

# **Moree BESS**

# **Moree Special Activation Precinct**

**Traffic Impact Assessment** 

March 2025

Reference: 1044 rep 250327 final

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**Traffic Impact Assessment** 

Prepared for: NGH Consulting Pty Ltd (NGH)

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# **Executive Summary**

Amber Organisation Pty Ltd has been engaged by NGH Consulting Pty Ltd (NGH) on behalf of Avenis Energy ('the Proponent') to prepare a Traffic Impact Assessment of the proposed Moree Battery Energy Storage System (BESS).

The project will comprise a BESS with a storage capacity of 120MW (up to four hours storage) and associated ancillary and electrical infrastructure. The Project Area is located within the Moree Special Activation Precinct (SAP), on the southern fringe of Moree on the eastern side Bulluss Drive. Access to the site is proposed via a new crossover to Bulluss Drive.

Traffic generated by the Project can be separated into three distinct stages: construction, operation and decommissioning. The peak traffic generating potential is during construction which generates trips associated with the workforce accessing the Project Area and the delivery of raw materials and plant. During operation the Project is expected to generate up to 8 vehicle trips per day associated with 1-2 maintenance personnel accessing the Project Area. Decommissioning is anticipated to generate a similar level of traffic to the construction stage.

The construction period is expected to commence in 2026 and take approximately 12 months, with the peak construction period expected to take 6 months. A construction workforce of up to 75 full time personnel would be on-site during the peak construction phase and would primarily be drawn from Moree.

It is anticipated that during peak construction the Project could generate up to 80 light and 78 heavy vehicle trips per day. Construction of the BESS is expected to generate approximately 52 vehicle trips per hour in the morning and evening peak hours during the peak construction period, which would reduce to 30 vehicle trips per hour during the average construction periods.

In order to determine the traffic impact generated during construction of the Project, an assessment of the operation of the Newell Highway / Bulluss Drive intersection was carried out. The assessment also included review of the cumulative traffic on the road network generated by other major projects in the surrounding area. Overall, the construction traffic is expected to have a minimal impact on the operation of the road network. Accordingly, it is concluded that the road network is able to accommodate the traffic generated by the development during the construction period.

Port Botany has been identified as the port where majority of BESS plant will be imported. The access route utilises roads that are designated for B-Double vehicles as outlined within the National Heavy Vehicle Regulator (NHVR) Restricted Access Vehicle Map. General construction materials and equipment will generally be sourced from the surrounding area where practicable.

Two access routes for oversize/overmass vehicles have been assessed from Port Botany and Glen Waverley (Victoria). Each route assessment confirms that oversize/overmass vehicles are able to suitably access the Project Area with suitable traffic management measures and minor road upgrades including temporary signage removal, temporary roadside hardstand and mountable kerbing. The Route Assessment is provided within Appendix A of this document.

In order to mitigate the impacts of the Project during construction a Traffic Management Plan would be prepared which outlines a range of traffic management measures in order to ensure the construction traffic would have a minimal impact to the capacity and safety of the surrounding road network. The Traffic Management Plan would be prepared post-approval and prior to the construction of the Project.

Based on the assessment, it is concluded that the road network is able to accommodate the expected vehicle types and traffic volumes during the construction, operation, and decommissioning phases of



the Project subject to the proposed road upgrades and traffic management measures. Further, the site access location has been suitably designed to allow vehicles to safely enter and exit the Project Area.



# **Table of Contents**

1.	Back	kground	7
	1.1	Introduction	7
	1.2	Moree Special Activation Precinct	9
	1.3	Environmental Assessment Requirements	
	1.4	Road/Rail Authority Consultation	
	1.5	Purpose of Document	10
2.	Exis	ting Conditions	
	2.1	Site Location	
	2.2	Road Network	
	2.3	Traffic Volumes	
	2.4	Public Transport Services	14
	2.5	Restricted Vehicle Access	15
	2.6	Crash History	
3.	Proj	ect Description	20
	3.1	Proposed Works	20
	3.2	Construction Information	20
4.	Traf	fic Assessment	21
	4.1	Definitions	
	4.2	Construction Phase	
	4.3	Operational Phase	
	4.4	Decommissioning Phase	
	4.5	Summary	
5.	Hear	vy Vehicle Route Assessment	
	5.1	Mitigation Measures	
6.	High	n Risk OSOM Vehicles	
	6.1	Load and Vehicle Configuration	
	6.2	Access Route from Port Botany	
	6.3	Access Route from Glen Waverley	
7.	Site	Access	
	7.1	Sight Distance Assessment	
8.	Traf	fic Management Plan	50
	8.1	Information and Communication	
	8.2	Signage	51
	8.3	On-Site Mitigation Measures	51
	8.4	Driver Protocols	51
9.	Mitio	gation Measure Summary	



# Appendices

Appendix A

OSOM Route Assessments: Port Botany and Glen Waverley

Appendix B Traffic Survey Data Appendix C TfNSW Correspondence Appendix D Sidra Results Appendix E Site Access Design and Swept Path Assessment Appendix F Moree Plains Shire Council Correspondence

# Definitions

Term	Definition		
Project	A Battery Energy Storage System as described within the EIS to which this Application applies.		
Project Area	Boundary shown on Figure 1 to which the Application applies (unless otherwise stipulated).		
Proponent	Avenis Energy		



# 1. Background

## 1.1 Introduction

Amber Organisation Pty Ltd has been engaged by NGH Consulting Pty Ltd (NGH) on behalf of Avenis Energy ('the Proponent') to prepare a Traffic Impact Assessment of the proposed Moree BESS.

The Project includes the construction, operation and decommissioning of a Battery Energy Storage System (BESS) and associated infrastructure with a targeted storage capacity of 120MW (up to four hours capacity).

The Project Area is located within the Moree Special Activation Precinct (SAP), located on the southern fringe of the township of Moree. The BESS Project Area is located within Lot 1 (DP999486) Lot 144 (DP751780), and Lot 82 (DP 751780) Bulluss Drive Moree, and is approximately 4.06 hectares in size. Figure 1 shows the proposed layout of the site in relation to the road network, access location and existing infrastructure. Access to the site is proposed via a single access from Bulluss Drive.

The construction period is expected to commence in 2026 and take approximately 18 months, with the peak construction period expected to take 6 months. A construction workforce of up to 75 personnel would be on-site during the peak construction phase and would primarily be drawn from Moree.

Most specialist plant is expected to be delivered from Port Botany. General construction materials and equipment will be sourced from the surrounding area where practicable. High risk OSOM vehicles will deliver Project components from the Port Botany, NSW or Glen Waverley, VIC, with a number of intersections requiring minor upgrades to facilitate the OSOM vehicle combination turning requirements on both routes.

The impacts and proposed mitigation for traffic generated by the proposed construction, operation and decommissioning phases of the Project are addressed in this report in accordance with relevant regulatory requirements and guidelines.



Figure 1: Project Layout





# **1.2 Moree Special Activation Precinct**

The Moree SAP is an area of 4,716 hectares aiming to leverage the existing strengths in agriculture with additional processing function and primary produce of the region. The strategic location takes advantage of the junction of Newell Highway, Gwydir Highway and Carnarvon Highway as well as having a direct interface with the Inland Rail and rail links to Newcastle, Port Botany, regional centres in south-east Queensland and NSW. The structure plan for the SAP can be seen in Figure 2.



Figure 2: Moree Special Activation Precinct Structure Plan

Source: Moree Special Activation Precinct Master Plan, 2022



# 1.3 Environmental Assessment Requirements

This report will support a Development Application to be submitted to the Planning Secretary of NSW. The proposed development must also be consistent with the Moree SAP Master Plan and the Moree SAP Delivery Plan to be issued an Activation Precinct Certificate (APC). The APC requirement is provisioned under the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation).

# 1.4 Road/Rail Authority Consultation

This Traffic Impact Assessment has been undertaken in consultation with TfNSW, Moree Plains Shire Council and ARTC with a summary provided in Table 1.

Road Authority Method		Correspondence	
Transport for NSW Email		Advised to utilise growth rate of 1.5% per annum for traffic forecasts. Recommendations for the route assessment from Port Botany for High Risks OSOMs (provided in Appendix C).	
ARTC/Inland Rail Email		Information on construction activities, timeline, impacts to HV permits around the SAP have been requested 10/02/2025 and 20/02/2025.	
Moree Plains Shire Council	Email	Council could not give detailed feedback on projected traffic volumes however advised that the road network has capacity for project traffi (provided in Appendix F).	
Regional Growth NSW Development Corporation (RGDC)	Email	Feedback was sought on the status of any traffic surveys or planned road upgrades in the SAP area. RGDC advised that traffic surveys had been undertaken on Bulluss Drive but the results were not available, and that no changes were proposed to the Bulluss Drive road geometry adjacent to the proposed BESS lot or the proposed access route to site, aside from potential resurfacing works (provided in Appendix F).	

Table 1: Road Authority Consultation

# 1.5 Purpose of Document

This Traffic Impact Assessment has been prepared to assess the construction, operational and decommissioning traffic impacts, and the access arrangements of the Project. The assessment details how road impacts of the Project traffic, particularly from heavy vehicle use and oversize and overmass vehicles, would be avoided or managed using road-use management strategies.

More specifically, the report addresses the following key matters:

- Details of both light and heavy vehicle traffic volumes and proposed transport routes.
- An assessment of the potential traffic impacts of the Project on road network function and safety.



- An assessment of the capacity of the existing road network to accommodate the type and volume of traffic generated by the Project.
- Details of measures to mitigate and/or manage potential impacts, including construction traffic control, road dilapidation surveys and measures to control dust generated by traffic volumes.
- Details of access roads and how these connect to the existing road network and ongoing operational maintenance.

The traffic assessment has been undertaken in accordance with the *TfNSW Guide to Traffic Generating Developments* and relevant Austroads Guidelines.



# 2. Existing Conditions

# 2.1 Site Location

The Project Area is located within the Moree Special Activation Precinct (SAP), on the southern fringe of the town of Moree. The proposed BESS facility is located within a property on Bulluss Drive (Lot 1/DP999486, Lot 144/DP751780, and Lot 82/DP 751780). Figure 3 shows the location of the site in relation to the surrounding transport network.



Figure 3: Site Location

Source: OpenStreetMap

The figure shows the site is well connected with the surrounding State Road network with Newell Highway providing access to Moree and other towns to the north and south such as Narrabri and Goondiwindi, and Gwydir Highway allowing access to towns to the east and west. Carnarvon Highway is also accessible from the north side of Moree to access towns in south central Queensland.

The site and surrounding areas of the SAP are currently zoned REZ – *Regional Enterprise Zone*. The land east of the SAP is predominately zone RU1 – *Primary Production* and to the south a small zone RU4 – *Primary Production Small Lots* exists. The site is vegetated land which is currently unused by any agricultural activity.

Figure 4 provides an aerial photograph of the site and the surrounding area.





Figure 4: Aerial Photograph of Site and Surrounding Area

Source: Near Map

## 2.2 Road Network

**Newell Highway** is a State Road that runs in a general north-south alignment between Tocumwal on the border of NSW and Victoria and Goondiwindi on the border of NSW and Queensland. Within the vicinity of the site, it has a speed limit of 60km/hr and a carriageway width of approximately 12.0 metres accommodating one lane of traffic in each direction and 2.5 metre shoulders. The road widens at the intersection with Bulluss Drive for channelised left and right turn treatments as well as a channelised left turn lane for northbound vehicles turning into Frome Street.

**Bulluss Drive** is a Municipal Road that runs in a general north-south alignment between Newell Highway and Burrington Road. The north section of the road is sealed with a carriageway width of approximately 7.0 metres accommodating one lane of traffic in each direction. Approximately one kilometre south of the site the road is unsealed through to Burrington Road. Bulluss Drive has a posted speed limit of 50km/hr.

# 2.3 Traffic Volumes

Amber commissioned a turning movement count survey at the intersection of Newell Highway and Bulluss Drive to determine the existing traffic conditions. The survey was undertaken on Thursday 6 February 2025. A summary of the results are presented in Figure 5 with the full survey data provided within Appendix B.





Figure 5: Peak Hour Survey Results - Newell Highway / Bulluss Drive

The survey data indicates that the intersection currently experiences a moderate level of traffic with the highest volumes being through movements on the Newell Highway, which would be expected. In the order of 200 vehicles were recoded turning to and from Bulluss Drive in each of the peak hours, with the majority of traffic generated to/from the north (i.e. Moree).

A further review of the results shown that approximately 25% and 23% heavy vehicles use this intersection in the morning and afternoon peak hours, respectively.

## 2.4 Public Transport Services

Moree has an "On Demand" bus service operated by Cavanagh Bus and Coach Pty Ltd. The On Demand service can pick up and drop off passengers where they wish within Moree. The service must be pre-booked up to four weeks in advance and is available every day between the hours of 7:00am and 7:00pm. The Moree SAP is within the boundary of where the On Demand service is provided.

There are a number of TfNSW train and coach services offered from Moree. Daily train services depart from the Moree Station at 8:05am to Werris Creek, which then continues onto Sydney. The return train trip arrives at the station at 6:00pm every day. Bus routes 141 and 142 operate between Moree and Grafton. The 142 service leaves from the Moree Town Coach Stop, located on Auburn Street, at 10:55am and from Moree Station at 11:00am every Monday, Wednesday and Friday. The 141 service returns from Grafton every Tuesday, Thursday and Saturday arriving at the Moree Station at 4:05pm and the Coach Stop at 4:10pm. The coach services do not use roads directly impacted by the Project construction activity.

One TfNSW school bus service has been identified which operates around Moree and may interface with Project related traffic. Route S631, Moree School to Tyrone Road, operates along Newell Highway, driving past the intersection with Bulluss Drive. This service operates in a northbound direction from Moree Airport at approximately 8:15am and southbound from Frome Street at approximately 3:30pm on school days only. There is no bus service on Bulluss Drive.



# 2.5 Restricted Vehicle Access

### 2.5.1 B-Doubles

The TfNSW Restricted Access Vehicle Map for the surrounding area is provided within Figure 6. The green lines indicate approved B-Double routes while the orange lines represent approved routes with travel conditions. The figure shows that Bulluss Drive and the surrounding State Road network are B-Double approved routes. Accordingly, the site has access to the B-Double approved road network via Bulluss Drive and Newell Highway.



Figure 6: TfNSW 26m B-Double Network Approved Roads

Source: NHVR Restricted Access Vehicle Map

## 2.5.2 Class 1 OSOM Vehicles

The TfNSW Oversize Overmass (OSOM) Load Carrying Vehicles Network map for the surrounding area is provided within Figure 7. The map shows approved routes for eligible vehicles operating under the Multi-State Class 1 Load Carrying Vehicles Mass and Mass Exemption Notices. A summary of the allowances under each exemption within New South Wales is provided below:

- Dimension: up to 5.0m wide, 5.0m high, 30.0m long and 7.5m rear overhang on approved (state owned) routes in NSW.
- Mass: up to 115.0 tonnes for rows of 8 tyres low loaders and up to 77.5 tonnes for rows of 4 tyres low loader combinations.



Page 16

Vehicles operating in the daytime and not exceeding 3.5m wide or 26m long generally do not require a pilot vehicle.

The green lines indicate approved Class 1 OSOM Vehicle routes. Accordingly, Bulluss Drive is currently an unrated road and Newell Highway is only approved for Class 1 OSOM vehicles with travel conditions.



Figure 7: TfNSW Class 1 Oversize Overmass Load Carrying Vehicles Network Approved Roads

Source: NHVR Restricted Access Vehicle Map

The travel conditions on Newell Highway are imposed from Blueberry Road, Moree, to Killarney Gap Road, Narrabri. As per the National Heavy Vehicle Regulator, the conditions on the road state:

To ensure safe and efficient passage for vehicles over 3.8m wide, the following steps must take place:

- Vehicles over 3.8 metres in width are to email cnc.west@transport.nsw.gov.au five working days prior to travel and advise date/time of travel along with a contact number for driver.
- Vehicles over 3.8 metres in width are to follow the signage and utilise the wide load pull over bays provided. Once in the bays follow the instructions on the signs.

The railway level crossing with travel conditions identified in Moree is across Gwydir Highway, east of Newell Highway. The following conditions are in place for the crossing:



Page 17

Vehicle must approach and traverse the designated level crossings at a speed not less than 35km/h. If the vehicle can not comply with this condition, the operator must contact Rail Infrastructure Manager. Rail Infrastructure Manager contact details available at: Oversize and/or overmass (OSOM) vehicles & loads.

The rail line is owned by ARTC and also forms part of the Inland Rail corridor.

## 2.5.3 Special Purpose Vehicles (SPVs)

Vehicles built for a purpose other than carrying goods such as a mobile crane, a concrete pump or drill rig are defined as Special Purpose Vehicles (SPVs).

