CAMBRAY CONSULTING

TRAFFIC ENGINEERING + TRANSPORT PLANNING

Capricorn BESS Project

TRAFFIC IMPACT STATEMENT

Prepared For ERM (Environmental Resources Management)

26 August 2024

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Cambray Consulting

1.0 Introduction

Cambray Consulting Pty Ltd (Cambray) has been engaged by ERM in relation to the Capricorn Battery Electricity Energy Storage System (BESS) Project (The **Project**), which is the neighbouring property to the north of the Bouldercombe Substation located on the Burnett Highway.

1.1 Limits of Report

This report takes into account the particular instructions and requirements of our client. Cambray Consulting has taken care in the preparation of this report, however, it neither accepts liability nor responsibility whatsoever in respect of:

- Any use of this report by any third party;
- Any third party whose interests may be affected by any decision made regarding the contents of this report; and/or
- Any conclusion drawn resulting from omission or lack of full disclosure by the client, or the clients' consultants.

1.2 Safety in Design

Within our scope, we have identified safety in design issues and potential hazards, whenever reasonably practicable within our field of expertise. It is not considered reasonably practicable to identify all potential hazards which may occur throughout the life of a project, including during detailed design and construction activities. It is strongly recommended that safety in design issues be reviewed during all ensuing design and construction stages of the project.

1.3 Qualifications

This report was prepared by:

- Andrew Douglas, Director – BE Civil (Hons), MSc Env Man, FIEAust, CPEng, **RPEQ 6691**; and
- John Dollisson, Senior Transport Engineer – BE Civil, MIEAust.

2.0 Context

2.1 Project Area

The Project Area is located on the western side of the Burnett Highway in Bouldercombe and is located within the Rockhampton Regional Council (Council) local government area. The Project Area is formally identified as Lot 2 on RP613051.

2.2 Surrounding Road Network

The adjacent road network is illustrated in **Figure 2.1** and the key characteristics of these roads are summarised in **Table 2.1**.

Table 2.1 Existing Road Network

Road	Authority	Hierarchy	Speed Limit
Burnett Highway	State-Controlled Road	Motorway	100km/h
Childs Avenue	Council	Rural Access	50km/h

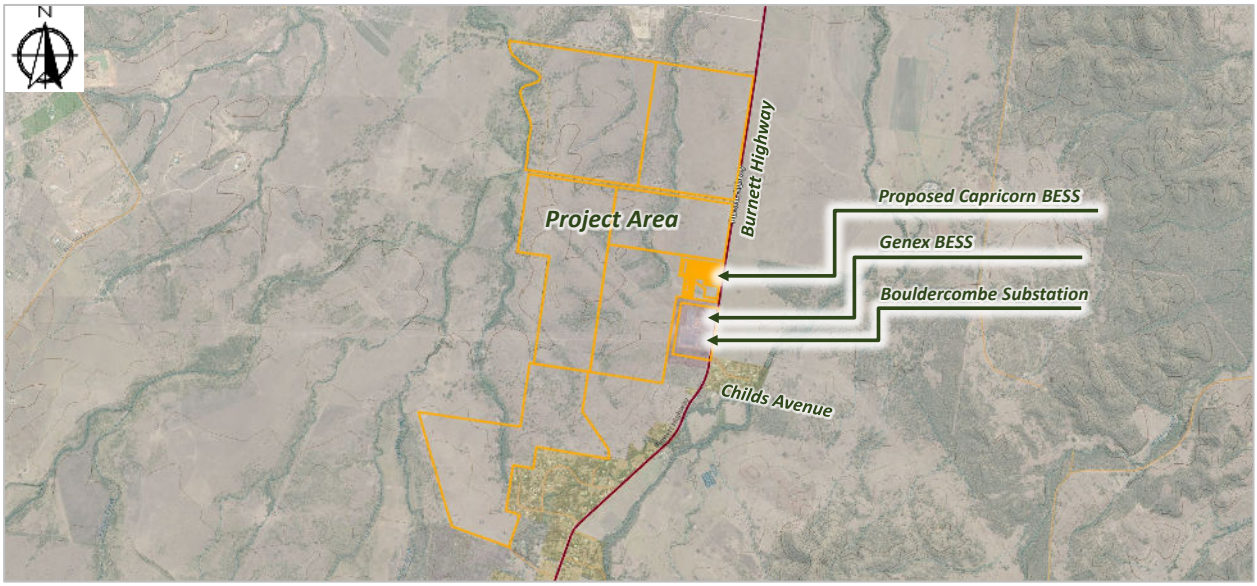


Figure 2.1 Project Area and Surrounding Road Network

3.0 Project Overview

The Project proposes to construct a Battery Energy Storage System (BESS) north of the existing Substation and recently constructed Genex BESS system within the substation property.

The proposed BESS is a 399MW / 1575MWh system consisting of the following:

- 525 BESS containers;
- 105 Inverters and Medium Voltage (MV) Power Stations; and
- One (1) High Voltage (HV) Substation and associated infrastructure.

A copy of the Project plans is included in **Appendix A** and reproduced in **Figure 3.1.**

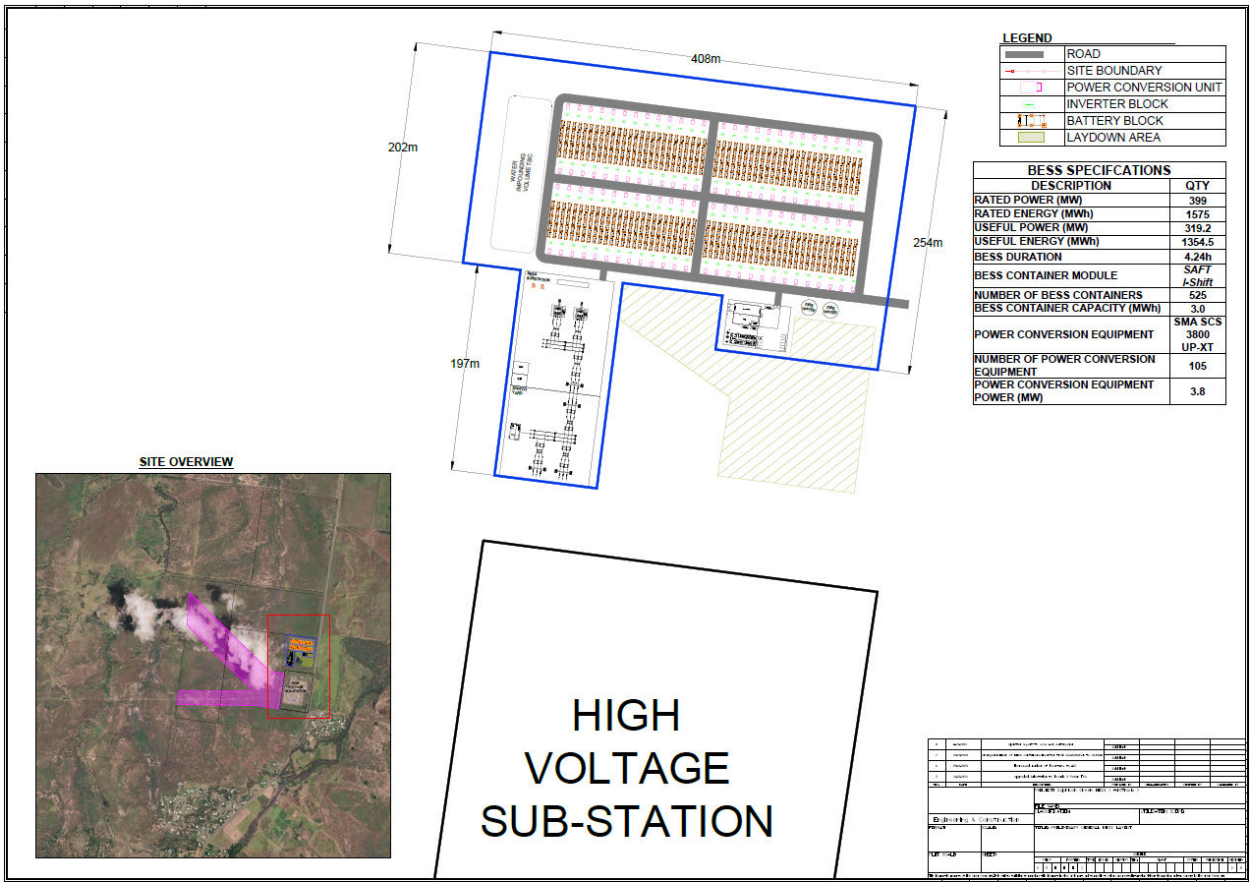


Figure 3.1 Capricorn BESS Project Plans

3.1.1 Construction Phase Traffic Generation

The Construction phase is of most relevance in terms of traffic impacts, due to the traffic associated with:

- BESS components being delivered to the site via the State Controlled Road (SCR) Network;
- Materials and plant being transported to and from Project area; and
- Construction workers moving between population centres and the Project area.

3.1.2 Operations Phase Traffic Generation

During the operational phase of the Project, the expected number of daily traffic movements will be very low. It is anticipated that daily movements may be in the order of 10 vehicle trips a day with a service vehicle visiting the site one to two times a week, comprised of occasional maintenance trucks, refuse collection and the like.

3.1.3 Project Transport Route

During the construction period, there may be a need for low loaders for machinery delivery, truck and dog tippers, 26m B-Double side tippers, and up to 26m B-Double flatbed trucks for the delivery of components. The delivery of construction machinery and BESS components will travel along the State Controlled Road (SCR) Network to the Project site.

While it is still to be determined where the components may be transported from, a high-level review of movements from the Port of Gladstone has been undertaken to determine the impact on the road network approaching and in the vicinity of the Project Area.

3.2 State Controlled Road Network Summary

Some or all of the following State Controlled Roads are expected to be used for the transport of components to the site:

- Gladstone Port Access Road (183);
- Gladstone - Mount Larcom Road (181)
- Bruce Highway (Benaraby – Rockhampton) (10);
- Gavial – Gracemere Road (450); and
- Burnett Highway (Mount Morgan – Rockhampton) (41F).

3.2.1 State Controlled Road Network Heavy Vehicle Routes and Restrictions

A review of the SCR network for Heavy Vehicle Routes and Restrictions was undertaken in order to understand any potential limitations on access to the Project Area.

