TRAFFICWORKS™

Traffic Impact Assessment Report

Baddaginnie-Benalla Road, Baddaginnie

Project Number 230732
Final Report 16/07/2024

Client Birdwood Energy Pty Ltd

Document control record

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Executive summary

Birdwood Energy Pty Ltd engaged Trafficworks to undertake a traffic impact assessment (TIA) for the proposed solar energy facility development at **Baddaginnie-Benalla Road, Baddaginnie.**

The TIA is as per a request from the Department of Transport and Planning (Minister for Planning) in a request for further information letter dated 23 February 2024.

The table below summarises the site, the proposed development, and our conclusions and recommendations.

Address	Baddaginnie-Benalla Road, Baddaginnie (Lot 1 of TP106246)
Zoning	Farming Zone (FZ)
Proposed development	Solar Energy Facility
Road network	— Hume Highway (M31) — Winfield Road (A300 – Midland Highway) — Baddaginnie-Benalla Road (TRZ3) — Forshaw Road
Traffic generation	Daily and peak hour traffic volumes of: — 64 vehicles per day (vpd) — 21 vehicles per hour (vph)
Car parking	20 light vehicle parking spaces

Conclusion	We conclude that subject to the implementation of our recommendations, there are no traffic engineering reasons that would prevent the development from proceeding:
	— the peak traffic generation will occur during the construction phase of the development, where 20 light vehicles (generating 40 trips per day) and 12 heavy vehicles (generating 24 trips per day) will access the subject site
	— the car parking demand during the development's construction phase will likely be 20 spaces
	— adequate sight distance can be achieved at the intersection of:
	  — Forshaw Road and Baddaginnie-Benalla Road; no further treatment is required
	  — the subject site access and Forshaw Road; no further treatment is required.

	— the setback of the security gate (Gate #1) for the subject site will provide the minimum 20 m required to allow storage of a 19 m semi-trailer clear of the traffic lane on Forshaw Road during the construction phase
	— to accommodate development traffic, no additional work is required at the:
	  — development's proposed site access with Forshaw Road
	  — intersection of Forshaw Road with Baddaginnie-Benalla Road.

Recommendations	It is recommended that: — **Recommendation 1:** the proposed development plan should be updated to indicate a formal on-site car parking provision for 20 vehicles — **Recommendation 2:** the subject site access driveway should be constructed per SD255 of the IDM requirements and to the council's satisfaction — **Recommendation 3:** the subject site property access gate should be located, and the driveway access from Forshaw Road should be constructed as per IDM standard drawing SD 255 for a car (light vehicle).

Referenced documents

References used in the preparation of this report include the following:

- Austroads:
    - Guide to Road Design Part 4 – Intersections and crossings
    - Guide to Traffic Management Part 6 – Intersections, interchanges and crossings management
- Australian Standards AS/NZS 2890.1 Parking facilities Part 1: Off-street car parking
- RTA Guide to Traffic Generating Developments, Version 2.2, October 2002
- Clause 52.06 of the Benalla Rural City Council Planning Scheme
- Department of Transport and Planning (DTP) Open Data website (Crashes Last 5 years) for the crash history of the road network in the vicinity of the development

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1 Introduction

Birdwood Energy Pty Ltd engaged Trafficworks to undertake a traffic impact assessment (TIA) for the proposed solar energy facility development at **Baddaginnie-Benalla Road, Baddaginnie.**

The TIA is as per a request from the Department of Transport and Planning (Minister for Planning) in a request for further information letter dated 23 February 2024.

For the details about:

- existing site conditions – see section 2
- description of the proposed development – see section 3.1
- traffic impact of the proposed development – see section 3.2
- car parking assessment of the proposed development – see section 4
- assessment of the access to the proposed development – see section 5
- our conclusions and recommendations – see section 6.

2 Existing conditions

2.1 Subject site

The subject site is:

- Baddaginnie-Benalla Road in Baddaginnie, the land also known as Lot 1 of TP106246, approx. 2.5 km east of Baddaginnie and 9 km southwest of Benalla
- surrounded by land currently used for farming and agricultural activities, including some residential rural properties.

Vehicular access to the subject site is available from Forshaw Road, via Baddaginnie-Benalla Road.

Figure 1 shows the subject site's location, surrounded predominantly by farmland and rural residential properties.

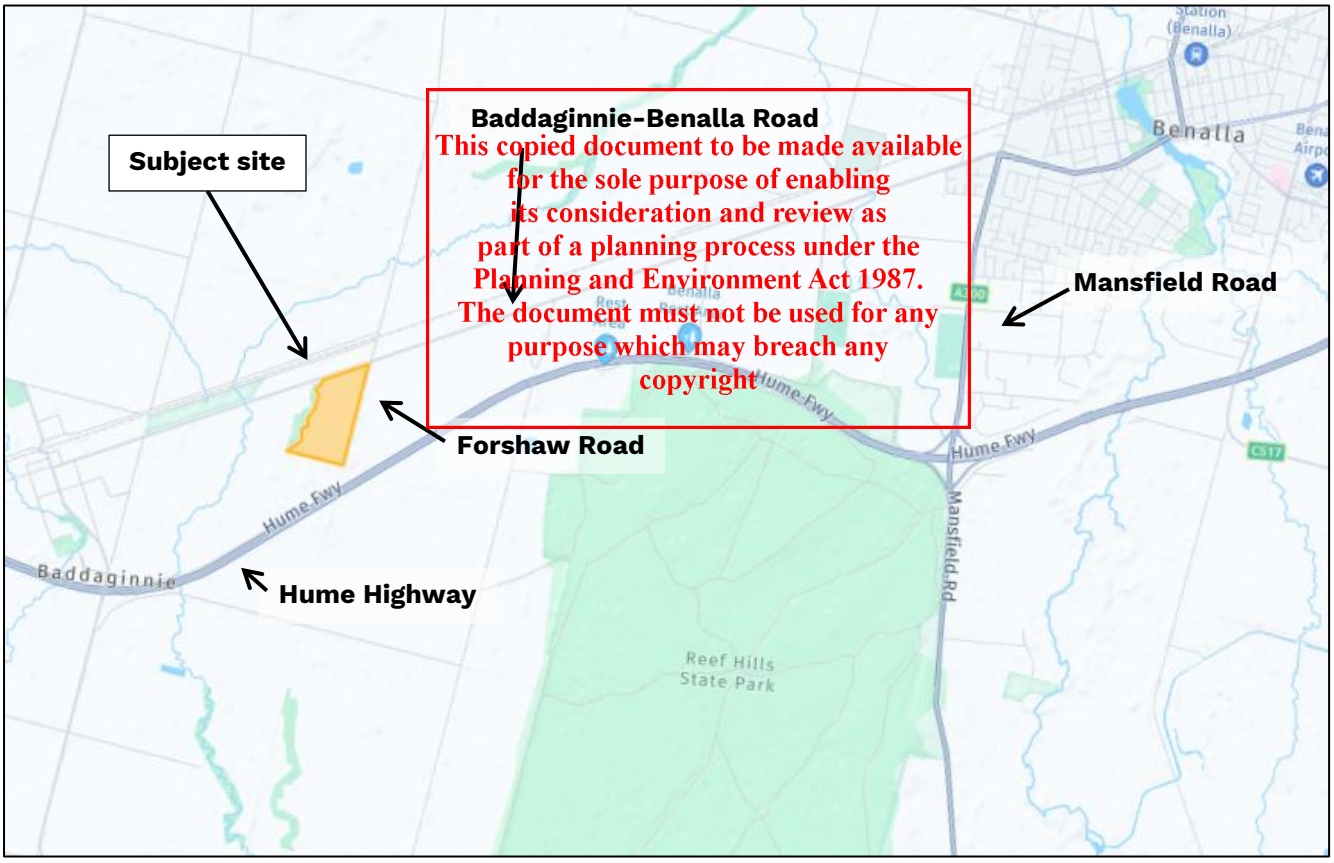


Figure 1: Location plan (reproduced with permission from Nearmap)

The subject site and most of the surrounding land are located within a Farming Zone (FZ), as per the Rural City of Benalla Council (Council) planning scheme. To the west is a parcel of land containing a tributary of the Baddaginnie Creek, within a Public Conservation And Resource Zone (PCRZ). To the north, the Baddaginnie-Benalla Road is located within Transport Zone 3 - Significant Municipal Road (TRZ3).

Figure 2 shows the zoning for the subject site and surrounding area.