The NSW Special Purpose Vehicle Network map provides details of the approved roads as well as conditions of access and travel restrictions for eligible SPVs operating under the:

- National Class 1 Special Purpose Vehicle Notice;
- NSW Class 1 4-Axle & 5-Axle All Terrain Mobile Crane Mass and Dimension Exemption Notice; or
- NSW Class 1 All Terrain Mobile Crane and Dolly Combination Mass and Dimension Exemption Notice.

Roads that are not approved on the map require an access permit from the National Heavy Vehicle Regulator or the relevant road manager. There are six SPV access networks for cranes travelling on approved State Roads in NSW:

- SPV Level 1: Cranes and SPVs up to 40 tonnes that comply with the Bridge Formula.
- SPV Level 2: Crane and dolly combinations up to 70 tonnes that comply with the Bridge Formula.
- SPV Level 3: 3-axle All Terrain Cranes up to 36 tonnes and 4-axle All Terrain Cranes up to 43 tonnes.
- SPV Level 4: 4-axle All Terrain Cranes up to 45.8 tonnes and 5-axle All Terrain Cranes up to 50 tonnes.
- SPV Level 4 / 12t per axle: 4-axle All Terrain Cranes up to 48 tonnes and 5-axle All Terrain Cranes up to 50 tonnes.
- SPV Level 6: 5-axle All Terrain Cranes up to 60 tonnes.

As shown in Section 2.5.1 and 2.5.2, the site has good access to heavy vehicle road network through Bulluss Drive and Newell Highway. Key roads and assets have been assessed against the NHVR Special Purpose Vehicle Network Map. Travel conditions have been found at some locations for different SPV classifications. The current conditions are presented in Table 2.



		tey Roads and Assets		
SPV Classification	Bulluss Drive	Newell Highway (north of Bulluss Drive)	Newell Highway (south of Bulluss Drive)	Bulluss Drive Railway Level Crossing
Level 1	Conditions: No access to any laneways; Any roads that are signposted as having a load limit below the total mass of the crane are restricted. The only exception to this condition is when the crane is undertaking work on a load limited road as per the Local Government Act 1993.	Approved to Greg Jones Bridge, Moree	Condition: Vehicles exceeding 2.5 metres wide or 22	Condition: Never stop on or within three metres of the railway tracks. Cranes travelling under notice can cross ARTC level crossings with caution. If a vehicle breaks down and is fouling, near to, or damages a crossing or other ARTC infrastructure, phone 000 advising the location. Emergency services will advise on next steps. If a vehicle damages a crossing or other ARTC infrastructure and it is not an emergency, report it to local police on 131 444.
Level 2	Unrated		metres long are not	
Level 3	Conditions: No access to any laneways; Any roads that are signposted as having a load limit below the total mass of the crane are restricted. The only exception to this condition is when the crane is undertaking work on a load limited road as per the Local Government Act 1993.		permitted to travel between sunrise and sunset during public holiday periods (including 23 December in one year to 3 January of the following year inclusive).	
Level 4				
Level 4 & 12t axle	Unrated			
Level 6				

#### Table 2: Travel Conditions for SPV on Key Roads and Assets

The NHVR Special Purpose Vehicle Network Map should be consulted when project SPVs are known to ensure only approved routes are used or all travel conditions are met.

# 2.6 Crash History

Amber has conducted a review of the TfNSW Centre for Road Safety Crash and Casualty Statistics database for all recorded casualty crashes within the surrounding area of the Project. The crash database provides the location and severity of all injury and fatal crashes for the five-year period from 2019 to 2023. The search area included Newell Highway, 400 metres north and south of the intersection with Bulluss Drive, and Bulluss Drive, from Newell Highway to 400 metres south of the Project Area, as well as all associated intersections.



The results of the crash search are summarised in Table 3.

Road	Location	Severity	Crash Type	Date and Time	Light and Weather Conditions
Newell Hwy	300m North of Blueberry Rd	Fatal	Off road to the right, hitting object	February 2023 (06:00 - 07:59)	Daylight (Fine)
Newell Hwy	Intersection Moderate with Bulluss Dr Injury		Off road to the left, hitting object	May 2021 (22:00 - Midnight)	Darkness (Fine)
Bulluss Dr	Intersection with Industrial Dr	Moderate Injury	Off road to the left on right bend	April 2022 (00:01 - 01:59)	Darkness (Fine)

#### Table 3: Crash Search Results

The crash search indicates that there are no discernible crash trends. One fatal crash was recorded on a straight section of road between Bulluss Drive and Blueberry Road. The crash involved one car only, leaving the road and hitting a roadside object. Given the circumstances and the isolated nature of this crash, it does not appear to be a result of road conditions or representative of a road safety issue.

Given the large search area, the associated traffic volumes on the roads, and the road classifications, it is concluded that the road network is currently operating in a relatively safe manner.



# 3. Project Description

# 3.1 Proposed Works

The Project involves the construction, operation and decommissioning of a Battery Energy Storage System (BESS) and associated infrastructure within the Moree Special Activation Precinct (SAP). The Project would consist of the following components:

- 140 MW BESS with up to four hours lithium-ion battery storage capacity;
- Inverter and transformer units;
- Switchgear;
- Maintenance workshop;
- New access road off Bulluss Drive;
- On-site water storage;
- Parking, site office and amenities;
- Earthworks and Stormwater management;
- Lay down areas and internal access tracks; and
- Security fencing.

The project is to be constructed on privately owned land adjacent to the Moree Zone Substation.

# 3.2 Construction Information

The physical construction of the Project is expected to commence in 2026 and take up to approximately 12 months, with the peak construction period expected to take 6 months. Construction activities would be undertaken during standard daytime construction hours, as follows:

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

Any construction outside of these normal working hours would only be undertaken with prior approval from relevant authorities and consultation with impacted road users. A construction workforce of up to 75 personnel would be on-site during the peak construction phase and would primarily be drawn from Moree and Narrabri.

A Traffic Management Plan (TMP) would be prepared prior to construction commencing as outlined in Section 8.



# 4. Traffic Assessment

Traffic generated by the Project can be separated into three distinct stages: construction, operation and decommissioning. The peak traffic generating potential is during construction which generates trips associated with the workforce accessing the Project Area and the delivery of raw materials and plant. During operation the Project is expected to generate a lower amount of traffic associated with up to 1-2 full time maintenance personnel accessing the Project Area each day. Decommissioning is anticipated to generate a similar level of traffic to the construction stage.

The following provides an assessment of the potential traffic impacts of the Project on the road network function for each of the three stages.

# 4.1 Definitions

The following terminology is referenced throughout this section and within the remainder of the report.

Terminology	Definition	
Vehicle Trip	A trip is defined as a one way vehicular movement from one point to another excluding the return journey. Therefore, a return trip to and from the site is counted as two trips.	
Vehicle Trips per Day (vpd)	The volume of traffic (number of trips) occurring within a 24-hour period. For traffic volumes associated with the Project, this value is generally an even number to reflect the arrival and departure of each vehicle.	
Vehicle Trips per Hour (vph)	The volume of traffic (number of trips) occurring within a one hour period.	
Heavy Vehicle	A vehicle with a Gross Vehicle Mass (GVM) or Aggregate Trailer Mass (ATM) of more than 4.5 tonnes as defined in the Heavy Vehicle National Law (HVNL).	
General Access Vehicle (GAV)	General Access Vehicles (GAV) don't require a permit or notice to access road networks; these vehicles have as-of-right access to the network unless signposted otherwise (e.g. a bridge tonnage restriction).	
Restricted Access Vehicle (RAV)	Restricted Access Vehicles (RAV) include Class 1, 2 or 3 vehicles that operate under a notice or permit and vehicles operating under higher mass limits (HML) that have restrictions on the parts of the road network they can access.	
High Risk Oversize/Overmass Vehicle (requiring escort)	OSOM vehicles exceeding certain criteria for length, height, rear overhang, forward projection, width or total combination weight. These vehicles are subject to Transport Management Plans (TMPs) which provide a comprehensive planning and execution focus to ensure that these movements are carried out in a safe and responsible manner with reduced impact on other road users and road infrastructure. These vehicles also typically require a pilot vehicle/escort.	

#### **Table 4: Traffic Assessment Definitions**



# 4.2 Construction Phase

### 4.2.1 Construction Traffic Generation

Construction traffic generated by the Project on a day-to-day basis can be broadly separated into the following categories as outlined in Table 5.

Table	5:	Standard	Construction	Traffic
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Terminology	Definition		
Light Vehicles	The use of light vehicles will be associated with transporting the workforce to/from the Project Area. A vehicle occupancy of 1.5 people per car has been adopted to calculate the light vehicle traffic generation.		
	Heavy Vehicles		
Shuttle Buses	The Applicant has advised that shuttle buses will be utilised to transport the majority of the workforce to/from Moree.		
Rigid Trucks	Rigid Trucks will be used to deliver raw materials and smaller plant and have a typical length between 8 and 13 metres.		
Truck and Dog	Truck and Dog vehicles consist of a rigid truck towing either a dog trailer or a pig trailer and are not more than 19 metres in length. A dog trailer is a trailer with axles at either end of the trailer, a pig trailer has the axles centred on the trailer. These vehicles will be utilised to transport the majority of quarry materials to/from the site.		
Semitrailers	Semitrailers will be used to transport larger equipment and materials. These vehicles consist of a truck and a single trailer with a total length of 19 metres.		
<b>B-Doubles</b>	B-Doubles will also be used to transport larger plant. B-Doubles consist of a truck with two trailers and have a maximum length of 26 metres.		
Non High Risk OSOM (not requiring escort)	Class 1 OSOM vehicles which can operate on the approved network outlined in Section 2.5.2 subject to travel conditions, as well as vehicles built for a purpose other than carrying goods such as a mobile crane, a concrete pump or drill rig which are defined as Special Purpose Vehicles (SPVs) and can also operate on the relevant approved networks subject to travel conditions.		

The peak hour for construction traffic will occur at the start and end of the day when workers are transported to/from the Project Area. Most workers will typically arrive on-site between 6:00am and 7:00am and depart between 5:00pm and 7:00pm. Workers generally have staggered finish times which results in the evening peak hour being less pronounced, however for the purposes of this assessment it is conservatively assumed that the evening peak hour Project traffic is the same as the morning peak, and the evening peak hour occurs from 5:00pm to 6:00pm.

The construction traffic volumes for the Project have been provided by the Proponent. It is anticipated that during peak construction the Project would generate up to 80 light and 82 heavy vehicle trips per day. Table 6 summarises the forecast traffic volumes expected to be generated during the construction period of the Project.



Vehicle Type		Average Const	ruction Periods	Peak Construction Period	
		Vehicle Trips per Day (vpd)	Peak Hour Trips (vph)	Vehicle Trips per Day (vpd)	Peak Hour Trips (vph)
Light Vehicles		35	20	80	30
	Shuttle Bus	4	2	4	2
	Rigid Trucks	8	2	12	4
	Truck and Dog	22	4	48	12
Heavv	Semitrailers	8	2	8	4
Vehicles	B-Doubles	2	0	6	0
	Special Purpose Vehicle	0	0	0	0
	Other OSOM Vehicle	2	0	4	0
	HV Subtotal	46	10	82	22
Total		81	30	162	52

#### Table 6: Traffic Generation During Construction Period

Overall, the Project is expected to generate up to 52 vehicle trips per hour (vph) in the morning and evening peak hours during the peak construction period, which would reduce to 30 vph during the average construction periods.

### 4.2.2 Non High Risk OSOM Vehicles

There is a requirement for control buildings and switchroom to be delivered to the Project Area. The vehicle and load would be classified as Non High Risk OSOM. It is anticipated that the vehicle would comply as a Class 1 OSOM vehicle and would be able to operate on the approved Class 1 OSOM road network. The vehicle would access the site via Bulluss Drive which is rated to accommodate complying vehicles.

## 4.2.3 High Risk OSOM Vehicles

In addition to the traffic volumes outlined in Table 6, High Risk OSOM vehicles will also be required for the delivery of large plant and equipment. These vehicles would exceed the Class 1 mass and/or dimension requirements and are subject to separate permit applications and regulations, including use of a pilot vehicle escort.

High Risk OSOM vehicles will contribute the smallest percentage of vehicles accessing the Project Area during the construction period and are subject to the development of Transport Management Plans to manage each vehicle trip in a safe manner. The movement and impact of these vehicles, and the subsequent mitigation measures required, are discussed within Section 6. The following assessment focuses on the impacts of the light and heavy vehicles outlined in Table 6 which generate the bulk of the traffic and represent the typical traffic impacts of the Project on a day-today basis.



## 4.2.4 Traffic Distribution

It is understood that all traffic would access the Project Area via Bulluss Road. The workforce for the construction of the Project would be located in Moree and Narrabri. Materials and equipment will generally be sourced from the surrounding area where practicable, with all larger plant expected to be delivered from Port Botany.

The vehicle distributions have been estimated based on the population of nearby towns, proximity to the Project Area and availability of materials within each town. The following provides a breakdown of the distributions for each of the vehicle classifications outlined within Table 6:

- Light Vehicles: Light vehicles would be associated with workers travelling to/from the site. It is anticipated that 75% would be located in Moree and would travel to Bulluss Drive along Newell Highway split 90% from the north and 10% from the south. The remaining workers would all approach Bulluss Drive from the south along Newell Highway.
- **Shuttle Buses:** It is expected that the bus will transport workers from the Moree town centre and approach the site from the north.
- **Rigid Truck and Truck and Dog:** These vehicles would transport quarry material from the local area, with 50% expected to travel to/from the north and 50% to/from the south.
- Semitrailers, B-Doubles and Non High Risk OSOM: Plant would be transported from the Port Botany to the site via Newell Highway with all vehicles expected to reach the Project Area from the south.

During the morning peak all vehicles would travel towards the Project Area and in the evening peak all vehicles would travel away from the Project Area. Heavy vehicles would be distributed throughout the day and the number of inbound and outbound vehicles would be split evenly.

The resulting peak hour volumes generated by the Project at the intersection of Newell Highway and Bulluss Drive are outlined in Figure 8.





#### Figure 8: Expected Project Traffic During Peak Construction at Key Intersections

**PM Construction Peak Hour** 





## 4.2.5 Cumulative Traffic Impacts

The primary traffic impact of the Project is generated during construction which is anticipated to commence in 2026 and take approximately 12 months. A summary of the major projects proposed in the surrounding area are provided in Table 7 with a description and assessment of potential cumulative impacts. The projects which are highlighted in the table have the potential to generate additional traffic along Newell Highway between Narrabri and Moree during the construction period.

Project	Description	Potential Vehicle Conflict	
Inland Rail – Narrabri to North Star Phase 2 (Assessment)	Upgrade of approximately 15 km of the existing rail line track and track formation within the Narrabri to North Star corridor running from Moree north to beyond the Camurra Bypass, including the Mehi-Gwydir River crossings. The southern extent of this project commences approximately 2 kms north of the Project Area.	This section of Inland Rail plans to be operational by 2027 however a specific start date for construction has not been made public. There is potential for construction of both projects to overlap. The projects may both use Newell Highway. The traffic generated from both projects may also interact within Moree.	
Good Earth Green Hydrogen & Ammonia (Prepare EIS)	Construction and operation of a proposed green hydrogen and green ammonia production and storage facility, including: - 12 MW hydrogen electrolysis - 10-13t per day ammonia plant - 3t of hydrogen storage - 600t of ammonia storage. The project is located approximately 33km south-west of Moree.	Construction of the project is expected to commence in September 2025 and take approximately 8 mounts to complete. There is potential for construction of both projects to overlap if delays prevent commencement of construction. The traffic generated from both projects may interact within the town of Moree and negligible interactions on Newell Highway.	
Narrabri Solar Farm (Prepare EIS)	A 140MW solar farm with a battery energy storage system 100MW/800Mwh. Located approximately 87km south of the Project Area near Narrabri.	A construction commencement date is not public. There is potential for construction of both projects to overlap although construction timeline has not been sited. Due to the distance between projects, traffic interactions would be expected to be negligible.	
Maules Creek Continuation Project (Prepare EIS)	Extension of existing mining area and mine life. Located approximately 122km south of the Project Area.	Extension works are planned to commence in 2028. There is potential for construction of both projects to overlap. Due to the distance between projects, traffic interactions would be expected to be negligible.	

