

Traffic Impact Assessment Report

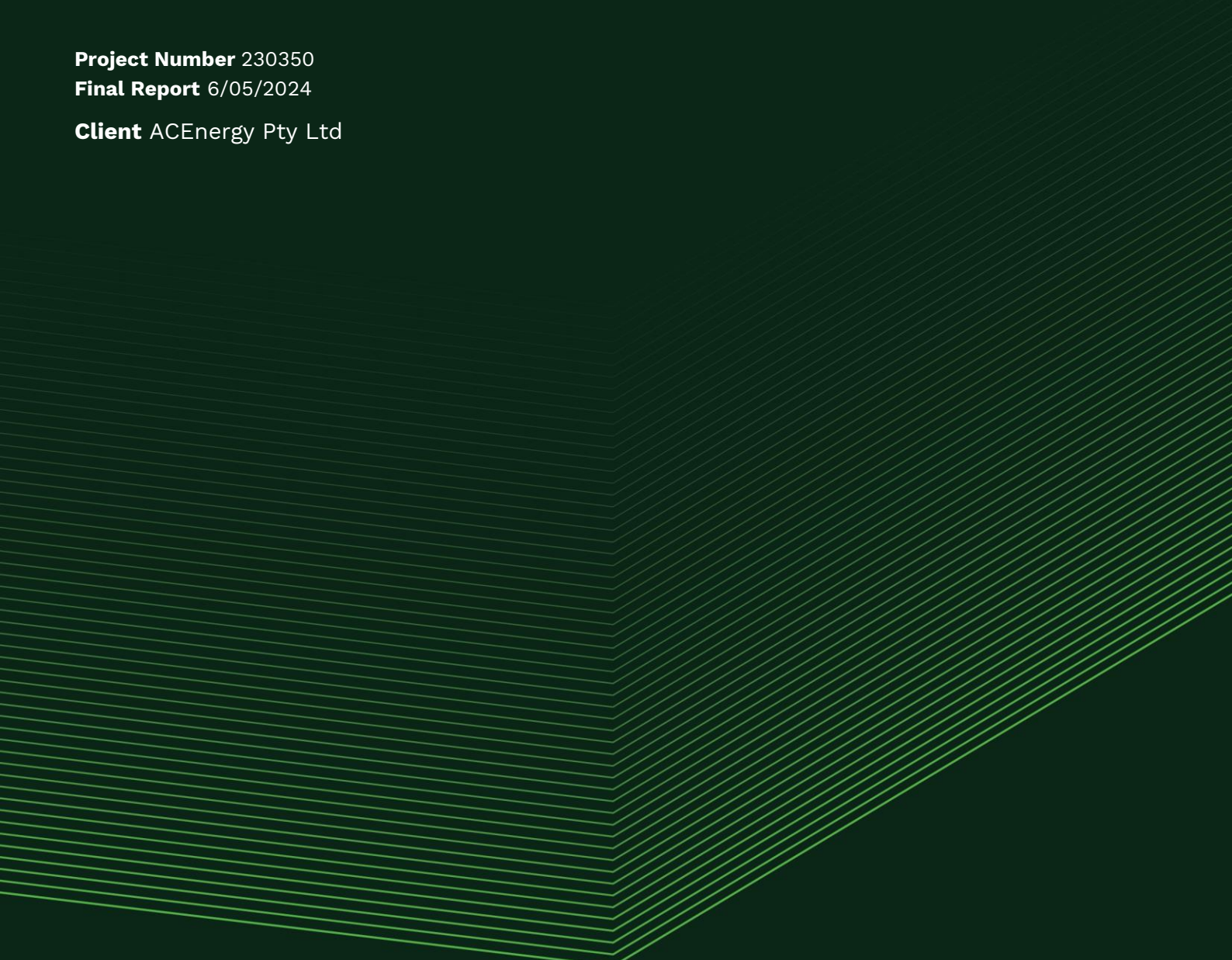
3 Turton Place

Murrumbateman NSW

Project Number 230350

Final Report 6/05/2024

Client ACEnergy Pty Ltd



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Document control

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Draft	3/04/2024	Preliminary draft	Stuart Redman	Kate Kennedy
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Executive summary

ACEnergy Pty Ltd engaged Trafficworks to undertake a traffic impact assessment (TIA) for the proposed development of a Battery Energy Storage System (BESS) at **3 Turton Place Murrumbateman NSW**.

The table below summarises the subject site's proposed development and our conclusions and recommendations.

Address	3 Turton Place Murrumbateman NSW
Zoning	RU4: Primary Production Small Lots
Proposed development	Battery Energy Storage System (BESS)
Road network	<ul style="list-style-type: none"> — Barton Highway (A25 - State Road) — Murrumbateman Road (Regional Road) — Patemans Lane (Local Road) — Turton Place (Local Road)
Traffic generation	<p>Construction phase (per day):</p> <ul style="list-style-type: none"> — 3 light vehicles — 2 heavy vehicles <p>Operation phase (per fortnight):</p> <ul style="list-style-type: none"> — 2 light vehicles
Car parking	<p>Construction phase: 3 spaces</p> <p>Operation phase: 2 spaces</p>
Conclusion	<p>We conclude that subject to the implementation of our recommendations, no traffic engineering reasons would prevent the development from proceeding.</p> <ul style="list-style-type: none"> — the peak hour traffic generation is likely to occur during the construction phase of the development, where the peak hour volumes are expected to be: <ul style="list-style-type: none"> — 3 light vehicles — 1 heavy vehicle — the construction phase is expected to take 4 weeks — the subject site will generate a peak car parking demand of 3 spaces during the construction period and 2 spaces post-opening — the development plan includes a designated parking area that will satisfy the parking demand

- adequate sight distance is available at the intersection of Patemans Lane and Murrumbateman Road; no further treatment is required
 - the proposed site access driveway along Turton Place satisfies the minimum entering sight distance, as specified in AS/NZS 2890.1
 - the setback of the proposed security gate from the edge of Turton Place will accommodate the storage of a 19 m semi-trailer clear of the traffic lane
 - no additional turn lane treatments are required due to the traffic generated by the proposed development.
-

Recommendations

It is recommended that:

- **Recommendation 1:** trim or remove the tree restricting sightlines to the north (as shown in Figure 17)
 - **Recommendation 2:** the subject site access driveway should be constructed according to Figure 7.4 in Austroads Guide to Road Design Part 4 requirements and to the council's satisfaction.
-