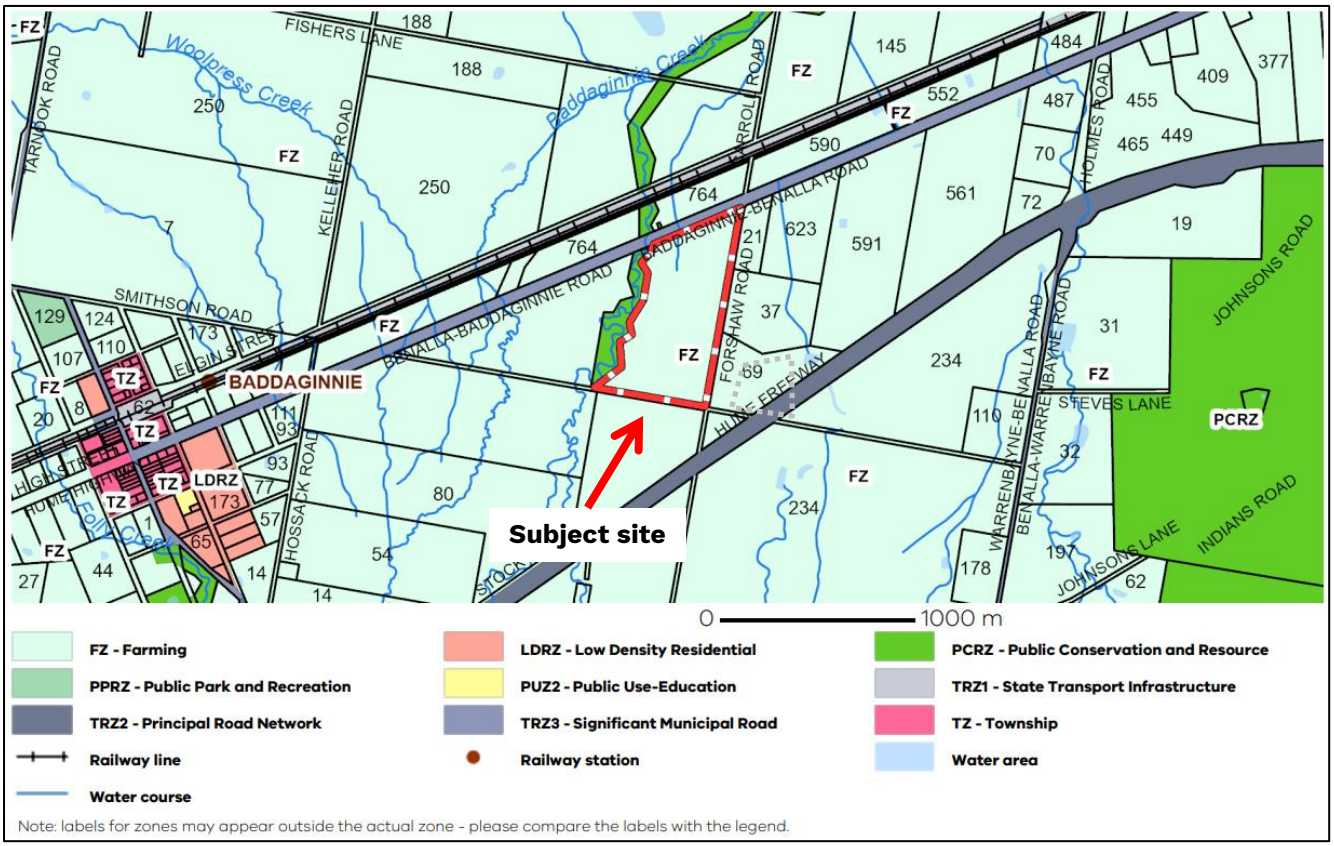


Figure 2: Zoning plan (reproduced from the VicPlan website)

2.2 Road network

The road network includes:

- Hume Highway (M31)
- Mansfield Road (A300 – Midland Highway)
- Baddaginnie-Benalla Road (TRZ3)
- Forshaw Road

2.2.1 Hume Highway (M31)

Table 1 describes the features of this road.

Table 1: Hume Highway features

Feature	Description
Road type	Classified state arterial road managed by the Department of Transport and Planning (DTP), part of the national Auslink network.
Access	Provides access between Melbourne and the NSW border at Albury - Wodonga
Carriageway	Four-lane, two-way divided road with 3.5 m traffic lanes. The outside sealed shoulder is 4.0 m, and the inside sealed shoulder is 1.5 m. Road safety barriers are present on both sides of the carriageways in both directions. The road intersects with Mansfield Road at a full diamond grade-separated interchange.
Road reservation	100 m wide
Speed limit	A posted speed limit of 110 km/h

Figure 3 and Figure 4 provide further information about the road.

Figure 3: Hume Freeway northbound at the Mansfield Road offramp – Source: Google Streetview

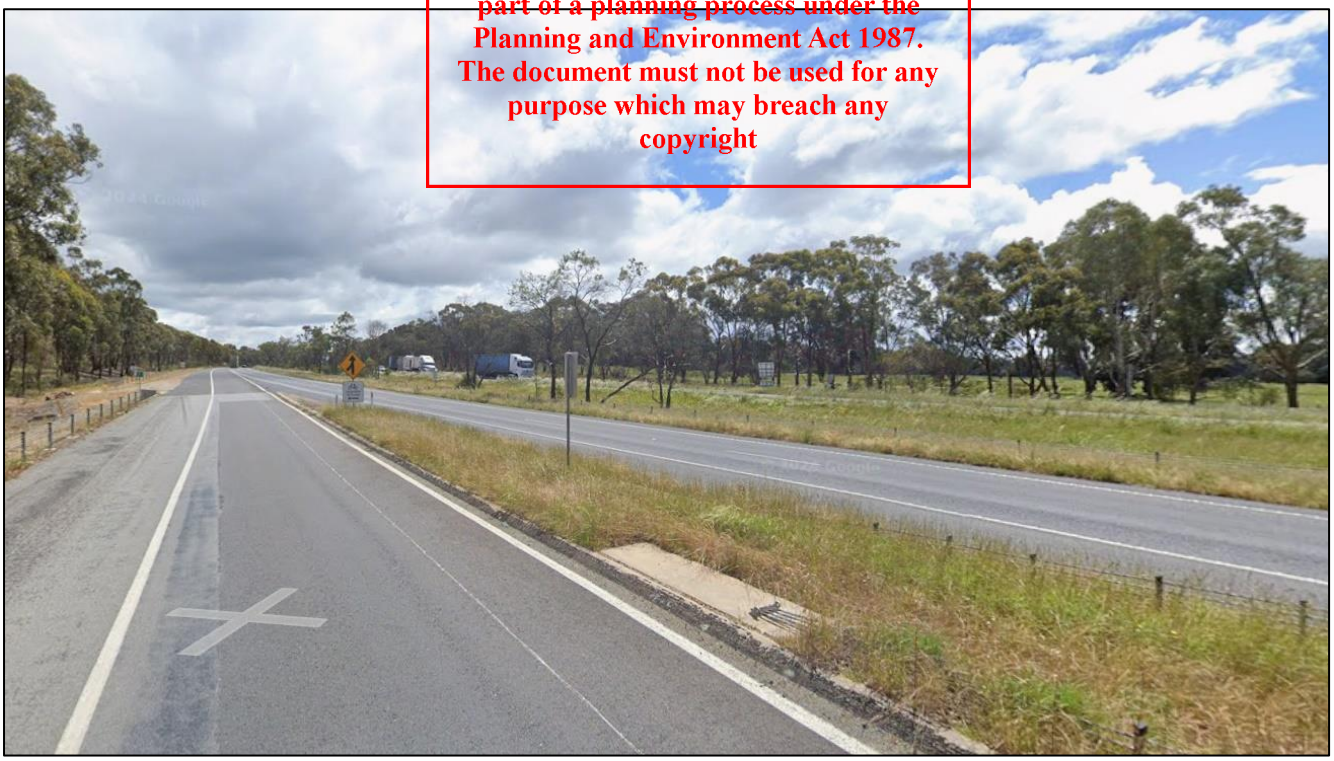


Figure 4: Hume Freeway southbound as the Mansfield Road onramp – Source: Google Streetview

2.2.2 Mansfield Road (A300 – Midland Highway)

Table 2 describes the features of this road.

Table 2: Mansfield Road features

Feature	Description
Road type	Classified state arterial road (A300) managed by DTP
Access	Provides access between Mansfield, to the south, and Shepparton, to the northwest
Carriageway	Two-way, two-lane road with 3.5 m traffic lanes and 1.5 m sealed shoulders on each side The road intersects with Baddaginnie-Benalla Road at a 4-leg roundabout that also intersects with Faithful Street (local council road) and Bridge Street West (a continuation of Midland Highway)
Road reservation	60 m wide
Speed limit	A posted speed limit of 80 km/h with a time-based 40 km/h speed limit in the vicinity of a remote school crossing near the intersection with Waller Street

Figure 5 and Figure 6 provide further information about the road.