<b>Table 7: Assessment of Cumulative</b>	Impacts of Nearby	Developments
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Project	Description	Potential Vehicle Conflict
Stoney Creek Battery Energy Storage System (Prepare EIS)	Development of a 125 MW/1000MWh battery energy storage facility with associated infrastructure. Located approximately 92km south of the Project Area.	A construction commencement date is not public. There is potential for construction of both projects to overlap although construction timeline has not been sited. Due to the distance between projects, traffic interactions would be expected to be negligible.
Silver Leaf Solar Farm (Approved)	Development of a 120 MW solar farm and associated infrastructure. Located approximately 88km south of the Project Area.	A construction commencement date is not public. There is potential for construction of both projects to overlap although construction timeline has not been sited. Due to the distance between projects, traffic interactions would be expected to be negligible.

The above assessment indicates that a number of projects are expected to generate additional vehicle traffic within Moree. The vehicles would be distributed on the surrounding road network near the town and are expected to have a minimal cumulative impact on the operation of the road network.

The review also indicates that the following project has the potential to generate additional vehicle movements along Bulluss Drive in the vicinity of the site:

• Inland Rail – Narrabri to North Star Phase 2: A TIA has been reviewed and a percentage of the predicted project traffic has been applied to cumulative impacts to this Project.

Construction of other developments within the Moree SAP have potential to coincide with the construction of the BESS as well. Information on funded projects and their timelines have not been sighted to form part of the above assessment. It is expected that each of the SAP developments will undertake individual TIA to establish cumulative traffic impacts from EIS documents that will become available at a later date. At the time of writing this TIA no quantitative data was available from other SAP developments and have not contributed to an increase in background traffic around the Project Area.

Accordingly, any cumulative traffic impacts with surrounding projects are expected to be negligible based on the information available at the time of assessment.

### 4.2.6 Traffic Assessment

All traffic travelling to/from the Project Area would travel via Newell Highway and Bulluss Drive. In order to determine the ability of the road network to accommodate the traffic expected to be generated during the peak construction period, a traffic modelling exercise has been undertaken for the intersection of Newell Highway and Bulluss Drive using the SIDRA intersection modelling software.

Level of Service (LOS) is a qualitative measure used to describe the operating conditions of a section of road or an intersection. LOS are designated from A to F from best (free flow conditions) to worst (forced flow with stop start operation, long queues and delays) and represent the perception of the road conditions by motorists including speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience, and safety. The assessment of the



level of service for sign-controlled intersections is based on the average delay (seconds/vehicle) of the critical movement.

The traffic modelling exercise has been undertaken for the morning peak hour (6:00-7:00am) and evening peak hour (5:00pm-6:00pm) during the peak construction period. The traffic volumes utilised for the assessment are the total volumes for the following:

- Existing surveyed traffic volumes along Newell Highway adjusted by a 1.5% compounded annual growth rate to reflect the end of the construction period in 2027;
- Cumulative traffic impacts as outlined within Section 4.2.5; and
- Construction traffic volumes outlined within Figure 8.

The resulting total traffic volumes used for the assessment are provided in Figure 9.



Figure 9: Total Peak Hour Volumes During Peak Construction

The results of the SIDRA analysis for the morning and evening peak hour are provided within Appendix D and are summarised in Table 8.



Approach / Movement		Morning Peak Hour			Evening Peak Hour		
		Average Delay (sec)	95% Queue (m)	Level of Service	Average Delay (sec)	95% Queue (m)	Level of Service
Newell Highway	Through	0.0	0.0	А	0.0	0.0	А
(South)	Right Turn	7.2	3.2	А	8.0	0.6	А
Bulluss Drive	Left Turn	6.0	2.2	А	7.6	8.3	А
(East)	Right Turn	9.0	2.2	А	10.5	8.3	А
Newell Highway	Left Turn	5.7	0.0	А	5.7	0.0	А
(North)	Through	0.0	0.0	А	0.0	0.0	А

#### Table 8: SIDRA Analysis Results Summary

The SIDRA analysis indicates the following:

- The intersection is expected to operate with minimal queue lengths on all legs;
- The overall average delay at the intersection is 4.2 and 3.4 seconds in the morning and evening peak hour respectively; and
- The intersection is expected to continue to operate with good level of service (LOS A).

Accordingly, the intersection is expected to continue to operate with a good level of service with minimal queuing and delays expected during the peak construction period.

## 4.3 Operational Phase

During operation, the BESS is expected to generate a minimal level of traffic associated with maintenance and operation services. The BESS is expected to be operated by up to 1-2 maintenance personnel resulting in a traffic generation of up to 8 vehicle trips per day which would result in a negligible change to the traffic environment. There would also be occasional light commercial vehicles delivering parts to the site but only as required for maintenance.

## 4.4 Decommissioning Phase

At the end of the operational life of the Project all above ground infrastructure would be dismantled and removed from the Project Area.

Traffic generation during decommissioning would be similar to traffic generation during the average construction period. A comprehensive Traffic Management Plan would be prepared prior to the decommissioning phase in conjunction with the relevant road authorities which would ensure adequate road safety and road network operations are maintained.

# 4.5 Summary

The Project is expected to generate the highest level of traffic during the peak construction period. The assessment presented above indicates that the road network is able to accommodate the project traffic during the peak construction period. The assessment also included a review of the cumulative traffic generated by other major Projects within the surrounding area.



During construction the vehicle trips throughout the middle of the day are expected to be predominantly associated with heavy vehicles with approximately 8 vehicle trips per hour. This increase in traffic would be within the daily variation of traffic volumes along Bulluss Drive and can be readily accommodated.

It is anticipated that High Risk OSOM vehicles would access the site during the construction phase. The vehicles would be unloaded and kept to their smallest practicable dimensions when departing the site. The vehicles will travel under escort outside of the peak periods and would be able to be accommodated on the road network subject to the mitigation measures discussed in Section 0 which would be confirmed as part of specific permits that would be applied for prior to construction.

During operation the periodic increase in traffic of up to 8 vehicle trips per day associated with the 1-2 maintenance personnel would result in a negligible change to the traffic environment.

Accordingly, the road network is able to readily accommodate the traffic generated by the Project during the construction, operation, and decommissioning periods.



# 5. Heavy Vehicle Route Assessment

Most specialist plant is expected to be delivered from Port Botany. The following provides a review of the proposed access routes for heavy vehicles (excluding High Risk OSOM vehicles) travelling from the port. The proposed access route is outlined in Figure 10 with a summary of the relevant roads provided in Table 9. The access route measures approximately 643km and utilises roads that are designated for B-Double vehicles as outlined within the NHVR Restricted Access Vehicle Map.





Source: Google Maps - <u>Link</u>



Road Name	Jurisdiction	B-Double Approved	
Friendship Road			
Bumborah Point Road			
Botany Road			
Beauchamp Road			
Denison Street		Approved	
Wentworth Avenue			
Bunnerong Road			
Gardeners Road			
Anzac Parade			
Eastern Distributor (M1 Toll Road)			
Cahill Expressway (M1)	TfNCW	Approved with Conditions	
Sydney Harbour Tunnel (M1)	TINSW		
Warringah Freeway (M1)		Approved	
Gore Hill Freeway (M1)			
Lane Cove Tunnel (M2 Toll Road)		Approved with Conditions	
Hills Motorway (M2 Toll Road)			
Cumberland Highway (A28)			
NorthConnex (M11)			
Pacific Motorway (M1)			
Hunter Expressway (M15)			
New England Highway (M15) (A15)			
Kamilaroi Highway (B51)			
Boundary Road, Gunnedah	Gunnedah Shire Council TfNSW		
Bloomfield Street, Gunnedah		Approved	
Warrabungle Street, Gunnedah			
Kamilaroi Highway (B51)	TfNSW		
Newell Highway (A39)	VIIN SW		
Bulluss Drive, Moree	Moree Plains Shire Council TfNSW		

#### Table 9: B-Double Vehicle Route - Access Roads

The above route is only suitable for vehicles under 4.3 metres in height due to clearances in the tunnels. The conditions of travel for B-Double vehicles indicated above are for prohibited transport of dangerous goods in the tunnels. Additionally, travel through Sydney Harbour Tunnel is only permitted between 5:00am and 11:00pm.



# 5.1 Mitigation Measures

A TMP is to be developed which is recommended to include the following measures to minimise the impact of construction traffic:

- Prior to construction, a pre-condition survey of the relevant sections of the existing road network should be undertaken in consultation with the road authority. During construction the sections of the road network utilised by the proposal are to be monitored and maintained to ensure continued safe use by all road users, and any faults attributed to construction of the Project would be rectified. At the end of construction, a post-condition survey would be undertaken to ensure the road network is left in a condition equivalent to that at the start of construction.
- Neighbours of the Project are to be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.
- Heavy vehicles should avoid travel during peak bus operating times to limit the interaction of larger vehicles and vulnerable road users.

Therefore, it is concluded that the road network is suitable to accommodate the light and heavy vehicle traffic volumes generated by the Project.



# 6. High Risk OSOM Vehicles

OSOM vehicles will be required to deliver larger plant to the site such as the transformer. These vehicles are expected to exceed the Class 1 mass and/or dimension requirements and would be classified as High Risk OSOM vehicles. These vehicles are subject to Transport Management Plans (TMPs) which provide a comprehensive planning and execution focus to ensure that vehicle movements are carried out in a safe and responsible manner with reduced impact on other road users and road infrastructure. High Risk OSOM vehicles also require pilot vehicle escort.

OSOM vehicles will be required to deliver a sub-station transformer to the site from one of two possible locations being Port Botany in NSW or Glen Waverley in Victoria. These vehicles are expected to exceed the Class 1 mass and/or dimension requirements and would be classified as high risk OSOM vehicles per relevant TfNSW definitions<sup>1</sup>. These vehicles are subject to Transport Management Plans (TMPs) which provide a comprehensive planning and execution focus to ensure that vehicle movements are carried out in a safe and responsible manner with reduced impact on other road users and road infrastructure on the route to site. High risk OSOM vehicles will travel outside of the peak periods and would be subject to mitigation measures discussed in Section 9 which would be confirmed as part of specific permits that would be applied for prior to construction.

The Proponent has advised that three high risk OSOM vehicles would be required to access the site during the construction period for the transport of the transformer from either Port Botany or Glen Waverley. The vehicles would be unloaded and kept to their smallest practicable dimensions when departing the site to avoid classification as OSOM where possible. As a result, this assessment focuses on the path of travel to the site.

The Proponent has advised that these high risk OSOM vehicles would be required to access the site during the construction period in the fourth quarter of 2026 (or later).

High Risk OSOM vehicles will travel outside of the peak periods and would be subject to the mitigation measures discussed throughout this section which would be confirmed as part of specific permits that would be applied for prior to construction. The following provides a review of the transformer transport vehicle configuration and proposed access routes.

# 6.1 Load and Vehicle Configuration

The largest component to be delivered to the site is expected to be the transformer. Exact dimensions of the vehicle and load are unknown until later stages of the project. The Proponent has therefore provided information regarding the expected specifications of the transformer and associated vehicle trailer as outlined in Table 10.

ruble ro. Estimated fransformer fransport opecifications					
Length (mm)	Width (mm)	Height (mm)	Mass	Vehicle Configuration	
8000	4000	4500	160 tonnes	10x8 + 10x8 Platform Trailer Beamset	

### Table 10: Estimated Transformer Transport Specifications

<sup>&</sup>lt;sup>1</sup> TfNSW Oversize and/or overmass (OSOM) vehicles and loads webpage, refer:

https://www.transport.nsw.gov.au/operations/roads-and-waterways/business-and-industry/heavy-vehicles/roadaccess/restricted-access-1

An OSOM vehicle configuration has been identified for the expected transformer model. The vehicle used for the assessment is shown within Figure 11 and is based on feedback from a transport company which confirmed that the vehicle specification would be suitable for the weight and size of the transformer. Details of the vehicle and load are provided in Table 11.



#### Figure 11: OSOM Vehicle Specifications

Source: RJA, measurement in millimetres

As a result of the size of the beams and load, additional push and pull trucks are required to provide sufficient power to the combinations. The total estimated weight, length, width and height for a single truck is shown in Table 11. The table also shows the approximate weight and dimensions of the anticipated load and vehicle combinations with additional trucks powering the vehicle.

Description	Approx. Weight (tonnes)	Total Length (m)	Approx. Width (at widest point)	Approx. Height
Transformer Two 10x8 Platform Trailer One Truck (Figure 11)	350 T	56.6m	5.8m	4.75m to 5.3m
Transformer Two 10x8 Platform Trailer Four Trucks (push and pull)	420 T	97.6m	5.8m	4.75m to 5.3m

#### Table 11: Anticipated OSOM Load and Vehicle Combination Dimensions

The table also shows that the height of the vehicle combinations can be adjusted with a minimum of approximately 4.75 metres. This is achieved by lowering and raising the trailer and beamset components as needed.

The following route assessments have been undertaken using the dimensions of Figure 11 (one truck at the front) to approximate the total vehicle combination. This is an accurate representation as additional trucks at the front and rear of the combination will fall within the swept path of the larger beam, load and trailer components.



# 6.2 Access Route from Port Botany

The Proponent has advised that one of the possible delivery locations for the transformer will be Port Botany. TfNSW have provided comment on the proposed OSOM routes being considered by the project via email in November 2024. TfNSW raised concerns *due to the complexity of the movement required for the beam set...* [and that] *Port Botany has not been used for the import of larger goods (similar to this development) in recent years.* 

The correspondence is included in Appendix C for reference.

At this stage, delivery to Port Botany is unconfirmed and the Proponent will take this information into consideration. If Port Botany is chosen, the transportation will be subject to the appropriate NHVR permits, detailed haulage assessments and a traffic management plan.

In order to determine whether any civil works are required to accommodate the OSOM vehicles on the road network a route assessment has been undertaken as presented below and as provided in Appendix A. It is noted that the vehicle trips would be carried out with escort and pilot vehicles in accordance with the relevant authority requirements.

The OSOM transformer route from Port Botany would utilise the following roads to access the site as outlined in Table 12 and shown in Figure 12. The majority of the roads are classified as State Roads, with the exception of three roads in Muswellbrook and one road in Moree which are managed by local councils.

Road Name	Jurisdiction	Class 1 OSOM Approved	
Friendship Road			
Bumborah Point Road			
Botany Road		Approved	
Bunnerong Road			
Gardeners Road	TANCW		
M8 Motorway		Restricted	
M5 East Motorway			
South Western Motorway (M5)	TINSW		
Westlink (M7)		Conditions	
Hills Motorway (M2)			
Pennant Hills Road			
Pacific Motorway (M1)			
Hunter Expressway (M15)			
New England Highway (M15) (A15)			
Bell Street, Muswellbrook			
Victoria Street, Muswellbrook	Muswellbrook Shire Council	Unrated	
Market Street, Muswellbrook			
New England Highway (A15)	TfNSW	Approved	
Kamilaroi Highway (B51)	TINOW	Approved	

#### Table 12: Port Botany OSOM Route


Road Name	Jurisdiction	Class 1 OSOM Approved
Boundary Road, Gunnedah		
Bloomfield Street, Gunnedah		
Warrabungle Street, Gunnedah		
Kamilaroi Highway (B51)		
Newell Highway (A39)		Conditions
Bulluss Drive, Moree	Moree Plains Shire Council	Unrated

The route uses roads managed by Muswellbrook Shire Council as a diversion around the rail underpass in Muswellbrook. Their approval, and any other impacted road or rail authority, would be sought as part of the formal application through the NHVR. Additionally, use of Bulluss Drive and the rail level crossing would require approval from the Moree Plains Shire Council and the relevant rail authority due to not currently being rated for OSOM vehicle use.

The M8 Motorway is designated as restricted for use by Class 1 OSOM vehicles by NHVR. The restriction requires oversized vehicles to apply for a permit before commencing the journey on the road. It should be noted that due to the OSOM vehicle being classified as high risk, acquiring a permit is mandatory for any road on the route. The M8 Motorway has a height clearance to facilitate the OSOM vehicle combination required for this transport task.

Conditions for Class 1 OSOM vehicle on some roads listed in Table 12 generally relate to time of travel and the requirement to advise NHVR of intent to travel with and OSOM load. It is noted that road access restrictions can change over time and therefore it would be necessary for the NHVR Network Map be consulted in advance of travel to ensure appropriate routes are being taken and all necessary approvals and permits are attained.

A total of 24 points of interest were identified as part of the assessment of the access route. The access route is shown in Figure 12 along with ten identified rest areas that may be utilised for fatigue management, emergency stopping or as otherwise required. These rest areas have varying capacity for Class 1 to Class 5 Heavy Vehicles. The route, points of interest and two of the rest areas have been assessed in further detail within the full assessment provided in Appendix A.

It is noted that additional rest stop areas may also be available along the route. Operating protocol in relation to the use of rest stop areas would be outlined as part of the TMP to be prepared prior to construction in order to ensure appropriate access is maintained for general traffic. Further assessments of the rest areas would be conducted by a logistics contractor once the exact details of the OSOM vehicle and load combination are known as part of the overall strategy to manage driver fatigue.