Referenced documents

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

- Austroads Guide to Road Design
 - Part 4: Intersections and Crossings, for details of the access driveway
 - Part 4A – Unsignalised and Signalised Intersections, for sight distance criteria and provision for turning vehicles at intersections (AGRD4)
 - Austroads Guide to Traffic Management
 - Part 6 – Intersections, Interchanges and Crossings Management, for sight distance criteria and provision for turning vehicles at intersections (AGTM6)
 - Australian Standards:
 - AS 2890.1-2004 Parking facilities - Off-street car parking
 - RTA Guide to Traffic Generating Developments, Version 2.2, October 2002.
 - Yass Valley Council
 - Yass Valley Local Environmental Plan (LEP) 2013
 - Yass Valley Development Control Plan (DCP) 2013*
- *2024 version currently on exhibition

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1 Introduction

ACEnergy Pty Ltd engaged Trafficworks to undertake a traffic impact assessment (TIA) for the proposed development of a Battery Energy Storage System (BESS) at **3 Turton Place Murrumbateman NSW**.

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
- 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 5.3.

2 Existing conditions

2.1 Subject site

The subject site is:

- located about 3 km southeast of Murrumbateman and comprises a small area contained within Lot 23 of DP248413
- currently occupied by farmland with a residential dwelling and outbuildings.

Vehicular access to the subject site is available from Murrumbateman Road (Regional Road) via Patemans Lane and Turton Place.

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



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

The subject site is located within a wider area of the RU4: Primary Production Small Lots zone on the south side of the regional road and east of the Barton Highway (a state road located within SP2: Classified Road zone), as per the Yass Valley Council's (council) Local Environmental Plan (LEP).

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

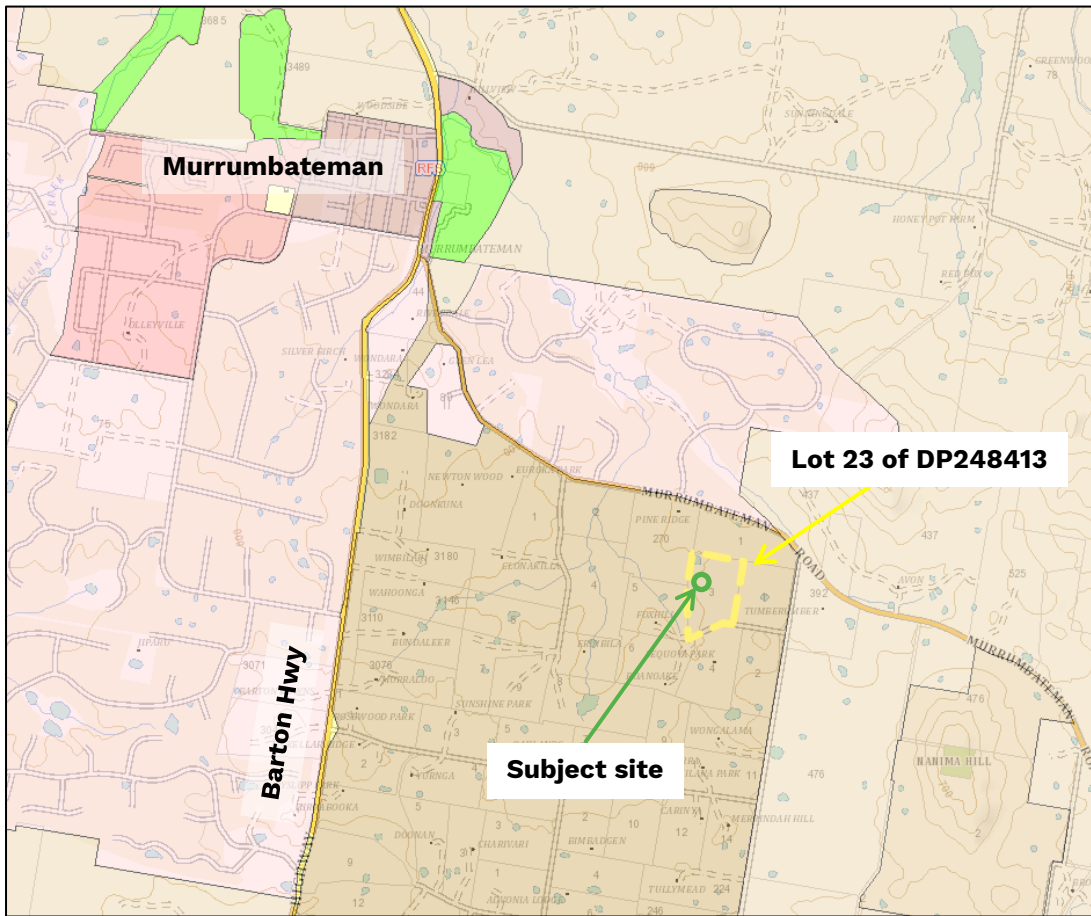


Figure 2: Zoning plan (reproduced from NSW ePlanning Spatial Viewer)

2.2 Road network

The road network includes:

- Barton Highway (A25 - State Road)
- Murrumbateman Road (Regional Road)
- Patemans Lane (Local Road)
- Turton Place (Local Road)

2.2.1 Barton Highway (A25)

Table 1 describes the features of this road.

Table 1: Barton Highway features

Feature	Description
Road type	Classified state arterial road managed by Transport for New South Wales (TfNSW) and part of the National Auslink network.
Access	Connects Hume Highway at Yass to Federal Highway in Canberra
Carriageway	Two-lane, two-way sealed road consisting of 2x 3.5 m traffic lanes with sealed shoulders ranging from 2.0 m to 3.5 m wide. A channelised right turn lane is provided for northbound vehicles turning right at the T-intersection with Murrumbateman Road.
Road reservation	30 - 40 m wide
Speed limit	50 km/h through Murrumbateman 70 km/h about 200 m south of the intersection with Murrumbateman Road 100 km/h about 800 m south of the intersection with Murrumbateman Road

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



Figure 3: Barton Highway, looking north towards the intersection with Murrumbateman Road (Source: Google)



Figure 4: Barton Highway, looking south towards the intersection with Murrumbateman Road (Source: Google)

2.2.2 Murrumbateman Road

Table 1 describes the features of this road.