Figure 5: Mansfield Road on approach to the Baddaginnie-Benalla Road roundabout, facing north – Source: Google Streetview

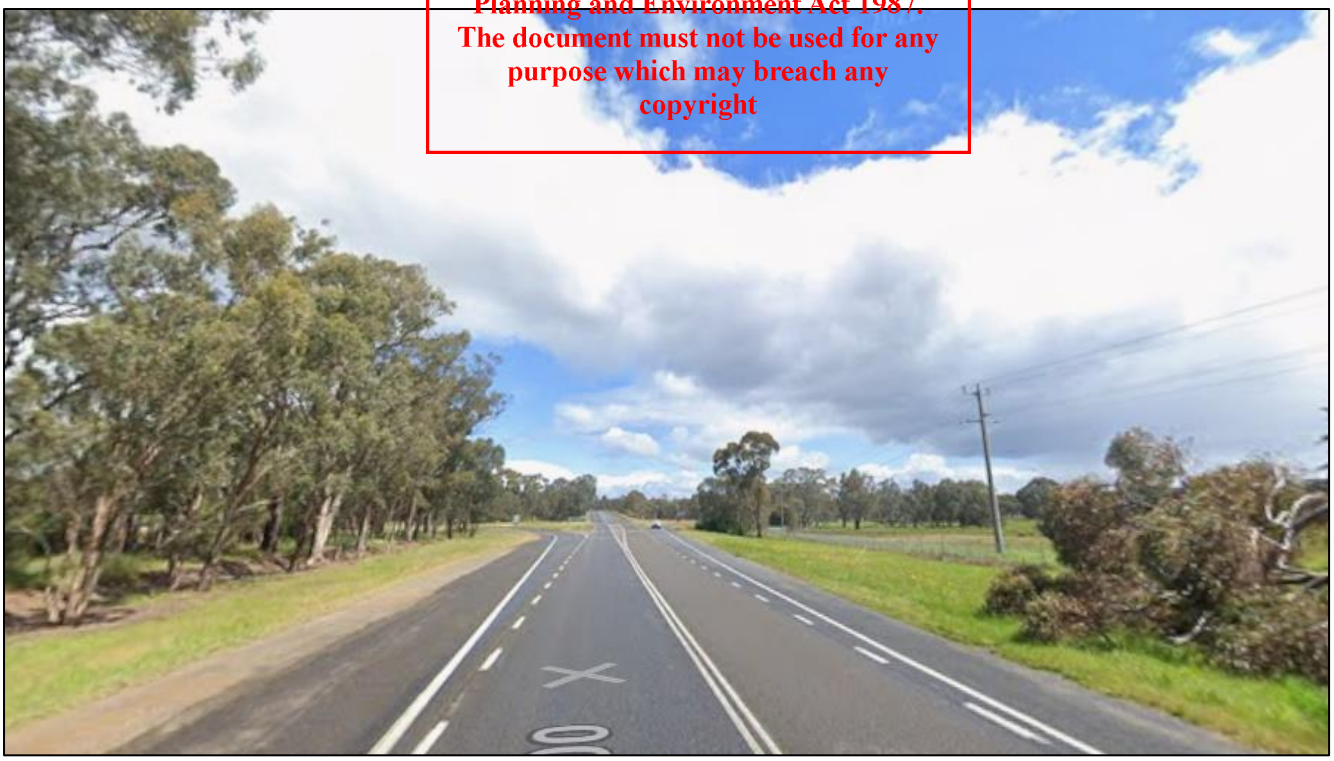


Figure 6: Mansfield Road on approach to the Hume Freeway interchange, facing south – Source: Google Streetview

2.2.3 Baddaginnie-Benalla Road (TRZ3)

Table 3 describes the features of this road.

Table 3: Baddaginnie-Benalla Road features

Feature	Description
Road type	Local collector road managed by the council
Access	Provides access between Baddaginnie, to the southwest, and Benalla, to the northeast
Carriageway	Two-way, two-lane road with 3.5 m traffic lanes and 1.5 m unsealed shoulders on each side
Road reservation	60 m wide
Speed limit	A posted speed limit of 100 km/h near the intersection with Forshaw Road. The speed limit transitions from 100 km/h through a short 80 km/h buffer to a 60 km/h speed limit on approach to the Mansfield Road roundabout.

Figure 7 and Figure 8 provide further information about the road.

Figure 7: Baddaginnie-Benalla Road facing northeast adjacent to the intersection with Carrol Road (to the left) and Forshaw Road

Figure 8: Baddaginnie-Benalla Road facing southwest adjacent to the intersection with Carrol Road and Forshaw Road (on the left)

2.2.4 Forshaw Road

Table 4 describes the features of this road.

Table 4: Forshaw Road features

Feature	Description
Road type	Local access road managed by the council
Access	Provides access to a few residential properties and farmland to the south of Baddaginnie Road. The road is a no-through road.
Carriageway	Two-way unsealed road with a 4.5 m wide formation
Road reservation	20 m wide
Speed limit	Default rural 100 km/h (not signed). Expected operating speed of 50 - 60 km/h due to the unsealed road formation.

Figure 9 and Figure 10 provide further information about the road.

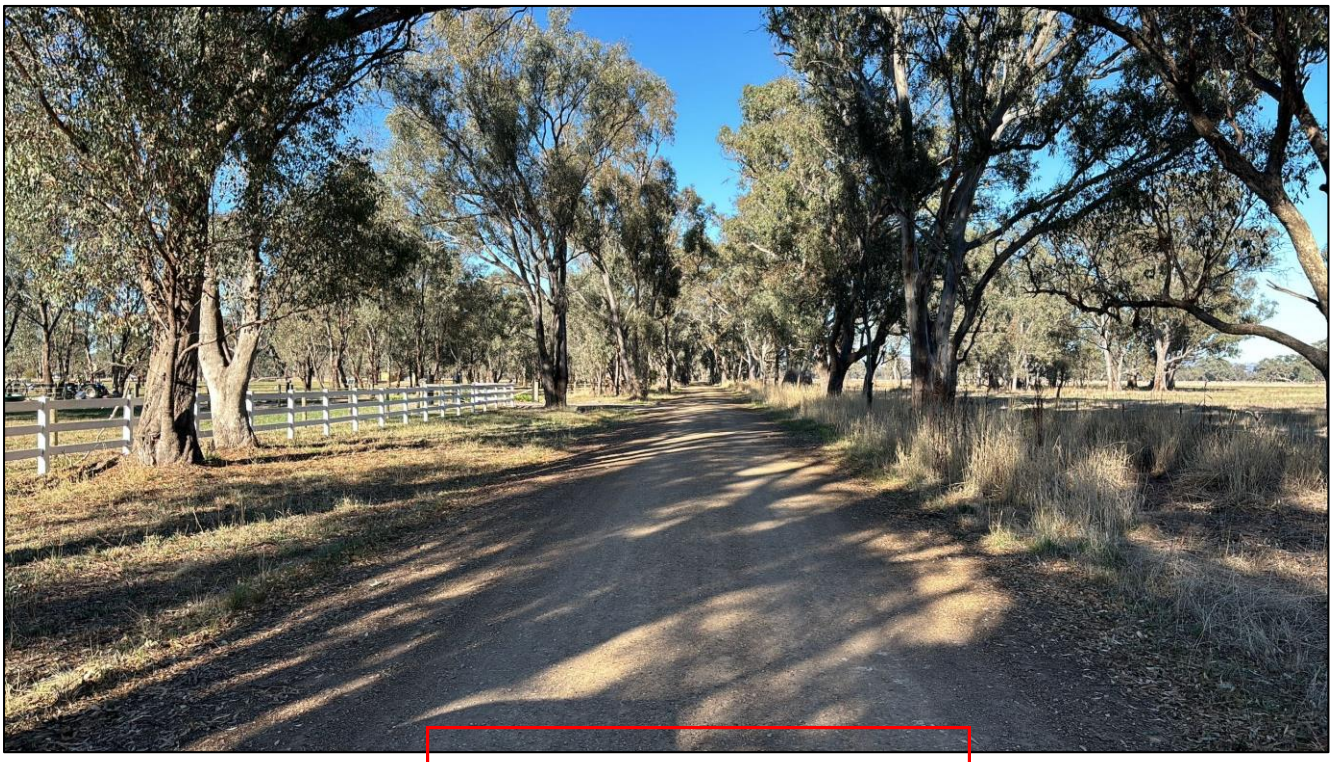


Figure 9: Forshaw Road, looking south past the main site acces

Figure 10: Forshaw Road, looking north towards the intersection with Baddaginnie-Benalla Road, the subject site on the left

2.3 Traffic volumes

Traffic volume data provided by the council indicates that in 2017, less than 2,000 vehicles per day (vpd) travelled along the section of Baddaginnie-Benalla Road near the subject site. The peak hour typically accounts for 10% of the daily traffic volume, so the two-way peak hour volume is estimated to be 200 vehicles per hour (vph). It is assumed the directional split of traffic is even in each direction.

Projecting the traffic volumes to 2024 by adopting a compound growth rate of 1% per annum, Baddaginnie-Benalla Road is currently estimated to carry:

- a daily traffic volume of about 2,150 vpd
- peak hour of 215 vph.

The council has no recent traffic volume data for Forshaw Road, which is a no-through road servicing a couple of dwellings and rural properties. It is not expected to carry more traffic than Baddaginnie-Benalla Road.