### Figure 12: Port Botany OSOM Route

Source: Google Maps - Link

The assessment of the access route identified that the vehicle is able to access the site with minor temporary works such as signage relocation, roadside hardstand with mountable kerbing and suitable traffic management measures. A summary of the key constraints along the route is provided below in Section 6.2.2 with an overview of the proposed treatments and/or management measures at each point of interest.

### 6.2.1 Bridge and Rail Infrastructure

A desktop assessment of bridge and rail infrastructure has been undertaken to determine interfacing locations with the proposed OSOM route.

### 6.2.1.1 Bridges and Overpasses

A detailed review of the load limits on all bridges and structures along the route will be undertaken as part of the permit process for the OSOM vehicles, however it is noted that the route predominantly utilises major highways between Port Botany and the project site. The State Roads along the route have been utilised for other renewable energy projects in the area and no restricted structures have been identified based on the NHVR Route Map and TfNSW Oversize Overmass Load Carrying Vehicles Network maps.

The bridge crossing in Bell Street, Muswellbrook (swept path demonstrated in Appendix A – Sheet 07) is not within the approved NHVR OSOM road network or State Road network. No weight,



height or width limitations have been identified for the structure, so a formal assessment and approval will ascertain suitability for this OSOM vehicle combination.

Accordingly, it is expected that the vehicle loading will be within the allowable limit for all bridges, culverts and other structures on the State Road network.

### 6.2.1.2 Underpasses

An assessment of the height clearances along the Port Botany OSOM route was undertaken to confirm the suitability of the proposed route for the proposed OSOM vehicle and load. The proposed beamset arrangement allows for height adjustment of the transformer between the trailers, therefore enabling the load to be lowered for passage under low clearance bridges. Taking this into consideration, the minimum load height would be approximately 4.8 metres.

The height clearance assessment showed that the lowest clearance along the Port Botany route is 4.88 metres on the New England Highway under the Liddel Power Station overpass. Accordingly, the available height clearance along the proposed route is appropriate to accommodate the required OSOM vehicles.

It is also noted that some overhead electrical cables along the route may require temporary lifting which would be confirmed prior to transportation.

### 6.2.1.3 Railway Level Crossings

A total of four active railway level crossings have been identified along the OSOM route as outlined in Table 13 which includes summarised advice from the relevant rail authority.

Railway Crossing Location	Rail Authority	Authority Advice
Kamilaroi Highway, Werris Creek (LXM ID 48)	ARTC	APTC approval to be caught prior to travel
Kamilaroi Highway, Curlewis (LXM ID 520)	ARTC	ARTC approvario be sought prior to travel.
Newell Highway, Narrabri (LXM ID 745)	UGL Regional Linx	Rail Protection Officer likely required for crossing. TMP required with application for crossing permit.
Bulluss Drive, Moree (LXM ID 560)	ARTC	ARTC approval to be sought prior to travel.

### Table 13: Port Botany Route Railway Level Crossing Assessment

Written approval will be sought from the relevant rail authorities for all level crossings as part of the TMP. Accordingly, the OSOM traffic is expected to have no major impact on the operation or safety of the railway level crossings.

### 6.2.2 Port Botany Route Summary

The Port Botany route assessment prepared for the High-Risk OSOM vehicle identifies a number of minor road works are required in order to allow the vehicles to successfully access the site with



Pinch Point / Sheet	Location	Works Required
	Sydney Metropolitan Area	
01	Bumborah Point Road / Friendship Road (Port Botany, NSW)	No road upgrades required.
02	Botany Road / Bumborah Point Road (Matraville, NSW)	No road upgrades required.
03	Botany Road / Bunnerong Road (Matraville, NSW)	Temporary hardstand and mountable kerb to be provided.
04	Gardeners Road / Bunnerong Road (Matraville, NSW)	No road upgrades required.
05	Hills Motorway Off Ramp / Pennant Hills Road (Carlingford, NSW)	No road upgrades required
06	Pennant Hills Road / Pacific Motorway (Wahroonga, NSW)	No road upgrades required
NSW Regional Area		
07	Pacific Motorway / Hunter Expressway (Cameron Park, NSW)	No road upgrades required.
08	New England Highway / Bell Street (Muswellbrook, NSW)	No road upgrades required.
09	Bell Street / Victoria Street (Muswellbrook, NSW)	No road upgrades required.
10	Market Street / New England Highway (Muswellbrook, NSW)	No road upgrades required.
11	New England Highway (Blandford, NSW)	No road upgrades required.
12	New England Highway / Kamilaroi Highway (Willow Tree, NSW)	No road upgrades required.
13	Lennox Street / Loder Street (Kamilaroi Highway) (Quirindi, NSW)	No road upgrades required.
14	Kamilaroi Highway / Oxley Highway (Gunnedah, NSW)	Provide roadside hardstand.
15	Kamilaroi Highway / Boundary Road (Gunnedah, NSW)	No road upgrades required.
16	Bloomfield Street / Warrabungle Street (Gunnedah, NSW)	No road upgrades required.



Pinch Point / Sheet	Location	Works Required
17	Warrabungle Street / Kamilaroi Highway (Gunnedah, NSW)	Temporary signage relocation.
18	Grantham Street / Wee Waa Street (Kamilaroi Highway) (Boggabri, NSW)	No road upgrades required.
19	Kamilaroi Highway / Newell Highway (Narrabri, NSW)	No road upgrades required.
20	Newell Highway / Old Turrawan Road (Narrabri, NSW)	Temporary signage relocation.
21	Newell Highway / Tibbereena Street (Narrabri, NSW)	No road upgrades required.
22	Tibbereena Street / Killarney Street (Newell Highway) (Narrabri, NSW)	No road upgrades required.
23	Killarney Street / Barwan Street (Newell Highway) (Narrabri, NSW)	Temporary signage relocation.
24	Newell Highway / Bulluss Drive (Moree, NSW)	No road upgrades required.
25	Bulluss Drive / Site Access (Moree, NSW)	Provide roadside hardstand.

Accordingly, it is concluded that the proposed route is suitable for use by OSOM vehicles associated with the Project, subject to relevant formal approvals.

Relevant permits need to be applied for as part of the TMP and mitigation measures, as outlined in Section 6.2, are to be adhered to. It is recommended that any OSOM movements be timed so they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application.

# 6.3 Access Route from Glen Waverley

The Proponent has advised that the other possible delivery location for the transformer will be from Wilson Transformer Company, located at 310-336 Springvale Road, Glen Waverley in Victoria.

The OSOM transformer route from Glen Waverly would utilise the following roads to access the site as outlined in Table 15 and shown in Figure 13. The majority of the roads are classified as State Roads, with the exception of three roads in Forbes and one road in Moree which are managed by local councils.



It should be noted that the route taken in metropolitan Melbourne is identical to that taken for the delivery of the transformers to the Waratah Super Battery Energy Storage System project<sup>2</sup>, which is a larger transformer (and associated vehicle combination) than required for this project.

Road Name	State	Jurisdiction
Springvale Road		
Eastern Freeway (M3)		
Doncaster Road		
Williamsons Road		
Fitzsimons Lane		
Main Road		
Lower Plenty Road		
Greensborough Road		
Greensborough Highway		
Greensborough Bypass	Victoria	Victoria Department of Transport
Metropolitan Ring Road (M80)		
Hume Freeway (M31)		
Goulburn Valley Freeway (M39)		
River Road (C391)		
Doyles Road (C391)		
Grahamvale Road (C391)		
Goulburn Valley Highway (A39)		
Murray Valley Highway (B400)		
Goulburn Valley Highway (A39)		
Newell Highway (A39)		
Showground Road, West Wyalong		TfNSW
Compton Road, West Wyalong		
Newell Highway (A39)		
Cross Street, Forbes		
Lachlan Street, Forbes	NSW	Forbes Shire Council
Dowling Street, Forbes		
Newell Highway (A39)		
Parkes Bypass <sup>3</sup>		TfNSW
Newell Highway (A39)		
Bulluss Drive		Moree Plains Shire Council

**Table 15: Glen Waverley OSOM Route** 



<sup>&</sup>lt;sup>2</sup> Waratah Super Battery Energy Storage System: Stage 2 TMP: https://www.planningportal.nsw.gov.au/majorprojects/projects/waratah-super-battery-energy-storage-system <sup>3</sup> Parkes Bypass currently under construction and is expected to be fully complete prior to the load being moved to site:

Parkes Bypass Transport for NSW

A diversion away from the State road network has been proposed in Forbes, utilising Cross Street, Lachlan Street and Dowling Street instead of remaining on Newell Highway. This diversion avoids impacts to traffic signal infrastructure at the intersection of Sherriff Street and Dowling Street were the OSOM vehicle to remain on the Newell Highway. Approval for this section of the route would be required by Forbes Shire Council.

The Parkes Bypass<sup>3</sup> is anticipated to be in operation by the time of this OSOM vehicle movement. Utilising the bypass avoids the potential use of lower order and Council roads through the town of Parkes.

A total of 36 points of interest were identified as part of the assessment of the access route. The access route in Figure 13 along with 43 identified rest areas that may be utilised for fatigue management, emergency stopping or as otherwise required. These rest areas have varying capacity for Class 1 to Class 5 Heavy Vehicles. The route, points of interest and five of the rest areas have been assessed in further detail within the full assessment provided in Appendix A.

It is noted that additional rest stop areas may also be available along the route. Operating protocol in relation to the use of rest stop areas would be outlined as part of the TMP to be prepared prior to construction in order to ensure appropriate access is maintained for general traffic. Further assessments of the rest areas would be conducted by a logistics contractor once the exact details of the OSOM vehicle and load combination are known as part of the overall strategy to manage driver fatigue.





Figure 13: Glen Waverley OSOM Route

Source: Google Maps - Link

The assessment of the access route identified that the vehicle is able to access the site with minor temporary works such as signage relocation, roadside hardstand with mountable kerbing and suitable traffic management measures. A summary of the key constraints along the route is provided below in Section 6.3.3 with an overview of the proposed treatments and/or management measures at each point of interest.

### 6.3.1Bridge and Rail Infrastructure

A desktop assessment of bridge and rail infrastructure has been undertaken to determine interfacing locations with the proposed OSOM route.



## 6.3.2 Bridges and Overpasses

A detailed review of the load limits on all bridges and structures along the route will be undertaken as part of the permit process for the OSOM vehicles, however it is noted that the route predominantly utilises major highways between Melbourne and the project site. The State roads along the route have been utilised for other renewable energy projects in the area and no restricted structures have been identified based on the NHVR Route Maps, Victorian Department of Transport and Planning (DTP) and TfNSW Oversize Overmass Load Carrying Vehicles Network maps. Accordingly, it is expected that the vehicle loading will be within the allowable limit for all bridges, culverts and other structures on the State Road networks.

### 6.3.2.1 Underpasses

An assessment of the height clearances along the Glen Waverley OSOM route was undertaken to confirm the suitability of the proposed route for a proposed minimum vehicle combination load height of 4.8 metres. The assessment showed that the lowest clearance height along the route is on the Eastern Freeway in Nunawading under a pedestrian overpass west of Springvale Road. The clearance required at this location is 4.8 metres, however it is noted using the centre lane of the freeway would provide additional clearance. Accordingly, the available height clearance along the proposed route is appropriate to accommodate the required OSOM vehicles.

It is also noted that some overhead electrical cables along the route may require temporary lifting which would be confirmed prior to construction.

### 6.3.2.2 Railway Level Crossings

A total of 9 active railway level crossings have been identified along the route as outlined in Table 16 which includes summarised advice from the relevant rail authority for each crossing.

Railway Crossing Location	Rail Authority	Authority Advice	
Grahamvale Road, Greater Shepparton	V/Line	ine ODL Permit from DTP is required ine	
Murray Valley Highway, Strathmerton	V/Line		
Newell Highway, Mirrool (LXM ID 227)	UGL Regional Linx	Rail Protection Officer likely required for crossing.	
Showground Road, West Wyalong (LXM ID 1193)	UGL Regional Linx	TMP required with application for crossin permit.	
Newell Highway, Forbes (LXM ID 1161)	ARTC		
Newell Highway, Tichborne (LXM ID 1164)	ARTC	ARIC approval to be sought prior to travel.	

### Table 16: Glen Waverley Route Railway Level Crossing Assessment



Railway Crossing Location	Rail Authority	Authority Advice
Newell Highway, Gilgandra (LXM ID 293)	UGL Regional Linx	Rail Protection Officer likely required for crossing.
Newell Highway, Narrabri (LXM ID 745)*	UGL Regional Linx	TMP required with application for crossing permit.
Bulluss Drive, Moree (LXM ID 560)*	ARTC	ARTC approval to be sought prior to travel.

\* Railway level crossings also identified in Port Botany Route and presented in Table 13.

Written approval will be sought from the relevant rail authorities for all level crossings as part of the TMP. Accordingly, the OSOM traffic is expected to have no major impact on the operation or safety of the railway level crossings.

### 6.3.3 Route Assessment Summary

The Glen Waverley route assessment prepared for the High-Risk OSOM vehicle identifies a number of minor road works are required in order to allow the vehicles to successfully access the site with a summary provided in Table 17. Escorts and spotters will be required at all locations to control traffic and ensure the vehicle and load are clear of infrastructure.

Pinch Point / Sheet	Location	Works Required
	Melbourne Metropolitan Area	
01	Springvale Road / Eastern Freeway (on ramp) (Nunawading, Vic)	No road upgrades required.
02	Eastern Freeway (off ramp) / Doncaster Road (Balwyn North, VIC)	No road upgrades required.
03	Doncaster Road / Williamsons Road (Doncaster, VIC)	No road upgrades required.
04	Williamsons Road / Manningham Road (Doncaster, VIC)	No road upgrades required.
05	Fitzsimons Lane / Main Road (Eltham, VIC)	No road upgrades required.
06	Lower Plenty Road / Greensborough Road (Rosanna, VIC)	No road upgrades required.
Victorian Regional Area		
07	Goulburn Valley Highway / River Road (Kialla, VIC)	No road upgrades required.
08	Doyles Road / Midland Highway (Orrvale, VIC)	No road upgrades required.

### Table 17: Glen Waverley Route Work Schedule



Pinch Point / Sheet	Location	Works Required
09	Doyles Road / Old Dookie Road (Shepparton-Mooroopna, VIC)	No road upgrades required.
10	Doyles Road / Grahamvale Road / New Dookie Road (Grahamvale, VIC)	No road upgrades required.
11	Grahamvale Road / Rail Level Crossing (Greater Shepparton, VIC)	No road upgrades required.
12	Grahamvale Road / Goulburn Valley Highway (Congupna, VIC)	Temporary signage relocation.
13	Goulburn Valley Highway / Murray Valley Highway (Strathmerton, VIC)	No road upgrades required.
14	Goulburn Valley Highway / Murray Valley Highway (Yarroweyah, VIC)	Temporary signage relocation.
	NSW Regional Area	
15	Newell Highway / Tuppal Road / Deniliquin Road (Tocumwal, NSW)	No road upgrades required.
16	Southey Street / Jerilderie Street (Newell Highway) (Jerilderie, NSW)	No road upgrades required.
17	Newell Highway / Sturt Highway (Gillenbah, NSW)	No road upgrades required.
18	Newell Highway / Sturt Highway (Gillenbah, NSW)	No road upgrades required.
19	Cadell Street / Whitton Street (Newell Highway) (Narrandera, NSW)	No road upgrades required.
20	Newell Highway / Showground Road (West Wyalong, NSW)	Temporary signage relocation.
21	Showground Road / Compton Road (West Wyalong, NSW)	Temporary signage relocation.
22	Compton Road / Newell Highway (Wyalong, NSW)	Temporary signage relocation.
23	Sheriff Street (Newell Highway) / Cross Street (Forbes, NSW)	No road upgrades required.
24	Cross Street / Lachlan Street (Forbes, NSW)	No road upgrades required.
25	Dowling Street / Newel Highway (Forbes, NSW)	No road upgrades required.
26	Newell Highway / Darling Street (Dubbo, NSW)	Provide hardstand and mountable kerbing. Temporary signage relocation.

Pinch Point / Sheet	Location	Works Required
27	Erskine Street / Bourke Street (Newell Highway) (Dubbo, NSW)	Provide mountable kerbing.
28	Castlereagh Street / Castlereagh Highway (Newell Highway) (Gilgandra, NSW)	No road upgrades required, pending completion of road construction project.
29	Newell Highway / Dalgarno Street (Coonabarabran, NSW)	Provide mountable kerbing. Temporary signage relocation.
30	Newell Highway / Oxley Highway (Coonabarabran, NSW)	No road upgrades required.
31	Newell Highway / Kamilaroi Highway (Narrabri, NSW)	Provide roadside hardstand and mountable kerbing.
32*	Newell Highway / Old Turrawan Road (Narrabri, NSW)	Temporary signage relocation.
33*	Newell Highway / Tibbereena Street (Narrabri, NSW)	No road upgrades required.
34*	Tibbereena Street / Killarney Street (Newell Highway) (Narrabri, NSW)	No road upgrades required.
35*	Killarney Street / Barwan Street (Newell Highway) (Narrabri, NSW)	Temporary signage relocation.
36*	Newell Highway / Bulluss Drive (Moree, NSW)	No road upgrades required.
25*	Bulluss Drive / Site Access (Moree, NSW)	Provide roadside hardstand.