Table 2: Murrumbateman Road features

Feature	Description
Road type	Classified regional road managed by the Council and funded by TfNSW.
Access	Connects Barton Highway (to the west) with Sutton Road (to the east)
Carriageway	Two-lane, two-way sealed road consisting of 2 x 3.2 m traffic lanes with 0.6 m wide sealed shoulders. An auxiliary right turn lane is provided for eastbound vehicles turning right at the intersection with Patemans Lane. An offroad shared use path (SUP) is within the road reserve. It crosses the road (north to south) about 80 m west of the Patemans Lane intersection.
Road reservation	20 m wide
Speed limit	70 km/h (subject length between Barton Highway and 100 m east of the intersection with Patemans Lane)

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



Figure 5: Murrumbateman Road, looking southeast from the intersection with Patemans Lane



Figure 6: Murrumbateman Road, looking northwest from the intersection with Patemans Lane towards the SUP crossing

2.2.3 Patemans Lane

Table 3 describes the features of this road.

Table 3: Patemans Lane features

Feature	Description
Road type	Local road managed by council
Access	Provides access to a few residential properties and farmland to Murrumbateman Road. The road is a no-through road south of the intersection with Euroka Avenue.
Carriageway	Two-way sealed road with a 6.0 m wide formation
Road reservation	20 m wide
Speed limit	70 km/h (subject length between Murrumbateman Road and 90 m south of the intersection with Turton Place)

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



Figure 7: Patemans Lane, looking north from the intersection with Turton Place



Figure 8: Patemans Lane, looking north towards the intersection with Murrumbateman Road, the SUP to the left of the road formation.

2.2.4 Turton Place

Table 3 describes the features of this road.

Table 4: Turton Place features

Feature	Description
Road type	Local road managed by council
Access	Provides access to a few residential properties and farmland to Patemans Lane. The road is a no-through road.
Carriageway	Two-way sealed road with a 6.0 m wide formation
Road reservation	20 m wide
Speed limit	no posted speed limit signs exist Due to short length, no-through access and horizontal/vertical alignment, the assumed operating speed is in the order of 50 km/h to 60 km/h

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



Figure 9: Turton Place, looking southwest towards the end of the road, near the proposed subject site driveway



Figure 10: Turton Place, looking northeast towards the bend in the road, near the proposed subject site driveway

2.3 Traffic volumes

2.3.1 Barton Highway

TfNSW Traffic Volume Viewer details traffic volumes for many of the arterial roads in New South Wales. Scrutiny of the records indicates that in 2012, during a typical midweek period, for Station Id: 94445:

- northbound volume of 4,354 vehicles per day (vpd) and southbound volume of 4,929 vpd
- AM commuter peak (7:00 to 8:00 am) northbound volume of 158 vehicles per hour (vph) and southbound volume of 687 vph
- PM commuter peak (5:00 pm – 6:00 pm) northbound volume of 559 vph and southbound volume of 290 vph.

Projecting the traffic volumes to 2024 by adopting an annual compound growth rate of 3 %¹ per annum, Barton Highway is currently estimated to carry:

- northbound volume of 6,208 vpd and southbound volume of 7,028 vpd
- AM commuter peak (7:00 to 8:00 am) northbound volume of 225 vph and southbound volume of 979 vph
- PM commuter peak (5:00 pm – 6:00 pm) northbound volume of 797 vph and southbound volume of 413 vph.

2.3.2 Regional / Local Roads

The council has no recent traffic volume data for any of the local roads (including Murrumbateman Road) mentioned in Section 2.2. The local roads are not expected to carry more traffic than the Barton Highway. As a result, the average daily traffic volume has been estimated for each of the roads as follows:

- Murrumbateman Road acts as a regional link road / collector road
 - about 5,000 vpd
 - peak-hour two-way volume of 500 vph
- Patemans Lane services some residential and rural farmland properties
 - less than 1,000 vpd
 - peak-hour two-way volume of 100 vph

¹ Investigation of traffic volumes within the region indicates a less than 3 % growth rate within the last 10 years. Therefore, the assumption of applying a 3 % growth rate is conservative for projecting the traffic volumes to 2024.

- Turton Place services rural residential properties
 - less than 100 vpd
 - peak-hour two-way volume of 10 vph

2.4 Crash history

The TfNSW Centre for Road Safety website details all injury crashes throughout New South Wales and reports that a single casualty crash occurred on the roads near the subject site in the last 5 years (2018 – 2022). In 2020, a minor injury rear-end (RUM code 30) crash occurred in daylight conditions on Murrumbateman Road southeast of the intersection with Patemans Lane.

Based on this, we conclude that no trend requires immediate investigation.

3 Traffic assessment of the proposed development

3.1 The proposal

The proposed development involves constructing a BESS with batteries and a medium voltage power station (MVPS) housed in 40ft containers. The proposed facility will be unstaffed, and the period that will generate the most traffic will be the construction phase.

Vehicular access to the site is proposed directly from Turton Place via an existing farm gate access approximately 100 m southwest of the bend in the road (Figure 11). An extract of the proposed development plan is shown in Figure 12, and the full plan is provided in Appendix 1.



Figure 11: The location of the proposed driveway access to the subject site to / from Turton Place



Figure 12: Extract of the development plan

3.1.1 Construction

On-site construction for the proposed BESS is limited mainly to assembly and connecting components with the typical battery energy storage system shipping containers. Most of the equipment will be transported to the subject site via rigid trucks, with only the batteries and MVPS required to be delivered by a 19 m semi-trailer (B-doubles will not be used for transportation).

The typical construction delivery schedule for this BESS is shown in Table 5.

Table 5: Construction delivery schedule

Time period	Site Works
Week 1	drainage, road and fencing works installation of concrete footings
Week 2	cable installation delivery of battery shipping containers and MVPS installation of battery shipping containers and inverter station
Week 3	electrical installation and cable termination electrical testing
Week 4	commissioning / demobilisation

There is a 4-week construction phase before the full operation of the BESS.

3.1.2 Heavy vehicle access to the subject site

All heavy vehicle traffic from Barton Highway will arrive/depart the subject site via Murrumbateman Road, Patemans Lane and Turton Place. Heavy vehicles will enter the subject site by turning left from Barton Highway to Murrumbateman Road, making 3 right turns at the intersections with Patemans Lane and Turton Place, and then entering the subject site about 500 m along Turton Place.

Heavy vehicles will exit the subject site in the reverse direction, making 3 left turns from Turton Place, Patemans Lane and Murrumbateman Road, and a right turn onto Barton Highway to head north towards Hume Highway.

Figure 13 indicates the route for all heavy vehicles arriving and departing the subject site.

