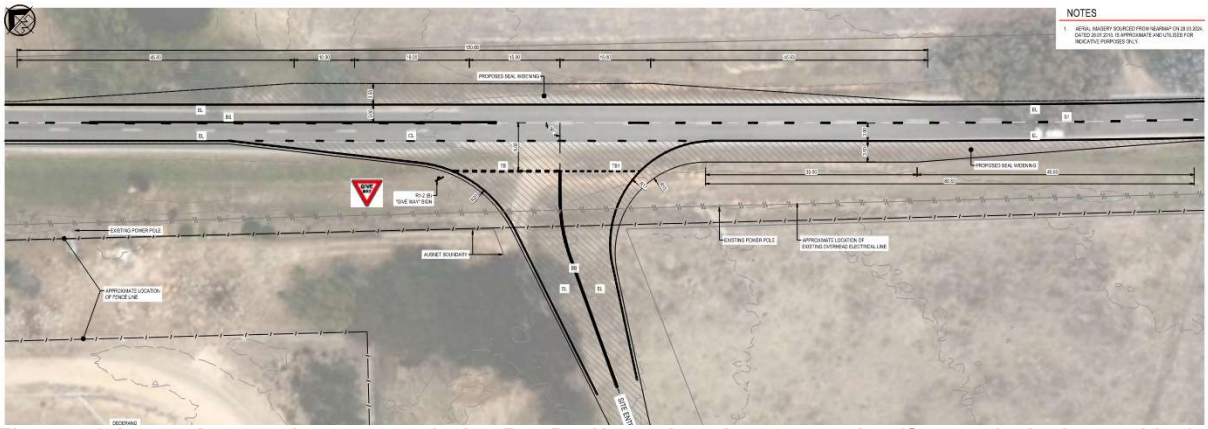


Figure 4-2 Access intersection concept design Rev D – Unused road reserve option (Source: icubed consulting)

4.2 Construction phase

The construction phase is expected to last 12 months with three stages; site establishment (approximately 4 weeks), balance of plant (approximately 26 weeks), and installation of BESS and High Voltage equipment (approximately 22 weeks).

4.2.1 Construction vehicle types

The vehicle types that will access site during construction are summarised below in Table 4-1.

Table 4-1 Expected construction vehicle types

Load Type	Vehicle Type
Construction workers	Light vehicle (LV)
Mobile plant	Low loader
Site office, site equipment containers, high voltage equipment, fuel	Semi-trailer
Concrete	Concrete agitator
Potable water	Heavy rigid water truck
Gravel	Truck and dog
Miscellaneous equipment and supplies	Heavy rigid vehicle
Main transformer	Platform trailer combination (see below table)
BESS equipment	GML B-Double

The delivery of the transformer is expected to be via a prime mover truck with a multiple axle low platform 'gooseneck' trailer. An example of a transformer delivery vehicle is shown in Figure 4-3 below. It is assumed the total height when loaded will not exceed 5 m. However, this will depend on the detailed design of the transformer and transport vehicle and trailer combination.

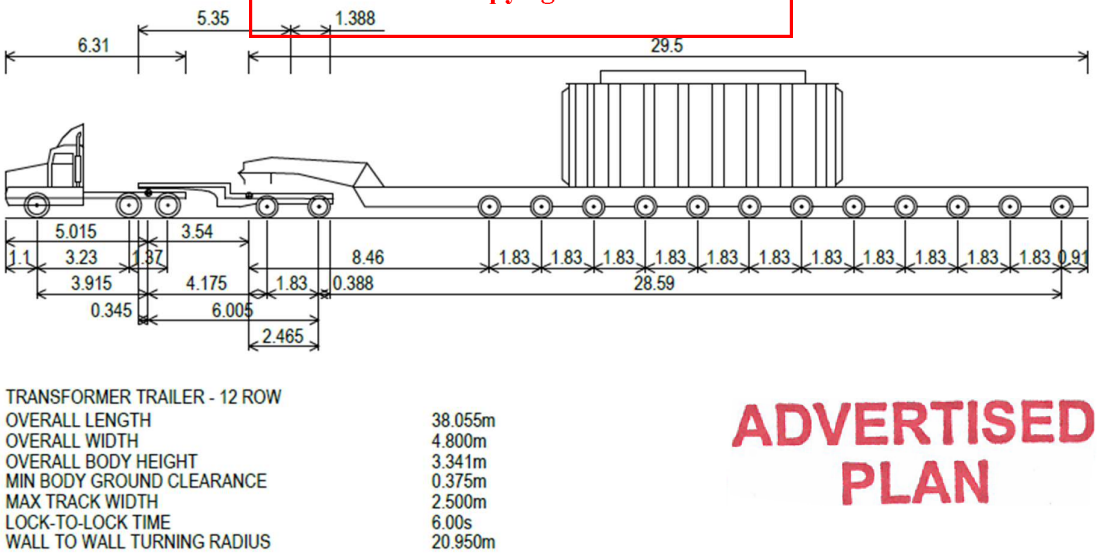


Figure 4-3 Example transformer delivery vehicle (Source: Mint Renewables)

Notwithstanding the above, construction vehicle types will be confirmed following selection of a BESS supplier and construction contractor (following planning approval). At the post permit approval stage, specific traffic management measures will be identified as required, and detailed in an appropriate Traffic Management Plan (TMP). This would include OD/OSOM (Over Dimension/Over Size Over Mass) vehicles such as the transformer delivery vehicle above.

4.2.2 Vehicle origins and access routes

Construction delivery vehicles

The delivery of imported materials (BESS and HV equipment) will most likely be via the Port of Melbourne. Non-imported materials are expected to be sourced from nearby towns including for example Wodonga, Wangaratta, and Whorouly.

There are pre-approved OSOM and B-double routes available from the Port of Melbourne to the site. An example route from the Port of Melbourne to site is provided below.

> Port of Melbourne → M80 Western Ring Road (various routes from Port to M80) → Hume Freeway (M31) → Snow Road/C522 (not OSOM pre-approved) → Great Alpine Road/B500 (not OSOM pre-approved) → Prince Street/Ondell Avenue/Myrtleford-Yackandandah Road/C527 (not OSOM pre-approved) → Tunnel Gap Road (not B-double or OSOM pre-approved) → Yackandandah-Dederang Road (not OSOM pre-approved)

The transformer delivery vehicle access route will depend on the characteristics of the confirmed vehicle and consultation with the relevant authorities including NHVR, Regional Roads Victoria, and DTP. Along the above route from the Port of Melbourne to the site a lot of the roads are pre-approved routes for platform trailer vehicles. However, there are numerous structures along the route with varying approval conditions or restrictions for platform trailers, depending on the vehicle configuration.

Specific access routes will be confirmed following selection of a preferred BESS supplier and construction contractor and detailed in an appropriate TMP.

Construction workers

It is expected that construction workers will travel to/from local towns comprising approximately 60% of workers will travel from Wodonga, 20% from Myrtleford, and 20% from Mount Beauty. The assumed access routes for these towns are summarised below but may be confirmed following selection of a construction contractor and detailed in an appropriate TMP.

- Wodonga:
  - Kiewa Valley Highway/C531 (north of the site) → Yackandandah-Dederang Road (east of the site)
  - Beechworth-Wodonga Road/C315 → Yackandandah Road/C532 → Myrtleford-Yackandandah Road/C527→ Yackandandah-Dederang Road/C528 (west of the site)
- Myrtleford: Myrtleford-Yackandandah Road/C527→ Tunnel Gap Road → Yackandandah-Dederang Road/C528 (west of the site)
- Mount Beauty: Kiewa Valley Highway/C531 (south of the site) → Yackandandah-Dederang Road (east of the site)

Light vehicles will utilise local and regional roads to access the site with a preference to use major and arterial roads.

4.3 Operations phase

BESS facilities operate 24/7 and are monitored remotely in real-time and do not require dedicated staff to be on-site at all times. Staff will access the site periodically for inspections and maintenance activities. Vehicles accessing the site will mostly include light vehicles (e.g. passenger cars, utility vans). Some heavy vehicles will likely be required during the operational period for major maintenance. Details of operational access will be included in the TMP.

4.3.1 Vehicle origins and access routes

Operations staff vehicle origins and access routes will depend on where staff live, which is expected to be highly varied. Staff access routes to the site in the vicinity of the site are expected to be the same as construction worker access routes; either along Yackandandah-Dederang Road from the west or Yackandandah-Dederang Road from the east via Kiewa Valley Highway either to the north or south-east of the site.

4.3.2 Parking

The final number and location of parking spaces for the operations phase will be determined through detailed design.

4.4 Decommissioning

The Project is expected to be decommissioned approximately 20 years post commissioning, following which, the land will be rehabilitated. This will include the removal of all above ground non-operational equipment and rehabilitation of disturbed areas, in consultation with the landholder.

5 Car parking and access

5.1 Car parking

5.1.1 Statutory requirements

Requirements for the provision of car parking are set out in Clause 52.06 of the Alpine Planning Scheme. The scheme does not provide guidance on parking rates for BESS facilities (utility installation land use). In such circumstances, the scheme notes that car parking spaces must be provided to the satisfaction of the responsible authority.