\* Pinch point also identified in Port Botany Route and presented in Table 14.

Accordingly, it is concluded that the proposed route is suitable for use by OSOM vehicles associated with the Project with appropriate approvals.

Relevant permits need to be applied for as part of the TMP and mitigation measures, as outlined in Section 6.3, are to be adhered to. It is recommended that any OSOM movements be timed so they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application.



# 7. Site Access

The layout of the site and the proposed access location is shown within Figure 1. The majority of project vehicles accessing the site would be truck and dog and semi-trailers which are typically 19 metres in length while B-Double vehicles are expected to access the site up to three times per day, during peak construction as per Table 6. A swept path assessment has been undertaken for the access which is provided within Appendix E and demonstrates the access has been suitably designed to cater for the Project traffic expected to access the site.

The swept path analysis shows that simultaneous entry and exit movements can be undertaken by 19m semitrailers. The swept path assessment also shows that B-Doubles are able to access the site while a heavy vehicle is propped on the driveway waiting to depart.

A swept path assessment has also been undertaken for the high risk OSOM vehicle entering the site. The assessment shows that minor temporary widening is required on the west side of Bulluss Drive to facilitate OSOM vehicle movements onto the site.

Accordingly, it is concluded that the site access has been suitably designed and is able to accommodate the vehicles expected to access the site.

# 7.1 Sight Distance Assessment

Bulluss Drive has a speed limit of 50km/hr. A design speed of 60km/hr has been adopted which requires an SISD of 131 metres based on a reaction time of 2.5 seconds. The available sight distance at the site access would exceed the requirements of the Austroads Guide. Accordingly, vehicles are expected to be able to safely enter the road network from the proposed site access.



It is recommended that a TMP be prepared prior to commencement of construction of the development. The TMP should be prepared and implemented in accordance with Australian Standard 1742.3 and the Work Health and Safety Regulation 2017. The TMP would provide additional information regarding the traffic volumes and distribution of construction vehicles that is not available at this time including:

- Road transport volumes, distribution and vehicle types broken down into:
  - Hours and days of construction.
  - Schedules for phasing/staging of the Project.
- The origin, destination and routes for:
  - Employee and contractor light vehicles.
  - Heavy vehicle traffic.
  - Oversize/overmass vehicles.
- A map of the primary haulage routes highlighting critical locations.
- An induction process for vehicle operators and regular toolbox meetings.
- A complaint resolution and disciplinary procedure.
- Local climatic conditions that may impact road safety of employees throughout all Project phases (e.g. fog, wet and significant dry, dusty weather).

The following provides recommended measures that should be adopted within the TMP to minimise the impact of construction traffic along the road network.

## 8.1 Information and Communication

The implementation of a community information and awareness program would assist in managing the traffic impacts. Prior to construction commencing and during the construction period, a program of consultation shall be initiated to ensure local residents are aware of construction traffic accessing the Project Area. This program may include elements of the following as appropriate to the phase of works:

- Press releases in local newspapers.
- Specific emails, newsletters and individual letter drops to neighbouring residents along the access route to the Project.
- Provision of a website providing details of the status of works and contact details for complaints or enquiries.
- Provide key contact personnel and contact details, including out of hours contact information to residents, schools, public activities and business operating alongside the local route.
- Neighbours of the BESS would be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.



If deemed necessary, specific warning signs advising of the changed traffic operations and heavy vehicles are to be appropriately located on approaches to and from the transport routes on Council roads. These should warn existing road users of changed traffic conditions. The use of day warning notices where signs are activated on a specific day to warn local road users of construction activities may also be applied.

# 8.3 On-Site Mitigation Measures

On-site mitigation measures targeted at safety and reducing the impact of on-site transport would include:

- On-site speed restrictions.
- Appropriate dust suppression measures.
- Maintenance program for on-site access tracks to ensure safe access.
- Loading and unloading is proposed to occur within the work area. No street or roads would be used for material storage at any time.
- Sufficient car parking is to be provided on-site to ensure vehicles do not park on the surrounding road network.
- All car parking and loading areas to be designed in accordance with the relevant Australian Standard (2890 series) and Council requirements.

# 8.4 Driver Protocols

Management of vehicular access to and from the site is essential in order to maintain the safety of the general public as well as the workforce. A Driver Code of Conduct is to be implemented as a measure to maintain safety within and around the site:

- All vehicles would enter and exit the site in a forward direction.
- Heavy vehicle movements should avoid peak bus operating times to limit the interaction of larger vehicles and vulnerable road users.
- Safety initiatives for impacts to residential areas and/or school bus zones.
- Utilisation of only the designated transport routes.
- Construction vehicle movements are to abide by finalised schedules as agreed by the relevant authorities.
- All permits for working within the road reserve must be received from the relevant authority prior to works commencing.

The above recommendations will ensure the construction traffic would have a minimal impact to the capacity and safety of the surrounding road network. The TMP would be prepared in conjunction with consultation with Transport for NSW and Moree Plains Shire Council.



# 9. Mitigation Measure Summary

The assessment has identified a number of traffic management measures that are to be implemented during construction and recommended to be included in the TMP. The key measures are summarised below:

- Prior to construction, a pre-condition survey of the relevant sections of the existing road network should be undertaken in consultation with the road authority. During construction the sections of the road network utilised by the proposal are to be monitored and maintained to ensure continued safe use by all road users, and any faults attributed to construction of the BESS would be rectified. At the end of construction, a post-condition survey would be undertaken to ensure the road network is left in a condition equivalent to that at the start of construction.
- Neighbours of the BESS are to be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.
- Heavy vehicles should avoid travel during peak bus operating times to limit the interaction of larger vehicles and vulnerable road users.
- It is recommended that any OSOM vehicle trips be timed so they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application.



# 10. Conclusion

Amber Organisation has assessed the traffic impacts of the proposed Moree BESS. The BESS is proposed to have a capacity of up to 120MW with up to four hours capacity.

The Project Area is located on the southern fringe of Moree, on the eastern side of Bulluss Drive. Access to the site is proposed via a new crossover from Bulluss Drive. The Project Area is within the Moree Special Activation Precinct.

The construction period is expected to commence in 2026 and take approximately 12 months, with the peak construction period expected to take 6 months. A construction workforce of up to 70 full time personnel would be on-site during the peak construction phase and would primarily be drawn from Moree.

Most specialist plant is expected to be delivered from Port Botany. General construction materials and equipment will generally be sourced from the surrounding area where practicable.

The above assessment determined the following:

- The Project is expected to generate up to 162 vehicle trips per day during the peak construction period, including 82 heavy vehicles.
- The road network is able to accommodate the traffic generated by the development during the construction, operation and decommissioning stages.
- The heavy vehicle access route utilises roads that are designated for B-Doubles within the Transport for New South Wales Restricted Access Vehicle Map.
- Two access route options for oversize/overmass vehicles from Port Botany and Glen Waverley have been identified within a Route Assessment which identifies that the vehicles are able to suitably access the Project Area with suitable traffic management measures and a number of locations requiring minor road upgrades. The Route Assessment is provided within Appendix A of this document.
- In order to mitigate the impacts of the development during construction a TMP would be prepared which should include the recommendations provided within this document.

Accordingly, based on the assessment above, it is concluded that the proposed access arrangements for the BESS are suitable to accommodate the expected construction vehicle types and traffic volumes during the construction and operation phase of the Project.



# Appendix A

OSOM Route Assessments: Port Botany and Glen Waverley



36 Points of interest tested



0.5m Clearance

Load Outlines

Load Path

Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Nunawading VIC 3131 Online Map Link

# Moree Special Activation Precinct Swept Path Assessment



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750





0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure. All kerbs are mountable.

Location: Balwyn North VIC 3104 Online Map Link

# Moree Special Activation Precinct Swept Path Assessment

6

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750





0.5m Clearance

Load Outlines

Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Doncaster VIC 3108 Online Map Link

# Moree Special Activation Precinct



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Load Path

Route Assessment: Glen Waverley Swept Path Assessment





Notes:

0.5m Clearance

Load Outlines

Load Path

Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Doncaster VIC 3108 Online Map Link

# Moree Special Activation Precinct



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Route Assessment: Glen Waverley Swept Path Assessment





0.5m Clearance

Notes:

infrastructure.

Load Outlines

Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of Location: Eltham VIC 3095 Online Map Link

# Moree Special Activation Precinct Swept Path Assessment



Load Path





Load Outlines

Escorts to control traffic as required.

All kerbs are mountable.

Spotter(s) to assist to ensure vehicle and load are clear of 0.5m Clearance infrastructure.

Load Path

Location: Rosanna VIC 3084 Online Map Link

# Moree Special Activation Precinct



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Route Assessment: Glen Waverley Swept Path Assessment





### 07a

Vehicle Envelope

### Notes: Escorts to control traffic as required and facilitate use of

opposing lanes.

infrastructure.

Spotter(s) to assist to ensure vehicle and load are clear of

0.5m Clearance

### Load Outlines

Load Path

Location: Kialla VIC 3631 Online Map Link 07b

# Moree Special Activation Precinct Swept Path Assessment



DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:1000





0.5m Clearance

Load Outlines

Load Path

### Notes:

Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure. All kerbs are mountable.

Location: Orrvale VIC 3631 Online Map Link

# Moree Special Activation Precinct Swept Path Assessment

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:1000







0.5m Clearance

Load Outlines

Load Path

### Notes:

Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure. All kerbs are mountable.

Location: Shepparton-Mooroopna VIC 3630 Online Map Link

Swept Path Assessment

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:1000

Route Assessment: Glen Waverley Moree Special Activation Precinct





0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure. All kerbs are mountable.

Location: Grahamvale VIC 3631 Online Map Link

# Moree Special Activation Precinct Swept Path Assessment



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:1000





Vehicle Envelope	Notes:
	Escorts to control traffic as required and facilitate use of
0.5m Clearance	opposing lane on Grahamville Road.
	Spotter(s) to assist to ensure vehicle and load are clear of
Load Outlines	infrastructure.
	Active rail level crossing requires ODL permit from DTP before
Load Path	crossing.

Location: Greater Shepparton VIC 3630 Online Map Link

# Moree Special Activation Precinct



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Route Assessment: Glen Waverley Swept Path Assessment









## Moree Special Activation Precinct Swept Path Assessment

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750



0.5m Clearance

Load Outlines

Load Path

### Vehicle Envelope

### Notes:

Escorts to control traffic as required and facilitate use of opposing lane. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure. Temporary relocation of four road signs from median. All kerbs are mountable.

Location: Congupna VIC 3633 Online Map Link







### 13a

Vehicle Envelope

0.5m Clearance

Load Outlines

## Notes:

Escorts to control traffic as required and facilitate use of opposing lane from east. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure. **Location:** Strathmerton VIC 3641 *Online Map Link*  13b

Route Assessment: Glen Waverley Moree Special Activation Precinct Swept Path Assessment

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Load Path





Vehicle Envelope	Notes:
	Escorts to control traffic as required and facilitate use of
0.5m Clearance	opposing lane north of intersection.
	Spotter(s) to assist to ensure vehicle and load are clear of
Load Outlines	infrastructure.
	Temporary relocation of one road sign required.
Load Path	All kerbs are mountable.

Location: Yarroweyah VIC 3644 Online Map Link

Swept Path Assessment

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Route Assessment: Glen Waverley Moree Special Activation Precinct





Notes: Escorts to control traffic as required and facilitate use of

infrastructure.

opposing lane south of roundabout.

Kerbs mountable where indicated.

Spotter(s) to assist to ensure vehicle and load are clear of

0.5m Clearance

Load Outlines

Load Path

Tocumwal NSW 2714

Online Map Link

# Moree Special Activation Precinct Swept Path Assessment

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:1000





0.5m Clearance

Load Outlines

Load Path

Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Jerilderie NSW 2716 Online Map Link



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Route Assessment: Glen Waverley Moree Special Activation Precinct Swept Path Assessment





0.5m Clearance

Load Outlines

### Notes:

Escorts to control traffic as required and facilitate use of opposing lane. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Gillenbah NSW 2700 Online Map Link

# Moree Special Activation Precinct



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Load Path

Route Assessment: Glen Waverley Swept Path Assessment




0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure. All kerbs are mountable.

Location: Gillenbah NSW 2700 Online Map Link

# Moree Special Activation Precinct Swept Path Assessment







0.5m Clearance

Load Outlines

### Notes:

Escorts to control traffic as required and facilitate use of opposing turning lane. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Narrandera NSW 2700 Online Map Link

# Moree Special Activation Precinct



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Load Path

Route Assessment: Glen Waverley Swept Path Assessment





0.5m Clearance

Load Outlines

Load Path

#### Notes:

Escorts to control traffic as required and facilitate use of opposing lane. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure. Temporary relocation of two road signs required.

Location: West Wyalong NSW 2671 Online Map Link

## Moree Special Activation Precinct Swept Path Assessment



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750





Vehicle Envelope	Notes:
0.5m Clearance	Escorts to control traffic as required and facilitate use of opposing traffic lane
	Spotter(s) to assist to ensure vehicle and load are clear of
Load Outlines	infrastructure.
Load Path	Temporary relocation of two road signs required. Active rail level crossing requires permit from UGL Regional Linx before crossing - LXM ID 1193

Location: West Wyalong NSW 2671 Online Map Link

# Moree Special Activation Precinct Swept Path Assessment

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:1000





Vehicle	Envelope
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0.5m Clearance

Load Outlines

Load Path

### Notes:

Escorts to control traffic as required and facilitate use of opposing traffic lane. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure. Temporary relocation of one road sign required.

Location: Wyalong NSW 2671 Online Map Link

# Moree Special Activation Precinct



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Route Assessment: Glen Waverley Swept Path Assessment





0.5m Clearance

### Notes:

Escorts to control traffic as required and facilitate use of opposing lanes. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Forbes NSW 2871 Online Map Link

# Moree Special Activation Precinct Swept Path Assessment



Load Path

Load Outlines





0.5m Clearance

Load Outlines

### Notes:

Escorts to control traffic as required and faciliate use of opposing lanes. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Forbes VIC 2871 Online Map Link

# Moree Special Activation Precinct Swept Path Assessment

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Load Path





Notes:

0.5m Clearance

Escorts to control traffic as required.

Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Forbes NSW 2871 Online Map Link

# Moree Special Activation Precinct Swept Path Assessment

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Load Path

Load Outlines





### Vehicle Envelope 0.5m Clearance

Load Outlines

Load Path

Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure. Provide hardstand and mountable kerbing as required at yellow highlighted area. Temporary relocation of one road sign required.

Location: Dubbo NSW 2830 Online Map Link

# Moree Special Activation Precinct



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Route Assessment: Glen Waverley Swept Path Assessment





Vehicle Envelope	Note
	Escor
0.5m Clearance	oppos
	Spott
Load Outlines	infras
	Ensur
Load Path	unoco

#### es:

rts to control traffic as required and facilitate use of sing traffic lane. ter(s) to assist to ensure vehicle and load are clear of structure. re parking lane on Erskine Street and Bourke Street is cupied in advance of transit. Mountable kerbing may be required on south side of Erskine Street.

Location: Dubbo NSW 2830 Online Map Link

# Moree Special Activation Precinct Swept Path Assessment

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750





Vehicle Envelope	Notes:
0.5m Clearance	Escorts to control traffic as required and facilitate use of opposing traffic lane.
	Spotter(s) to assist to ensure vehicle and load are clear of
Load Outlines	infrastructure.
Load Path	Intersection is currently under construction - OSOM movements and temporary road infrastructure changes dependant on final road design.

Location: Gilgandra NSW 2827 Online Map Link

Swept Path Assessment

6

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Route Assessment: Glen Waverley Moree Special Activation Precinct





Vehicle Envelope	Notes:
	Escorts to control traffic as required.
0.5m Clearance	Spotter(s) to assist to ensure vehicle and load are clear of
	infrastructure.
Load Outlines	Ensure parking lanes along on John Street are unoccupied in
	advance of transit.
Load Path	Mountable kerbing to be provided on verges where indicated.
	lemporary relocation of one road sign required.