As a result, the average daily two-way traffic volume has been estimated for Forshaw Road as follows:

- less than 40 vpd
- peak-hour two-way volume of 4 vph

2.4 Crash history

The Department of Transport and Planning (DTP) data portal, which details all injury crashes on roads throughout Victoria, reports that no casualty crashes have occurred on the roads in the vicinity of the subject site in the last five-year period.

2.5 Public transport

No public transport services operate within the vicinity of the subject site, so this matter is not considered further in this report.

2.6 Pedestrians and cyclists

No pedestrian or cyclist facilities are within the vicinity of the subject site, so this matter is not considered further in this report.

3 Traffic assessment of the proposed development

3.1 Development summary

The proposed development in Baddaginnie involves constructing a solar energy facility to generate power to connect to the local electricity grid. The facility will provide a reliable power source to the local community. The proposed development plan is provided in Appendix 1.

The proposed facility will be un-staffed, and the period that will generate the most traffic will be the construction phase. Any access to the site once in operation will be for security or maintenance purposes.

The landowner of the subject site with whom our client has an agreement for the BESS facility will be maintaining stock on the property. During the construction phase, the landowner will not have stock in the paddock that contains the secure compound for the BESS facility. Once construction is complete, the landowner will have stock (on occasion) within the paddock that contains the BESS facility.

The proposed development will have access to Baddaginnie-Benalla Road via Forshaw Road. The primary access (Gate #1) to the BESS facility compound will be via an access road from Forshaw Road (refer to Figure 11 and Appendix 1). During the construction phase, a break in the property boundary fence will be made to allow unrestricted access from Forshaw Road. Gate #1 will be at the edge of the internal compound boundary fencing, remote from Forshaw Road.

Once construction is complete, a new gate will be provided at the property boundary for access to Gate #1.

A secondary access (Gate #2, refer to Figure 12) will also be provided for CFA access only, located near the static water tanks.

3.1.1 Construction

On-site construction for the proposed solar energy facility is mainly limited to the assembly and connection of components, with the typical solar panels readily transportable via 12.5 m rigid trucks.

Access to the site by a larger vehicle will only be required to deliver the inverter / transformer / power station (in a 40 ft container). This will need access to the subject site by a 19 m semi-trailer.

The typical construction delivery schedule for this type of solar energy facility is shown in Table 5.

Figure 11: The proposed location of access to Gate #1, about 30 m from the intersection with Baddaginnie-Benalla Road

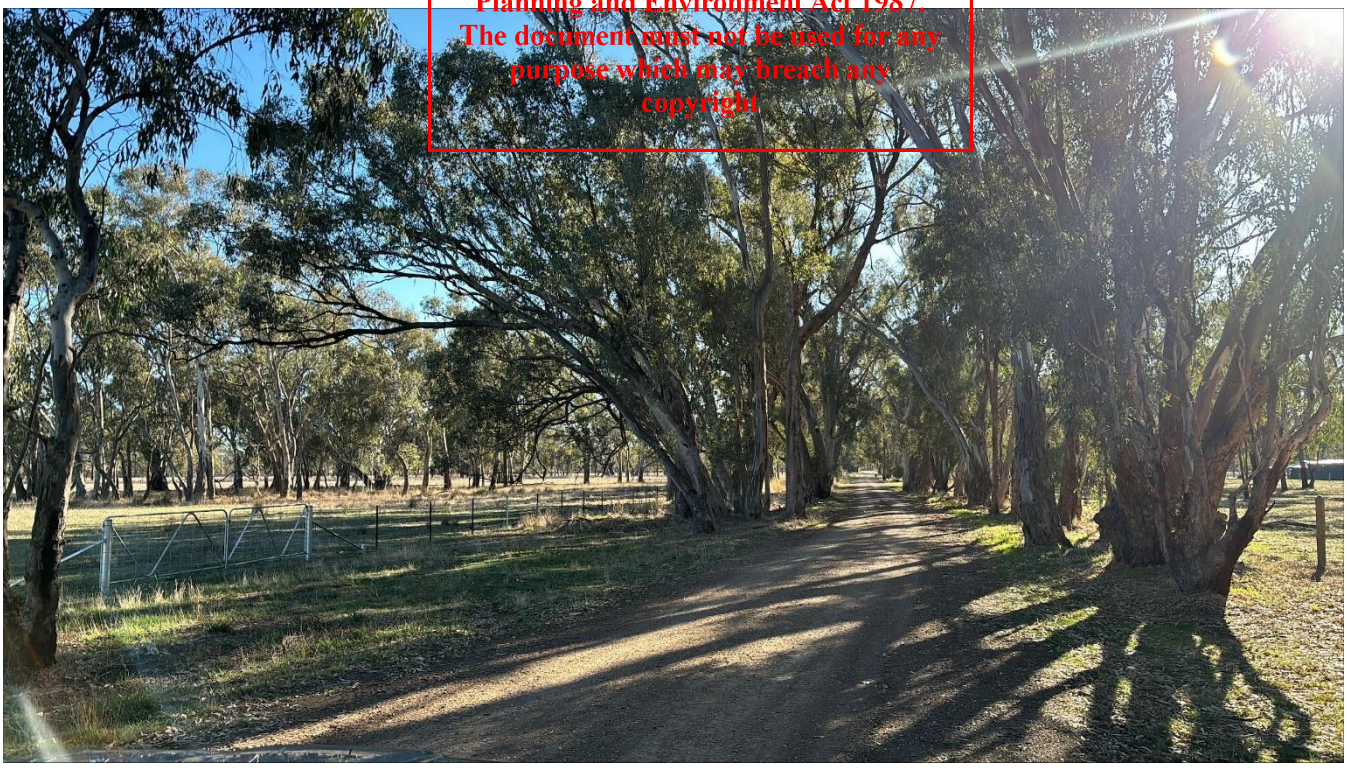


Figure 12: The proposed location Gate #2, an existing farm gate, will provide access for CFA to the subject site

3.1.2 Construction

On-site construction for the proposed solar energy facility is mainly limited to the assembly and connection of components, with the typical solar panels readily transportable via 12.5 m rigid trucks.

Access to the site by a larger vehicle will only be required to deliver the inverter / transformer / power station (in a 40 ft container). This will need access to the subject site by a 19 m semi-trailer.

The typical construction delivery schedule for this type of solar energy facility is shown in Table 5.

Table 5: Construction delivery schedule

Time period	Site Works
Months 1 to 2	Civil earthworks, fencing and landscaping
Months 3 to 5	Delivery of long lead materials
	PV panel and LV cable installation
Months 6 to 7	HV station installation, testing and commissioning
Month 8	Site clean-up and demobilisation

There is an 8-month construction phase before the full operation of the facility.

3.1.3 Heavy vehicle access to the subject site

The proposed heavy vehicle route from Melbourne to the site during construction is via the Hume Highway, turning left onto Mansfield Road, left onto Baddaginnie-Benalla Road, left onto Forshaw Road and right into the subject site.

Figure 13 indicates the recommended route for all heavy vehicles to the subject site.