5.1.2 Parking demand assessment

During the operational phase there is expected to be limited operational vehicles, with a small team visiting the site periodically for routine inspections and maintenance. The number of car parking spaces will be finalised during detailed design. Notwithstanding, it is expected that more than sufficient space will be available on the site to accommodate the parking demands generated during the operational phase of the BESS facility, to the satisfaction of the Responsible Authority.

5.1.3 Parking layout

Design of the parking layout will be undertaken during detailed design and provided to the satisfaction of the Responsible Authority. Notwithstanding, the design of parking should comply with the relevant requirements in the Alpine Planning Scheme and AS 2890.1 - Off-street car parking, including but not limited to the minimum dimensions of parking spaces and accessways in accordance with Table 2 to Clause 52.06-9 of the Alpine Planning Scheme.

5.2 Site access

As noted in Section 4.1, two locations for the site access point are being considered, off Yackandandah-Dederang Road, for use in both the construction and operation phase. The concept designs for both access intersections were completed by icubed consulting and are shown in Figure 4-1 and Figure 4-2 in Section 4.1, with the full plans provided in Appendix A.

Aurecon has reviewed the concept designs and provide relevant design discussion in the following sections.

5.2.1 Intersection layout

Access point traffic volumes for the Project are estimated in Section 1 The proposed BAL and BAR intersection turn treatments are considered appropriate in accordance with the warrants for turn treatments set out in Austroads Guide to Traffic Management Part 6.

5.2.2 Sight distance

The preliminary safe intersection sight distance (SISD) assessment for both site access locations for cars and trucks (refer to Appendix B) found that the SISD is adequate in both directions for both access locations, noting that further assessment will be required during the detailed design stage. Approach sight distance (ASD) and minimum gap sight distance (MGSD) will also be assessed during the detailed design stage.

5.2.3 Swept path assessment

As noted in Section 3.3, the expected construction vehicle types regularly accessing the site during construction include vehicles up to B-Doubles. In addition to these regular construction vehicles, an OSOM

vehicle (e.g. 38 m prime mover truck with a 12 row low platform and 'gooseneck' trailer) will also access the site once for delivery of the transformer.

The following swept path assessments for the two concept intersection layouts were undertaken (refer to Appendix C for swept path drawings).

- 19 m semi-trailers (all turns at a 90° intersection – Rev D layout, similar to AusNet option (Rev C))
- 25 m B-doubles (all turns at a 70° intersection – Rev F layout, unused road reserve option)
- 38 m 12 row transformer trailer (right-in at a 90° intersection (Rev D layout) and right-in at a 70° intersection (Rev F layout)).

The swept path assessments show:

- 19 m semi-trailers simultaneously turning in and out of 90° intersection option
- B-doubles turning simultaneously turning in and out of 70° intersection option
- A 38 m 12 row transformer trailer entering the site utilising the entire width of Yackandandah-Dederang Road and the site access road. This vehicle is expected to operate under escort only, therefore, this is considered acceptable.

The above scenarios are expected to account for the majority of turning vehicles during the construction period. Should any additional swept paths be required, these will be undertaken during detailed design once the site access location has been selected. Management of construction traffic will be detailed in the TMP.

5.3 OSOM height clearance

The transformer delivery vehicle is expected to have a minimum vertical height in the order of 5 m or greater. Available height clearances along relevant access routes (including overhead powerlines) for construction delivery vehicles will be assessed once a preferred BESS supplier and contractor has been selected and detailed in an appropriate TMP, to the satisfaction of the Responsible Authority.

5.4 Emergency vehicle access

As noted in Section 3, there will be a site access road (approximately 6 m wide) from the site access location on Yackandandah-Dederang Road to the BESS facility.

Internal access to the proposed BESS facility is expected to comply with the access requirements of the Country Fire Association (CFA) *Design Guidelines and Model Requirements, Renewable Energy Facilities, Version 4, August 2023* noting the compliances and/or recommended changes associated with transport specifically.

Whilst the design is not yet at a stage where it can be assessed against these requirements the Proponent will ensure these requirements are reflected in the detail design phase of the project in consultation with the CFA.

- Construction of a minimum four (4) metre perimeter road within the perimeter fire break.
- Roads must be of all-weather construction and capable of accommodating a vehicle of fifteen (15) tonnes.
- Constructed roads should be a minimum of four (4) metres in trafficable width with a four (4) metre vertical clearance for the width of the formed road surface. Ensure any fencing along access routes allows for width of fire vehicles.
- Average grades should be no more than 1:7 with a maximum of 1:5 of no more than 50 metre.
- Dips in the road should have no more than a 1:8 entry and exit angle.
- Roads must incorporate passing bays at least every 600 metres, which must be at least twenty (20) metres long and have a minimum trafficable width of six (6) metres. Where roads are less than 600 metres long, at least one passing bay must be incorporated.

- Road networks must enable responding emergency services to access all areas of the facility, including fire service infrastructure, buildings, battery energy storage systems and related infrastructure, substations and grid connection areas.
- Provision of at least two (2) but preferably more access points to each part of the facility. The number of access points must be informed through a risk management process, in consultation with CFA.

6 Traffic impact assessment

The following section sets out the expected traffic volumes, and broad impacts to the road network during the three project phases.

6.1 Construction phase

6.1.1 Traffic generation

Construction work is expected to be undertaken six days per week and will generally occur during the following construction hours:

- Monday to Friday 7:00 am – 6:00 pm
- Saturday 8:00 am – 1:00 pm

The average number of vehicle movements (one-way) expected during each week of construction is shown in Figure 6-1. The project peak is expected to occur during weeks 5-30 (the 'balance of plant' phase), with an average of 200 construction worker (LV) vehicles and 33 construction vehicles (HV) accessing the site expected per week (noting that some of these movements will be to/from DDTS via the existing DDTS access point).

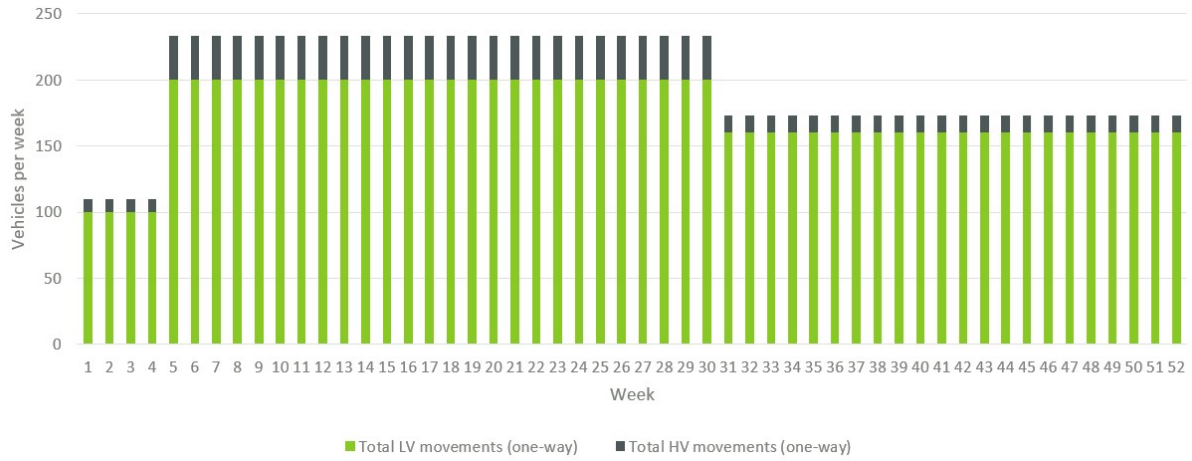


Figure 6-1 Average number of vehicle trips (one-way) per week during construction

Workers (LVs)

During the balance of plant phase there is expected to be 50 workers on site per day with an average vehicle occupancy rate of 1.5 persons per vehicle. To determine the weekday peak hour worst-case LV traffic volumes generated by the project, it is assumed that all workers will travel to site between 6:00 am – 7:00 am, and travel from site between 6:00 pm – 7:00 pm (representing the AM and PM project peak hours for workers). Therefore, the peak traffic generation for LVs is:

- 33 travelling to the site in the AM peak hour.
- 33 travelling from the site in the PM peak hour.
- 66 LV movements per day (two-way).

Construction delivery vehicles (HVs)

Construction delivery vehicles are expected to be HVs (i.e., not passenger cars, utes, vans, or similar). The expected total number of (one-way) trips for each vehicle type in each phase was used to determine the average daily number of HV trips generated by the project for the balance of plant phase (assuming that there is an even distribution of trips per week and per day). Therefore, the expected peak traffic generation for HVs is:

- 33 HV movements to and 33 HV movements from the site per week
- 6 HV movements to and 6 HV movements from the site per day.

It is assumed that these HV trips will be spread out across the day during construction hours, as they are deliveries of material and equipment and these are not expected to coincide with LV (construction worker) movements.

Total traffic generation

The total traffic generation for a typical peak construction day and weekday peak hours are summarised in Table 6-1.