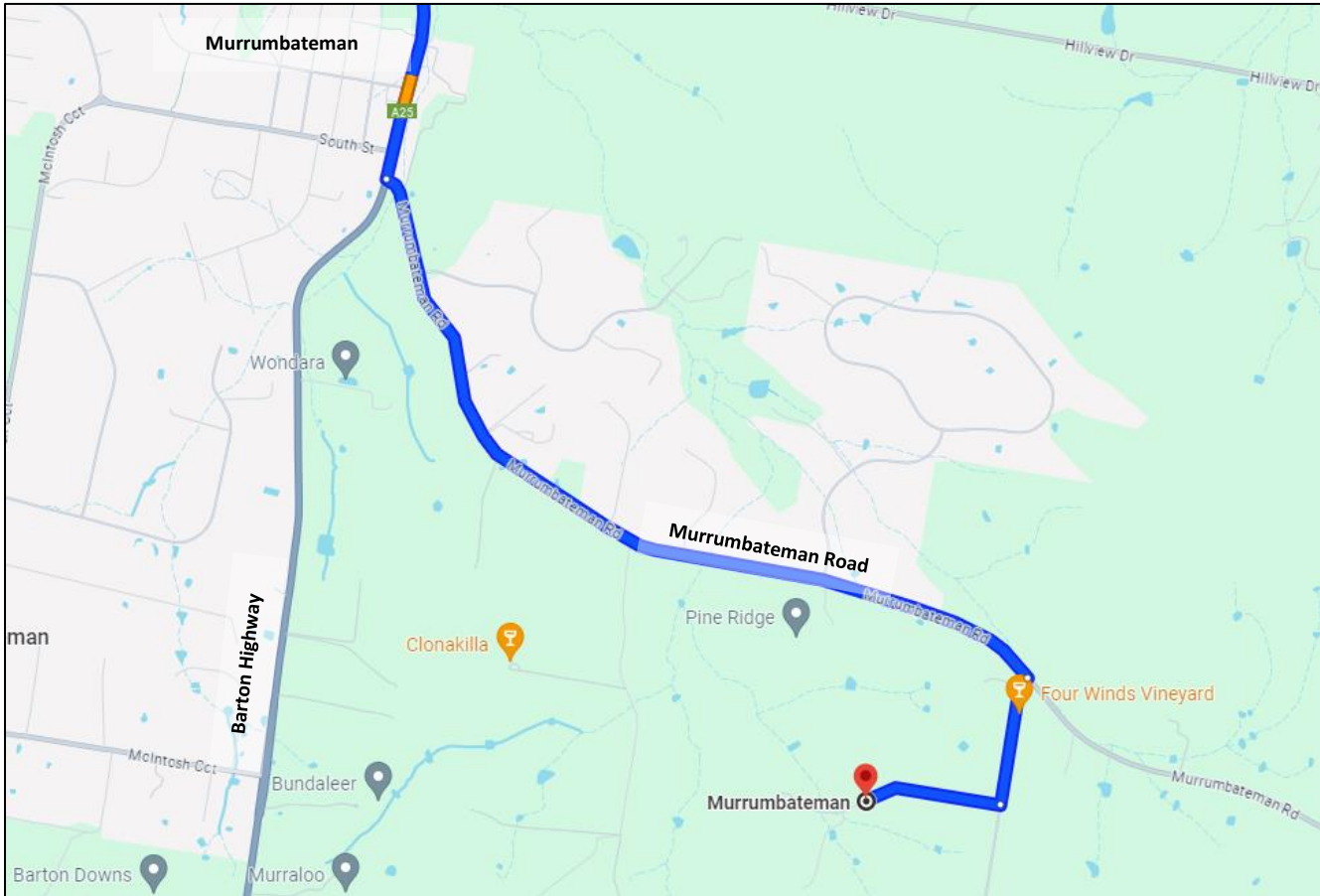


Figure 13: Indicative route for heavy vehicle arrivals (source: Google Maps)

The light vehicles are expected to arrive from Yass and Murrumbateman (from the north) or the more significant population centre of Canberra to the south.

3.1.3 Operation / decommissioning

The proposed use is based on a 40-year lease. If the lease is not renewed after this period, the facility's operator must decommission it, 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

Typically, the traffic generation for new developments is estimated using the traffic generation rates provided in the RTA Guide to Traffic Generating Developments – Version 2.2A 2002 (the RTA Guide). However, the RTA Guide does not include traffic generation rates for BESS facilities.

Therefore, the traffic generation to/from the proposed development was estimated empirically. Traffic generation analysis was undertaken for the development's construction and operational phases to establish the likely peak traffic generation.

3.2.1 Construction phase traffic volumes

Based on the information provided, the peak light vehicle traffic generation is likely to occur from the start of the construction phase to the completion of this phase, with a maximum traffic generation likely to occur during weeks 1 to 3. This is when 3 construction staff vpd will access the subject site, resulting in a total daily traffic generation of 6 vpd (3 vpd arriving at the start of the shift and 3 vpd departing at the end of the shift).

Assuming the construction work will be undertaken during regular working hours, it is anticipated that 3 vehicles will access the subject site during a given peak hour (at the start of the morning shift).

Assessment of the heavy vehicles accessing the subject site during the construction phase revealed that peak traffic generation is likely to occur from the start, with a maximum number of heavy vehicles accessing the subject site during week 2. This period includes delivery of battery shipping containers when up to 10 heavy vehicles will access the subject site weekly and up to 2 vpd. Therefore, this would result in a total daily traffic generation of 4 vpd (2 vpd arriving and 2 vpd departing). It is unlikely that heavy vehicles will arrive within the same hour as deliveries will be managed by the project team (i.e. delivery schedule).

The vehicles are anticipated to access the subject site outside the commuter peak hours for the surrounding road network.

The impact of heavy vehicles is considered negligible; however, conservatively, for this assessment, it has been assumed that a single heavy vehicle will access the subject site during the AM (arriving) and PM (departing) peak hours.

3.2.2 Operational phase traffic volumes

The proposed BESS will have remote monitoring in real-time, allowing for constant surveillance and monitoring of the facility without the requirement for staffing on-site.

The compound contains critical infrastructure that requires a high degree of security. Upon identification of potential issues, action can be taken indirectly from the control centre or directly by chosen contractors who would travel to the subject site if required. During the operational phase, 2 light vehicles will attend the subject site fortnightly for general maintenance.

3.2.3 Peak traffic generation

Assessment of the likely 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. Therefore, the assessment was undertaken to determine the traffic implications during this phase.