Extracts from the SCR Heavy Vehicle Routes and Restrictions mapping are illustrated in **Figure 3.2** to **Figure 3.4** and indicate the extent of routes pre-approved for the following heavy vehicle classes:

- 25/26m B-Double and PBS 2A (B25/26) which include;
    - Vehicles configured to be up to 26 metres in length and 62.5 tonnes;
- Higher mass limits (HML) which;
    - Allows for an increase in mass limit for specific axle group configurations; and
- The Queensland Critical Road Network.

Further, Oversized and Overmass (OSOM) vehicles up to 35.0m in length may be required to transport construction equipment and components to the Project Area. These OSOM vehicles are defined in Queensland as Special Purpose Vehicles (SPV) which is governed by the *National Class 1 Load Carrying Vehicle Dimension Exemption Notice 2024 (No.1).*

The parameters of allowable SPV Prime mover and trailer combination are summarised in **Table 3.1** and the route found on the National Heavy Vehicle Regulator (NHVR) is illustrated in **Figure 3.5.**

Table 3.1 SPV Prime Mover and Trailer Combinations for OSOM Movements

Maximum Vehicle Length	Condition#	Critical Road Width	Other Roads Width	Pilot Required	Escort Required
26.0m*	5. Day	3.5m	3.5m	No	No
	6. Night	3.1m	3.1m	No	No
35.0m	7. Day	4.5m	5.5m	Yes	Yes

**Maximum length on B-Double approved routes*
 # National Class 1 Load Carrying Vehicle Dimension Exemption Notice 2024 (No.1).