Table 6-1 Total construction phase traffic generation

Vehicle type	AM Peak (one-way)	PM Peak (one-way)	Daily (two-way)
LV	33	33	66
HV	-	-	12
Total	**33**	**33**	**76**

6.1.2 Traffic distribution

Workers (LVs)

As discussed in Section 4.2.2, the expected worker origins are approximately 60 % from Wodonga, 20 % from Myrtleford, and 20 % from Mount Beauty. The key roads workers are assumed to use from each origin is summarised in Table 6-2.

Table 6-2 Construction worker traffic distribution

Worker origin	% of workers	No. trips (one-way)	Key roads
Wodonga	60%	20	Kiewa Valley Hwy (north of the site), Yackandandah-Dederang Rd (east of the site) OR Beechworth-Wodonga Rd, Yackandandah Rd, Myrtleford-Yackandandah Rd (north of Yackandandah-Dederang Rd), Dederang Rd (west of the site)
Myrtleford	20%	7	Myrtleford-Yackandandah Rd (south of Tunnel Gap Rd), Tunnel Gap Rd, Yackandandah-Dederang Rd (west of the site)
Mount Beauty	20%	7	Kiewa Valley Hwy (south of the site), Yackandandah-Dederang Rd (east of the site)

Construction delivery vehicles (HVs)

It is expected that heavy vehicles will originate from multiple locations depending on what is being delivered.

- General deliveries (including plant): Wodonga and Wangaratta
- Concrete deliveries: Wodonga
- Gravel deliveries: Mawsons Quarry at Whorouly and Wodonga
- BESS and HV equipment: Port of Melbourne

Construction delivery vehicles will use the same site access as construction workers and are expected to use routes similar to construction workers from Wodonga and Myrtleford. As there is expected to be an average of 6 HVs per day accessing the site during the peak construction period, there is expected to be up to 12 two-way HV trips per day on average on any of those key roads.

6.1.3 Traffic impact summary

The estimated traffic generation and distribution has been applied to the key roads, resulting in the indicative additional daily traffic volumes shown in Table 6-3. Actual traffic generation and distribution may vary depending on the final design, construction program, and once a contractor and access routes are confirmed.

Table 6-3 Average additional construction traffic volumes on key roads during peak construction period

Road	Peak hour (one-way)			Daily (two-way)		
	LV	HV	Total	LV	HV	Total
Yackandandah-Dederang Rd (east of and west of the site)	17	-	17	34	12	46
Kiewa Valley Hwy (north of the site)	10	-	10	20	12	32
Kiewa Valley Hwy (south of the site)	7	-	7	14	-	14
Myrtleford-Yackandandah Rd (south of Tunnel Gap Rd)	7	-	7	14	12	26
Tunnel Gap Rd	7	-	7	14	12	26
Beechworth-Wodonga Rd	10	-	10	20	12	32
Yackandandah Rd	10	-	10	20	12	32
Myrtleford-Yackandandah Rd (north of Yackandandah-Dederang Rd)	10	-	10	20	12	32

Considering the existing AADT on Yackandandah-Dederang Road (240 vpd) and Kiewa Valley Highway (1,200 vpd) and that both of these roads are sealed roads with marked lanes, the estimated increase in traffic volumes is not expected to notable impact the operation of Yackandandah-Dederang Road and Kiewa Valley Highway.

It is recommended that suitable road improvements and upgrades, if any, are investigated and documented as part of a TMP to the satisfaction of the Responsible Authority.

Additionally, a TMP will be prepared and implemented to communicate and manage the routes which workers and heavy vehicles will utilise during construction, to reduce and/or manage any potential impact from construction and operations vehicles on roads which are not suitable for use.

6.2 Operations and maintenance phase

During the operation and maintenance phase, the site will be monitored remotely eliminating the need for daily workers on the site. A small team will access the site periodically to undertake inspections and maintenance activities. Traffic generated during the operation phase is therefore expected to have a negligible impact compared to the construction phase traffic.

6.3 Decommissioning phase

Decommissioning is expected to occur 20 years from commissioning. It is expected that the decommissioning phase will generate less traffic than the construction phase and will therefore have a lesser impact.

Details of the decommissioning process and the associated traffic impacts will be outlined in a Decommissioning Management Plan that will be prepared prior to the commencement of decommissioning.

7 Summary

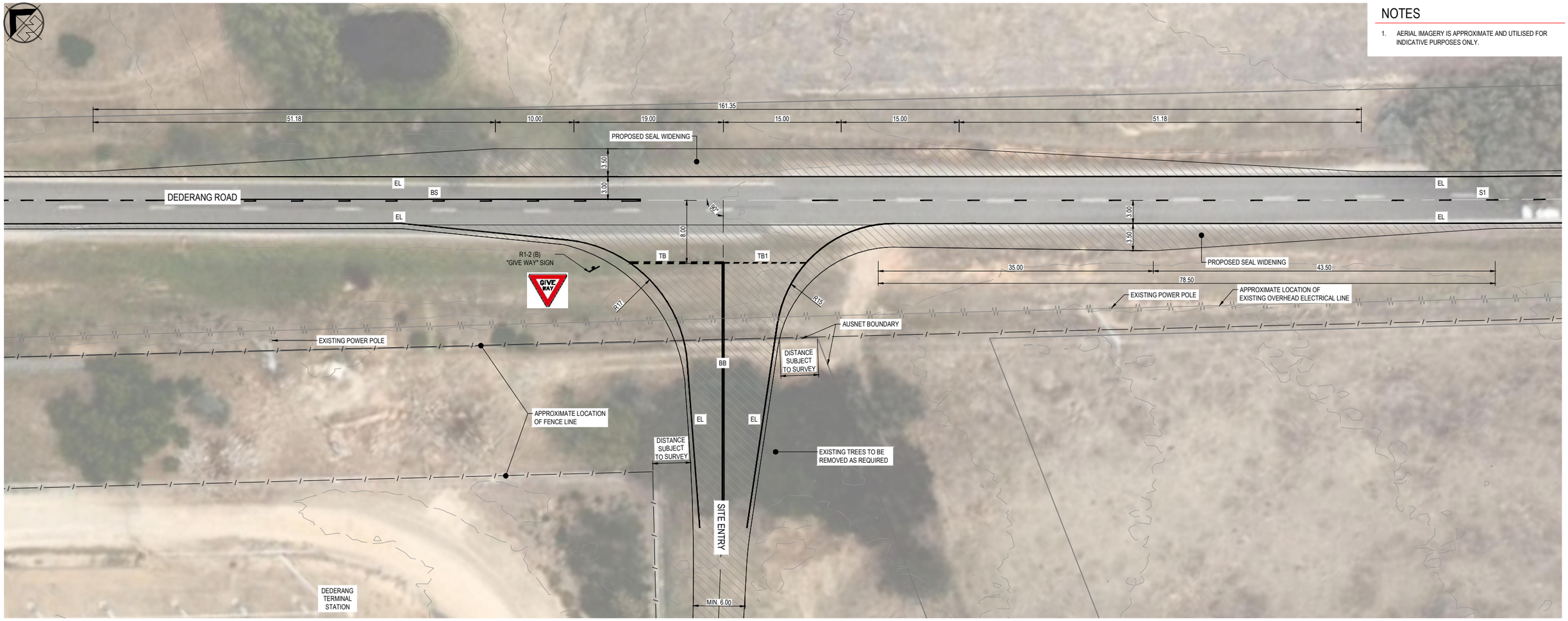
On the basis of the above discussion and analysis, the following is summarised for the traffic and transport considerations for the project.

- The site is proposed off Yackandandah-Dederang Road south of DDTS with vehicle access via a new access (for both construction and operations vehicles). Two locations for the site access are currently being explored, with the location to be finalised prior to construction.
- Concept designs for the two site access locations were undertaken by icubed consulting and reviewed by Aurecon.
  - The site access intersection concept design comprises a new priority-controlled intersection with BAL and BAR turn treatments. These turn treatments are considered appropriate based on the estimated project volumes.
  - Preliminary SISD checks were undertaken by icubed consulting for the two site access locations. SISD is met for cars and trucks in both directions for both access locations. Further assessment of sight distances will be undertaken during the detailed design stage.
  - Swept paths (completed by others) for majority of the expected construction vehicles show that they can be accommodated by either of the site accesses. Any additional swept paths required will be undertaken during the detailed design stage.
- During the operations phase staff will only access the site periodically for routine maintenance and inspection activities.
  - The project is expected to generate a small number of light vehicle movements per day during this phase. Therefore, the operations phase is not expected impact the capacity or safety of the surrounding road network.
  - The provision and layout of car parking for operations staff will be determined through detailed design. It is expected that more than sufficient space will be available on the site to accommodate the parking demand. Car parking should be designed according to the requirements in the Alpine Planning Scheme. The number and layout of car parking spaces will be provided to the satisfaction of the Responsible Authority.
- During the peak construction period the project is estimated to generate the following vehicle movements.
  - 33 'in' light vehicles in the AM peak
  - 33 'out' light vehicles in the PM peak
  - 6 'in' and 6 'out' heavy vehicles per day across construction hours.
- Construction phase movements are expected to originate from surrounding towns including:
  - light vehicle trips to/from Wodonga, Myrtleford, and Mount Beauty
  - heavy vehicle trips to/from Wodonga, Wangaratta, Whorouly, and Port of Melbourne.
- The estimated increase in traffic volumes on the key access roads due to the construction phase traffic is not expected to notably impact the operation of these roads.
- Suitable road improvements and upgrades, if any, will be investigated and documented as part of a TMP to the satisfaction of the Responsible Authority. Additionally, the TMP will be prepared and implemented to communicate and manage the routes which workers and heavy vehicles will utilise during construction to reduce and/or manage any potential impact on roads which are not suitable for use.
- The transformer delivery vehicle access route will depend on the characteristics of the confirmed vehicle and consultation with the relevant authorities. On the example route from the Port of Melbourne to the site a lot of the roads are pre-approved routes for platform trailer vehicles. However, there are numerous structures along the route with varying approval conditions or restrictions for platform trailers, depending on the vehicle configuration. Specific access routes will be confirmed following selection of a preferred BESS supplier and construction contractor and detailed in an appropriate TMP.