Location: Coonabarabran NSW 2357 Online Map Link

# Moree Special Activation Precinct



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:1000

Route Assessment: Glen Waverley Swept Path Assessment





0.5m Clearance

Load Outlines

### Notes:

Escorts to control traffic as required and facilitate use of opposing traffic lane. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Coonabarabran NSW 2357 Online Map Link

# Moree Special Activation Precinct



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:1000

Load Path

Route Assessment: Glen Waverley Swept Path Assessment





Vehicle Envelope	Notes:
	Escorts to control traffic as required and facilitate use of
0.5m Clearance	opposing traffic lane.
	Spotter(s) to assist to ensure vehicle and load are clear of
Load Outlines	infrastructure.
	Provide hardstand and mountable kerbing as required at yellow
Load Path	highlighted area.
	Island kerbing is mountable.

Location: Narrabri NSW 2390 Online Map Link

# Moree Special Activation Precinct Swept Path Assessment

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750





e Envelope	Notes:
	Escorts to co
Clearance	opposing lane
	Spotters to m
Outlines	infrastructure
	Temporary re
Path	Island kerbs a
Path	Island kerbs

ntrol traffic as required and facilitate use of es. nonitor path of travel and impact to existing location of five road signs required. re mountable.

Location: Narrabri NSW 2390 Online Map Link

# Swept Path Assessment

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Route Assessment: Glen Waverley Moree Special Activation Precinct







0.5m Clearance

Load Outlines

Escorts to control traffic as required and facilitate use of opposing lanes. Spotters to monitor path of travel and impact to existing infrastructure.

Location: Narrabri NSW 2390 Online Map Link

# Moree Special Activation Precinct



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Load Path

Route Assessment: Glen Waverley Swept Path Assessment





0.5m Clearance	

Load Outlines

Load Path

#### Notes:

Escorts to control traffic as required and facilitate use of opposing lanes. Spotters to monitor path of travel and impact to existing infrastructure. Ensure parking lane on Tibbereena Street is unoccupied in advance of transit.

Location: Narrabri NSW 2390 **Online Map Link** 

### Moree Special Activation Precinct Swept Path Assessment

![](_page_88_Picture_6.jpeg)

![](_page_88_Picture_8.jpeg)

![](_page_89_Figure_0.jpeg)

### Escorts to control traffic as required and facilitate use of

0.5m Clearance

Load Outlines

Load Path

Spotters to monitor path of travel and impact to existing infrastructure.

opposing lanes.

Temporary relocation of two road signs required.

Location: Narrabri NSW 2390 **Online Map Link** 

# Moree Special Activation Precinct Swept Path Assessment

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

![](_page_89_Picture_12.jpeg)

![](_page_90_Picture_0.jpeg)

0.5m Clearance

Load Outlines

Load Path

#### Notes:

Escorts to control traffic as required and facilitate use of opposing lanes. Spotters to monitor path of travel and impact to existing infrastructure. Active rail level crossing requires permit from ARTC before crossing - LXM ID 560

Location: Moree NSW 2400 Online Map Link

![](_page_90_Picture_6.jpeg)

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

Route Assessment: Glen Waverley Moree Special Activation Precinct

![](_page_90_Picture_9.jpeg)

![](_page_91_Picture_0.jpeg)

0.5m Clearance

Notes: Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Beveridge VIC 3753 Online Map Link

# Moree Special Activation Precinct

![](_page_91_Picture_6.jpeg)

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:1000

Load Path

Load Outlines

![](_page_91_Picture_10.jpeg)

![](_page_92_Picture_0.jpeg)

0.5m Clearance

Notes: Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Arcadia VIC 3631 Online Map Link

# Moree Special Activation Precinct

![](_page_92_Picture_6.jpeg)

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:1000

Load Path

Load Outlines

![](_page_92_Picture_10.jpeg)

![](_page_93_Picture_0.jpeg)

0.5m Clearance

Load Outlines

infrastructure.

opposing lanes.

Escorts to control traffic as required and facilitate use of Spotter(s) to assist to ensure vehicle and load are clear of

Location: Grong Grong NSW 2652 Online Map Link

# Moree Special Activation Precinct

![](_page_93_Picture_9.jpeg)

Load Path

![](_page_93_Picture_12.jpeg)

![](_page_94_Picture_0.jpeg)

0.5m Clearance

Load Outlines

Load Path

Notes: Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Back Creek NSW 2671 Online Map Link

# Moree Special Activation Precinct

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:750

![](_page_94_Picture_10.jpeg)

![](_page_95_Picture_0.jpeg)

0.5m Clearance

Load Outlines

Load Path

Notes: Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Coonabarabran NSW 2357 Online Map Link

# Moree Special Activation Precinct

![](_page_95_Picture_8.jpeg)

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Glen Waverley RA01C SCALE at A3: 1:1000

![](_page_95_Picture_11.jpeg)

![](_page_96_Picture_0.jpeg)

![](_page_96_Figure_1.jpeg)

OSOM Configuration calibrated against similar OSOM configurations and is based on information available at the time of assessment

![](_page_96_Picture_3.jpeg)

Route Assessment: Port Botany

**Overall Route Summary and OSOM Details** 

![](_page_96_Picture_6.jpeg)

SCALE at A3: NTS

![](_page_97_Picture_0.jpeg)

Location:

Online Map Link

Port Botany, NSW 2036

Vehicle	Envelope	
---------	----------	--

#### Notes:

Escorts to control traffic as required and facilitate 0.5m Clearance use of opposing lanes. Spotter(s) to assist to ensure vehicle and load are Load Outlines clear of infrastructure. Load Path Mountable kerbs where shown.

Moree BESS Swept Path Assessment

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:1000

Route Assessment: Port Botany

![](_page_98_Picture_0.jpeg)

Vehicle Envelope	Notes:
0.5m Clearance	Escort use of
Load Outlines	Spotte clear c
Load Path	Island

ts to control traffic as required and facilitate f opposing lanes. er(s) to assist to ensure vehicle and load are of infrastructure. kerbs are mountable.

Location: Port Botany/Matraville, NSW 2036 Online Map Link

# Moree BESS

Swept Path Assessment

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:500

Route Assessment: Port Botany

a state of the sta	Pedestrian crossing button - Approximate height 1m
Vehicle to travel on opposite side of Botany Road from Bumborah Point Road intersection (refer Sheet 02)	Temporary hardstand to be provided
	otany Road
□ Light/power pole	
O Traffic signal	
Area to be made trafficable	

Vehicle Envelope	<b>Notes:</b> Escorts to control traffic as required and facilitate use of opposing traffic lanes. Spotter(s) to assist to ensure vehicle and load are	ontrol traffic as required and facilitate sing traffic lanes. o assist to ensure vehicle and load are	$\mathbf{\Omega}$	Route Assessme Moree BESS Swept Path Assessr
Load Outlines	clear of infrastructure.			DRAWN: SF
Load Path	Provide hardstand and mountable kerbing as required at yellow highlighted areas.			DATE: 12/02/2025 DWG NO: 1044 Port Botany SCALE at A3: 1:750

![](_page_99_Picture_2.jpeg)

### nent: Port Botany

sment

![](_page_99_Picture_5.jpeg)

![](_page_100_Picture_0.jpeg)

0.5m Clearance

Load Outlines

### Notes:

Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Daceyville, NSW 2032 Online Map Link

# Moree BESS

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

Load Path

Route Assessment: Port Botany

Swept Path Assessment

![](_page_101_Picture_0.jpeg)

0.5m Clearance

Load Outlines

### Notes:

Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Carlingford, NSW 2118 Online Map Link

# Moree BESS Swept Path Assessment

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D

SCALE at A3: 1:750

Load Path

Route Assessment: Port Botany

![](_page_102_Figure_0.jpeg)

0.5m Clearance

#### Notes: Escorts to control traffic as required.

Load Outlines

Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Load Path

Location: Wahroonga, NSW 2076 Online Map Link

### Moree BESS Swept Path Assessment

![](_page_102_Picture_10.jpeg)

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

Route Assessment: Port Botany

![](_page_103_Picture_0.jpeg)

0.5m Clearance

#### Load Outlines

Load Path

Notes: Escorts to control traffic as required. Spotter(s) to assist to ensure vehicle and load are clear of infrastructure.

Location: Cameron Park, NSW 2285 Online Map Link

# Moree BESS

Swept Path Assessment

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

Route Assessment: Port Botany

![](_page_103_Picture_12.jpeg)

![](_page_104_Picture_0.jpeg)

Vehicle Envelope	Notes:
0.5m Clearance	Escorts to control traffic at intersection and facilitate use of opposing traffic lanes.
Load Outlines	Spotters to monitor path of travel and impact to existing infrastructure.
Load Path	Ensure parking lane on Bell Street is unoccupied in advance of transit.

Location: Muswellbrook, NSW 2333 Online Map Link

# Moree BESS

![](_page_104_Picture_4.jpeg)

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

Route Assessment: Port Botany

Swept Path Assessment

![](_page_105_Picture_0.jpeg)

0.5m Clearance

Load Outlines

Load Path

#### Notes:

Escorts to control traffic at intersection and facilitate use of opposing traffic lanes. Spotters to monitor path of travel and impact to existing infrastructure. Location: Muswellbrook, NSW 2333 Online Map Link

### Route Assessment: Port Botany Moree BESS Swept Path Assessment

![](_page_105_Picture_10.jpeg)

DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

![](_page_106_Picture_0.jpeg)

Vehicle Envelope Notes: Location: Escorts to control traffic at intersection and facilitat@uswellbrook, NSW 2333 use of opposing traffic lanes. 0.5m Clearance Online Map Link Spotters to monitor path of travel and impact to existing infrastructure. Load Outlines

Route Assessment: Port Botany Moree BESS

Swept Path Assessment

6

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

Load Path

![](_page_107_Picture_0.jpeg)

0.5m Clearance

Load Outlines

Load Path

Notes:

Escorts to control traffic as required and facilitate use of opposing turning lane where indicated. Spotters to monitor path of travel and impact to existing infrastructure.

Location: Blandford, NSW 2338 Online Map Link

### Moree BESS Swept Path Assessment

![](_page_107_Picture_10.jpeg)

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

Route Assessment: Port Botany

![](_page_107_Picture_14.jpeg)


Vehicle Envelope

0.5m Clearance

Notes:

Load Outlines

Escorts to control traffic as required. Spotters to monitor path of travel and impact to existing infrastructure. Location: Willow Tree, NSW 2339 Online Map Link

## Moree BESS

Swept Path Assessment

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

Load Path

Route Assessment: Port Botany





#### Vehicle Envelope Notes: Escorts to control traffic at intersection and

0.5m Clearance

Load Outlines

Load Path

existing infrastructure. Ensure parking lane on Loder Street is unoccupied in advance of transit.

Spotters to monitor path of travel and impact to

facilitate use of opposing traffic lanes.

Location: Quirindi, NSW 2343 Online Map Link

### Moree BESS Swept Path Assessment

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

Route Assessment: Port Botany



Vehicle Envelope	Notes:	Location:		Ro
	Escolts to control trainc as required.	Gunnedan, NSW 2380		MO
U.Sm Clearance	Spotters to monitor path of travel and impact to existing infrastructure.	Online Map Link	$\cap$	Sw
Load Outlines	Kerbs are mountable where shown.			DRA
	Provide hardstand as required at yellow highlighte	h		DAT
Load Path	aroas	iu iii		DWG
	αι τας.			SCA

oute Assessment: Port Botany oree BESS

AWN: SE TE: 12/02/2025 'G NO: 1044 Port Botany RA01D ALE at A3: 1:750

vept Path Assessment





Vehicle Envelope	Notes:	Location:
0.5m Clearance	Escorts to control traffic as required and facilitate use of opposing lanes.	Gunnedah, NSW 2380 Online Man Link
Load Outlines	Spotters to monitor path of travel and impact to existing infrastructure.	
Load Path	Kerbs are mountable where shown.	

# Moree BESS

Swept Path Assessment

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

Route Assessment: Port Botany





Vehicle Envelope

Notes:

0.5m Clearance

Load Outlines

Load Path

Location: Escorts to control traffic as required and facilitate use of opposing lanes. Gunnedah, NSW 2380 Online Map Link Spotters to monitor path of travel and impact to existing infrastructure.

### Moree BESS Swept Path Assessment



Route Assessment: Port Botany



### Vehicle Envelope

### Notes:

Escorts to control traffic at intersection and 0.5m Clearance facilitate use of opposing traffic lanes. Spotters to monitor path of travel and impact to Load Outlines existing infrastructure. Load Path Temporary relocation of two road signs required. Island kerbs are mountable.

Location: Gunnedah, NSW 2380 Online Map Link

### Moree BESS Swept Path Assessment



DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

Route Assessment: Port Botany



Vehicle Envelope	Notes:	Location:
0.5m Clearance	Escorts to control traffic as required and facilitate use of opposing lanes.	Boggabri, NSW 2382 Online Map Link
Load Outlines	Spotters to monitor path of travel and impact to existing infrastructure.	
Load Path	Ensure parking lane on Grantham Street is unoccupied in advance of transit	

Route Assessment: Port Botany Moree BESS

Swept Path Assessment

6

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750



Vehicle Envelope	Notes:	Location:	
0.5m Clearance	Escorts to control traffic as required and facilitate use of opposing lanes.	Narrabri, NSW 2390 <i>Online Map Link</i>	
Load Outlines	Spotters to monitor path of travel and impact to existing infrastructure.		
Load Path			

### Moree BESS Swept Path Assessment

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

6

Route Assessment: Port Botany

Amber 19



Vehicle Envelope	<b>Notes:</b> Escorts to control traffic as required and facilitate use of opposing lanes.	<b>Location:</b> Narrabri, NSW 2390 <i>Online Map Link</i>		Route Assess Moree BESS Swept Path Asse
Load Outlines	existing infrastructure.		<b>U</b> -	DRAWN: SF
Load Path	Temporary relocation of five road signs required. Island kerbs are mountable.			DATE: 12/02/2025 DWG NO: 1044 Port Bo SCALE at A3: 1:750

sment: Port Botany

essment





Location:

Narrabri, NSW 2390

Online Map Link

Vehicle Envelope

0.5m Clearance

### Notes: Escorts to control traffic as required and facilitate use of opposing lanes.

Spotters to monitor path of travel and impact to existing infrastructure.

Load Outlines

Load Path

Route Assessment: Port Botany Moree BESS Swept Path Assessment

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750



Vehicle Envelope	Notes:	Locatio
0.5m Clearance	Escorts to control traffic as required and facilitate use of opposing lanes.	Narrab Online
Load Outlines	Spotters to monitor path of travel and impact to existing infrastructure.	
Load Path	Ensure parking lane on Tibbereena Street is unoccupied in advance of transit.	

on: ori, NSW 2390 Map Link

### Moree BESS Swept Path Assessment



DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

Route Assessment: Port Botany

Amber 22



Vehicle Envelope	Notes:	Location:	
0.5m Clearance	Escorts to control traffic as required and facilitate use of opposing lanes.	Narrabri, NSW 2390 Online Map Link	
Load Outlines	Spotters to monitor path of travel and impact to existing infrastructure.		
Load Path	Temporary relocation of two road signs required.		

Route Assessment: Port Botany Moree BESS

Swept Path Assessment

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

6

Amber 23



Vehicle Envelope	Notes:
0.5m Clearance	Escorts to control traffic as required and facilitat use of opposing lanes.
Load Outlines	Spotters to monitor path of travel and impact to existing infrastructure.
Load Path	Active rail level crossing requires permit from ARTC before crossing - LXM ID 560

Location: raffic as required and facilitate Moree, NSW 2400 Online Map Link

## Moree BESS

Swept Path Assessment

DRAWN: SE DATE: 12/02/2025 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

Route Assessment: Port Botany





Spotters to monitor path of travel and impact to existing infrastructure.

Kerbs are mountable where shown



Location:

Buchanan, NSW 2323

Online Map Link

Route Assessment: Port Botany Moree BESS Swept Path Assessment - Rest Area

DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:1000

RA1a

### Vehicle Envelope

### Notes: Escorts to control traffic as required.

0.5m Clearance

Load Outlines

Load Path





Vehicle Envelope

0.5m Clearance

#### Load Outlines

Load Path

Notes:

Escorts to control traffic as required. Spotters to monitor path of travel and impact to existing infrastructure.