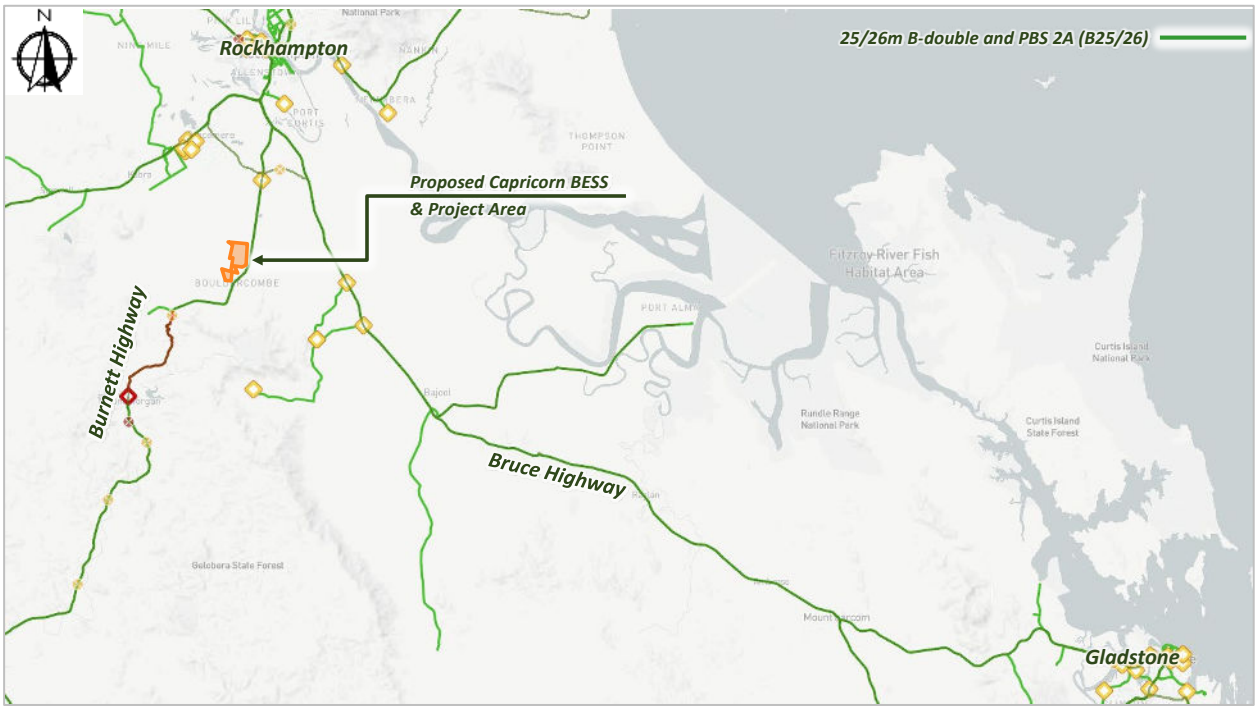


Figure 3.2 25/26m B-Double and PBS 2A (B25/26) Network - NHVR

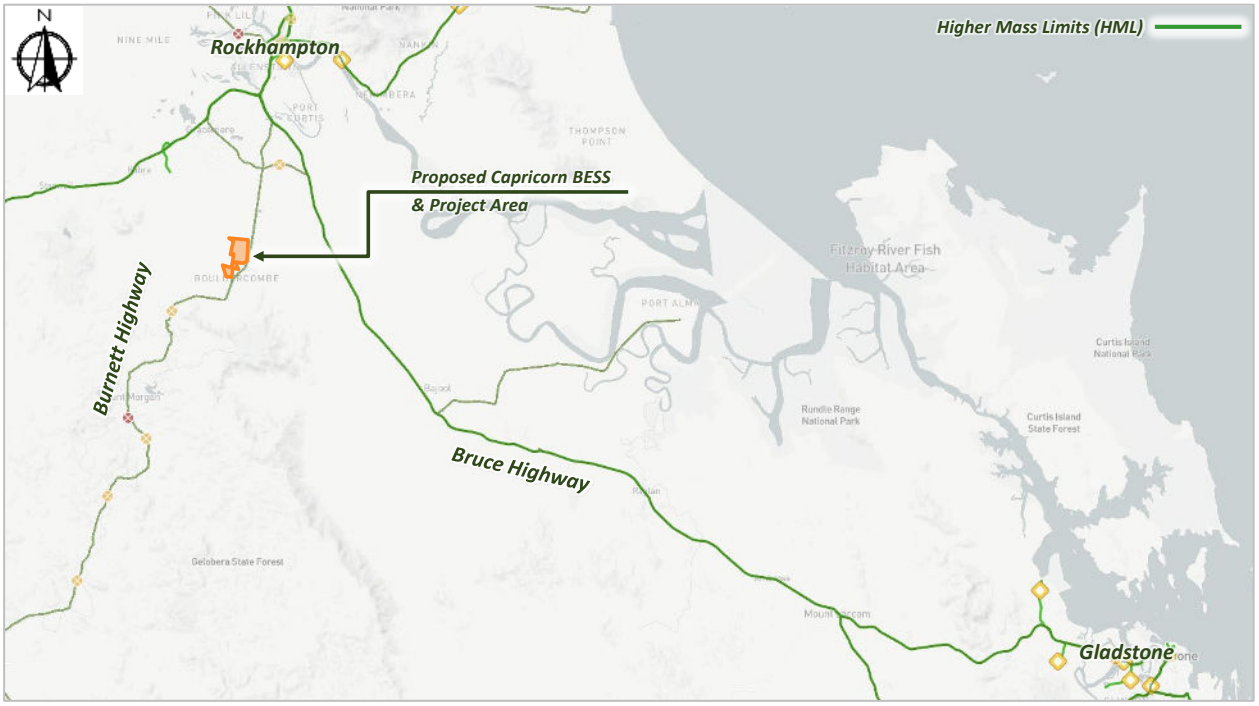


Figure 3.3 Higher Mass Limits Network - NHVR

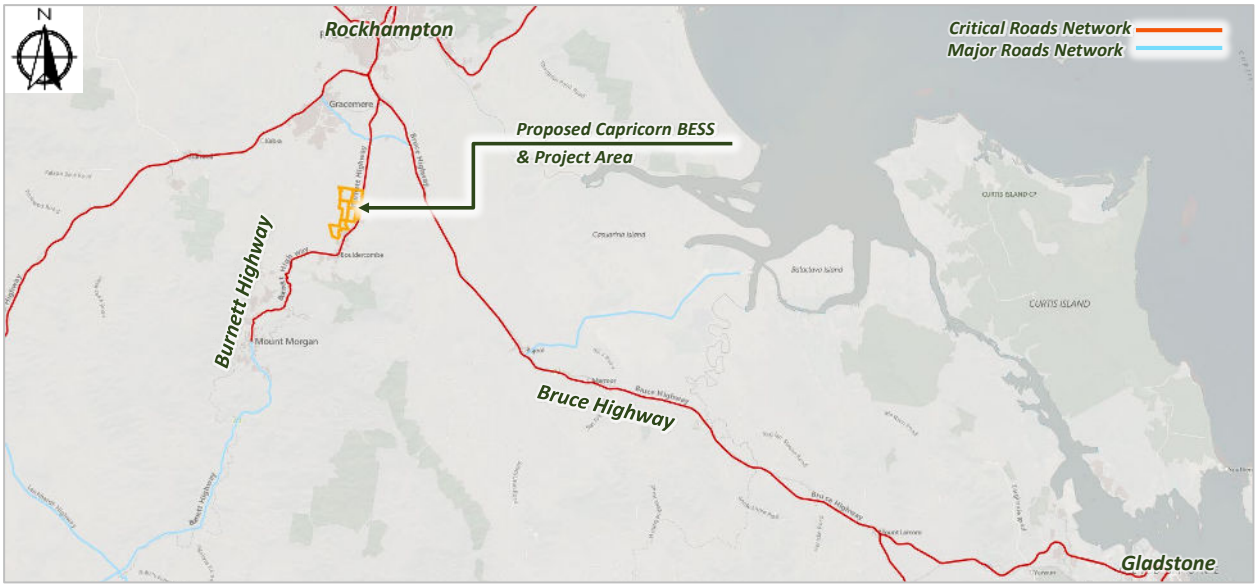


Figure 3.4 Critical Roads Network – DTMR

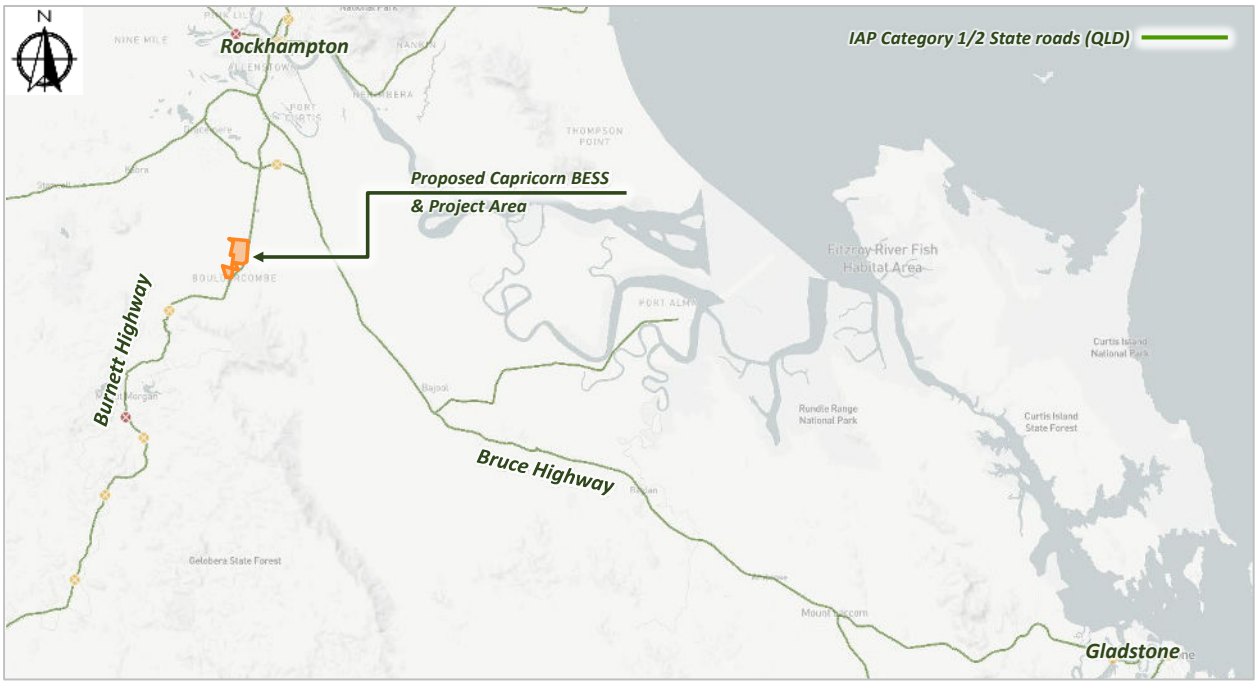


Figure 3.5 IAP Category 1/2 State roads (QLD) – NHVR

Figure 3.2 and **Figure 3.4** demonstrates the capacity of the SCR network in proximity to the Project area allows the following combinations:

- 25/26m B-Double and PBS 2A (B25/26) appearing to be approved between Gladstone to Rockhampton and Rockhampton to the Project area;
- Higher Mass Limits (HML) vehicle combinations between the Port of Gladstone and The Project Area; and
- The Queensland Critical Network are the roads that the State seeks to direct Over Mass Over Height Vehicles to use.

Further, the SCR network appears to have the capacity to carry up to and including 26m B-double combinations 'as of right' and Over Size Over Mass (OSOM) combinations of up to 36.0m in length and 4.5m height (**Figure 3.5**) on the Critical Road network during the day under pilot and escort.

4.0 Proposed Area Access

The Project will be accessed from the Burnett highway via proposed Project area access location fronting Lot 2 on RP613051. The proposed Project area access location is illustrated **Figure 4.1** in relation to the surrounding road network.

Figure 4.1 Proposed Project Area Access Location

The existing turn treatments on the Burnett Highway in proximity to the Project area access location, includes:

- Bouldercombe Sub-Station;
  - A Basic Right Turn Treatment (BAR);
- Childs Avenue;
  - A Basic Left Turn Treatment (BAL); and
  - A Basic Right Turn Treatment (BAR).

A Street view of the proposed access location is illustrated in **Figure 4.2.**

Figure 4.2 Street View of proposed Project Area Access Location

The Project proposes to provide a similar intersection standard as the adjacent Childs Avenue intersection and the Bouldercombe Sub-Station.

4.1.1 Access Configuration

The site access intersection is to be constructed to the same standard as the existing Sub-Station access in accordance with TMR Standard Drawing SP-02 'Property Access Main Roads AADT > 2000vpd' dated 1 October 2007 (TMR Standard Drawing SP-02) which is illustrated in **Figure 4.3** and is included in **Appendix A.**

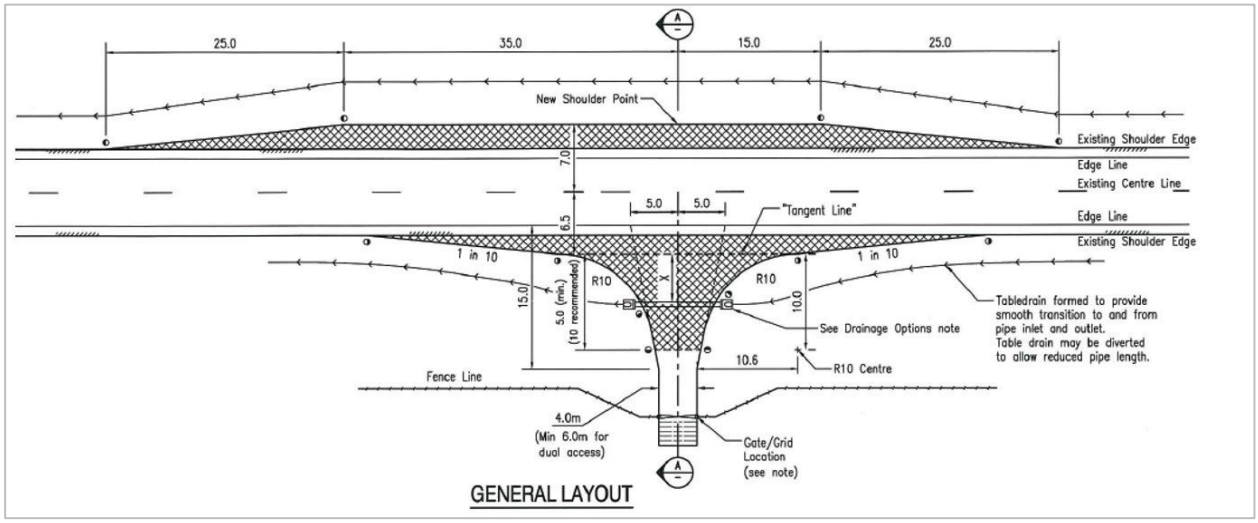


Figure 4.3 TMR Standard Drawing SP-02 'Property Access Main Roads AADT > 2000vpd'

4.1.2 Sight Distance Assessment

The TMR Standard SP-02 lists the Visibility Triangle to achieve the minimum sight distances required for the access configuration as illustrated in **Figure 4.4.**

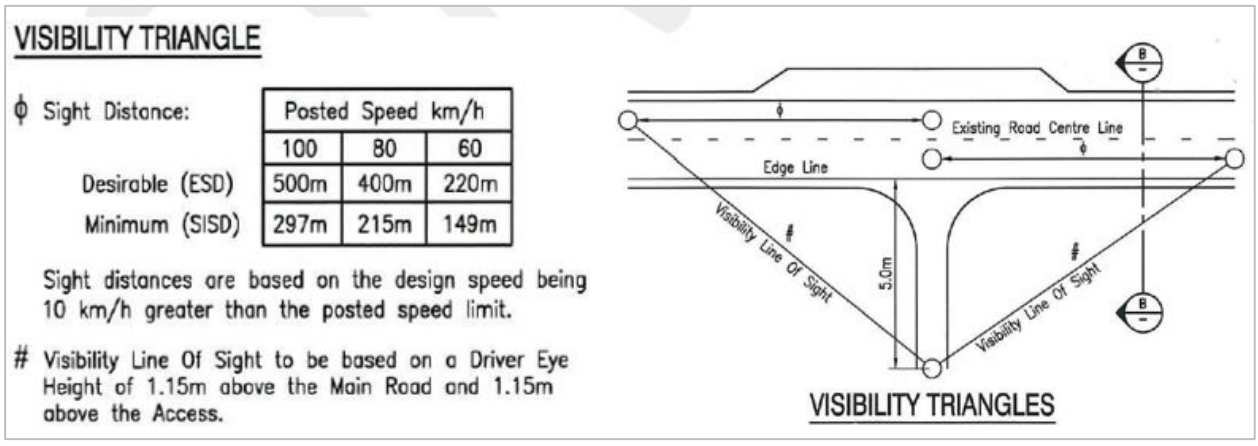


Figure 4.4 TMR Standard Drawing SP-02 Visibility Triangle

The requirement of 297m for a Minimum Safe Intersection Sight Distance (SISD) exceeds the design speed sight distance of 285m as outlined in Austroads *Guide to Road Design Part 4a: Unsignalised and Signalised Intersections* (AGRD4a).

The sight distance triangle from the proposed Project area access location is illustrated in **Figure 4.5.**

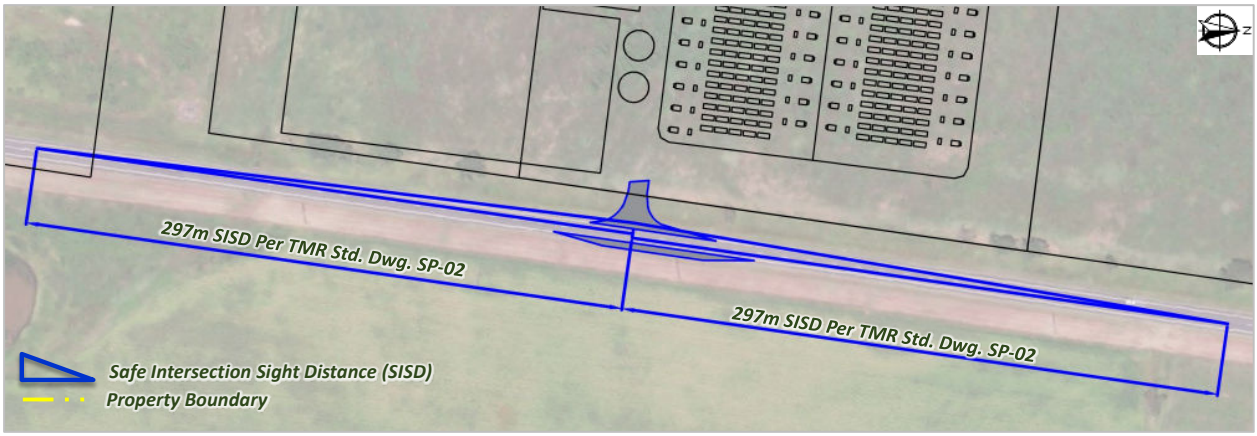


Figure 4.5 Sight Distances to/from the Project Area Access location

The sight distances to the north and south of the Project area access location are illustrated in **Figure 4.6** and **Figure 4.7.**

Figure 4.6 Burnett Highway Facing North

Figure 4.7 Burnett Highway Facing South

4.2 Project Area Access and Internal Layout Provisions

A concept for the site access has been developed as shown in **Figure 4.3,** based on TMR Standard Drawing SP-02 'Property Access Main Roads AADT > 2000vpd', for the movements of articulated vehicles in accordance with AS2890.2.