Appendix A – Concept intersection layout plans

NOTES

1. AERIAL IMAGERY IS APPROXIMATE AND UTILISED FOR INDICATIVE PURPOSES ONLY.



DEDERANG ROAD/ SITE ENTRY INTERSECTION LAYOUT - OPTION 1

SCALE 1:250

PAVEMENT MARKINGS

LINE	TYPE	PATTERN AND DIMENSIONS	LINE WIDTH
BARRIER LINES	BB		100 100 100
BARRIER LINES	BS	3000 STRIPE AND 9000 GAP	100 100 100
GIVE WAY LINES	TB	600 STRIPE AND 600 GAP	300
GIVE WAY LINES	TB1	600 STRIPE AND 600 GAP	150
SEPERATION LINE	S1	3000 STRIPE AND 9000 GAP	100
EDGE LINES	EL		150

No	DESCRIPTION	DES	DRN	CHK	APP	DATE
C	FOR REVIEW	T.M.	T.M.	J.M.	R.H.	03.04.2024
B	FOR REVIEW	T.M.	T.M.	J.M.	R.H.	25.03.2024
A	FOR REVIEW	M.J.L.	M.J.L.	N.C.	N.C.	30.08.2023

REVISION HISTORY

icubed consulting
innovation ingenuity inspiration
Development Services | Engineering | Project Delivery
www.icubed.com.au

Mint

SIZE A1 | SCALE AS SHOWN

STATUS FOR REVIEW
NOT FOR CONSTRUCTION

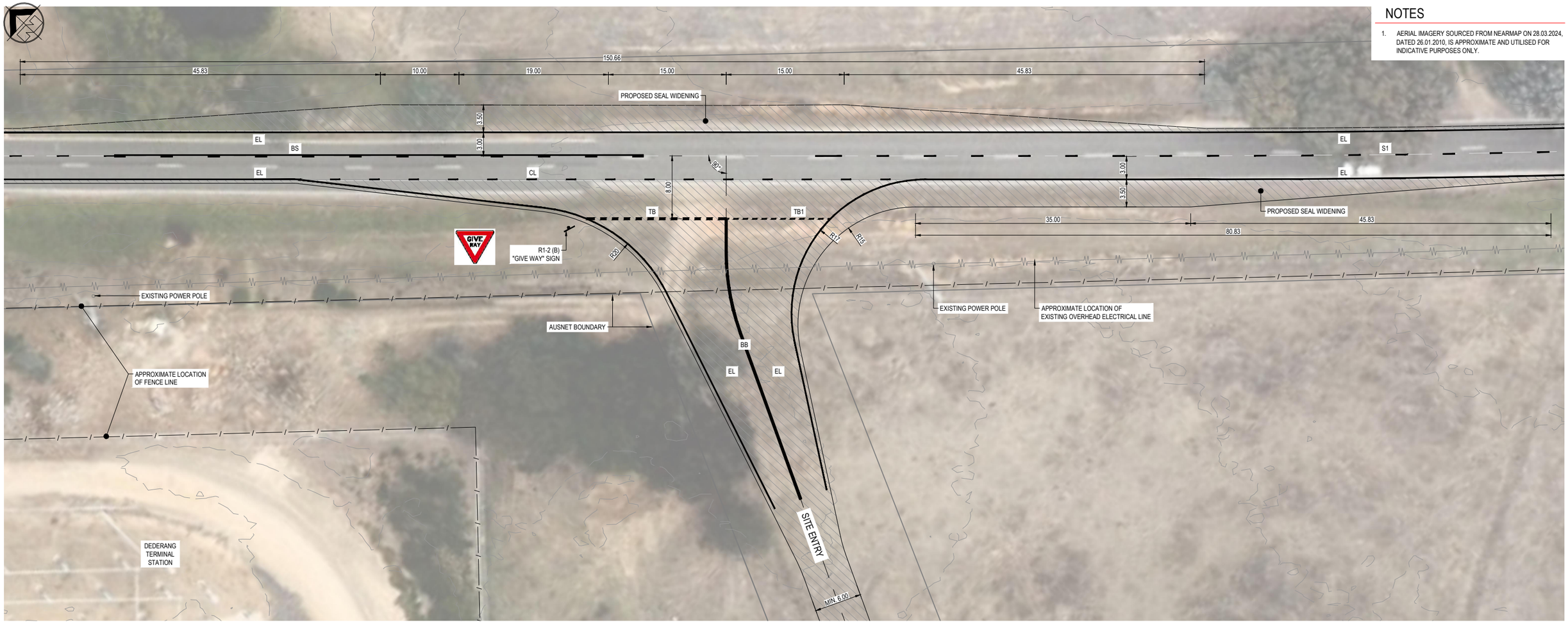
COORDINATE REFERENCE SYSTEM
GDA2020 MGA Z 55

PROJECT
DEDERANG BESS

TITLE
DEDERANG ROAD SITE ENTRY INTERSECTION LAYOUT PLAN OPTION 1

DRAWING No. 23-039-DWG-E010

REV C



DEDERANG ROAD/ SITE ENTRY INTERSECTION LAYOUT - OPTION 1

SCALE 1:250

PAVEMENT MARKINGS

LINE	TYPE	PATTERN AND DIMENSIONS	LINE WIDTH
BARRIER LINES	BB		100 100 100
BARRIER LINES	BS	3000 STRIPE AND 9000 GAP	100 100 100
GIVE WAY LINES	TB	600 STRIPE AND 600 GAP	300
GIVE WAY LINES	TB1	600 STRIPE AND 600 GAP	150
SEPERATION LINE	S1	3000 STRIPE AND 9000 GAP	100
EDGE LINES	EL		150
CONTINUITY LINE	CL	1000 STRIPE AND 3000 GAP	150

No	DESCRIPTION	DES	DRN	CHK	APP	DATE
D	FOR REVIEW	T.M.	D.J.	J.M.	R.H.	07.06.2024
C	FOR REVIEW	T.M.	T.M.	J.M.	R.H.	03.04.2024
B	FOR REVIEW	T.M.	T.M.	J.M.	R.H.	25.03.2024
A	FOR REVIEW	M.J.L.	M.J.L.	N.C.	N.C.	30.08.2023

REVISION HISTORY

icubed consulting
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Mint

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COORDINATE REFERENCE SYSTEM
GDA2020 MGA Z 55

PROJECT
DEDERANG BESS

TITLE
DEDERANG ROAD SITE ENTRY INTERSECTION LAYOUT PLAN OPTION 1

DRAWING No. 23-039-DWG-E010

REV D

Appendix B – Sight distance assessment

23-039 – Dederang BESS
Technical Memorandum – Safe Intersection Sight Distance

Date:	13th August 2024
Project:	Dederang BESS
Project No.:	23-039
Purpose of Memo:	Safe Intersection Site Distance
Author:	Theresa Mansour Civil Designer, icubed consulting
Reviewer:	Rod Hetherington Director – Principal Consultant, icubed consulting

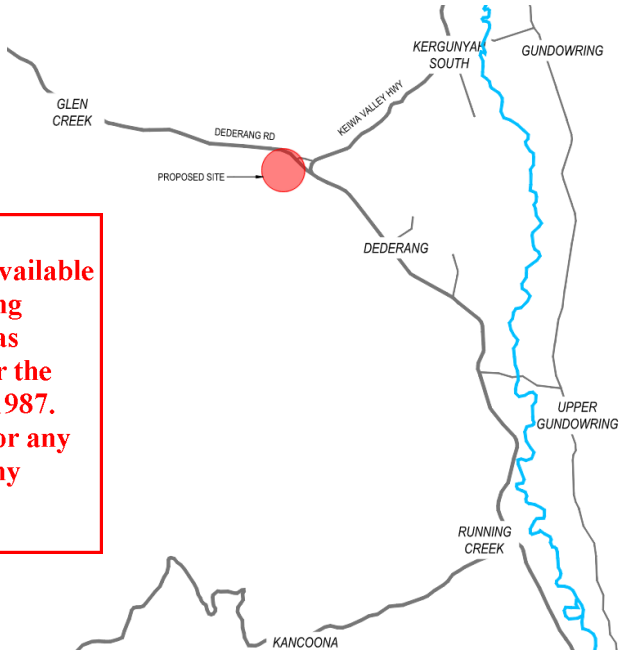
1 Introduction

Mint Renewables have engaged icubed consulting to provide a Safe Intersection Site Distance at Dederang BESS. The civil design is required to support an application for a planning permit for the Dederang Battery Energy Storage System (BESS).