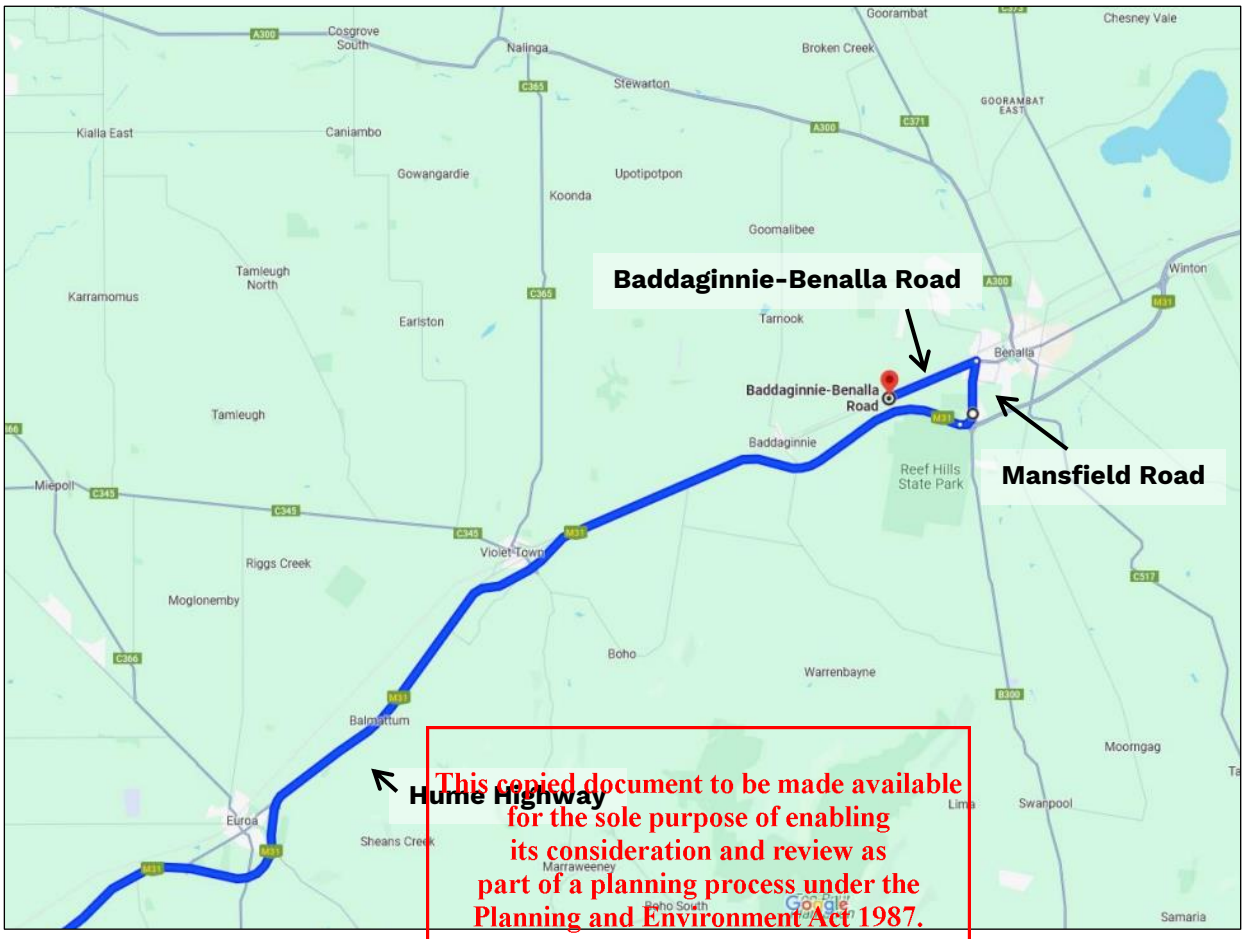


Figure 13: Recommended route to/from the subject site

3.1.4 Operation / decommissioning

Upon completion of the leasing period, if the lease is not renewed, it will be incumbent on the facility's operator to decommission the facility, remove all installations and restore the subject site to its pre-existing state.

Upon approval of this application, the responsible authority may require a decommissioning and rehabilitation plan to be submitted for endorsement.

3.2 Traffic generation

Traffic generation for new developments is typically estimated using the traffic generation rates provided in the RTA Guide to Traffic Generating Developments (2002). However, the RTA Guide's traffic generation rates are unavailable for solar energy facilities.

Therefore, an empirical assessment was undertaken to estimate the traffic generation to/from the proposed development. Traffic generation analysis was undertaken for the construction and operational phases of the development to establish peak traffic generation.

3.2.1 Construction phase traffic volumes

Based on the information provided, the peak light vehicle traffic generation will likely occur during the third month of the construction phase.

It is expected that 20 construction staff vehicles will access the subject site per day, resulting in a total daily traffic generation of 40 vpd, including:

- 20 vpd arriving at the start of the shift at approximately 7.00 am (9.00 am on Saturdays)
- 20 vpd departing at the end of the shift at approximately 7.00 pm (4.00 pm on Saturdays).

Assessment of the heavy vehicles accessing the subject site during the construction phase revealed that the peak traffic generation is likely to occur from the start of the 3rd month to the end of the 5th month. During this period, 12 heavy vehicles per day will access the subject site, resulting in a total daily heavy vehicle traffic generation of 24 vpd (12 vpd arriving and 12 vpd departing).

Assuming the construction work will be undertaken during normal working hours, the 12 vehicles will be expected to access the subject site outside commuter peak hours. The impact of heavy vehicles on the morning and afternoon commuter peaks is considered negligible. However, conservatively, for this assessment, it has been assumed that a single heavy vehicle will arrive / depart the subject site during the AM and PM peak hours.

The heavy vehicles accessing the subject site will be mainly 12.5 m rigid trucks, with occasional 19 m semi-trailers (i.e. no B-double trucks). The trucks will access the subject site via a right turn from Forshaw Road after a left turn from Baddaginnie Road.

3.2.2 Operational phase traffic volumes

The proposed solar energy facility will have remote monitoring in real-time, allowing for constant surveillance and monitoring without on-site staffing.

The compound will contain key infrastructure that requires a high degree of security. Upon identification of potential issues, action can be taken indirectly from the control centre or directly using chosen contractors to travel to the site. Up to 2 light vehicles will attend the subject site every 6 months during the operational phase for general maintenance.

3.2.3 Peak traffic generation

Assessment of the traffic generation volumes during the construction and operational phases of the development revealed that the peak traffic generation for the subject site would occur during the construction phase. This will see 20 light vehicles (generating 40 trips per day) and 12 heavy vehicles (generating 24 trips per day) access the subject site daily.

3.3 Traffic distribution assumptions

Our traffic distribution assumptions are the following:

- 100% of light vehicles will arrive to/from the northeast (Benalla)
- all heavy vehicles will arrive to/from the northeast (Melbourne, via Benalla).

3.4 Anticipated traffic volumes

From the information provided in Section 3.2.1, the AM and PM development peaks along Forshaw Road and Baddaginnie-Benalla Road will occur when staff arrive / depart the subject site, as they generate the most traffic. As a result, the development peaks are expected to occur between:

- Monday – Friday:
  - 6:30 am – 7:30 am
  - 6:30 pm – 7:30 pm
- Saturday:
  - 8:30 am – 9:30 am
  - 3:30 pm – 4:30 pm

Based on the time periods listed, the development peak will generally occur outside the commuter peak. Table 6 shows the anticipated peak hour traffic volumes at the proposed access to the development.

Table 6: Anticipated peak hour traffic volumes at Baddaginnie – Benalla Road / Forshaw Road

Period	Type	Left In	Right In	Left Out	Right Out	Total
AM Peak	Light	20	0	0	0	20
	Heavy	1	0	0	0	1
	TOTAL	**21**	**0**	**0**	**0**	**21**
PM Peak	Light	0	0	0	20	20
	Heavy	0	0	0	1	1
	TOTAL	**0**	**0**	**0**	**21**	**21**

4 Car parking assessment of the proposed development

4.1 Planning scheme car parking assessment

The RTA Guide provides car parking rates for new developments. However, the parking requirement for solar energy storage facilities is currently unavailable. Therefore, an empirical assessment was undertaken to estimate the demand for car parking of the proposed development.

Section 3.2.1 outlined that up to 20 light vehicles will access the subject site during the development's construction phase, generating a demand for 20-space car parking.

The proposed site plan does not indicate a provision for 20 formal on-site car parking spaces. However, there is sufficient space to provide this within the subject site.

Recommendation 1: the proposed development plan should be updated to indicate a formal on-site car parking provision for 20 vehicles.

5 Access to the site

5.1 Site access – local road intersection SISD requirement

The visibility criterion typically applied to intersections is Safe Intersection Sight Distance (SISD). Figure 14 shows the SISD, which:

- is nominated in the Austroads Guide to Road Design, Part 4A (AGRD4) as the minimum distance that should be provided on a major road at any intersection (refer to Section 3.2.2 in AGRD4A)
- provides sufficient distance for the driver of a vehicle on the major road:
    - to observe a vehicle from the minor access approach moving into a collision situation, e.g., in the worst case, stalling across the traffic lanes
    - to decelerate to a stop before reaching the collision point.

The minimum SISD criterion, specified in Table 3.2 of AGRD4A, requires clear visibility for a desirable minimum distance of 285 m, relating to the general reaction time RT of 2 seconds and a design speed of 110 km/h (posted speed + 10 km/h).