The concept drawing is included in **Appendix C** of the project area access location and upgrade in accordance with TMR Standard Drawing SP-02. A swept path assessment illustrating the movement of a 26m B-Double entering and egressing the Project area is also included in **Appendix C.**

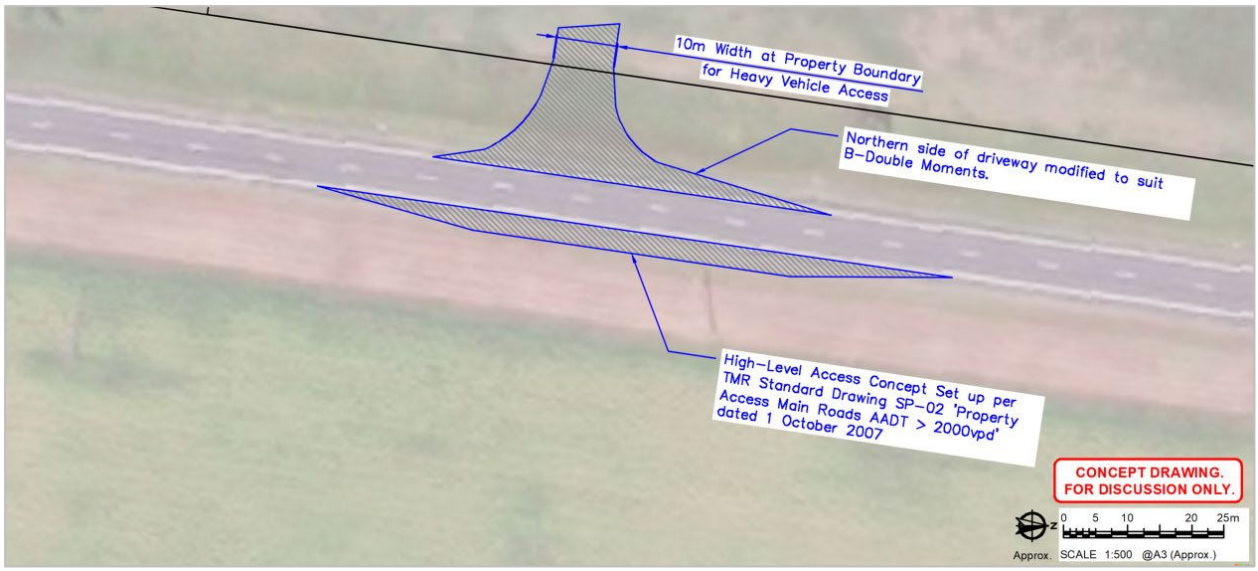


Figure 4.8 High-Level Burnett Highway Site Access Concept

4.2.1 Light Vehicle Parking

The client intends to construct internal tracks within the property for internal access of heavy and light vehicles. However, provision for light vehicle parking on-site is proposed to be located in front of the site office as illustrated in **Figure 4.9.**

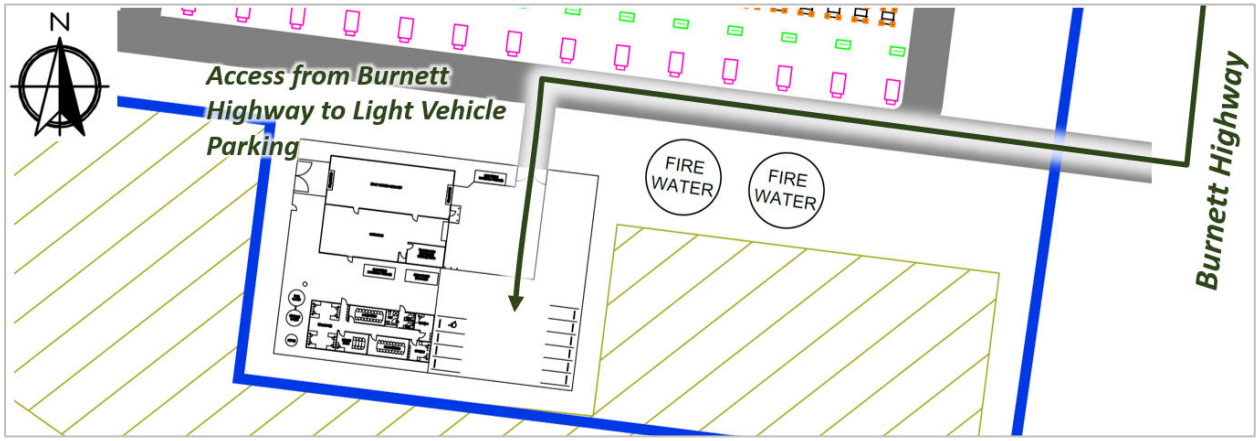


Figure 4.9 Proposed Car Parking Provision

The car park is to include ten (10) spaces and will be dimensioned in accordance with AS2890.1, as follows:

- Nine (9) car park spaces measuring 2.6 x 5.4m min.;
- A PWD space of 2.4 x 5.4m with a 2.5 x 5.4m Shared Zone; and
- Aisle width of 6.6m min.

Given the nature of this type of development, the provision of the car park exceeds the expected daily operational traffic demands and therefore is expected to be more adequate.

5.0 Traffic Generation and Distributions

5.1 Overview

We have undertaken a review of the Project's traffic impacts on the existing transport network surrounding the Project area over the 24-month construction phase. The construction phase is broken down into the following stages:

- Civil Works;
- Installation;
- Commissioning; and
- Operation.

The construction phase traffic is generated by the following vehicle types and uses:

- Light vehicles associated with staff accessing the Project area;
- Heavy vehicles which include:
    - Medium and Heavy rigid vehicles which deliver materials and smaller plant equipment;
    - Truck and Dog vehicles used for earthworks and movement of material;
    - Class vehicles i.e. mobile cranes; and
    - Up to and including 26m B-double vehicles for the delivery of materials, components and to transport larger plant to the Project area.

The inputs which form the basis of our review are outlined in the following sections.

5.2 Background Traffic Volumes

The 2023 Annual Average Daily Traffic (AADT) for the Burnett Highway has been sourced from DTMR traffic census data at count site 60008 and is summarised in **Table 5.1.**

Table 5.1 2023 DTMR Census Data for the Burnett Highway

Direction	AADT	% of HV	Description	Road Name/Segment ID	10 Year Linear Growth
Combined	3427	11.27%	670m N of Childs Ave	(Mount Morgan – Rockhampton ID 41F)	3.36%
Gazettal	1695				
Against Gazettal	1732				

The growth rate over the last 10 years is listed as 3.36% in the AADT traffic census data. The 10-year growth has been adopted and applied to the background traffic volume.

5.2.1 Peak Hour Review

A review of the hourly profile was undertaken for Traffic Count Site 60008 to determine the peak hour Annual Average Daily Traffic (AADT) and Percentage Peak Hour Factor (PHF) for the through movements along the Burnett Highway. The 2020 segment data for the count site has been reviewed (Refer Figure 5.1) as the 2021 to 2023 segment data is not currently available.

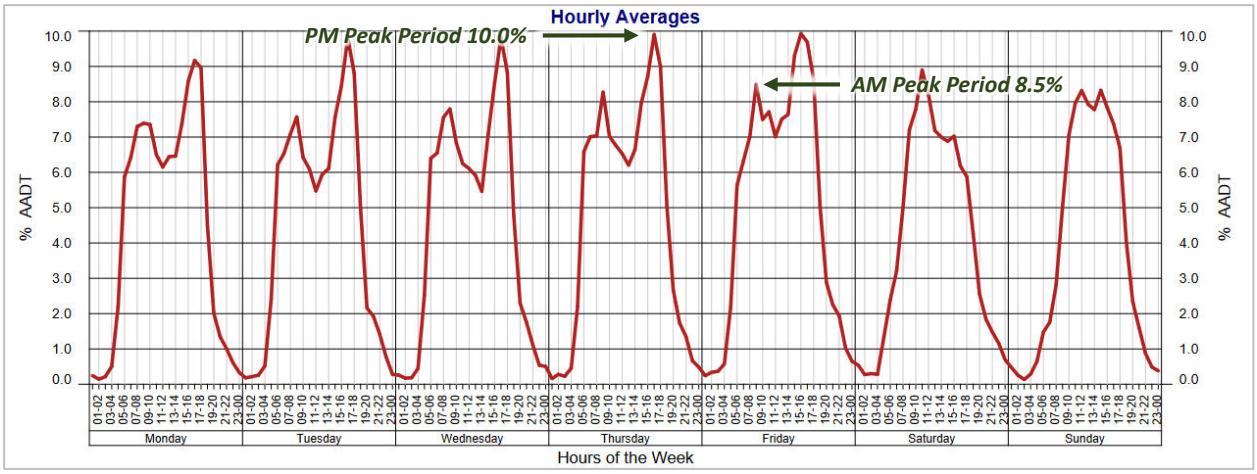


Figure 5.1 Hourly AADT% for Peak Hour movements at Traffic Count Site 60008

The peak hour AADT PHF adopted from the 2020 segment data was found to be as follows:

- AM PHF = 8.5%; and
- PM PHF = 10.0%

5.2.2 Background Traffic volumes summary

The 2023 DTMR Traffic Census at count site 60008 is in the order of 3,427 vpd at a linear growth rate of 3.36% per annum over the preceding 10 years. An AM and PM PHF of 8.5% and 10.0% respectively was applied to the background traffic for the Gazettal and Against Gazettal AADT volumes in **Table 5.1.**

5.3 Project Traffic Volumes

A first principles approach to the volume of light, and heavy vehicle movement has been informed by our experience on other BESS projects and has been used to estimate traffic volumes for the construction and operational phases, as follows:

- Construction commencement in 2026;
- 24 months total Construction Phase;
- Six (6) day working week;
- Civil works (delivery of dozers, loaders, graders, concrete deliveries, etc. arrives during civil works period);
- In the order of 630 Total Equivalent Units (TEU) containers to be delivered to the Project area, which is expected to include in the order of:
    - 525 BESS containers;
    - 105 Inverters and Medium Voltage (MV) Power Stations; and
    - 1 High Voltage (HV) Substation and associated infrastructure.