This technical memorandum outlines the achievable Safe Intersection Sight Distance (SISD) for the proposed site entry (option 1) location along Dederang Road.

2 Location

The proposed Dederang BESS is located south of the existing Dederang Terminal station with proposed access from Dederang Road.



Locality Plan

3 Safe Intersection Sight Distance (SISD)

SISD is the minimum sight distance which should be provided on the major road at any intersection.

SISD is calculated using the following formula from Austroads:

3.2.2 Safe Intersection Sight Distance (SISD)

SISD is the minimum sight distance which should be provided on the major road at any intersection. Designers should note that the object height for the application of SISD has been increased to 1.25 m (previously driver eye height was used i.e. 1.1 m) based on research by the Department of Main Roads (Lennie et al. 2008). The basis of the 1.25 m object height for cars is that this height is 0.2 m less than the 15th percentile height of passenger cars (1.45 m) as determined by the study.

Equation 2 provides the formula for SISD:

$$SISD = \frac{D_T \times V}{3.6} + \frac{V^2}{254 \times (d + 0.01 \times a)} \qquad 2$$

where

SISD = safe intersection sight distance (m)

D_T = decision time (sec) = observation time (3 sec) + reaction time (sec) – refer to *AGRD Part 3* (Austroads 2016b) for a guide to values

V = operating (85th percentile) speed (km/h)

d = coefficient of deceleration – refer to Table 3.3 and *AGRD Part 3* for a guide to values

a = longitudinal grade in % (in direction of travel: positive for uphill grade, negative for downhill grade)

Austroads Guide to Road Design Part 4A – Safe Intersection Sight Distance (SISD)

3.1 SISD Inputs

Desirable SISD inputs fall within the Normal Design Domain (NDD) and are the recommended values for a safe operating intersection.

3.1.1 DT Decision Time

Observation Time = 3.0sec

Reaction time is the time for a driver to perceive and react to a particular stimulus and take appropriate action. The most desirable reaction time for a high-speed rural intersection is 2.5seconds.

Reaction Time = 2.5sec

Table 5.2: Driver reaction times

Reaction time R_T (s)	Typical road conditions	Typical use
2.5	• Unalerted driving conditions due to the road only having isolated geometric features to maintain driver interest • Areas with high driver workload/complex decisions • High speed roads with long distances between towns.	Absolute minimum value for high speed roads with unalerted driving conditions. General minimum value for: • high speed rural freeways • high speed rural intersections • isolated alignment features.
2.0	• Higher speed urban areas • Few intersections • Alerted driving situations in rural areas • High speed roads in urban areas comprising numerous intersections or interchanges where the majority of driver trips are of relatively short length.	Absolute minimum value for the road conditions listed in this row. General minimum value for most road types, including those with alert driving conditions.
1.5(1)	Alert driving conditions e.g.: • high expectancy of stopping due to traffic signals • consistently tight alignments for example, mountainous roads • restricted low speed urban areas • built-up areas – high traffic volumes • interchange ramps when sighting over or around barriers.	Absolute minimum value. Only used in very constrained situations where drivers will be alert. Can be considered only where the maximum operating speed is ≤ 90 km/h. Should not be used where other design minima have been used.

1 *A reaction time of 1.5 s cannot be used in Western Australia. Designers should refer to road agency supplements to confirm local practice.*

Austroads Guide to Road Design Part 3 – Driver Reaction Times

3.1.2 V (85th Percentile)

The term 85th percentile speed of cars at a time when traffic volumes are low, and drivers are free to choose the speed at which they travel. The operating speed (85th percentile speed) for Dederang Road is 110km/hr.

V (85th percentile) = 110km/hr

3.1.3 D – Coefficient of Deceleration

The value for calculating minimum stopping sight distance for a B-double vehicle on most rural road types is 0.29.

D – coefficient of deceleration = 0.29

Table 5.3: Design domain for coefficient of deceleration

Vehicle type	Coefficient of deceleration (d)	Driver/road capability	Typical use
Cars	0.61(1)	Braking on dry, sealed roads.	Specific applications where the normal stopping sight distance criteria applied to horizontal curves produce excessive lateral offsets to roadside barriers/structures – refer Section 5.5 (used in conjunction with supplementary manoeuvre capability).
	0.46(1)	Mean value for braking on wet, sealed roads for a hazard. Maximum values when decelerating at an intersection.	Maximum value for calculating absolute minimum stopping sight distance. Only to be used in constrained locations, typically on: • lower volume roads • less important roads • mountainous roads • lower speed urban roads • sighting over or around barriers • tunnels.
	0.36	About a 90th percentile value for braking on wet, sealed roads. Maximum value allowed for deceleration lanes at intersections.	Desirable value for calculating minimum stopping sight distance for most urban and rural road types, and level crossings.
	0.26	Comfortable deceleration on sealed roads. Normal driving event.	Not to be used without the approval of the relevant road agency (refer to Section 5.3.1). This value may be adopted for stopping sight distance for major highways and freeways in flat terrain, and for deceleration/turn lanes at intersections. Its use can lead to an unnecessarily high standard and expensive design in undulating or hilly terrain. Maximum value for calculation of horizontal curve [illegible] sight distance.
	0.27	Braking on unsealed roads.	Used to determine stopping sight distance on unsealed roads. This value is very dependent on the surface material and should be verified where possible.
Trucks	0.29(1)	Braking by single unit trucks, semi-trailers and B-doubles on dry, sealed roads. Minimum value required by vehicle standards regulations.	Maximum value for calculating truck stopping sight distance for most urban and rural road types, and level crossings.
Buses	0.15		Desirable braking to ensure passenger comfort approaching a bus stop.

1 *For any horizontal curve with a side friction factor greater than the desirable maximum value, the coefficient of deceleration should be reduced by 0.05. For tunnels, a maximum coefficient of deceleration of 0.46 may be applied along the length of a tunnel with the exception of the 200 m length from the portal entries, where a coefficient of deceleration of 0.36 is used.*

Austroads Guide to Road Design Part 3 – Coefficient of Deceleration

3.1.4 A – Longitudinal Grade

Grade corrections are applied to the SISD to allow for braking on slopes. Down slopes are shown as a negative and add length to the require SISD while uphill slopes are shown as a positive and reduce the required SISD length.

Longitudinal grades will vary between intersections and approach directions.

3.2 Extended Design Domain (EDD)

The Extended Design Domain (EDD) provides extended design criteria for intersections within constrained situations. These values fall outside the Normal Design Domain (NDD) and may be considered when new intersections are being retrofitted on existing roads in constrained locations.

3.2.1 Observation Time

Due to the low volume of vehicles using Dederang Road we believe a observation time of 1.5 seconds is acceptable.
Observation Time = 1.5sec

A.2.4 Observation Times for EDD Safe Intersection Sight Distance

The observation times used for the base cases under EDD safe intersection sight distance are given in Table A 8. A range of values are given depending on factors such as the complexity of the intersection and traffic volume. The observation times used for the check cases are given in the note to Table A 8.

Table A 8: Driver observation time for safe intersection sight distance under EDD

Observation time *OT* (sec)	Typical use
1.5	T-intersections on single carriageway roads (two-lane, two-way roads and one-way roads) that have a traffic volume < 4000 veh/d Cross intersections on single carriageway roads (two-lane, two-way roads and one-way roads) that have a traffic volume < 400 veh/d Simple intersection arrangements e.g. left in, left out on all roads
2.0	T-intersections on single carriageway roads (two-lane, two-way roads and one-way roads) that have a traffic volume ≥ 4000 veh/d Cross intersections on single carriageway roads (two-lane, two-way roads and one-way roads) that have a traffic volume ≥ 400 veh/d
2.5	T-intersections and cross intersections on multi-lane roads Intersections in overtaking lanes Complex intersection layouts Situations in which drivers may be distracted by other features

Note: The observation times in this table are applicable to the norm-day and truck-day base cases. The minimum observation times for the check cases are given below:

- *mean-day and skill-day as per this table*
- *norm-night, truck-night, mean-night and skill-night use 1.0 sec less than the values given in this table. Use of the lower observation times is associated with the additional cues drivers are given by observing the glow of the oncoming vehicle headlights.*

Austroads Guide to Road Design Part 4A – EDD Driver Observation Time

4 Site Entries

4.1 Dederang Road/ Site Entry Option 1

4.1.1 Intersection Layout

The proposed layout for Site Entry Option 1 is a BAL/ BAR configuration outlined in the *'20230830-23-039-Dederang BESS - Tech Memo - Intersection Design Intent'.*

4.1.2 SISD Desirable (NDD)

DT = 5.5seconds
V (85th percentile) = 110km/hr
d = 0.29
East ~ 0.07%
West ~ 0.13%