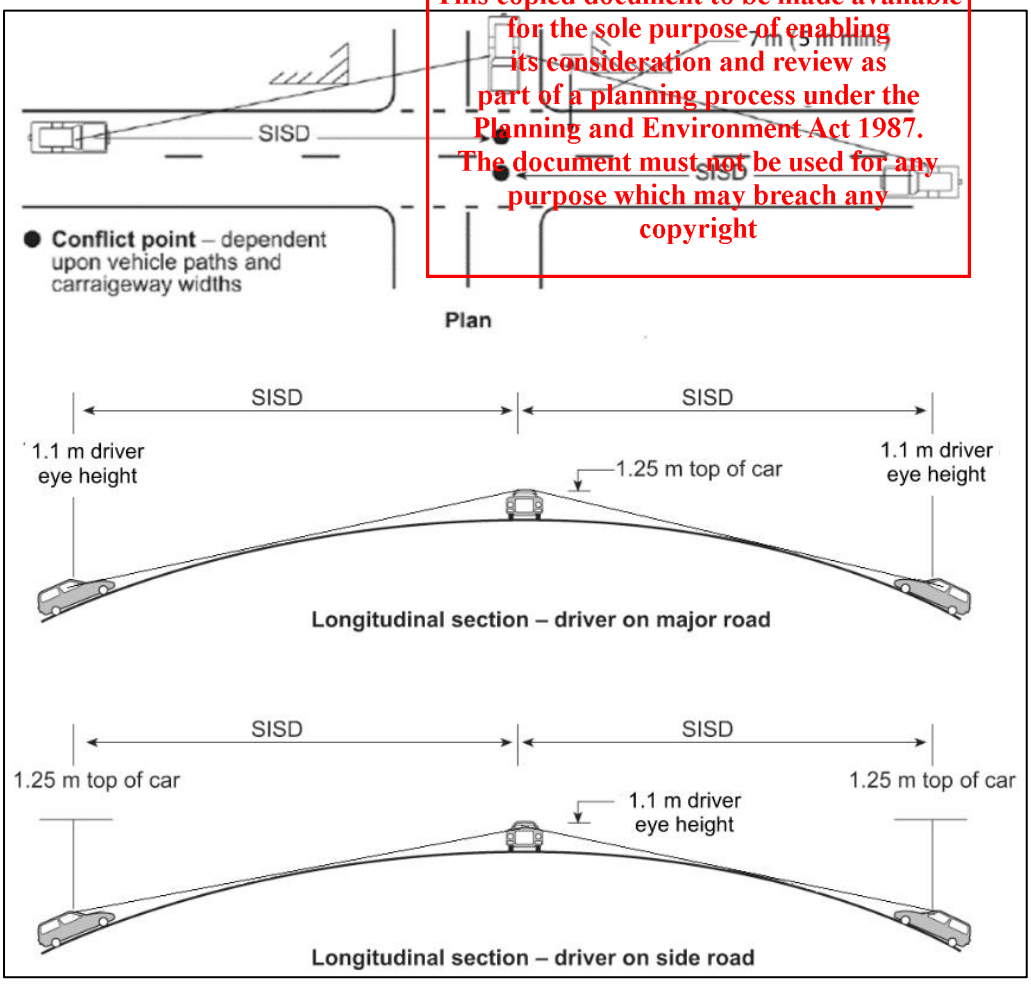


Figure 14: Safe Intersection Sight Distance (SISD) (Source: Figure 3.2 from AGRD4)

SISD for heavy vehicles is calculated with reduced deceleration coefficients and increased observation heights to incorporate the different vehicle characteristics. With a 100 km/h design speed, the SISD for a heavy vehicle at this location is 303 m.

The available sight distance at the intersection of Forshaw Road and Baddaginnie-Benalla Road is demonstrated in Figure 15 and Figure 16.

The site assessment concluded that the visibility requirements at the intersection of Forshaw Road and Baddaginnie-Benalla Road are satisfied; no further treatment is required.

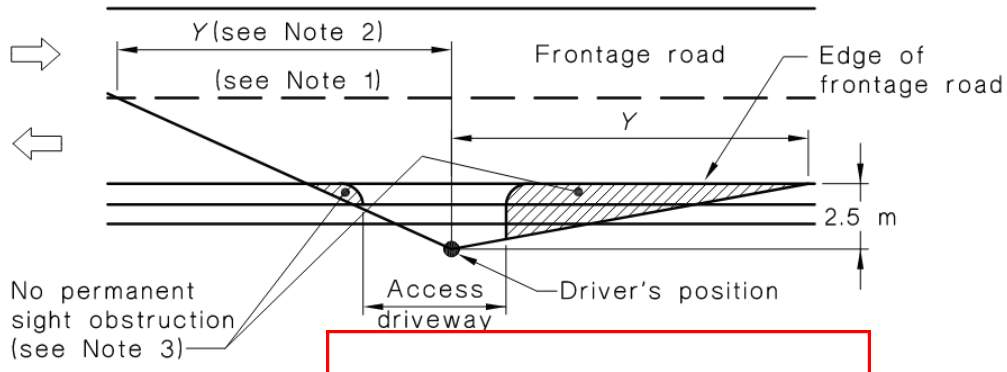
Figure 15: Forshaw Road and Baddaginnie-Benalla Road intersection – view northeast

Figure 16: Forshaw Road and Baddaginnie-Benalla Road intersection – view southwest

5.2 Site access – Access driveway ESD requirement

Section 3.2.4 in AS/NZS 2980.1 Parking Facilities – Part 1: Off-street car parking sets out the entering sight distance (ESD) criteria for a driver exiting an access driveway to traffic on the frontage road.

Un-signalised access driveways shall be located so the intersection sight distance available to drivers leaving the driveway along the frontage road is at least that shown in Figure 3.2 of AS/NZS 2890.1 (reproduced in Figure 17).



Frontage road speed (Note 4) km/h	Distance (Y) along frontage road m		
	Access driveways other than domestic (Note 5)		Domestic property access (Note 6)
	Desirable 5 s gap	Minimum SSD	
40	55	35	30
50	69	45	40
60	83	65	55
70	97	85	70
80	111	105	95
90	125	130	Use values from 2nd and 3rd columns
100	139	160	
110	153	190	

Figure 17: Sight distance requirements at driveways (Source: Figure 3.2 from AS/NZS 2890.1)

The proposed site access to the development along Forshaw Road is subject to an expected operating speed of 50 – 60 km/h for vehicles approaching the access from the south. The corresponding minimum Stopping Sight Distance (SSD) is 65 m.

As the access is near the intersection with the Baddaginnie-Benalla Road, the approach speed of vehicles approaching the access from the north will be 20 - 30 km/h. The corresponding minimum Stopping Sight Distance (SSD) is less than 35 m. The available sight distance at the site access intersection to Forshaw Road is demonstrated in Figure 18 and Figure 19.

Figure 18: Site access and Forshaw Road intersection – view north

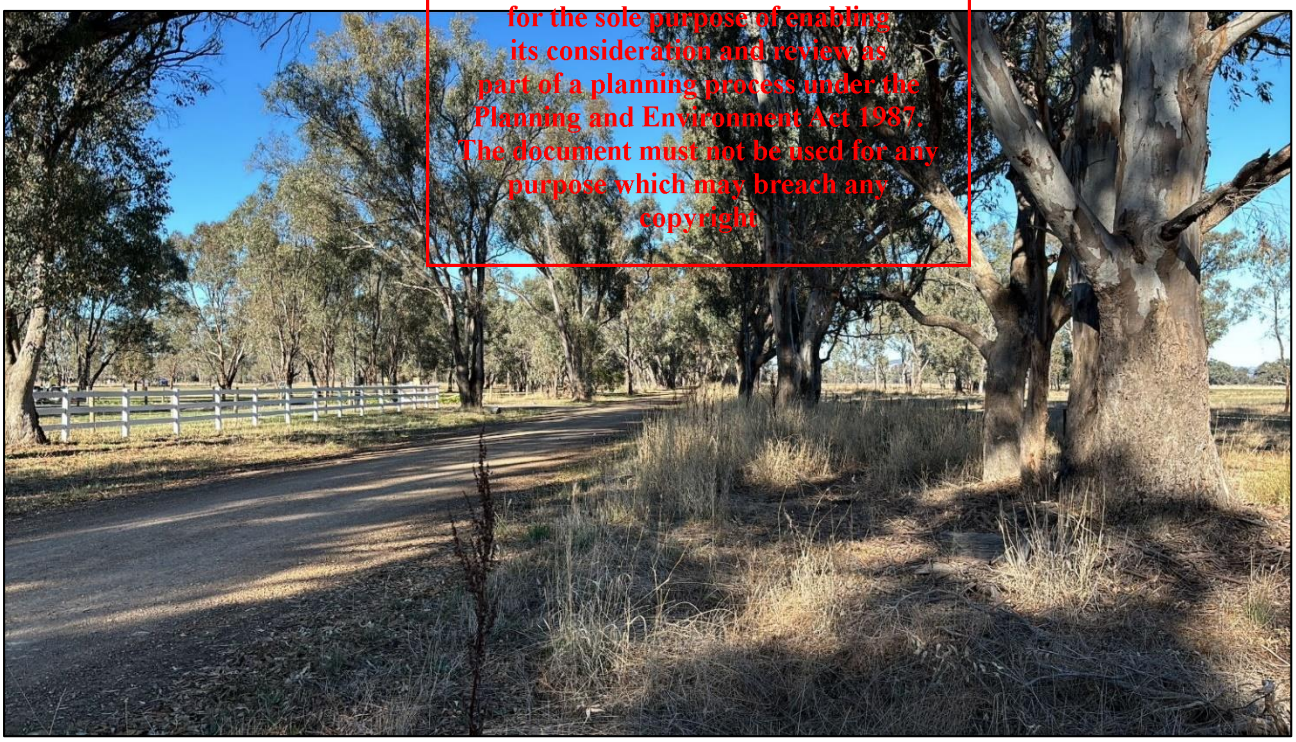


Figure 19: Site access and Forshaw Road intersection – view south

The site assessment concluded that the visibility requirements at the intersection of the subject site access and Forshaw Road are satisfied; no further treatment is required.