Civil Works Phase (6 months)

- 40 - 45 trucks per day for delivery of plant and construction materials;
    - i.e., 80 - 90 two-way heavy vehicle trips per day; and
- 45 - 50 light vehicles per day for the movement of staff during the civil works period;
    - i.e., 90 - 100 two-way light vehicle trips per day.

Installation Phase (15 months)

- 25 - 30 trucks per day for delivery of machinery and construction materials;
    - I.e., 50 - 60 two-way heavy vehicle trips per day; and
- 25 - 30 light vehicles per day for the movement of staff during the civil works period;
    - I.e., 50 - 60 two-way light vehicle trips per day; and
- Delivery of 730 TEU containers to the Project area over ten (10) months, 3 deliveries every day,
    - i.e., six (6) two-way trips every day.

Commissioning Phase (3 months)

- 2-3 trucks per week for the removal of machinery;
    - I.e., one (1) one-way truck trip every three (3) days; and
- 20 light vehicles per day;
    - i.e., 40 two-way light vehicle trips per day.

Operational Phase (ongoing)

- 1 truck per month to cater for maintenance; and
- 10 light vehicles per day;
    - i.e., 20 two-way light vehicle trips per day.

Table 5.2 and **Table 5.3** Summarises the estimated average weekly and daily estimated vehicle trips expected to access the Project site during the approximate 4-month (16 week) Civil Works Phase and the Installation Phase (15 month). This considers a six (6) day work week, with a uniform distribution of component deliveries and no substantial delays due to weather.

Table 5.2 summarises our estimated vehicle trips expected to access the Project site during the peak week and day during the Civil Works Phase.

Table 5.2 Civil Works Phase Traffic: Estimated Average Week & Average Day

Average Period	Heavy Vehicles	Light Vehicles	Total Vehicles	Estimated Total Trips (In + Out)
Weekly	259	287	546	1092
Daily	43	48	91	182

Table 5.2 indicates the conservatively high number of vehicle trips expected to access the Project site during the Civil Works Phase, which is in the order of 91 vehicles per day.

Table 5.3 summarises our estimated vehicle trips expected to access the Project site during the peak week and day during the Construction Phase.

Table 5.3 Installation Phase Traffic: Estimated Peak Week & Peak Day

Peak Period	Heavy Vehicles	Light Vehicles	Total Vehicles	Estimated Total Trips (In + Out)
Weekly	158	151	309	618
Daily	26	25	51	103

Table 5.3 indicates the approximate vehicle trips expected to access the Project area during the highly conservative Installation Phase, is in the order of 51 vehicles per day.

5.4 Traffic Generation and Distribution

We have adopted the Civil Works Stage for assessment as it reflects the period of highest expected traffic generation. We have used this to assess the peak development traffic impacts on the State Controlled Road (SCR) network. We do not expect the proposed BESS to have any impact on the Local Road Network.

We have conservatively assumed up to 20% of the daily traffic generated under the Civil Works Stage may occur within both the AM and peak hours:

- 20% of daily trips occurring with the AM peak period; and
- 20% of daily trips occurring with the PM peak period.

However, it is expected that the Installation traffic will be more evenly spread throughout the day dependent on delivery and works schedule and is a conservative assessment.

5.4.1 External Traffic Distribution

The external traffic distribution we adopted for both the construction and operational phases was based on a review of trip attractors and generators surrounding the Project and is summarised in **Table 5.4.**

Table 5.4 Adopted External Traffic Distributions

Direction	%
North (towards Rockhampton)	80%
South (towards Bouldercombe)	20%

5.4.2 Directional Traffic Distribution

The adopted directional traffic distribution splits for the various trip types are outlined in **Table 5.5**.

Table 5.5 Adopted Directional Traffic Distribution Splits

Traffic Type	AM Peak			PM Peak		
	In	Out	Total	In	Out	Total
Construction Phase	80%	20%	100%	20%	80%	100%

5.4.3 Operational Phase Traffic Estimate

Ongoing operational and maintenance activities for the project have also been estimated. This information has been used to estimate traffic volumes for the operational phase. Further information in relation to the operation phase of the proposed Project can be found in the Planning Report.
The proposed Project will operate seven (7) days per week, 365 days per year, and may require up to 10 light vehicles to access the Project area each day. We have assumed that each of these vehicles will generate two (2) trips per day (1 in and 1 out).

The Project is generally expected to be serviced once a week by refuse collection vehicle.

Therefore, we estimate that the Project may generate up to twenty (20) trips per day.

It is expected that the operational traffic will provide a negligible effect on the operation of the Burnett Highway.

6.0 Traffic Impact Statement

A turn warrant assessment was undertaken at the Burnett Highway and Project area access in accordance with Austroads *Guide to Road Design Part 4A* and the Department of Transport and Main Roads' (DTMR) *Road Planning and Design Manual.* The turn warrants assessment identified the turn-lane treatment/s that may be required to support turning volumes during Project construction and operation.

For the purpose of the assessment, the construction phase will be commencing in 2026 and to be in the order of 24 months duration. We have adopted the Civil Works Phase outlined in **Table 5.2** as a highly conservative approach and have incorporated the following:

- The 2023 AADT traffic census data was applied for Gazettal and Against Gazettal directions from (**Table 5.1**);
    - Directions were applied in the AM peak and reversed in the PM peak periods;
- The AM and PM peak periods % was adopted from the 2020 AADT traffic census data for the peak hours and applied to the Gazettal and Against Gazettal volumes (**Figure 5.1**);
- The first principals review of the Civil Works Phase which equates to approximatly 91 daily vehicle trips (**Table 5.3**);
- The adopted directional north/south split as summarised in **Table 5.4;**
- The adopted directional traffic distribution splits summarised in **Table 5.5.**

The background traffic volumes and Civil Works Phase traffic generation is illustrated in **Figure 6.1.**

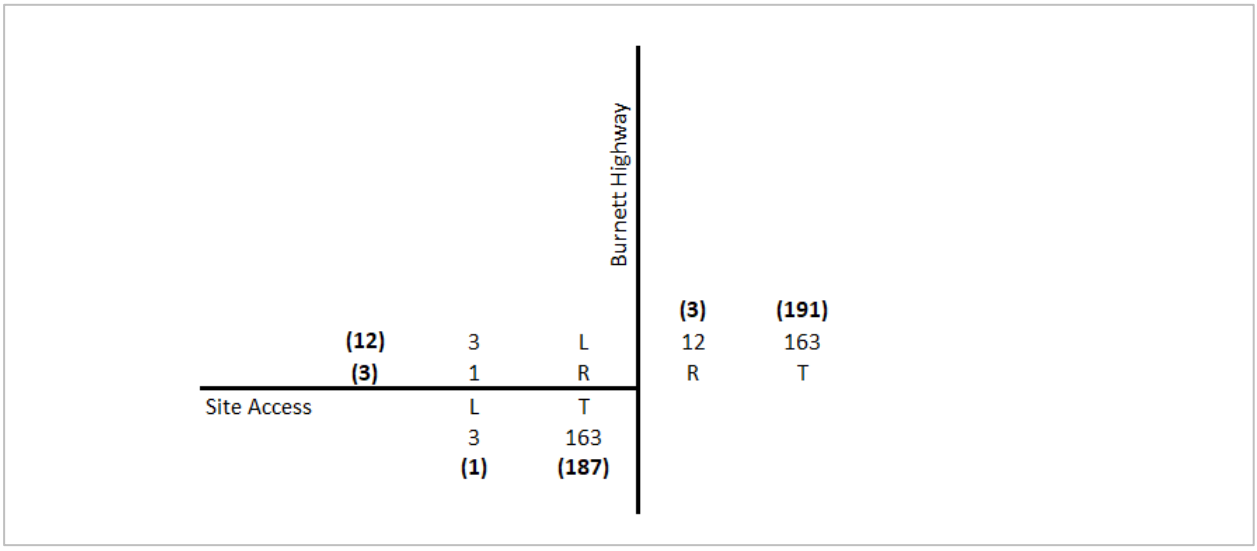


Figure 6.1 Background Traffic and Civil Works Phase Traffic Generation

A turn warrant assessment based on the 100km/h posted speed limit was undertaken for the Background Traffic and Civil Works Phase Traffic Generation and is provided in **Figure 6.2.**