Location: Breeza, NSW 2381 Online Map Link

## Moree BESS



DRAWN: SE DATE: 08/10/2024 DWG NO: 1044 Port Botany RA01D SCALE at A3: 1:750

Route Assessment: Port Botany

Swept Path Assessment - Rest Area



### Appendix B

Traffic Survey Data



# TRANS TRAFFIC SURVEY



### Intersection of Newell Hwy and Bulluss Dr, Moree

GPS -29.484426, 149.850658

Date:	Thu 06/02/25	North:	Newell Hwy	Survey	AM:	6:00 AM-9:00
Weather:	Fine	East:	Bulluss Dr	Period	PM:	3:00 PM-6:00
Suburban:	Moree	South:	Newell Hwy	Traffic	AM:	8:00 AM-9:00
Customer:	Amber	West:	N/A	Peak	PM:	3:30 PM-4:30

#### All Vehicles

Tii	me	lorth App	oroach N	ewell Hw	East Ap	oroach B	ulluss Dr	outh Ap	proach N	ewell Hw	Hourly <b>T</b>	otal
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	Hour	Peal
6:00	6:15	0	10	17	0	6	1	0	0	8	273	
6:15	6:30	0	19	11	0	9	1	0	2	16	330	
6:30	6:45	0	21	16	0	8	5	0	2	15	349	
6:45	7:00	0	31	38	0	11	3	0	6	17	351	
7:00	7:15	0	21	39	0	22	2	0	4	11	337	
7:15	7:30	0	19	24	0	9	2	0	1	22	356	
7:30	7:45	0	33	10	0	6	1	0	1	18	409	
7:45	8:00	0	25	19	0	16	4	0	4	24	450	
8:00	8:15	0	32	24	0	28	5	0	4	25	467	Peal
8:15	8:30	0	36	33	0	20	4	0	0	37		
8:30	8:45	0	31	17	0	19	9	0	3	31		
8:45	9:00	0	30	25	0	17	4	0	4	29		
15:00	15:15	0	23	24	0	39	5	0	4	34	488	
15:15	15:30	0	26	19	0	24	3	0	2	34	498	
15:30	15:45	0	34	18	0	23	2	0	3	40	515	Peal
15:45	16:00	0	38	29	0	25	3	0	3	33	512	
16:00	16:15	0	39	25	0	30	5	0	1	39	490	
16:15	16:30	0	31	22	0	38	4	0	1	29	485	
16:30	16:45	0	26	17	0	33	2	0	2	37	467	
16:45	17:00	0	28	17	0	23	1	0	4	36	459	
17:00	17:15	0	40	22	0	27	6	0	3	36	434	
17:15	17:30	0	34	11	0	18	5	0	3	36		
17:30	17:45	0	31	8	0	15	5	0	2	48		
17:45	18:00	0	25	10	0	14	3	3	3	26		

Peak	Time	lorth App	oroach No	ewell Hw	East App	oroach B	ulluss Dr	outh Ap	proach N	ewell Hw	Peak
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	total
8:00	9:00	0	129	99	0	84	22	0	11	122	467
15:30	16:30	0	142	94	0	116	14	0	8	141	515

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets con-



Light Vehicl	.ight Vehicles									
Tiı	ne	orth App	proach N	ewell Hw	East App	proach B	ulluss Dr	outh Ap	proach N	ewell Hw
Period Start	Period End	U	SB	L	U	R	L	U	R	NB
6:00	6:15	0	7	16	0	3	1	0	0	6
6:15	6:30	0	15	11	0	8	1	0	2	7
6:30	6:45	0	19	15	0	6	5	0	2	14
6:45	7:00	0	28	38	0	9	2	0	5	14
7:00	7:15	0	16	35	0	18	2	0	1	11
7:15	7:30	0	14	23	0	6	2	0	1	18
7:30	7:45	0	28	8	0	5	1	0	1	13
7:45	8:00	0	15	16	0	12	3	0	4	20
8:00	8:15	0	24	21	0	24	2	0	3	21
8:15	8:30	0	24	26	0	12	3	0	0	27
8:30	8:45	0	17	15	0	14	4	0	2	27
8:45	9:00	0	19	21	0	16	2	0	2	24
15:00	15:15	0	18	22	0	33	4	0	4	26
15:15	15:30	0	22	15	0	21	2	0	2	22
15:30	15:45	0	23	15	0	21	2	0	2	26
15:45	16:00	0	29	24	0	23	2	0	1	25
16:00	16:15	0	27	22	0	28	3	0	0	25
16:15	16:30	0	22	20	0	33	3	0	1	17
16:30	16:45	0	16	16	0	32	0	0	2	26
16:45	17:00	0	19	14	0	22	1	0	3	23
17:00	17:15	0	33	20	0	27	6	0	2	24
17:15	17:30	0	29	11	0	17	3	0	2	24
17:30	17:45	0	23	8	0	14	2	0	0	33
17:45	18:00	0	16	7	0	14	3	3	1	17

Peak	Time	lorth App	oroach N	ewell Hw	East App	oroach B	ulluss Dr	outh Ap	proach N	ewell Hw	Peak
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	total
8:00	9:00	0	84	83	0	66	11	0	7	99	350
15:30	16:30	0	101	81	0	105	10	0	4	93	394

Heavy Vehicles										
Tiı	me	orth App	proach Ne	ewell Hw	East App	proach B	ulluss Dr	outh Ap	oroach N	ewell Hw
Period Start	Period End	U	SB	L	U	R	L	U	R	NB
6:00	6:15	0	3	1	0	3	0	0	0	2
6:15	6:30	0	4	0	0	1	0	0	0	9
6:30	6:45	0	2	1	0	2	0	0	0	1
6:45	7:00	0	3	0	0	2	1	0	1	3
7:00	7:15	0	5	4	0	4	0	0	3	0
7:15	7:30	0	5	1	0	3	0	0	0	4
7:30	7:45	0	5	2	0	1	0	0	0	5
7:45	8:00	0	10	3	0	4	1	0	0	4
8:00	8:15	0	8	3	0	4	3	0	1	4
8:15	8:30	0	12	7	0	8	1	0	0	10
8:30	8:45	0	14	2	0	5	5	0	1	4
8:45	9:00	0	11	4	0	1	2	0	2	5
15:00	15:15	0	5	2	0	6	1	0	0	8
15:15	15:30	0	4	4	0	3	1	0	0	12
15:30	15:45	0	11	3	0	2	0	0	1	14
15:45	16:00	0	9	5	0	2	1	0	2	8
16:00	16:15	0	12	3	0	2	2	0	1	14
16:15	16:30	0	9	2	0	5	1	0	0	12
16:30	16:45	0	10	1	0	1	2	0	0	11
16:45	17:00	0	9	3	0	1	0	0	1	13
17:00	17:15	0	7	2	0	0	0	0	1	12
17:15	17:30	0	5	0	0	1	2	0	1	12
17:30	17:45	0	8	0	0	1	3	0	2	15
17:45	18:00	0	9	3	0	0	0	0	2	9

Peak	Time	lorth App	oroach N	ewell Hw	East App	proach B	ulluss Dr	outh Ap	proach N	ewell Hw	Peak
Period Start	Period End	U	SB	L	U	R	L	U	R	NB	total
8:00	9:00	0	45	16	0	18	11	0	4	23	117
15:30	16:30	0	41	13	0	11	4	0	4	48	121

### Appendix C

TfNSW Correspondence



From:	Ruvimbo Timba							
To:	Tom Dwyer							
Cc:	Development Renewables							
Subject:	Re: WST24/00370/001 - Moree BESS within Special Activation Precinct - Route Assessment							
Date:	Friday, 8 November 2024 1:46:02 PM							
Attachments:	image003.png							
	image004.png							
	image005.png							
	image006.png							
	Outlook-22k1iyon.png							
	Outlook-v1thi3p3.png							
	Outlook-hzy5z54d.png							

#### Hi Tom,

TfNSW has concerns with the route which originates from Port Botany due to the complexity of the movement required for the beam set. In addition to this, Port Botany has not been used for the import of larger goods (similar to this development) in recent years. Due to the OSOM vehicle being high risk (as defined by TfNSW), a concept level route analysis will be required with the following information:

- a. Port or point of origin for the entire route to the site access and intersections required to facilitate high risk OSOM movements required for the project.
- b. Overall combination type, configuration, load and vehicle configuration.
- c. The laden dimensions and weight of the vehicle configuration and loads.
- d. Details of all high risk OSOM loads and vehicle configurations for the project.
- e. The location of pull-over bays / rest areas along high risk OSOM routes (including GPS coordinates) and demonstrate through swept paths that high risk OSOMs can be physically accommodated for the project (in terms of size, width and accessibility).
- f. Bridge Assessments for any at risk bridges on classified roads due to dimensions and weight of OSOM vehicles.
- g. The design vehicle templates used in the swept path analysis software are also requested in order for TfNSW to review the performance within the software (e.g. Autodesk Vehicle Tracking or Transoft AutoTURN).
- h. Highlighting each at-risk road structures that the haulage route crosses including bridges, traffic signals, signage, major culverts, and minor culverts that may not meet the desirable cover to cater for proposed axle loads.
- i. Traffic mitigation measures or road works, modifications, or road upgrades to facilitate the movement of the high risk OSOM(s) associated with the project.
- j. Potential high level mitigation measures or commitments to mitigate known traffic, safety and impacts to road users along the high risk OSOM route (i.e school bus routes, mining shift changes, TSRs, harvest periods and events).
- k. Identify and assess implications of any road and rail projects under construction during the indicative schedule for project related OSOM movements.

The route from Victoria includes current TfNSW projects along the route which will create additional pinch points depending on the timings of the OSOM movements. A list of projects should be provided and assessed on their impacts to the OSOM movements including any applicable mitigation measures where timings align.

Please also note that NHVR permits do not cover road works or upgrades and environmental

approvals required along any proposed OSOM route. Any road works or upgrades works required along the OSOM route must be included within the scope of works in the project to ensure the development is constructable.

Given high number of renewable energy and other large scale projects requiring road haulage of OSOM components, restrictions, and limitations on OSOM movements may be in imposed. In this regard, it is recommended you engage earlier with TfNSW's Development Services Renewables team to discuss any additional requirements of the route assessment.

Ruvimbo Timba Development Services Case Officer - Renewables Transport Planning Planning, Integration and Passenger Transport for NSW

M 0473627129 E development.renewables@transport.nsw.gov.au

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transport.nsw.gov.au



I acknowledge the Aboriginal people of the country on which I work, their traditions, culture and a shared history and identity. I also pay my respects to Elders past and present and recognise the continued connection to country.

Please consider the environment before printing this email.

#### OFFICIAL

From: Development Renewables <development.renewables@transport.nsw.gov.au> Sent: Thursday, 24 October 2024 11:44 AM To: Tom Dwyer <tdwyer@amberorg.com.au>; Ruvimbo Timba

<Ruvimbo.Timba@transport.nsw.gov.au>

Subject: WST24/00370/001 - Moree BESS within Special Activation Precinct - Route Assessment

Hi Tom,

I can confirm the Development Services West Renewables team has received your email below.

This has been registered and the matter has been assigned to case officer @Ruvimbo Timba

TfNSW Reference - WST24/00370/001

Please ensure all future correspondence is sent to - <u>development.renewables@transport.nsw.gov.au</u>

Kind Regards,

#### **Rosa Gillogly**

Development Assessment Support Officer Development Services West Transport Planning – Planning, Integration and Passenger **Transport for NSW** 

#### E rosa.gillogly@transport.nsw.gov.au

#### transport.nsw.gov.au

Level 1 51-55 Currajong Street Parkes NSW 2870

I work flexibly. Unless it suits you, I don't expect you to read or respond to my emails outside of your normal work hours.



Transport for NSW

I recognise and acknowledge that modern New South Wales is an overlay on Aboriginal land and that many of the transport routes of today follow songlines Aboriginal people have followed for tens of thousands of years. I pay my respects to the Aboriginal people of NSW and Elders past and present.

Please consider the environment before printing this email.

OFFICIAL

From: Tom Dwyer <tdwyer@amberorg.com.au>

Sent: Thursday, October 17, 2024 10:48 AM

To: Development Renewables <development.renewables@transport.nsw.gov.au>

Cc: Shannon Eduards <seduards@amberorg.com.au>; Sarah Hillis

<sarah.h@nghconsulting.com.au>; David Canterbury <david.c@nghconsulting.com.au>

Subject: Moree BESS within Special Activation Precinct - Route Assessment

**CAUTION**: This email is sent from an external source. Do not click any links or open attachments unless you recognise the sender and know the content is safe.

Hi there

Amber has been engaged to prepare a route assessment in relation to a Battery Energy Storage System (BESS) project located with the <u>Moree Special Activation Precinct</u> (SAP). As a result of the location with the

SAP it is understood that the project follows a different planning pathway as compared to an SSD.

The assessment is available for download here: 1044 mem 241017 draft for comment.pdf

The route assessment has been undertaken for the delivery of a transformer to site from two potential origins: Port Botany, New South Wales, or Glen Waverley, Victoria. The assessment has been undertaken to determine the need for any civil works to support access to the site for the largest component likely to be delivered, with the assessments finding temporary road works would be required to facilitate access.

It is noted that formal approvals would be sought through the NHVR from relevant road authorities close to the construction of the BESS.

We seek your feedback on the assessment undertaken as the Development Application for the site is finalised.

Don't hesitate to contact me if any further information is required.

Kind regards Tom

#### **Tom Dwyer**

BEng (CivInfra) (Hons) GradDipUrbPlanEnv MIEAust NER RPEV Associate

Ph: +61 481 959 464



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### Appendix D

### Sidra Results



### **MOVEMENT SUMMARY**

### V Site: 101 [AM Peak Construction Newell Highway / Bulluss Drive (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Newell Highway / Bulluss Drive Site Category: (None) Give-Way (Two-Way)

Vehic	Vehicle Movement Performance												
Mov ID	Turn	Mov Class	Demand Flows [ Total HV ] veh/h %	Arrival Flows [ Total HV ] veh/h %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% E Qu [ Veh. veh	Back Of leue Dist ] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Newell Highway													
2	T1	All MCs	58 38.2	58 38.2	0.037	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
3	R2	All MCs	83 34.2	83 34.2	0.088	7.2	LOS A	0.4	3.2	0.35	0.62	0.35	42.0
Appro	ach		141 35.8	141 35.8	0.088	4.2	NA	0.4	3.2	0.21	0.36	0.21	47.8
East:	Bullus	s Drive											
4	L2	All MCs	11 10.0	11 10.0	0.072	6.0	LOS A	0.3	2.2	0.39	0.61	0.39	43.6
6	R2	All MCs	38 25.0	38 25.0	0.072	9.0	LOS A	0.3	2.2	0.39	0.61	0.39	35.5
Appro	ach		48 21.7	48 21.7	0.072	8.4	LOS A	0.3	2.2	0.39	0.61	0.39	37.7
North:	New	ell Highw	ay										
7	L2	All MCs	120 9.6	120 9.6	0.069	5.7	LOS A	0.0	0.0	0.00	0.57	0.00	40.3
8	T1	All MCs	87 14.5	87 14.5	0.049	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Appro	ach		207 11.7	207 11.7	0.069	3.3	NA	0.0	0.0	0.00	0.33	0.00	48.9
All Ve	nicles		397 21.5	397 21.5	0.088	4.2	NA	0.4	3.2	0.12	0.38	0.12	47.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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### **MOVEMENT SUMMARY**

### V Site: 101 [PM Peak Construction Newell Highway / Bulluss Drive (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Newell Highway / Bulluss Drive Site Category: (None) Give-Way (Two-Way)

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows [ Total HV ] veh/h %	Arrival Flows [ Total HV ] veh/h %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% E Qu [ Veh. veh	Back Of eue Dist ] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Newell Highway													
2	T1	All MCs	158 32.7	158 32.7	0.098	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	All MCs	12 54.5	12 54.5	0.015	8.0	LOS A	0.1	0.6	0.40	0.60	0.40	39.8
Appro	ach		169 34.2	169 34.2	0.098	0.6	NA	0.1	0.6	0.03	0.04	0.03	57.9
East:	Bullus	s Drive											
4	L2	All MCs	43 41.5	43 41.5	0.249	7.6	LOS A	1.0	8.3	0.53	0.71	0.53	40.6
6	R2	All MCs	111 10.5	111 10.5	0.249	10.5	LOS A	1.0	8.3	0.53	0.71	0.53	35.2
Appro	ach		154 19.2	154 19.2	0.249	9.7	LOS A	1.0	8.3	0.53	0.71	0.53	37.1
North	New	ell Highw	ay										
7	L2	All MCs	56 11.3	56 11.3	0.032	5.7	LOS A	0.0	0.0	0.00	0.57	0.00	40.1
8	T1	All MCs	188 27.9	188 27.9	0.114	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appro	ach		244 24.1	244 24.1	0.114	1.3	NA	0.0	0.0	0.00	0.13	0.00	55.6
All Ve	hicles		567 25.8	567 25.8	0.249	3.4	NA	1.0	8.3	0.15	0.26	0.15	50.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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### Appendix E

Site Access Design and Swept Path Assessment







Min. Design Speed 5km/h



1300

9500

mm : 2500 : 2500 : 2500 : 2500 Tractor Width Trailer Width Tractor Track Trailer Track Lock to Lock : 6.0s Steering Angle : 28.3 Articulating Angle 70.0

DRAWN: SE DATE: 28/02/2025 DWG NO: 1044 S01C SCALE at A3: 1:250

Moree Special Activation Precinct Site Access Swept Path Assessment





mm : 2500 : 2500

: 2500 : 2500 : 2500





DRAWN: SE DATE: 28/02/2025 DWG NO: 1044 S01C SCALE at A3: 1:250

Moree Special Activation Precinct Site Access Swept Path Assessment







Overall Length Track width Beamset width Load Height Axle spacing

56.633m 4.200m 5.740m 4.500m 1.800m

OSOM Configuration calibrated against similar OSOM configurations and is based on information available at the time of assessment

Moree BESS

DRAWN: SE DATE: 28/02/2025 DWG NO: 1044 S01C SCALE at A3: 1:500

Moree Special Activation Precinct OSOM Vehicle Site Access Swept Path Assessment



### Appendix F

Moree Plains Shire Council Correspondence

From:	<u>Sarah Hillis</u>
To:	Shannon Eduards
Subject:	Fw: Moree BESS - SAP
Date:	Wednesday, 5 March 2025 3:11:55 PM
Attachments:	image001.png
	image002.png
	image003.png
	image004.png
	23x23-7000689581387412544.png
	23x23-9030098416522805783.png
	23x23-16983202350067456251.png
	23x23-6279537786028880917.png

FYI

#### Sarah Hillis NSW Regional Lead - Environmental Planning

m: 0413 343 912 p: 02 6971 9696 (Ext 104)

- e. sarah.h@nghconsulting.com.au
- a. 35 Kincaid Street (PO Box 5464), Wagga Wagga, NSW 2650
- w. nghconsulting.com.au | Our commitment to reconciliation

Working hours: Tuesday to Friday



From: Darryl Fitzgerald <Darryl.Fitzgerald@mpsc.nsw.gov.au>
Sent: Friday, 20 December 2024 5:15 PM
To: Sarah Hillis <sarah.h@nghconsulting.com.au>
Cc: Jeremy Moore <jeremy.moore@avenisenergy.com.au>; Simon Kerrison
<simon.kerrison@avenisenergy.com.au>; David Canterbury <david.c@nghconsulting.com.au>
Subject: RE: Moree BESS - SAP

Hi Sarah,

A draft VPA document was prepared and returned to Avenis for comment.