SISD West = 332m
SISD East = 332m

4.1.3 SISD (EDD)

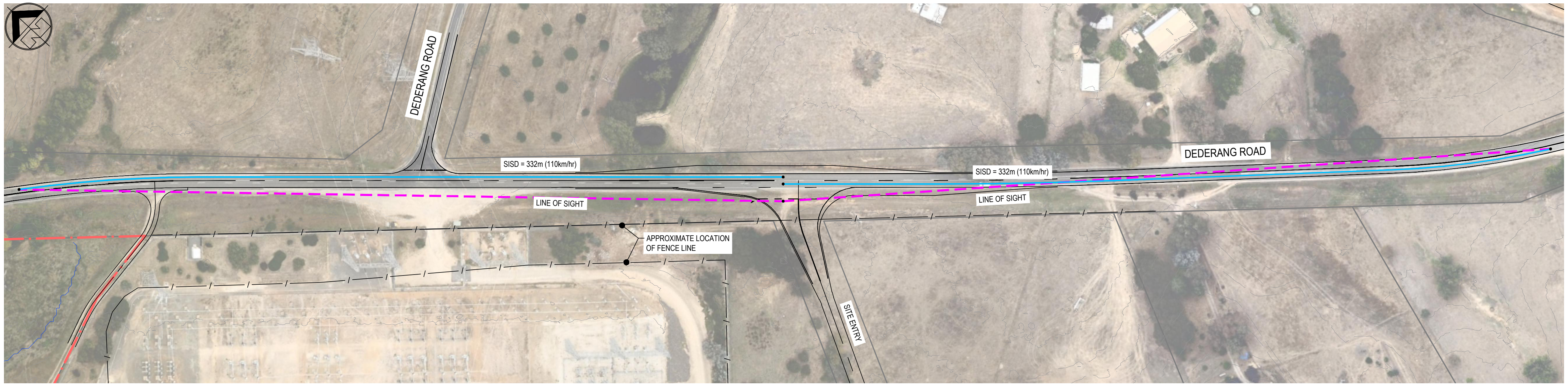
DT = 4seconds
V (85th percentile) = 110km/hr
d = 0.29
East ~ 0.07%
West ~ 0.13%

SISD West = 286m
SISD East = 286m

While 0.29 deceleration factor is a reasonable recommendation, typical Austroads guidance suggests the use of a 0.36 deceleration enabling the consideration of Extended Design Domain (EDD) if required.

5 Conclusion

The design is still highly conceptual and will require further assessment during the detailed design 3D modelling stage.



DEDERANG ROAD/ SITE ENTRY SISD PLAN - OPTION 1

SCALE 1:1,000

SIGHT DISTANCES

AUSTROADS - GUIDE TO ROAD DESIGN PARTS 3 & 4a

SISD - SAFE INTERSECTION SIGHT DISTANCE

DEDERANG ROAD

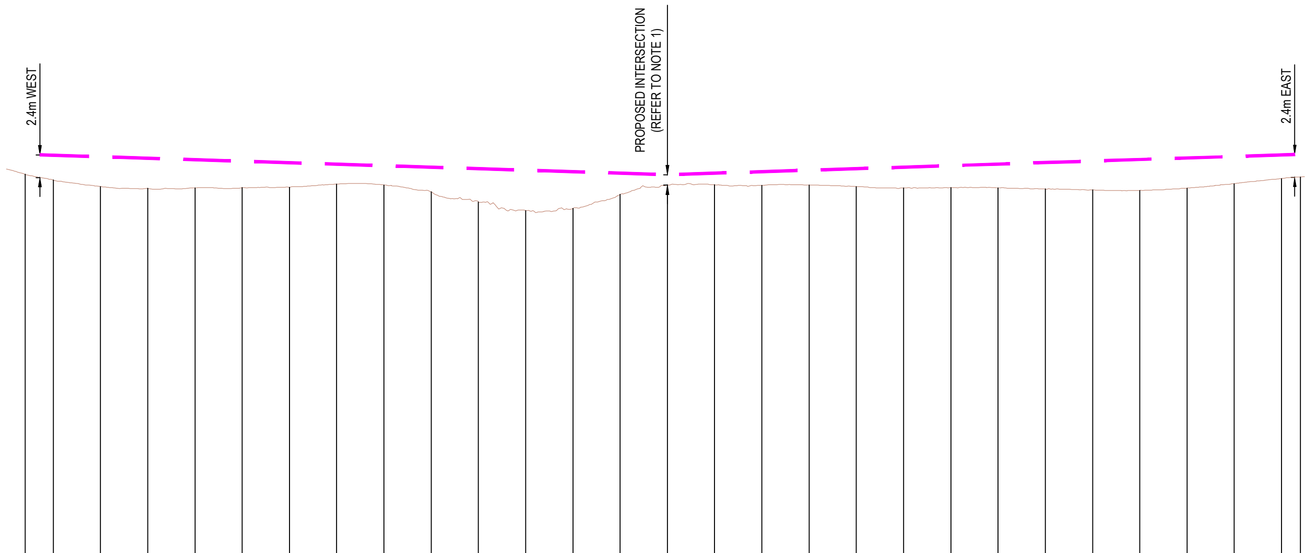
2.4m	DRIVERS EYE HEIGHT
1.25m	OBJECT HEIGHT
3.0s	OBSERVATION TIME
2.5s	REACTION TIME
d=0.29	DECELERATION VALUE
V=110km/h	OPERATING (85th PERCENTILE) SPEED

CALCULATED SIGHT DISTANCES (INCLUDING CORRECTION FOR GRADES)

ROAD	SISD (m)
DEDERANG ROAD (EASTERN APPROACH)	332
DEDERANG ROAD (WESTERN APPROACH)	332

NOTES

1. LINE OF SIGHT HEIGHTS BASED ON BASED ON THE ASSUMED FINISHED SURFACE LEVEL OF THE SITE ENTRY (APPROX. RL. 268.810m), RATHER THAN EXISTING GROUND ELEVATION (RL. 270.445m).
2. AERIAL IMAGERY SOURCED FROM NEARMAP ON 28.03.2024, DATED 26.01.2010, IS APPROXIMATE AND UTILISED FOR INDICATIVE PURPOSES ONLY.



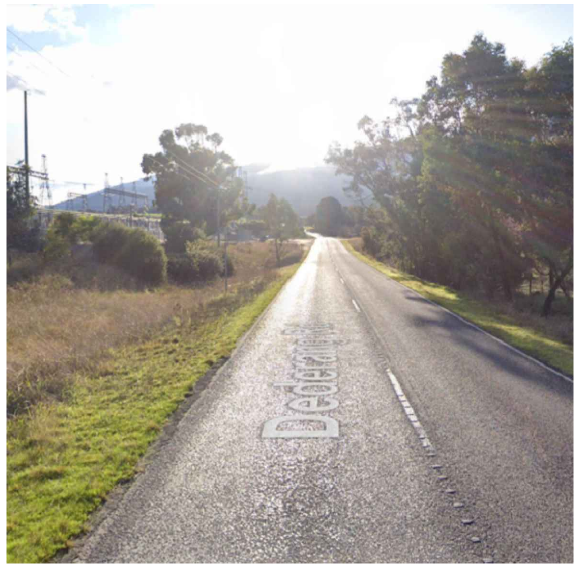
DATUM R.L. 230.000

NATURAL SURFACE	270.679	270.076	269.383	269.195	269.243	269.264	269.312	269.635	269.559	268.823	267.765	266.849	267.071	268.546	269.536
CHAINAGE	-339.847	-325.000	-300.000	-275.000	-250.000	-225.000	-200.000	-175.000	-150.000	-125.000	-100.000	-75.000	-50.000	-25.000	0.000

NATURAL SURFACE	269.571	269.519	269.549	269.388	269.225	269.282	269.251	269.123	269.022	268.981	269.218	269.693	270.230	270.297
CHAINAGE	25.000	50.000	75.000	100.000	125.000	150.000	175.000	200.000	225.000	250.000	275.000	300.000	325.000	327.206

DEDERANG ROAD/ SITE ENTRY INTERSECTION - SISD LONGITUDINAL SECTION

HORIZ. SCALE 1:2,000
VERT. SCALE 1:400



SIGHT DISTANCE - WEST

SIGHT DISTANCE - EAST

ADVERTISED PLAN

No	DESCRIPTION	DES	DRN	CHK	APP	DATE
F	FOR REVIEW	T.M.	T.M.	R.H.	R.H.	13.08.2024
E	FOR REVIEW	T.M.	D.J.	J.M.	R.H.	07.06.2024
D	FOR REVIEW	T.M.	T.M.	J.M.	R.H.	03.04.2024
C	FOR REVIEW	T.M.	T.M.	J.M.	R.H.	25.03.2024
B	SISD AMENDED	M.J.L.	M.J.L.	N.C.	N.C.	06.09.2023
A	FOR REVIEW	M.J.L.	M.J.L.	N.C.	N.C.	30.08.2023