Conclusion 1: the peak hour traffic generation is likely to occur during the construction phase of the development, where the peak hour volumes are expected to be:

- 3 light vehicles
- 1 heavy vehicle

Conclusion 2: the construction phase is expected to take 4 weeks.

3.3 Traffic distribution assumptions

Based on the surrounding road network, it has been assumed that light vehicle traffic will access the site as follows:

- 30% to/from the south (Canberra)
- 70% to/from the north (Murrumbateman / Yass)
- 100% of the heavy vehicles will arrive from the north to the subject site.

It has been assumed that all vehicles will enter the site in the AM peak and depart during the PM peak.

3.4 Anticipated traffic volumes

Given that the proposed BESS will have peak traffic generation during the construction phase, the anticipated development traffic volumes for 2024 (when the facility is under construction) are summarised in Table 6. This table reflects the turning movements at the Barton Highway / Murrumbateman Road intersection.

Table 6: Directional split of peak traffic flow at the intersection of the Barton Highway and Murrumbateman Road

Period	Type	Left In	Right In	Left Out	Right Out	Total
AM Peak	Light	2	1	0	0	3
	Heavy	1	0	0	0	1
	TOTAL	3	1	0	0	4
PM Peak	Light	0	0	1	2	3
	Heavy	0	0	0	1	1
	TOTAL	0	0	1	3	4

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 BESS facilities is currently unavailable. Therefore, an empirical assessment was undertaken to estimate the demand for car parking for the proposed development.

Section 3.2.1 outlined that:

- up to 3 light vehicles are anticipated to access the subject site per day during the construction phase of the development

Section 3.2.2 outlined that:

- up to 2 light vehicles are anticipated to access the subject site every fortnight after the facility opens for periodic maintenance.

The proposed site plan indicates a formal on-site car parking area, providing sufficient space to accommodate the required on-site parking.

Conclusion 3: the subject site will generate a peak car parking demand of 3 spaces during construction and 2 spaces after opening.

Conclusion 4: the development plan includes a designated parking area to satisfy the parking demand.

5 Access to the subject site

5.1 Site access – 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.

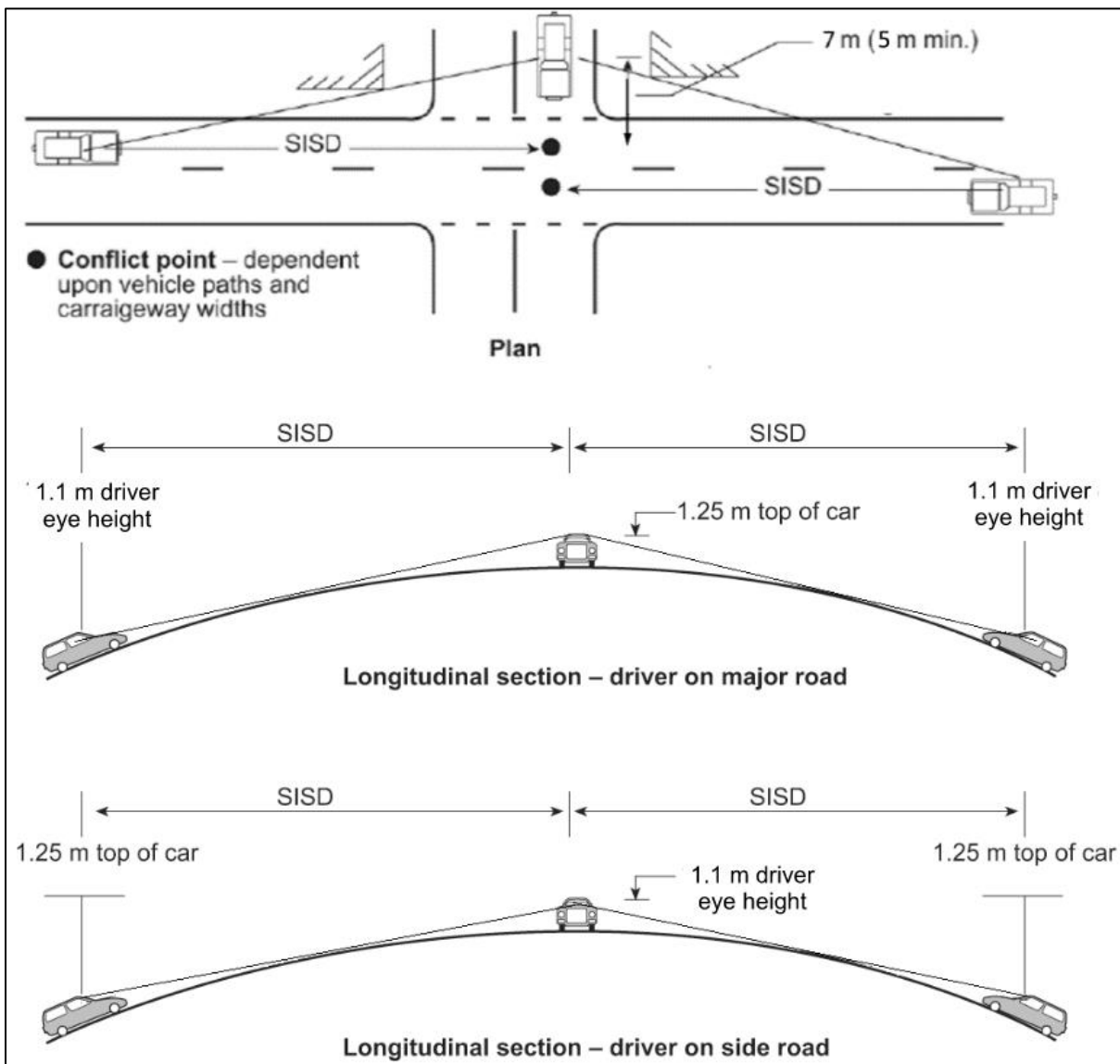


Figure 14: Safe Intersection Sight Distance (SISD) (Source: Figure 3.2 from AGRD4)

5.1.1 Murrumbateman Road

The minimum SISD criterion, specified in Table 3.2 of AGRD4A, requires clear visibility for a desirable minimum distance of **181 m**, relating to the general reaction time RT of 2 seconds and a design speed of 80 km/h (posted speed + 10 km/h).

SISD for heavy vehicles is calculated with reduced deceleration coefficients and increased observation heights to incorporate the different vehicle characteristics. With a 70 km/h design speed, the SISD for a heavy vehicle at this location is **178 m**.