5.3 Access location and operation

The subject site access driveway is recommended to be constructed per SD255 of the Infrastructure Design Manual (IDM) requirements and to the council's satisfaction (refer to Figure 20 for an extract and Appendix 2 for the full plan). It should provide sufficient width to facilitate the movements of a 19 m semi-trailer accessing the subject site.

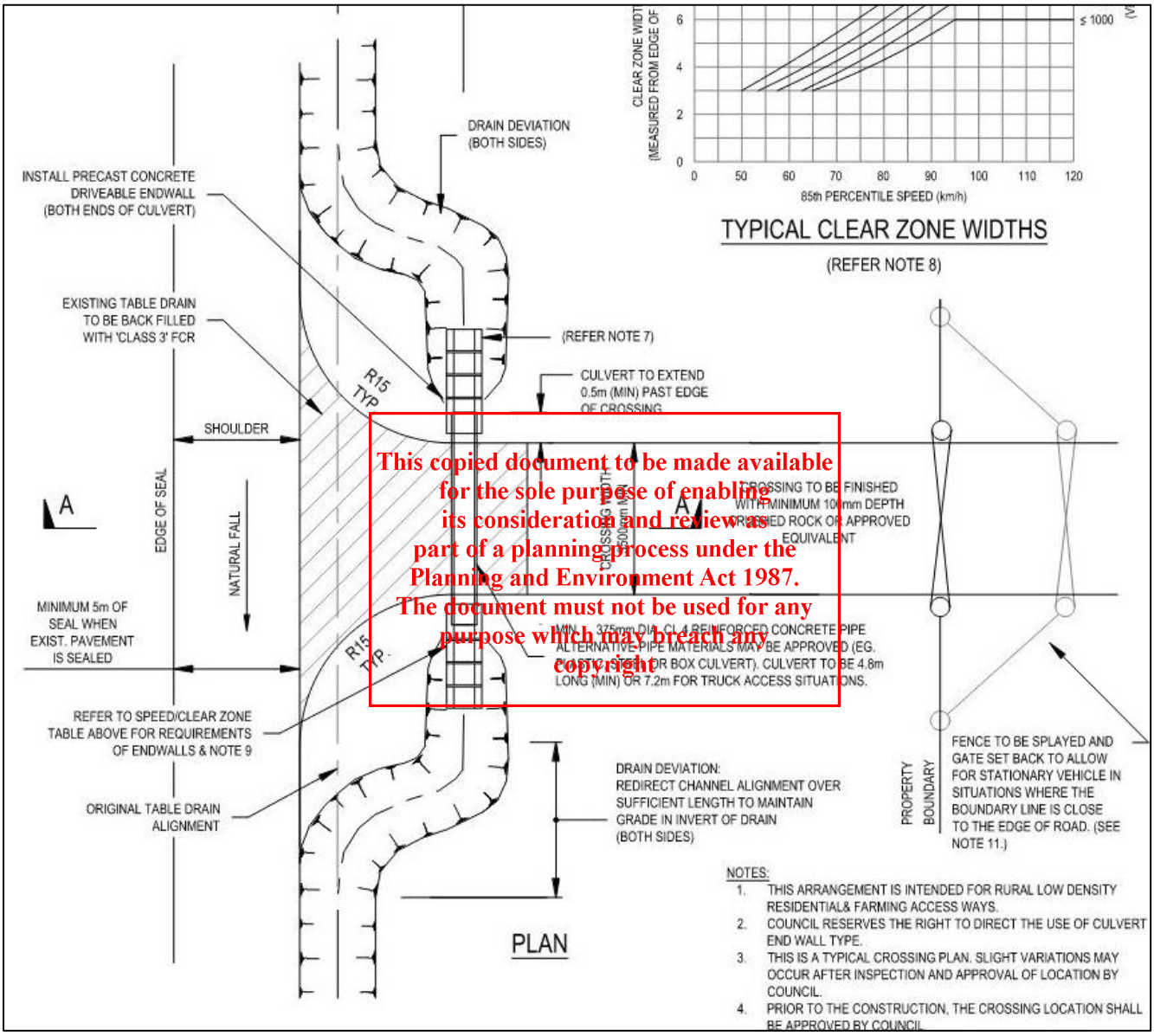


Figure 20: typical swale drain vehicle crossing (rural entrance) SD255

Recommendation 2: the subject site access driveway should be constructed per SD255 of the IDM requirements and to the council's satisfaction.

5.4 Site security

The proposed development includes fencing the compound for the BESS facility within the subject site (which is also fenced).

During construction, there will be no stock on site, and the site boundary fencing will be open for construction vehicle access south of Baddaginnie-Benalla Road. Gate #1 to the compound fencing will be located within the site, 100 m from Forshaw Road, allowing trucks to queue to access the site without queuing onto Forshaw Road or Baddaginnie-Benalla Road.

Gate #2 will only be accessible for CFA vehicles.

Once construction is complete, a property access gate will be provided at the access driveway to Gate #1 from Forshaw Road. The subject site property access gate should be located as per IDM standard drawing SD 255 for a car (light vehicle).

Recommendation 3: the subject site property access gate should be located, and the driveway access from Forshaw Road should be constructed as per IDM standard drawing SD 255 for a car (light vehicle).

5.5 Turn provisions impact

The traffic turning from major roads into minor roads should not delay through traffic. Generally, turn treatments from major roads into minor roads at sign-controlled intersections are provided to ensure the intersection's safe and efficient operation.

The additional traffic generated by the development will only occur during the construction phase and will mostly be left-turning movements (apart from Forshaw Road into the subject site). Furthermore, Forshaw Road along the frontage of the subject site is subject to low volumes and a low operating speed of 50 to 60 km/h. As a result, providing turn treatments would be unnecessary.

6 Conclusions and recommendations

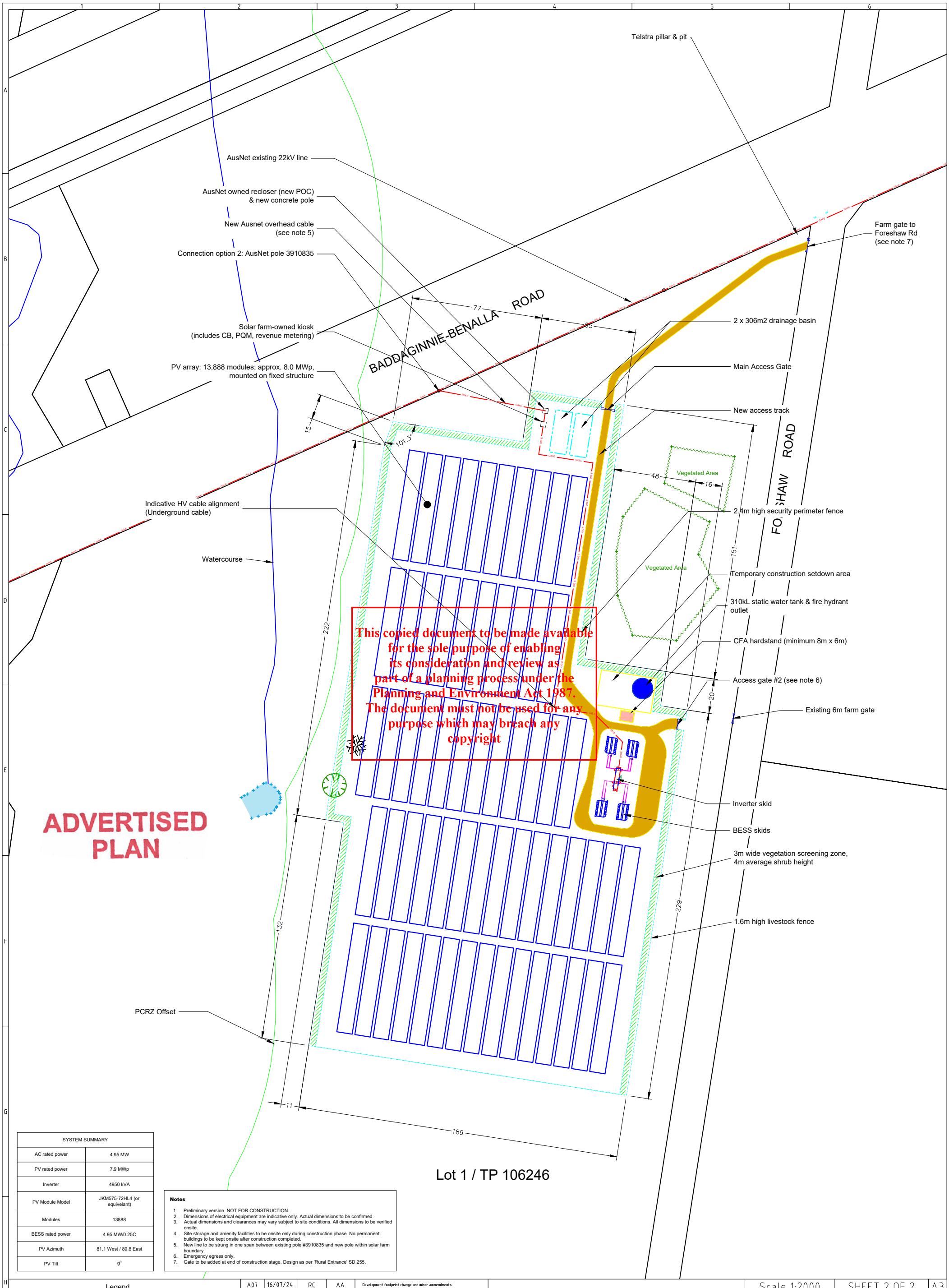
We conclude there are no traffic engineering reasons that would prevent the development from proceeding, as outlined below:

- the peak traffic generation will occur during the construction phase of the development, where 20 light vehicles (generating 40 trips per day) and 12 heavy vehicles (generating 24 trips per day) will access the subject site
- the car parking demand during the development's construction phase will likely be 20 spaces
- adequate sight distance can be achieved at the intersection of:
    - Forshaw Road and Baddaginnie-Benalla Road; no further treatment is required
    - the subject site access and Forshaw Road; no further treatment is required.
- the setback of the security gate (Gate #1) for the subject site will provide the minimum 20 m required to allow storage of a 19 m semi-trailer clear of the traffic lane on Forshaw Road during the construction phase.
- to accommodate development traffic, no additional work is required at the:
    - development's proposed site access with Forshaw Road
    - intersection of Forshaw Road with Baddaginnie-Benalla Road

However, this TIA has identified several recommendations that need to be addressed:

- **Recommendation 1:** the proposed development plan should be updated to indicate a formal on-site car parking provision for 20 vehicles
- **Recommendation 2:** the subject site access driveway should be constructed per SD255 of the IDM requirements and to the council's satisfaction
- **Recommendation 3:** the subject site property access gate should be located, and the driveway access from Forshaw Road should be constructed as per IDM standard drawing SD 255 for a car (light vehicle).

Appendix 1 – Development Plans



SYSTEM SUMMARY	
AC rated power	4.95 MW
PV rated power	7.9 MWp
Inverter	4950 kVA
PV Module Model	JKM575-72HL4 (or equivelant)
Modules	13888
BESS rated power	4.95 MW/0.25C
PV Azimuth	81.1 West / 89.8 East
PV Tilt	g^0

Notes

1. Preliminary version. NOT FOR CONSTRUCTION.
2. Dimensions of electrical equipment are indicative only. Actual dimensions to be confirmed.
3. Actual dimensions and clearances may vary subject to site conditions. All dimensions to be verified onsite.
4. Site storage and amenity facilities to be onsite only during construction phase. No permanent buildings to be kept onsite after construction completed.
5. New line to be strung in one span between existing pole #3910835 and new pole within solar farm boundary.
6. Emergency egress only.
7. Gate to be added at end of construction stage. Design as per 'Rural Entrance' SD 255.

Legend

- 22kV Overhead Cable
- 22kV Underground Cable
- Security Fence
- Livestock Fence
- Tree
- Dead Tree
- Gate
- Vegetation Drip Line
- Watercourse
- Major Contour

No.	DATE	BY	CHK.	REVISION NOTES
A07	16/07/24	RC	AA	Development footprint change and minor ammendments
A06	12/05/24	RC	AA	Adjustments based on new veg screening plan
A05	06/05/24	RC	AA	Adjustment to perimeter fence
A04	22/11/23	RC	AA	Added drainage basins & veg screening
A03	16/08/23	RC	AA	Resized SMS blocks
A02	17/07/23	RC	AA	Preliminary version

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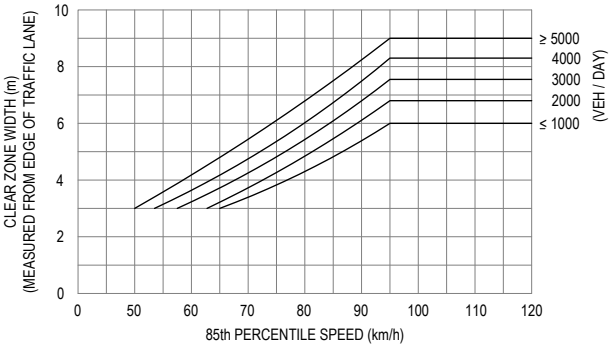
Scale 1:2000 | SHEET 2 OF 2 | A3

BA2–Baddaginnie SF
Preliminary General Arrangement

BA2–SF–DWG–001 | REV A07

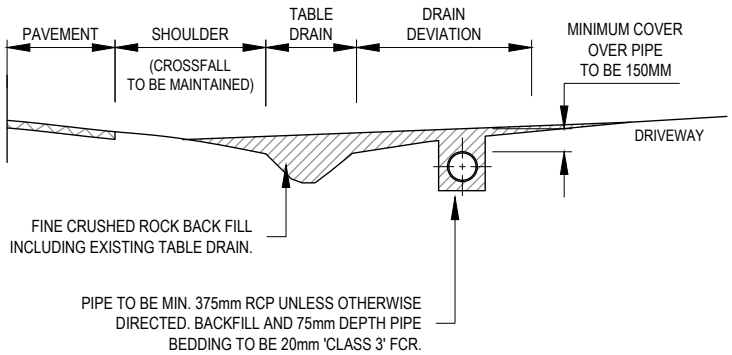
Appendix 2 – IDM Standard Drawing SD 255



TYPICAL CLEAR ZONE WIDTHS

(REFER NOTE 8)

PLAN



SECTION A-A

NOTES:

1. THIS ARRANGEMENT IS INTENDED FOR RURAL LOW DENSITY RESIDENTIAL& FARMING ACCESS WAYS.
2. COUNCIL RESERVES THE RIGHT TO DIRECT THE USE OF CULVERT END WALL TYPE.
3. THIS IS A TYPICAL CROSSING PLAN. SLIGHT VARIATIONS MAY OCCUR AFTER INSPECTION AND APPROVAL OF LOCATION BY COUNCIL.
4. PRIOR TO THE CONSTRUCTION, THE CROSSING LOCATION SHALL BE APPROVED BY COUNCIL.
5. ALL WORKS TO BE COMPLETED TO THE SATISFACTION OF COUNCIL.
6. MAINTENANCE OF THE CROSSOVER REMAINS THE RESPONSIBILITY OF THE LAND OWNER.
7. INSTALL LOW PROFILE HEAD WALLS OUTSIDE CLEAR ZONE & DRIVEABLE END WALLS WITHIN CLEAR ZONE. NO CULVERT TO BE WITHIN 3m OF EDGE OF SEAL.
8. THE CLEAR ZONE TABLE SHOWN IS A GUIDE ONLY AND FOR FURTHER ACCURATE CLEAR ZONE GUIDELINES REFER TO AUSTROADS 'GUIDE TO ROAD DESIGN - PART 6: ROADSIDE DESIGN, SAFETY AND BARRIERS' TABLE 4.1: 'CLEAR ZONES DISTANCES FROM EDGE OF THROUGH TRAVELLED WAY'
9. TABLE DRAINS ARE NOT TO BE CLOSER THAN 1.0m FROM FENCE LINES OR SERVICES.
10. CROSSING PAVEMENT TO BE SEALED WHERE ABUTS A SEALED ROAD.
11. GATE OFFSET DIMENSIONS:

STANDARD VEHICLE TYPE	MINIMUM GATE OFFSET FROM EDGE OF THROUGH LANE (m)
CAR (5.0m)	8.2
RIGID TRUCK (12.0m)	12.5
SEMI (19.0m)	22
B-DOUBLE (25.0m)	28

ALL MEASUREMENTS IN MILLIMETRES

TYPICAL SWALE DRAIN VEHICLE CROSSING (RURAL ENTRANCE)

LAST UPDATED 26/02/2020

SD 255

NOT TO SCALE

Infrastructure Design Manual Standard Drawings

Local Government Infrastructure Design Association

A copy of the Infrastructure Design Manual can be viewed on the Design Manual website www.designmanual.com.au

Appendix 2 – Acronyms and terms

Acronyms / terms	Definition
AGRD4	Austroads Guide to Road Design Part 4 – Intersections and crossings
AGRD4A	Austroads Guide to Road Design Part 4A – Unsignalised and signalised intersections
AGTM6	Austroads Guide to Traffic Management Part 6 – Intersections, interchanges and crossings management
AGTM8	Austroads Guide to Traffic Management Part 8 – Local street management
AS/NZS2890.1	Australian Standard / New Zealand Standard 2890.1 Parking facilities Part 1: Off-street car parking
DTP	Department of Transport and Planning (formerly VicRoads)
ESD	Entering site distance
PSP	Precinct structure plan
SIDRA	SIDRA intersection – micro analytical traffic engineering software to model the performance of intersections
SISD	safe intersection sight distance
TIA	traffic impact assessment
vpd	vehicles per day
vph	vehicles per hour
VPA	Victorian Planning Authority