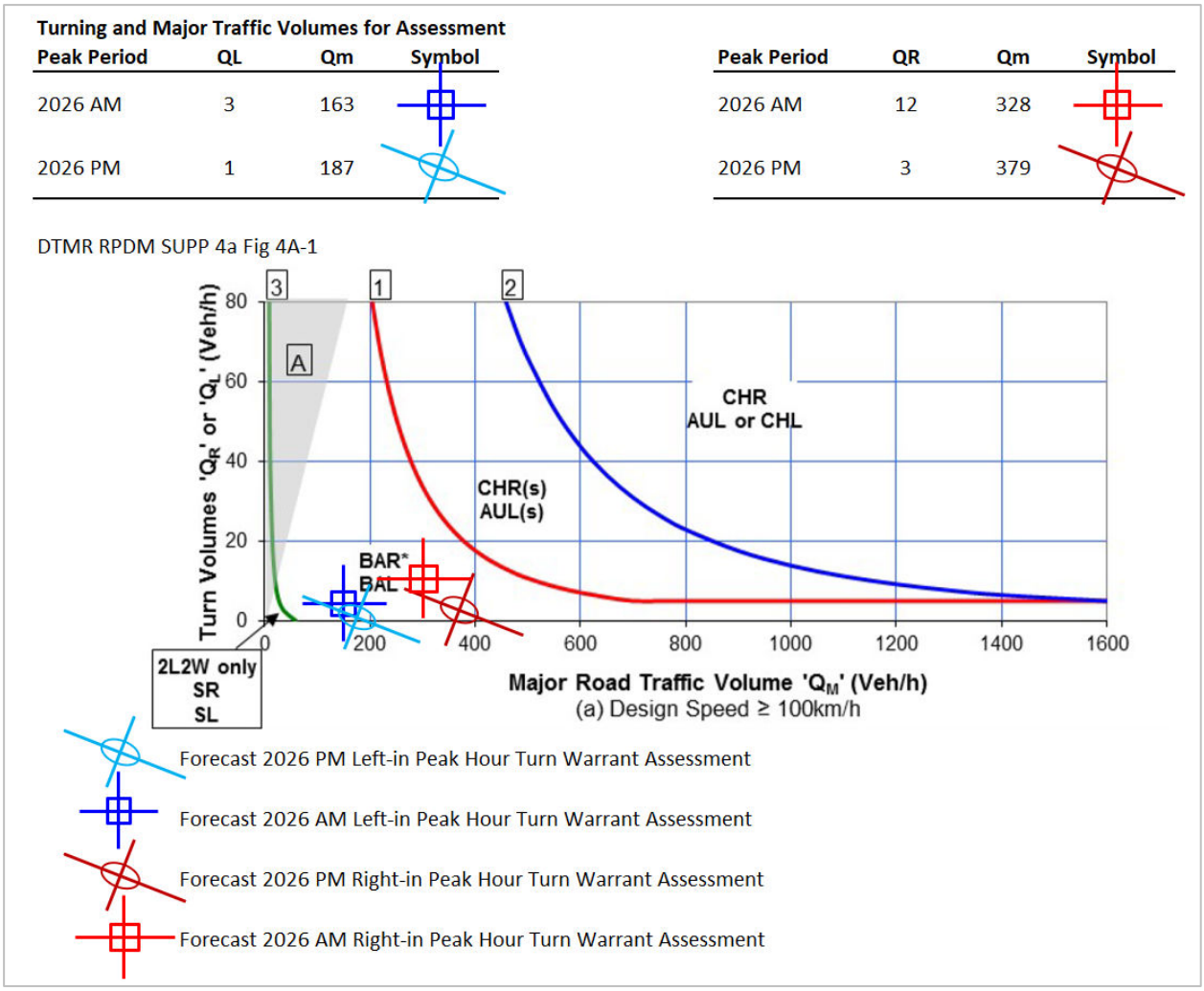


Figure 6.2 Turn warrant analysis results for background traffic and peak construction traffic generation

Table 6.2 summarises the turn warrant treatments identified in **Figure 6.2.**

Table 6.2 Turn Warrant Findings Summary

Traffic Scenario	Left-Turn		Right-Turn	
	AM	PM	AM	PM
Civil Works Traffic Scenario	BAL	BAL	BAL	BAL

The turn warrants analysis indicates that a BAL/BAR type turn treatment may be required for access into the Project area based on the existing TMR traffic census volumes and Civil Works Phase traffic during the AM and PM peak period.

As summarised in **Section 4.0**, it is proposed to provide an access in accordance with TMR Standard drawing SP-02 which is constructed to the same level as the Bouldercombe Sub-Station Project area access which provides a BAR/BAL type treatment to a similar level to the Austroads type turn treatments.

Therefore, the provision of the TMR Standard drawing SP-02 appears consistent with the neighboring treatments and sufficient for the proposed traffic numbers during the Civil Works Phase.

7.0 Summary

Key findings are summarised below:

- The Project is proposed to be accessed from the state-controlled road network via access from the Burnett Highway;
- Burnett Highway is identified as a 25/26m B-double and PBS 2A (B25/26) Network;
- The State Controlled Road (SCR) network servicing the site has the capacity to carry up to 35.0m OSOM vehicles to deliver construction equipment and BESS components;
- The access configuration is provided in accordance with TMR Standard Drawing SP-02 'Property Access Main Roads AADT > 2000vpd' and is consistent with access to the existing substation and Grex BESS directly south of the Project;
- Sight distances to/from the Project area access is;
    - Provided in accordance with TMR Standard Drawing SP-02 'Property Access Main Roads AADT > 2000vpd';
    - Sufficient to/from the north to meet the design speed in accordance with Austroads *Guide to Road Design Part 4a*;
- The proposed access configuration caters for heavy vehicle access;
- Internal access tracks are intended to be utilised for the project and improvements to the existing flat Project area may be undertaken for set down and car parking arrangements; and
- The peak traffic generating period does not appear to require any turn treatment upgrades based on the highly conservative traffic generation assessment.

In light of the above, we recommend that the Project be approved with reasonable and relevant conditions as set out above.

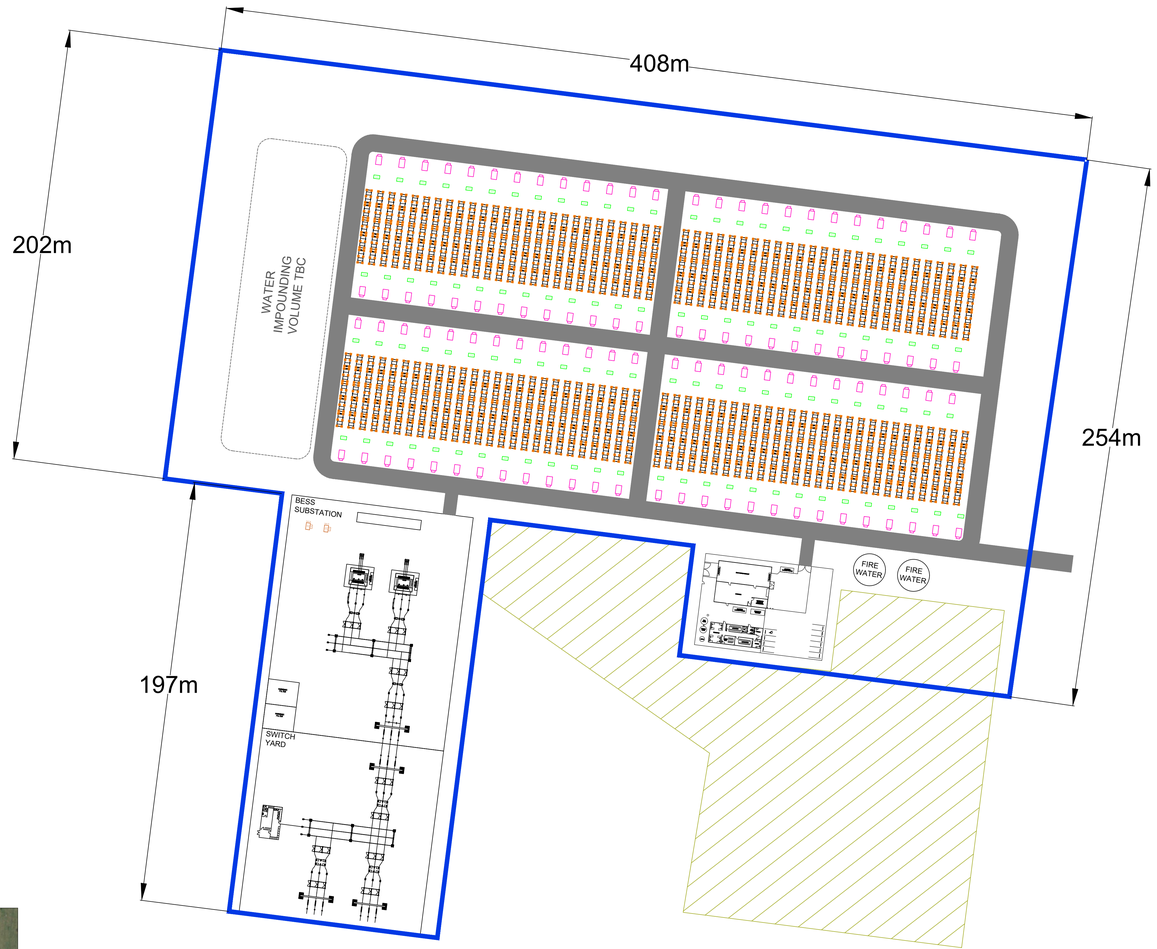
Please do not hesitate to contact the undersigned on 07 3221 3503 if you have any queries regarding the above.

Yours faithfully,

Andrew Douglas
Director | Cambray Consulting Pty Ltd
BECivil (Hons) |MSc (Env Man)
FIEAust | CPEng | RPEQ 6

APPENDIX A

Capricorn BESS Project Layout Plan

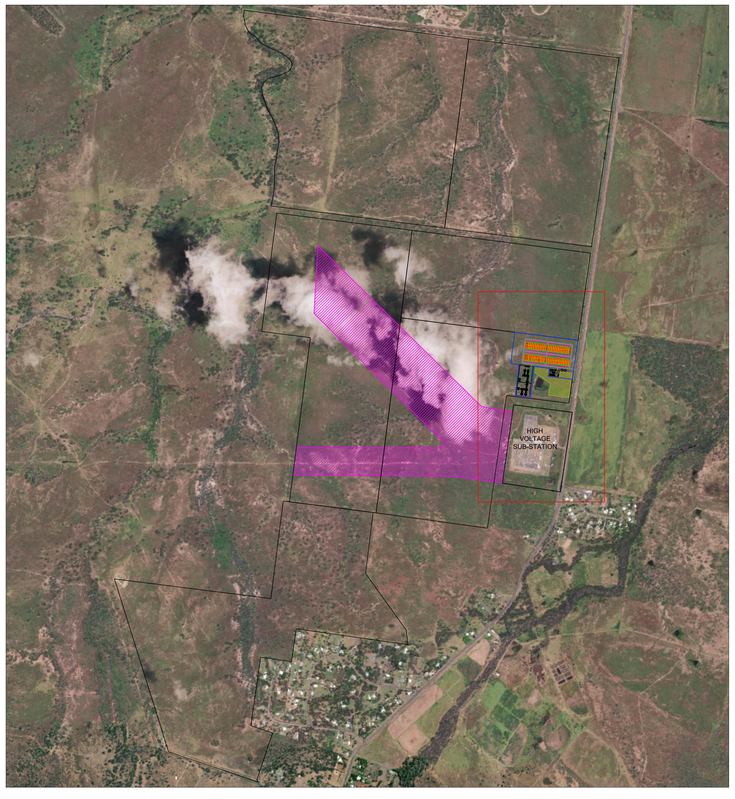


LEGEND

	ROAD
	SITE BOUNDARY
	POWER CONVERSION UNIT
	INVERTER BLOCK
	BATTERY BLOCK
	LAYDOWN AREA

BESS SPECIFCATIONS	
DESCRIPTION	**QTY**
RATED POWER (MW)	399
RATED ENERGY (MWh)	1575
USEFUL POWER (MW)	319.2
USEFUL ENERGY (MWh)	1354.5
BESS DURATION	4.24h
BESS CONTAINER MODULE	*SAFT I-Shift*
NUMBER OF BESS CONTAINERS	525
BESS CONTAINER CAPACITY (MWh)	3.0
POWER CONVERSION EQUIPMENT	SMA SCS 3800 UP-XT
NUMBER OF POWER CONVERSION EQUIPMENT	105
POWER CONVERSION EQUIPMENT POWER (MW)	3.8