REVISION HISTORY

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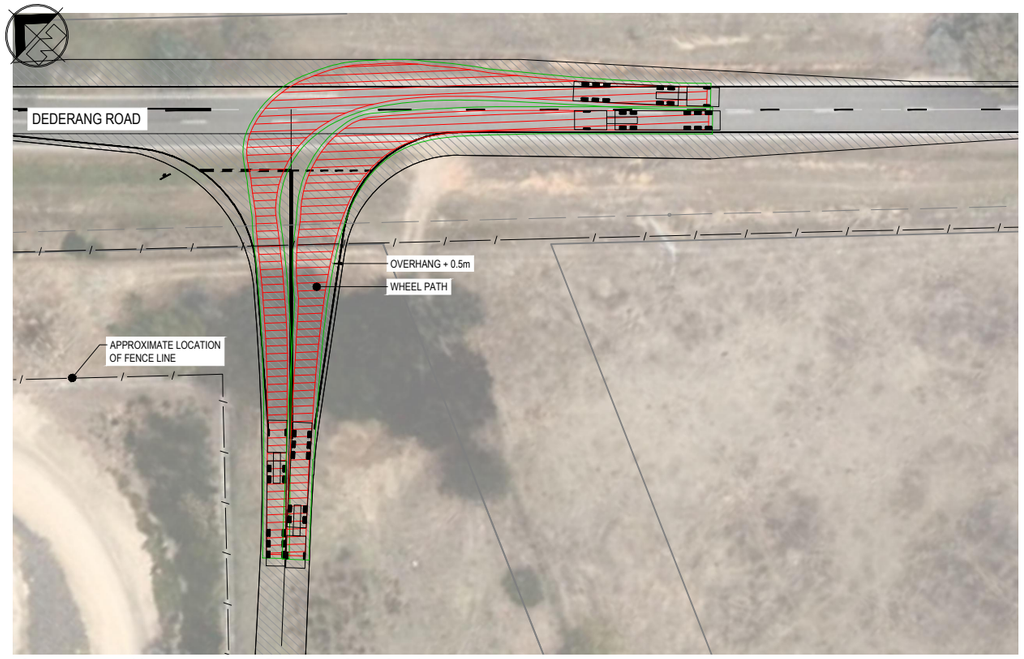
STATUS FOR REVIEW NOT FOR CONSTRUCTION
COORDINATE REFERENCE SYSTEM GDA2020 MGA Z 55

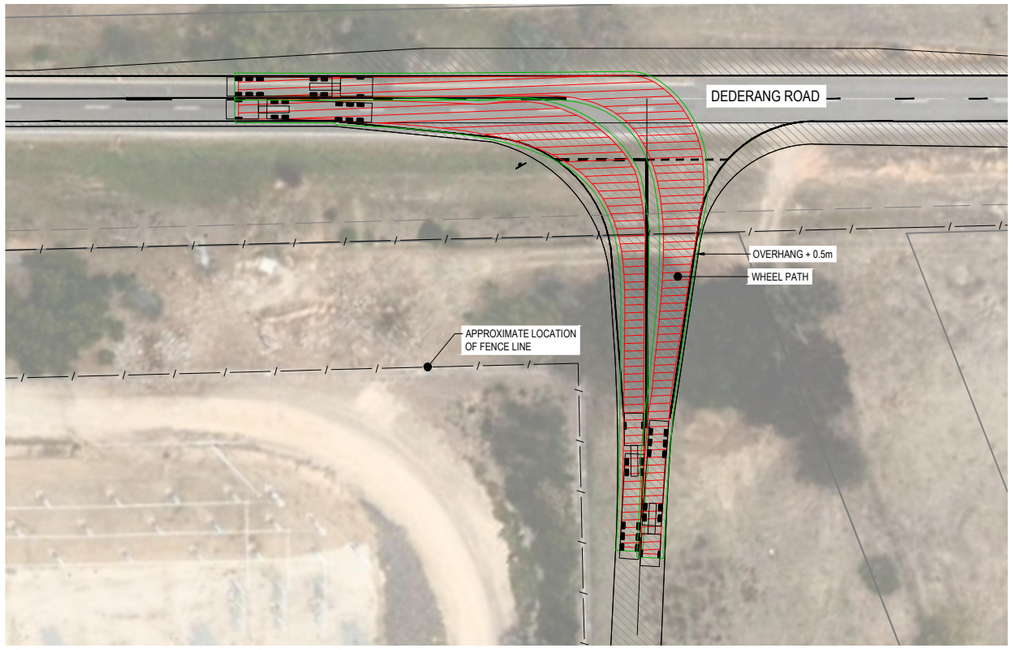
PROJECT DEDERANG BESS
TITLE DEDERANG ROAD SITE ENTRY INTERSECTION SISD PLAN OPTION 1
DRAWING No. 23-039-DWG-E012 | REV F

Appendix C – Swept path assessment



SITE ENTRY 19m AV TURNING PLAN - OPTION 1

SCALE 1:400



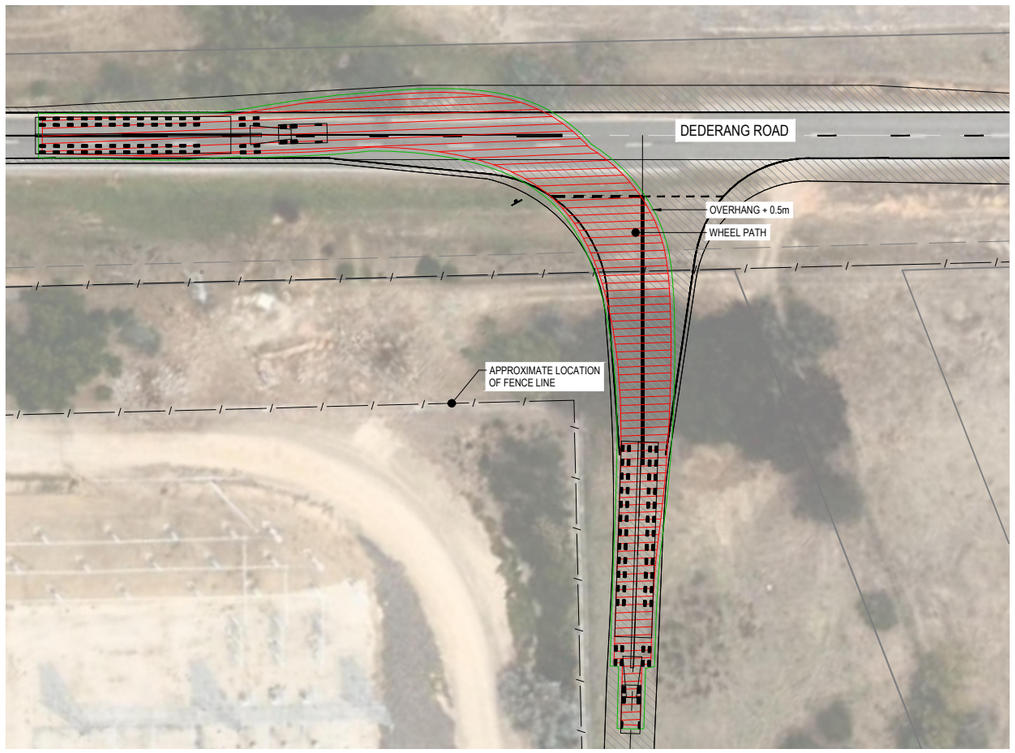
SITE ENTRY 19m AV TURNING PLAN - OPTION 1

SCALE 1:400

NOTES

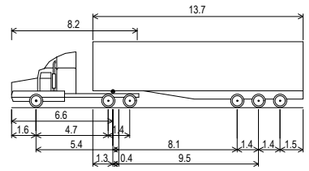
1. AERIAL IMAGERY IS APPROXIMATE AND UTILISED FOR INDICATIVE PURPOSES ONLY.
2. TIPPER AND TRI-DOG (TRUCK AND DOG) VEHICLE CHECKED AND SUITABLE FOR INTERSECTION.

ADVERTISED PLAN



SITE ENTRY TRANSFORMER TRAILER PLAN - OPTION 1

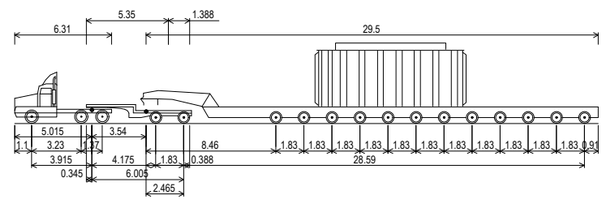
SCALE 1:400



19m AV - ARTICULATED VEHICLE

OVERALL LENGTH	19.000m
OVERALL WIDTH	2.500m
OVERALL BODY HEIGHT	4.301m
MIN BODY GROUND CLEARANCE	0.418m
TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	6.00s
CURB TO CURB TURNING RADIUS	12.500m

VEHICLE PROFILE - 19m AV



TRANSFORMER TRAILER - 12 ROW

OVERALL LENGTH	38.055m
OVERALL WIDTH	4.800m
OVERALL BODY HEIGHT	3.341m
MIN BODY GROUND CLEARANCE	0.375m
MAX TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	6.00s
WALL TO WALL TURNING RADIUS	20.950m

VEHICLE PROFILE - TRANSFORMER TRAILER

No	DESCRIPTION	DES	DRN	CHK	APP	DATE
D	FOR REVIEW	T.M.	T.M.	J.M.	R.H.	16.04.2024
C	FOR REVIEW	T.M.	T.M.	J.M.	R.H.	03.04.2024
B	FOR REVIEW	T.M.	T.M.	J.M.	R.H.	25.03.2024
A	FOR REVIEW	M.J.L.	M.J.L.	N.C.	N.C.	30.08.2023