The available sight distance at the intersection of Patemans Lane and Murrumbateman Road is demonstrated in Figure 15 and Figure 16.



Figure 15: Patemans Lane at the Murrumbateman Road intersection – view northwest (about 200 m)



Figure 16: Patemans Lane at the Murrumbateman Road intersection – view southeast (> 300 m)

The site assessment concluded that the visibility requirements at the Patemans Lane and Murrumbateman Road intersection are satisfied; no further treatment is required.

Conclusion 5: adequate sight distance is available at the intersection of Patemans Lane and Murrumbateman Road; no further treatment is required.

5.1.2 Patemans Lane

The minimum SISD criterion, specified in Table 3.2 of AGRD4A, requires clear visibility for a desirable minimum distance of **181 m**, relating to the general reaction time RT of 2 seconds and a design speed of 80 km/h (posted speed + 10 km/h).

SISD for heavy vehicles is calculated with reduced deceleration coefficients and increased observation heights to incorporate the different vehicle characteristics. With a 70 km/h design speed, the SISD for a heavy vehicle at this location is **178 m**.

The available sight distance at the intersection of Patemans Lane and Turton Place is demonstrated in Figure 17 and Figure 18.



Figure 17: Turton Place and Patemans Lane intersection – view north, the sightlines are restricted to 120 m due to a tree in the road reserve



Figure 18: Turton Place and Patemans Lane intersection — view south. Sightlines are about 180 m, with a slight downhill grade towards the intersection from the road's crest. A tree to the right of the road within the reserve reduces sightlines.

The site assessment concluded that the visibility requirements at the intersection of Turton Place and Patemans Lane to the:

- north is **not** satisfied
- south is satisfied.

The sight constraints are existing issues, particularly the mature roadside vegetation

Recommendation 1: trim or remove the tree restricting sightlines to the north (as shown in Figure 17).

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 19).

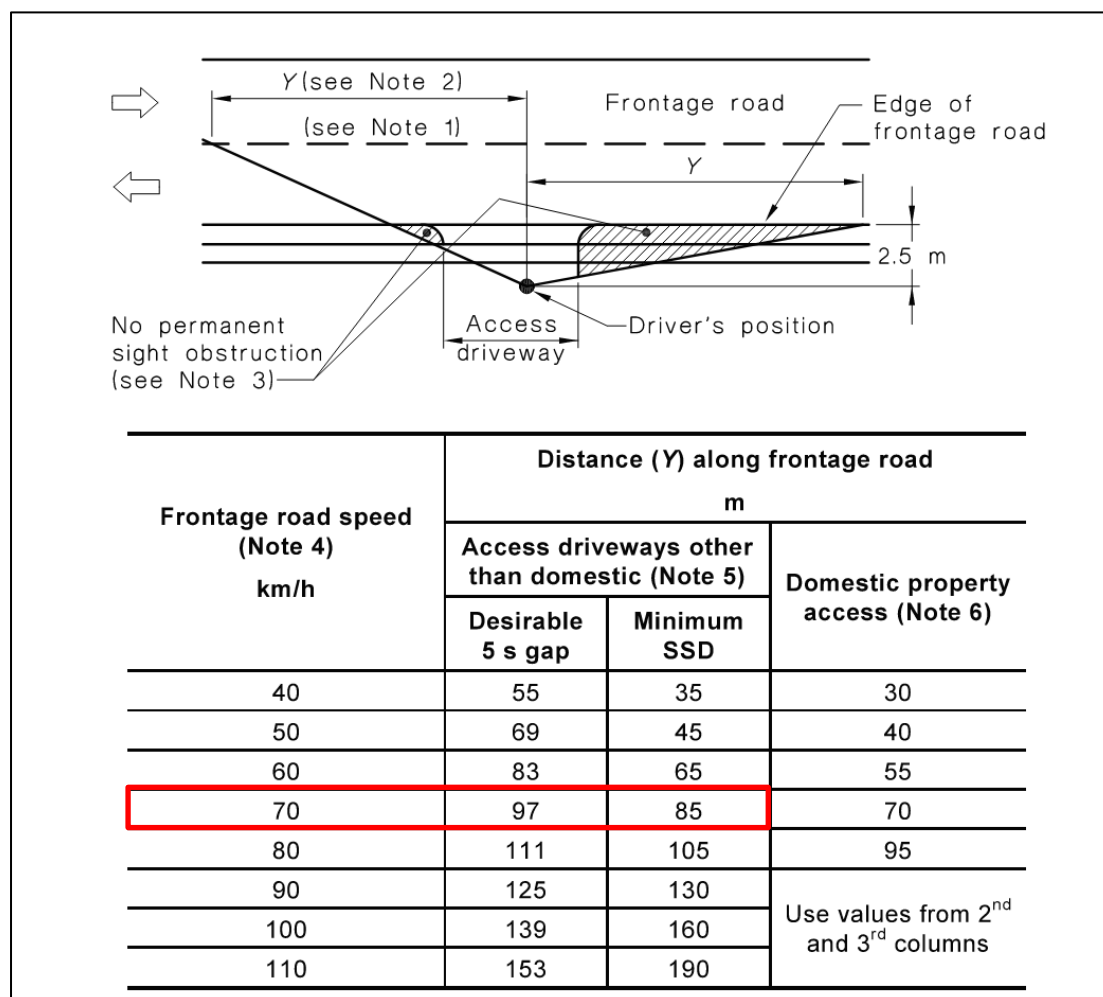


Figure 19: Sight distance requirements at driveways (Source: Figure 3.2 from AS/NZS 2890.1)

The proposed site access to the development along Turton Place is subject to an expected 60 km/h operating speed. The corresponding minimum Stopping Sight Distance (SSD) is 65 m. This can be achieved east and west of the proposed site access driveway. Figure 20 and Figure 21 show there is no vegetation restricting the sight distance to the northeast and southwest of the site access.



Figure 20: At the intersection of the site access driveway and Turton Place facing northeast



Figure 21: At the intersection of the site access driveway and Turton Place facing southwest

Conclusion 6: the proposed site access driveway to Turton Place satisfies the minimum entering sight distance specified in AS/NZS 2890.1.

5.3 Access location and operation

The subject site access driveway is recommended to be constructed per Figure 7.4 in Austroads Guide to Road Design Part 4: Intersections and Crossings requirements and to the council's satisfaction (refer to Figure 22). It should provide sufficient width to facilitate the movements of a 19 m semi-trailer accessing the subject site.