SITE OVERVIEW



HIGH VOLTAGE SUB-STATION

REV.	DATE	DESCRIPTION	PREPARED BY	COLLABORATORS	VERIFIED BY	VALIDATED BY
8	11.07.2024	Updated layout to allow for switchyard	Sold Elmir			
7	27.05.2024	Changed number of BESS containers/inverter from 6x2.6083MWh to 5x3MWh	Sold Elmir			
6	29.04.2024	Increased number of inverters to 105	Sold Elmir			
5	04.03.2024	Upgraded Substation to include 2 Power TX's	Sold Elmir			

PROJECT: Capricon Creek BESS (Australia)

FILE NAME:

CLASSIFICATION: Engineering & Construction

UTILIZATION SCOPE:

FORMAT:

SCALE:

TITLE: PRELIMINARY GENERAL BESS LAYOUT

PLOT SCALE:

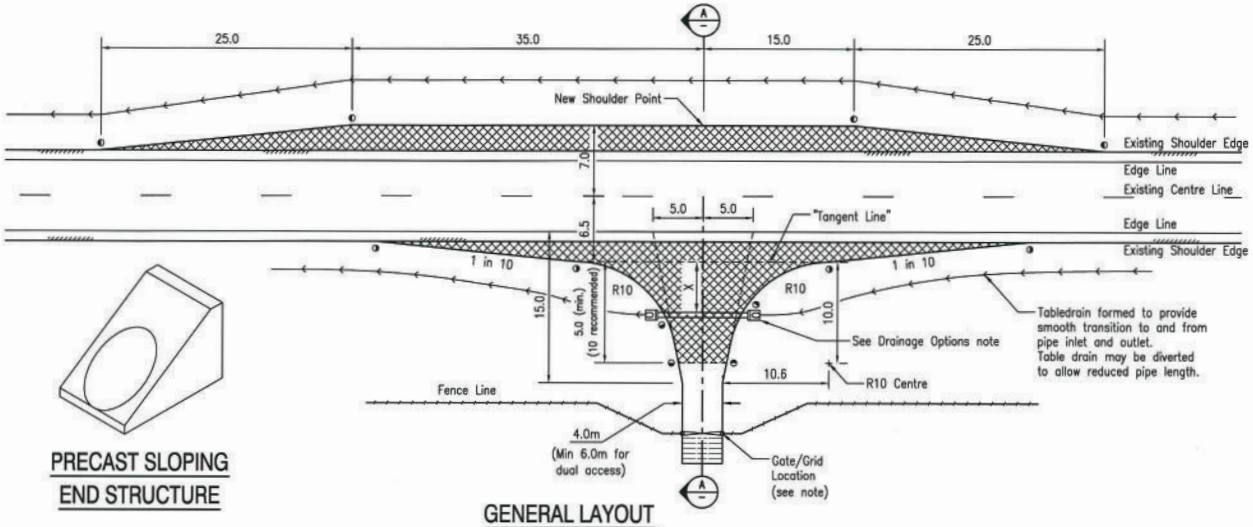
SHEET:

GRECODE

GROUP	FUNCTION	TYPE	ISSUER	COUNTRY	TEC	PLANT	SYSTEM	PROGESSIVE	REVISION
G R	E E C							0	B

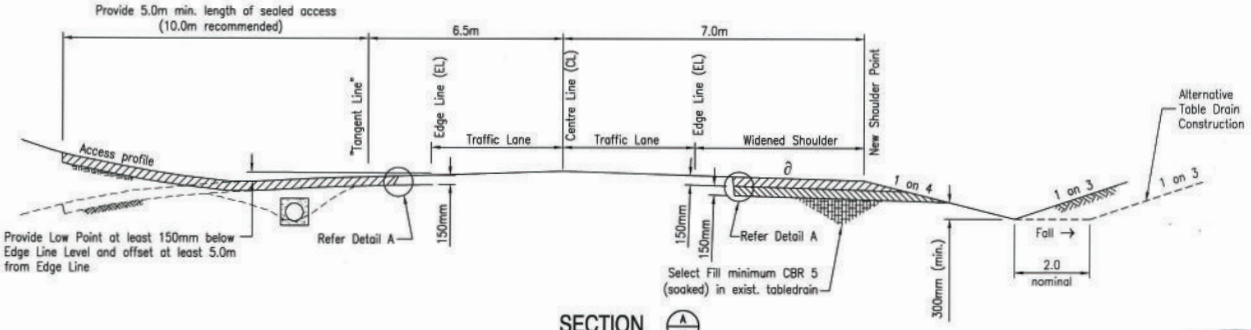
APPENDIX B

TMR Standard Drawing SP-02
'Property Access Main Roads AADT > 2000vpd'

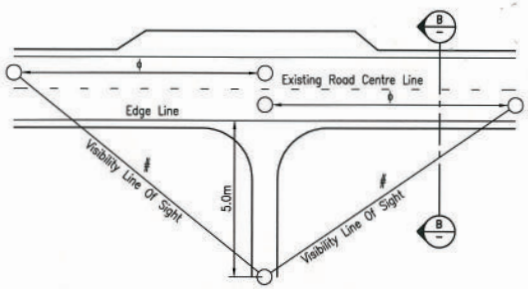


PRECAST SLOPING END STRUCTURE

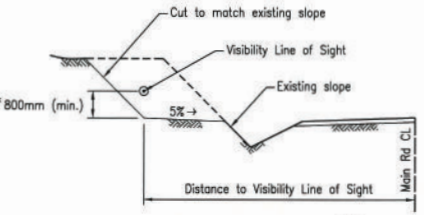
GENERAL LAYOUT



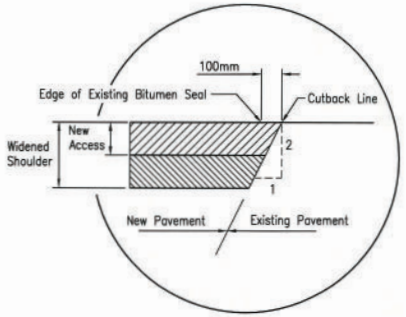
SECTION A



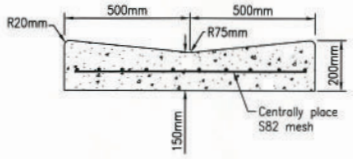
VISIBILITY TRIANGLES



TYPICAL SECTION VISIBILITY BENCHING B



DETAIL A



DETAIL B

GATE/GRID LOCATION

A 3.6m gate (opening inwards) shall be installed at the following distance from the Main Road Edge Line (EL) depending on the type of vehicle using the access.

Vehicle Type	Minimum Distance from Edge Line
Articulated	22m
Single Unit	15m

If the access point at the property fenceline is less than the minimum distance specified above, a grid shall be installed with a minimum width equal to the width of the access formation at that point.

DRAINAGE OPTIONS

1. Provide 375mm dia. (or as specified) RCP class 3 with precast concrete sloping end structures. Minimum cover to be 300mm.
2. If a grid is installed, the tabledrain flow may be diverted under the grid in lieu of installing an RCP.
3. In special circumstances only, Main Roads may approve the use of a concrete invert (see Detail B) in lieu of installing an RCP.
4. If practical, the tabledrain flow may be diverted away from the road.

MINIMUM RCP PIPE LENGTHS

Distance X	PIPE LENGTHS (m) ACCESS WIDTH 4.0m	6.0m
3	13.2	14.4
4	12.0	13.2
5	9.6	12.0
6	9.6	10.8
7	8.4	9.6
8	8.4	9.6

◑ Road Edge Guide Post

NEW PAVEMENT (Refer Section A)

New Access and Widened Shoulder Pavement:

150mm Base, Unbound Pavement Type 2.1 (CBR 80)

150mm Subbase, Unbound Pavement Type 2.3 (CBR 45)

Compaction (all work) – 100% STD

∂ Match existing crossfall

BITUMEN SEALING (Refer General Layout)

Bitumen Sealed Pavement (2 Coat – Same Day)

First coat: C170 (3% cutter) at 1.5 litres/m^2
Cover Aggregate 14mm @ 95m^2/m^3

Second coat: C170 (3% cutter) @ 1.2 litres/m^2
Cover Aggregate 10mm @ 120m^2/m^3

100mm overlap of existing Bitumen Seal with New Bitumen Seal

VISIBILITY TRIANGLE

ϕ Sight Distance:

	Posted Speed km/h 100	80	60
Desirable (ESD)	500m	400m	220m
Minimum (SISD)	297m	215m	149m

Sight distances are based on the design speed being 10 km/h greater than the posted speed limit.

Visibility Line Of Sight to be based on a Driver Eye Height of 1.15m above the Main Road and 1.15m above the Access.

VISIBILITY BENCHING

* Physical Bench to be provided by removing vegetation and embankment to 800mm below Visibility Line Of Sight. This allows for vegetation regrowth up to 300mm in height.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DEPARTMENT OF MAIN ROADS SPECIFICATIONS AND THE STANDARD CONDITIONS FOR THE CONSTRUCTION OF PROPERTY ENTRANCE.