Council wasn't previously requested to provide comment on the proposed traffic arrangements, and given the brief nature of the document, Council can offer little in the way of comment outside of advising that the capacity of the road network can accommodate the proposed construction traffic. Comment will be made in relation to a properly prepared Traffic Impact Assessment.

If you require anything more from Council, please provide some context to DPHI's request for comment from Council.

Regards

Darryl Fitzgerald | Director - Planning and Development

t. (02) 6757 3250 m. 0408 579 044

e. darryl.fitzgerald@mpsc.nsw.gov.au

Level 2, 30 Heber Street | Moree NSW 2400 | PO Box 420

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From: Sarah Hillis <sarah.h@nghconsulting.com.au>
Sent: Thursday, December 19, 2024 7:19 AM
To: Darryl Fitzgerald <Darryl.Fitzgerald@mpsc.nsw.gov.au>
Cc: Jeremy Moore <jeremy.moore@avenisenergy.com.au>; Simon Kerrison
<simon.kerrison@avenisenergy.com.au>; David Canterbury <david.c@nghconsulting.com.au>
Subject: Moree BESS - SAP
Importance: High

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Good morning Daryl

Avenis and NGH are preparing themselves to lodge the Moree BESS Development Application on the Portal early in the new year.

To close out DPHI comments, we are required to get Council response on the proposed construction traffic on the local road network as detailed in our letter in August.

Would Council please let me know if they have any concerns with the proposed arrangement, or if they would like to meet in the new year.

We would also appreciate the results of the discussion on the VPA arrangements, from the Ordinary Council Meeting on 31 October please.

I have re-attached ours and Council's correspondence for your information and easy reference.

Looking forward to hearing from you soon

Sarah

Sarah Hillis NSW Regional Lead - Environmental Planning

m: 0413 343 912 p: 02 6971 9696 (Ext 104)

e. sarah.h@nghconsulting.com.au

a. 35 Kincaid Street (PO Box 5464), Wagga Wagga, NSW 2650

w. nghconsulting.com.au | Our commitment to reconciliation

Working hours: Tuesday to Friday



27 August 2024

NGH

Darryl Fitzgerald Director – Planning and Development Moree Plains Shire Council PO Box 420 Moree NSW 2400

Darryl.fitzgerald@mpsc.nsw.gov.au

Dear Darryl

#### Re: 230246 – Moree Battery Energy Storage System

Thank you for taking the time to speak with NGH and Avenis Energy regarding the Moree Battery Energy Storage System (BESS) last week. As requested, please see a brief overview of the Project, proposed traffic arrangements and swept-path diagrams, and the proposed Voluntary Planning Contribution (VPA) in line with the Moree Plains Shire Section 7.12 Contribution Plan.

If you have any questions, please contact me or David Cantebury on 0403 709 813. We would be pleased to discuss any aspect of this project with you further.

Yours sincerely,

Samutili

Sarah Hillis Principal Consultant – Environmental Assessment and Approvals 0413 343 912
# The Proposal

Avenis Energy (the Applicant) propose to construct a 120MW/480MWh lithium-ion Battery Energy Storage System (BESS) within the Moree Special Activation Precinct (MSAP) at Bulluss Drive, Moree (the proposal).

The BESS would connect to the national electricity market (NEM) via TransGrid's 132kV Moree Bulk Supply Point substation, located immediately to the north of the development site (leased developable area). The connection to the substation would be via underground transmission.

The proposal would include the following:

- Approximately 140 battery containers, containing lithium-ion technology
- Approximately 42 skid-mounted Power Conversion Systems (PCS) comprising of; the inverters, which convert direct current (DC) to alternating current (AC); the medium-voltage transformer, which converts the inverter output voltage to the medium-voltage of the system (33 kilovolt); and the medium voltage switchgear, which contains the medium voltage circuit breakers and disconnectors for the PCS
- A 33kV switch room, which collects all the individual medium voltage cables from the PCS units in one location, before connection to the high-voltage transformer. Auxiliary power is supplied from a low-voltage room, which is connected to the medium-voltage switch room. Underground cables would connect the switch room, power conversion units and batteries, to allow for easy access and minimal disruption (if access is required)
- A control room, which will contain battery-monitoring equipment, allowing operators to control the plant remotely
- A short overhead / underground transmission line which would connect the proposed BESS to the adjacent Moree substation. The connection type would be subject to TransGrid requirements
- Associated ancillary infrastructure, including:
  - Operations and Maintenance (O&M) building
  - Auxiliary low-voltage transformers
  - o Ancillary storage
  - Staff amenities
  - o Sewerage holding tank
  - On-site car parking
  - o A water tank
  - o Internal access tracks
  - o Security fencing
  - Onsite drainage infrastructure.

## Subject land and locality, site selection and design

The subject land (the full area of all involved lots) comprises Lot 82 DP 751780 and part of Lot 144 DP751780 for siting of the BESS (4.06ha), and Lot 1 DP 751780 for connection to the TransGrid substation. The area to be developed (referred to as the development site) would comprise approximately 5.3 ha (Figure 1).

The subject land is currently undeveloped. It is devoid of stands of remnant vegetation. An existing borrow pit turned farm dam is present in the north-western portion. As indicated above, the subject land is adjacent to the Moree Bulk Supply Point substation and fronts Bullus Drive.



Figure 1 Proposal location



SYMBOL	DESCRIPTION
	BESS MODULE
	POWER CONVERSATION SYSTEM
00000	10m ASSET PROTECTIN ZONE
	5m LANDSCAPE BOUNDARY
_	33 KV UNDERGROUND CABLES
_	132 kV UNDERGROUND CABLES
	LAYDOWN/CONSTRUCTION AREA
	DENTENTION POND
0	HV SUBSTATION
2	SWITCHROOM
3	OPERATIONS BUILDING
۲	HARMONIC FILTER (TBC)
۲	VISTERS CARPARKING

Figure 2 General layout

## **Construction phase**

The construction phase is expected to last approximately 6-12 months. At the peak construction period, the BESS is expected to require approximately 80 workers.

Construction activities would be undertaken during standard construction hours:

- 7.00 am to 6.00 pm Monday to Friday,
- 8.00 am to 1.00 pm on Saturdays.
- No work on Sundays or public holidays

Construction activities would be restricted to the hours indicated above, construction required outside of these hours would only be undertaken with prior approval from relevant authorities and in accordance with the development's Construction Management Plan, or in the event of emergency circumstances i.e., to make work safe.

## **Operations**

Once operational, the BESS would operate on a continuous basis; recharging when supply is high and energy prices are low and discharging when demand and energy prices are high.

There would be 5 staff members on site to take care of the operation of the BESS during workdays and it can be automated/remotely operated outside of work hours. The battery component of the proposal would need to be replaced every 10-15 years. The BESS would be operational for 20-25 years after which it would either be decommissioned or refurbished.

# Access and traffic

# **Existing Environment**

The subject land is within close proximity to Newell Highway, with the site being accessed via Bulluss Drive. Bulluss Drive is a 7m wide two-lane sealed road with clear markings with no posted speed limit.

Bulluss Drive connects to Newell highway approximately 550m from the site entrance. Newell Highway is a National Highway and provides a major link between Queensland and Victoria via central NSW. The highway has a posted speed limit of 60km per hour at the intersection of Bulluss Drive. The Highway has also got a dedicated right turning lane to turn into Bulluss Drive from the south – north direction.

Both the Newell Highway and Bulluss Drive are approved B-double routes.

A Transport and Traffic Plan (Arcadis, 2021) was prepared for the Moree SAP.

## Construction

During construction, the proposed development is likely to generate additional light and heavy vehicle movements as detailed within Table 1 below.

Vehicle type	Average vehicle movements per day		Peak vehicle movements per day	
	Daily (vpd)	Peak hour (vpd)	Daily (vpd)	Peak hour (vpd)
Light vehicle	35	20	60	40
Shuttle bus	4	2	12	8
MRV/HVR	30	6	60	8
AV/B-Double	8	2	14	2
Total	77	29	146	58

Table 1 Traffic generation during construction

One over-sized over-mass (OSOM) vehicle is expected to be required, to deliver the transformer to the site.

The traffic generated during the construction period is on average 38 heavy vehicles per day, maxing out at 74 heavy vehicles per day during peak. When comparing to the traffic volumes generated along the Newell Highway using 2012 data from the Arcadis Transport and Traffic Plan (Arcadis, 2021), the proposed peak construction traffic shows a daily increase of 1.2% from the south, and 1.5% from the north (assuming a 50/50% directional split). This is not predicted to be significant. As such, it is considered that the road network would be more than sufficient to accommodate the additional trips required for the construction of the development.

Table 2 2012 traffic data from the Arcadis Transport and Traffic Plan (Arcadis, 2021)

Statistic	Narrabri to Moree	Moree to Boggabilla	
Daily Traffic			
AADT	2,924	2,533	
%Heavy vehicles (two-way) <sup>1</sup>	40.5%	47.7%	
Typical Peaking Characteristics			
Northbound peak (11:00am)	127	113	
Opposing flow	106	93	
%Heavy vehicles (two-way)	32.5%	36.2%	
Southbound peak (2:00pm)	109	94	
Opposing flow	118	96	
%Heavy vehicles (two-way)	35.7%	40.4%	

Source: RMS 2012

Bulluss Drive is and will be a major access road for the SAP and would be suitable to service the proposed development. Swept paths have been investigated for the likely vehicle types to be generated by the proposed development during the construction phase and a suitable access point has been developed. The swept path analysis and driveway design are presented in Appendix A.

# Operation

During operation, the proposal is expected to generate light vehicle movements only.

While estimating traffic generation within the Moree SAP, it was assumed that solar and energy precincts were non-trip generating areas (Arcadis, 2021). This was attributed to the small proportion of staff required to operate energy / solar related developments.

# **Voluntary Planning Agreement**

In line with Appendix B of the Moree Plains Shire Operations Plan (Fees and Charges 2024-25) (MPSC, 2024), the Applicant proposed a monetary contribution of \$100,000.00 per annum plus CPI paid over a period of 20 years (Appendix B). With an approximate Estimated Development Cost (EDC) of \$2.5 million, this is the approximate equivalent of 1% development cost.

# References

- Arcadis. (2021). *Moree Special Activation Precinct Transport and Traffic Plan.* Arcadis Design & Consultancy.
- MPSC. (2024). Operational Plan Appendix B Fees and Charges 2024-25. Retrieved from https://www.mpsc.nsw.gov.au/publications-documents/fees-and-charges/2597-fees-and-charges-2024-25/file

Appendix A Swept-paths for Bulluss Drive intersection





Vidth
- rack
ock to Lock Time
Steering Angle

: 1.94m : 1.84m : 6.0m : 33.6m

PASSENGER-CAR NTS









34 654m
4 000m
4.00011
3.341m
-0.062m
4.000m
6.00s
0.005
Z3.400M



# Appendix B Draft Voluntary Planning Agreement payment schedule



Suite 2, Level 10, 52 Alfred St S Milsons Point, NSW 2061

www.avenisenergy.com.au info@avenisenergy.com.au

ATTN: The General Manager Moree Plains Shire Council

Dear Sir/Madam

14/6/2024

#### **Re: Voluntary Planning Agreement Offer**

AE BESS 2 Pty Ltd as Trustee for AE BESS 2 Unit Trust offers to enter into a Planning Agreement Deed with Council under section 7.4 of the *Environmental Planning and Assessment ACT 1979* in connection with the proposed Battery Energy Storage System (BESS).

The proposed development involves a 120MW 4-hour (480MWh) BESS on 4.06 Ha of the Subject Land. The development footprint includes the Moree Bulk Point supply substation (Lot 1 DP999486) which the BESS will connect to via an underground cable to either a new or existing 132kV bay.

AE BESS 2 Pty Ltd as Trustee for AE BESS 2 Unit Trust proposes the terms set out in the following table:

Item	Terms
Parties	Moree Plains Shire Council
	AE BESS 2 Pty Ltd as Trustee for AE BESS 2 Unit Trust
Subject Land	Lot 82 DP751780, Lot 144 DP751780
Monetary Contribution	\$100,000.00 per annum plus CPI.
	Assuming a CPI of 2.5% over the operations period of 20 years results in total cash payments of \$2,554,465.76 approximately equivalent to 1% of the proposed development's CIV.
Period	20 years.

Kind regards,

DocuSigned by: F157D0E02CE84E4...

Jeremy Moore

Project Development Manager +61 (0) 400 928 911

From: Jeremy Guard < jeremy.guard@rgdc.nsw.gov.au>

Sent: Friday, 14 March 2025 8:24 AM

To: Rebecca English <rebecca.english@mpsc.nsw.gov.au>; Shannon Eduards <seduards@amberorg.com.au>

Ce: RAU <RAU@mpsc.nsw.gov.au>; Tony Moore <Tony.Moore@mpsc.nsw.gov.au>; Tom Dwyer <tdwyer@amberorg.com.au>; David Legg <david.legg@rgdc.nsw.gov.au>; Candice Johnson <candice johnson@rgdc.nsw.gov.au>; Mark Barwell <mark.barwell@pwa.nsw.gov.au>; Randeep Singh Wazir <randeep.singh@pwa.nsw.gov.au> Subject: RE: Moree SAP - information request from Roads Division - Moree SAP BESS - TIA

#### Hi Shannon,

I hope you're well. Apologies for the delay in getting back to you. For reference, the Moree SAP TIA is not yet finalised, but will recommence shortly (within the next ~2 weeks) to address some outstanding TfNSW comments.

- Does MPSC have any traffic survey results for Bulluss Drive that could be incorporated into the TIA? Yes, traffic surveys have been carried out with additional surveys requested by TfNSW completed late last year. We will confirm the current information and provide this shortly.
- Are there any road upgrades earmarked for the SAP area that may conflict with our proposal? There will be new roads constructed within the SAP and which connect to Bulluss Drive just south of Industrial Drive (refer to the sketch below). There is potentially some pavement resurfacing work on Bulluss Drive (adjacent to the BESS lot) but no change in the road geometry.



Hapy to arrange a meeting to review in more detail.

Can you please also include RGDC Candice Johnson and Davd Legg (cc'd) and NSW Public Works Mark Barwell and Randeep Singh (cc'd) into any related correspondence.

Thanks,

#### Jeremy Guard

Infrastructure Manager Moree SAP Regional Growth NSW Development Corporation Department of Primary Industries and Regional Development

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