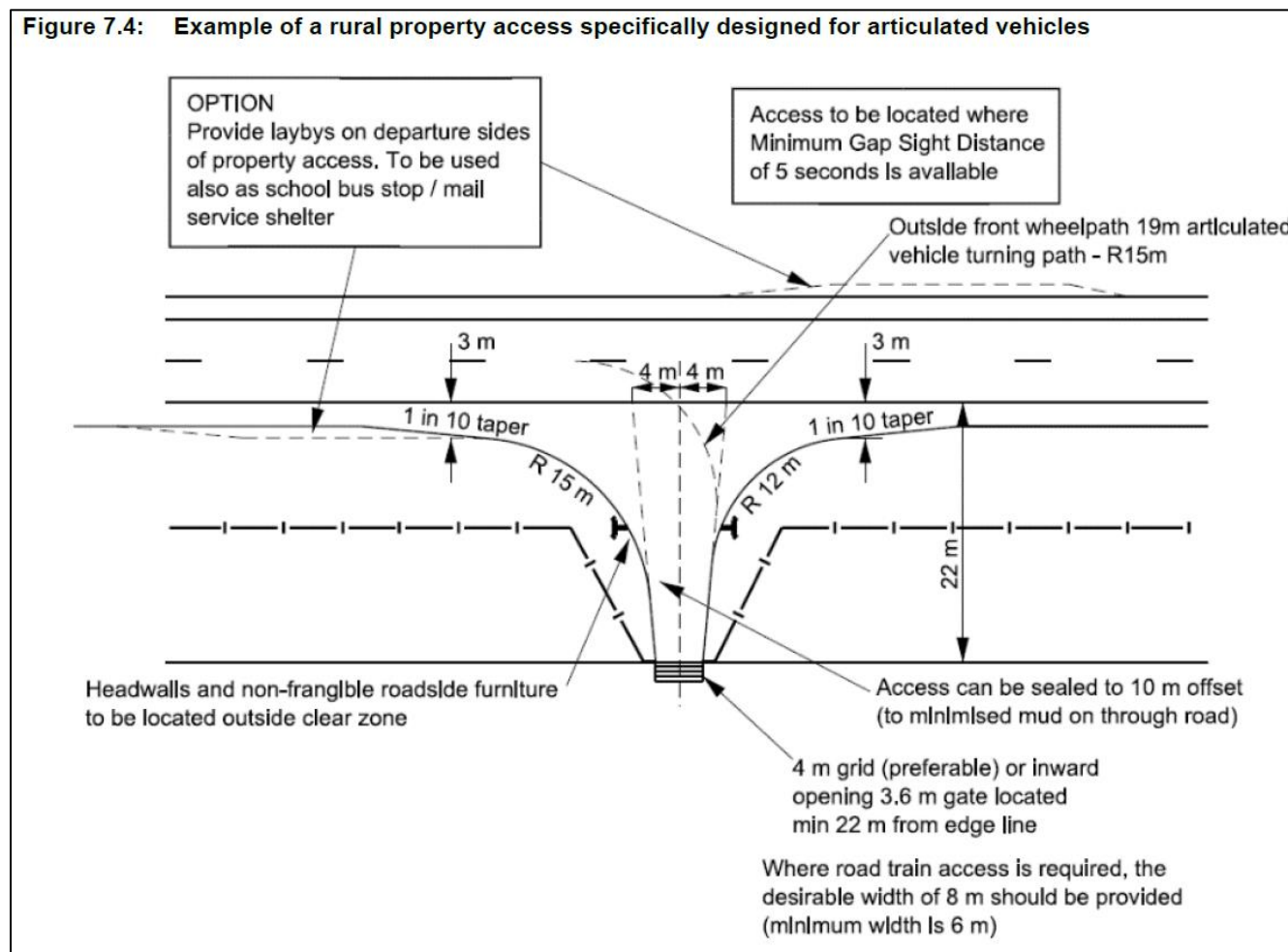


Figure 22: rural property access designed for an articulated vehicle

Recommendation 2: the subject site access driveway should be constructed according to Figure 7.4 in Austroads Guide to Road Design Part 4 requirements and to the council's satisfaction.

5.4 Site security

The proposed development will include installing site security and restricting access to authorised vehicles only. This will involve the provision of security fencing and gates at the development's entrance. The proposed security gate is >300 m from the edge of the formation on Turton Place, located at the end of the driveway.

It is indicated that only 1 truck is expected to arrive and queue at any time, with a 19 m semi-trailer being the largest vehicle accessing the subject site. Hence, the access gate is setback a sufficient distance from the edge of Turton Place to allow a 19 m semi-trailer to wait clear of the carriageway.

Conclusion 7: the setback of the proposed security gate from the edge of Turton Place will accommodate the storage of a 19 m semi-trailer clear of the traffic lane.

5.5 Local network impacts

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 for safe and efficient intersection operation.

Due to the low turning volumes during construction (3 light vehicles and 1 heavy vehicle) and operation (2 light vehicles) and the short-term duration of the construction period, the safety and operation of the intersections between the subject site, Turton Place, Patemans Lane, Murrumbateman Road and Barton Highway can be maintained with no additional turn lane treatments.

Conclusion 8: no additional turn lane treatments are required due to the traffic generated by the proposed development.