Amended: ----------

Revisions	Certified	Date	Microfilmed
B RPDM Ch13 Ver Oct 2006		21/10/07	
A Original Issue A1/A3			

CAD FILES \\DATA1\..\Property Access SP02 Revision B.dwg; Layout: Revision B

Associated Job Nos
Auxiliary Drg Nos

Survey Data: Horiz. Datum; Azimuth Datum; Height Datum; Survey Books

Scales
General Layout: 0 2 4 6 8 10m
All other details: Not to Scale

Dimensions shown in metres except where shown otherwise

CTL CHGE

Reference Points

Preceding RP	Dist. to start of job (km)	From start to end of job	From end to Following RP	Following RP

Through Chainage from

CENTRAL DISTRICT
STANDARD DRAWING – Property Access
Main Roads AADT > 2000 vpd

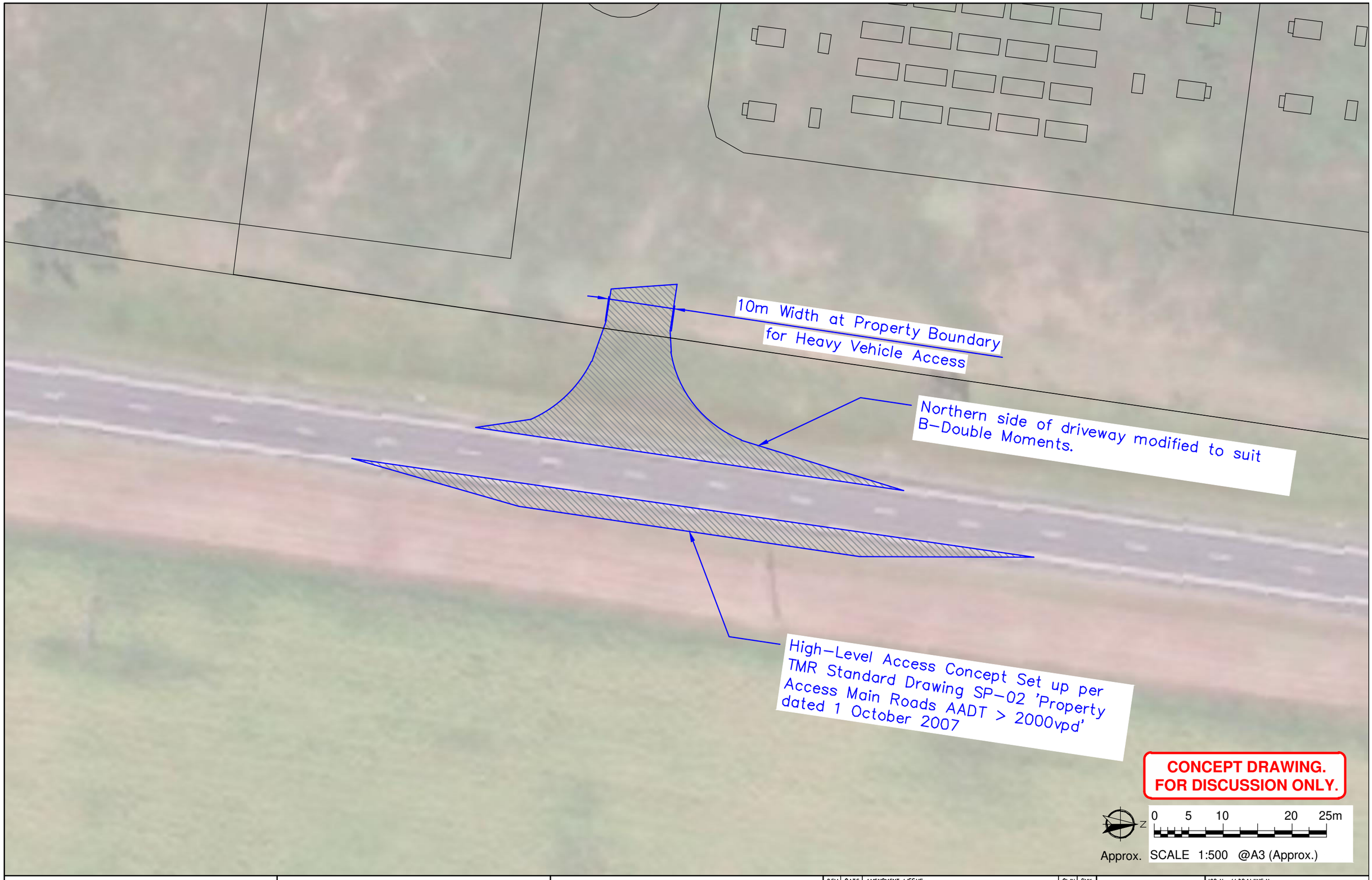
Drawing D.T.White	Design D.T.White	Design Review	Certified (21/10/07)	Approved
Checked A.J.Williams	Verified G.M.Legh	Date: R.S.Hicks	RPEQ	District Director (Central Districts)

Queensland Government Department of Main Roads

Reference
Approval No.
Drawing No. SP-02 B
Series Number of
MRR_Detail (08/06)

APPENDIX C

High-level Project Area Access Concept &
Swept Path Assessment
Cambray Consulting



CAMBRAYconsulting
Traffic Engineering and Transport Planning
Suite 2601, 21 Mary Street Brisbane Q 4000
t : 07 3221 3503 | e : contact@cambray.com.au

DRAWING TITLE
Proposed Battery Electricity Storage System (BESS)
High-Level Access Concept

LOCATION
Lot 2 on RP613051 Burnett Highway
Bouldercombe, Qld

REV	DATE	AMENDMENT / ISSUE	DWN	CHK
A	26.08.24	Preliminary Issue	J.D.	A.D.

DISCLAIMER
This concept takes into account the instructions and requirements of our client. Cambray has taken care in preparing this concept, however it neither accepts liability nor responsibility whatsoever in respect of; any use of this document by any third party, any third party whose interests may be affected by any decision made regarding the contents of this document and/or any conclusion drawn resulting from omission or lack of full discloser by the client or the client's consultants.

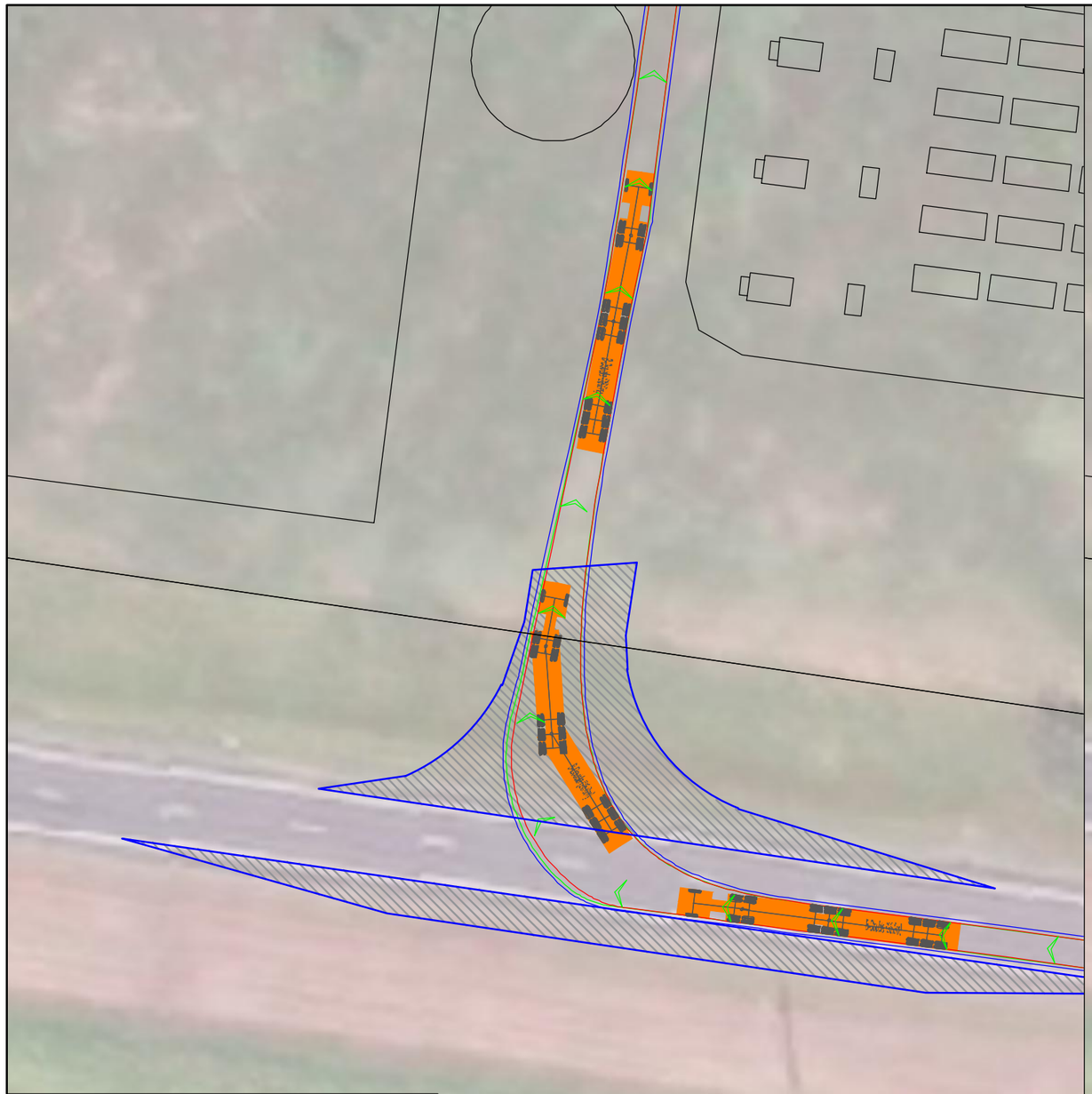
PRELIMINARY
NOT FOR CONSTRUCTION

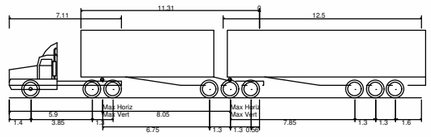
JOB No. // DRAWING No.
ERM0124-04 // SK01

DATE
26.08.24

~Scale (A3)
As Shown

PREPARED FOR
For Discussion





B-Double (26.0m)	
Overall Length	26.000m
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
Kerb to Kerb Turning Radius	15.000m

CONCEPT DRAWING.
FOR DISCUSSION ONLY.

N

0 5 10 20 25m

Approx. SCALE 1:500 @A3 (Approx.)

CAMBRAYconsulting
Traffic Engineering and Transport Planning
Suite 2601, 21 Mary Street Brisbane Q 4000
t : 07 3221 3503 | e : contact@cambray.com.au

DRAWING TITLE

Proposed Battery Electricity Storage System (BESS)

Swept Path Assessment

26m B-Double (B26)

LOCATION

Lot 2 on RP613051 Burnett Highway

Bouldercombe, Qld

REV	DATE	AMENDMENT / ISSUE	DWN	CHK
A	03.05.24	Preliminary Issue	J.D.	A.D.

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PRELIMINARY
NOT FOR CONSTRUCTION

JOB No. // DRAWING No.
ERM0124-04 //
SK01

DATE
26.08.24

~Scale (A3)
As Shown

PREPARED FOR
For Discussion

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