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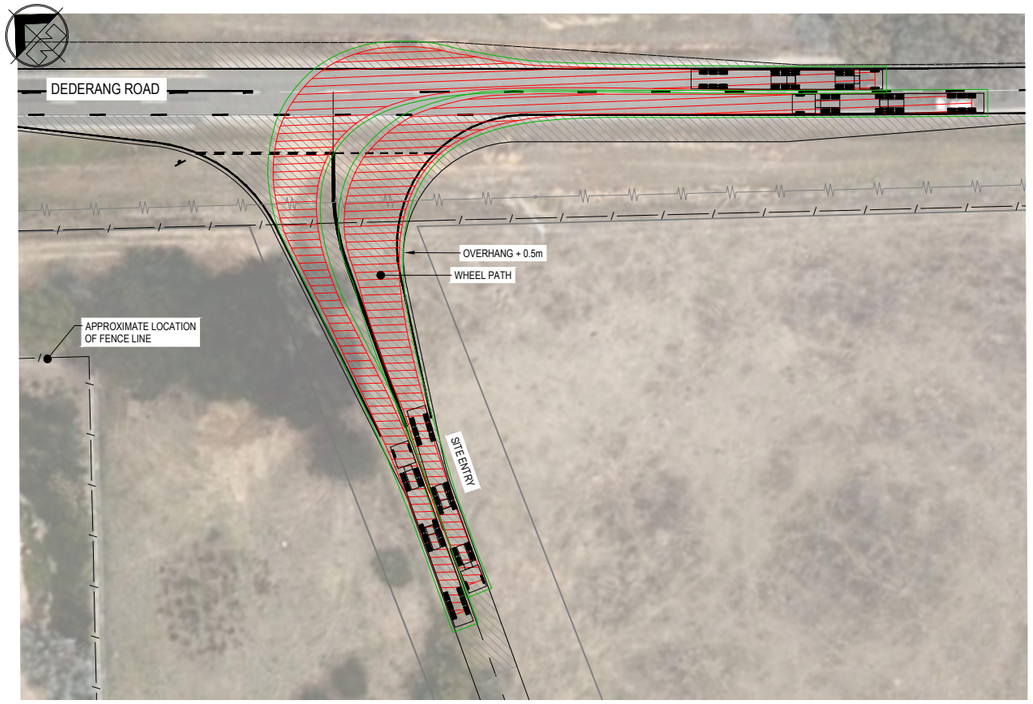
PROJECT DEDERANG BESS

TITLE DEDERANG ROAD SITE ENTRY INTERSECTION MANOEUVRING PLAN OPTION 1

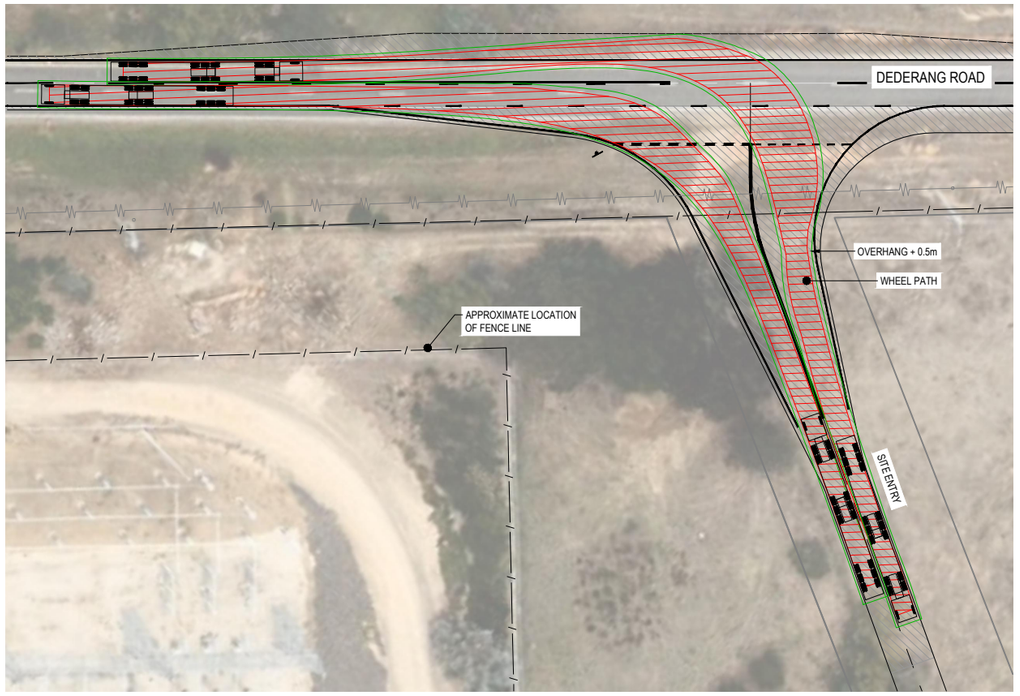
DRAWING No. 23-039-DWG-E011

REV D



SITE ENTRY 25m B-DOUBLE TURNING PLAN - OPTION 1

SCALE 1:400

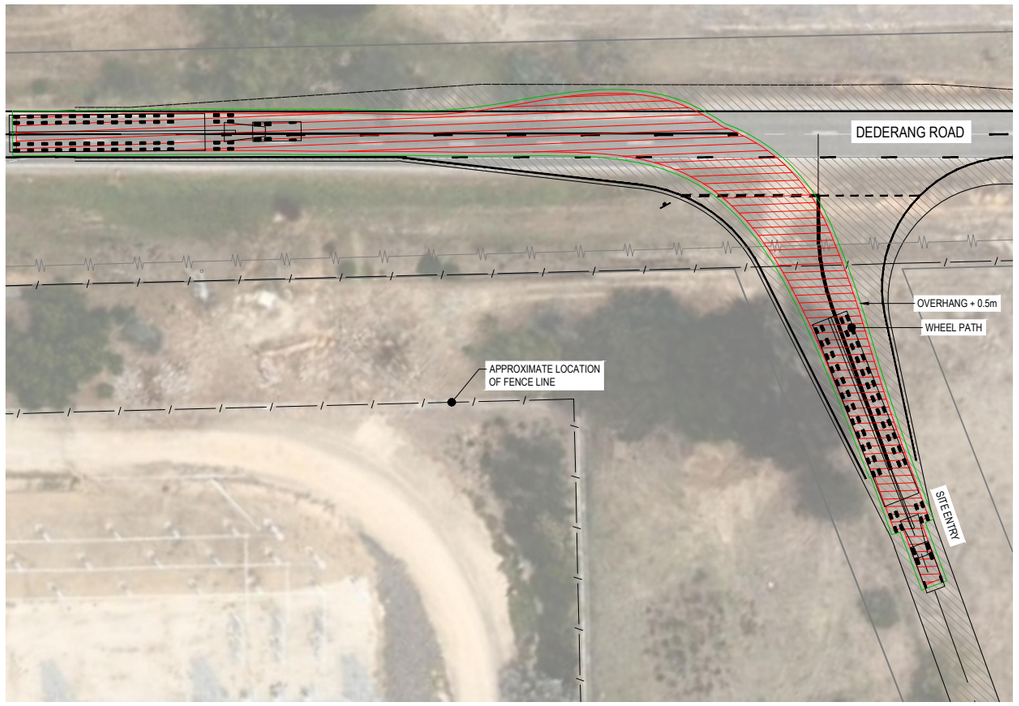


SITE ENTRY 25m B-DOUBLE TURNING PLAN - OPTION 1

SCALE 1:400

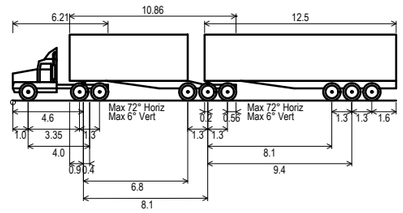
NOTES

1. AERIAL IMAGERY SOURCED FROM NEARMAP ON 28.03.2024, DATED 26.01.2010, IS APPROXIMATE AND UTILISED FOR INDICATIVE PURPOSES ONLY.
2. 25m B-DOUBLE VEHICLE CHECKED AND SUITABLE FOR INTERSECTION.



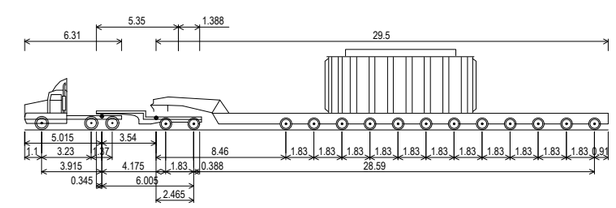
SITE ENTRY TRANSFORMER TRAILER PLAN - OPTION 1

SCALE 1:400



B-Double (25.0m)	
Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

VEHICLE PROFILE - 25m B-DOUBLE



TRANSFORMER TRAILER - 12 ROW	
OVERALL LENGTH	38.055m
OVERALL WIDTH	4.800m
OVERALL BODY HEIGHT	3.341m
MIN BODY GROUND CLEARANCE	0.375m
MAX TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	6.00s
WALL TO WALL TURNING RADIUS	20.950m

VEHICLE PROFILE - TRANSFORMER TRAILER

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DRAWING No.	23-039-DWG-E011
REV	F

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