6 Conclusions and recommendations

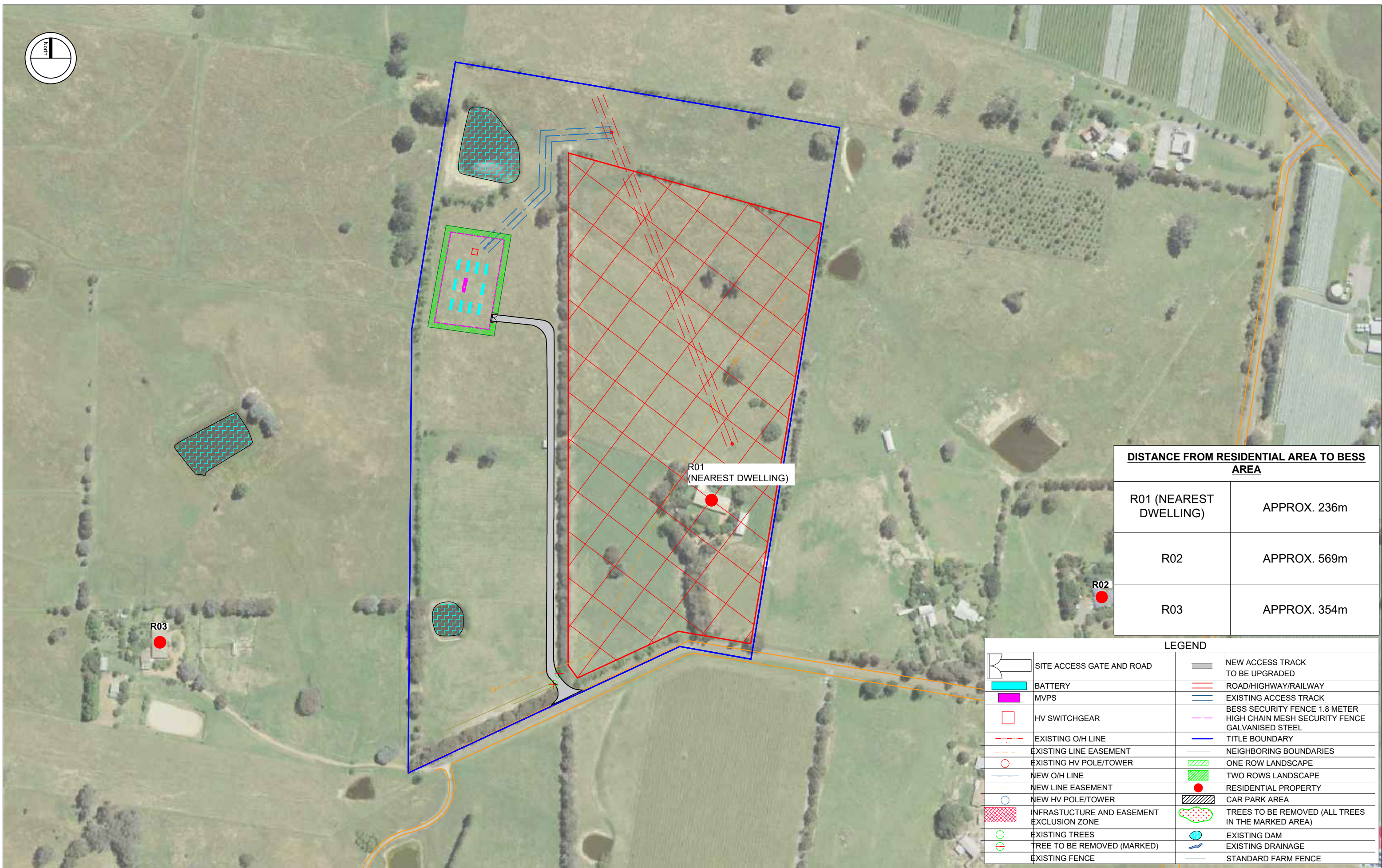
We conclude there are no traffic engineering reasons that would prevent the development from proceeding, as outlined below:

- the peak hour traffic generation is likely to occur during the construction phase of the development, where the peak hour volumes are expected to be:
 - 3 light vehicles
 - 1 heavy vehicle
- the construction phase is expected to take 4 weeks
- the subject site will generate a peak car parking demand of 3 spaces during the construction period and 2 spaces post-opening
- the development plan includes a designated parking area that will satisfy the parking demand
- adequate sight distance is available at the intersection of Patemans Lane and Murrumbateman Road; no further treatment is required
- the proposed site access driveway along Turton Place satisfies the minimum entering sight distance, as specified in AS/NZS 2890.1
- the setback of the proposed security gate from the edge of Turton Place will accommodate the storage of a 19 m semi-trailer clear of the traffic lane
- no additional turn lane treatments are required due to the traffic generated by the proposed development.

However, this TIA has identified a recommendation that needs to be addressed:

- **Recommendation 1:** trim or remove the tree restricting sightlines to the north (as shown in Figure 17)
- **Recommendation 2:** the subject site access driveway should be constructed according to Figure 7.4 in Austroads Guide to Road Design Part 4 requirements and to the council's satisfaction.

Appendix 1 – Development Plans



DISTANCE FROM RESIDENTIAL AREA TO BESS AREA	
R01 (NEAREST DWELLING)	APPROX. 236m
R02	APPROX. 569m
R03	APPROX. 354m

LEGEND			
	SITE ACCESS GATE AND ROAD		NEW ACCESS TRACK TO BE UPGRADED
	BATTERY		ROAD/HIGHWAY/RAILWAY
	MVPS		EXISTING ACCESS TRACK
	HV SWITCHGEAR		BESS SECURITY FENCE 1.8 METER HIGH CHAIN MESH SECURITY FENCE GALVANISED STEEL
	EXISTING O/H LINE		TITLE BOUNDARY
	EXISTING LINE EASEMENT		NEIGHBORING BOUNDARIES
	EXISTING HV POLE/TOWER		ONE ROW LANDSCAPE
	NEW O/H LINE		TWO ROWS LANDSCAPE
	NEW LINE EASEMENT		RESIDENTIAL PROPERTY
	NEW HV POLE/TOWER		CAR PARK AREA
	INFRASTRUCTURE AND EASEMENT EXCLUSION ZONE		TREES TO BE REMOVED (ALL TREES IN THE MARKED AREA)
	EXISTING TREES		EXISTING DAM
	TREE TO BE REMOVED (MARKED)		EXISTING DRAINAGE
	EXISTING FENCE		STANDARD FARM FENCE

REVISIONS					
REV	STATUS	DESCRIPTION	DATE	D.B.	C.B.
A	CP	INITIAL ISSUE	07/06/23	XT	RZ
B	CP	ADDED INFRASTRUCTURE AND EASEMENT EXCLUSION ZONE	20/11/23	XZ	AJ

PROJECT DETAILS: MURRUMBATEMAN DISTRIBUTION BESS <small>3 TURTON PLACE MURRUMBATEMAN, NEW SOUTH WALES 2582</small> <small>(34 9920, 149 04964)</small>
CLIENT DETAILS: ACENERGY PTY LTD
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AS INDICATED	CONCEPT PLAN	20/11/2023
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Appendix 2 – Acronyms and terms

Acronyms / terms	Definition
AGRD4	Austrroads Guide to Road Design Part 4 – Intersections and crossings
AGRD4A	Austrroads Guide to Road Design Part 4A – Unsignalised and signalised intersections
AGTM6	Austrroads Guide to Traffic Management Part 6 – Intersections, interchanges and crossings management
AGTM8	Austrroads 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
DPE	Department of Planning and Environment
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
TfNSW	Transport for New South Wales (NSW)
vpd	vehicles per day
vph	vehicles per hour