

# Liddell Power Station Battery Energy Storage System Traffic Management Sub Plan

Environmental Management Strategy

16-May-2024

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Environmental Management Strategy

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## Glossary and terms

Term	Description
AECOM	AECOM Australia Pty Ltd
AGLM	AGL Macquarie Pty Ltd
BAW	Bayswater Ancillary Works
BESS	Battery Energy Storage System
BESS Project (the)	Stage 2 of the Liddell Battery and Bayswater Ancillary Works Project consisting of the construction of a BESS with the storage capacity to facilitate a maximum discharge of up to 500 MW for a four-hour period, or up to 2 GWh
CCTV	Closed-circuit television
CTMP	Construction Traffic Management Plan
DPE	Department of Planning and Environment (now DPHI)
DPHI	Department of Planning, Housing and Infrastructure (formerly DPE)
EIS	Environmental Impact Statement
EMS	Environmental Management Strategy
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EPL	Environment Protection Licence
GWh	Gigawatt hours
ha	hectares
km	kilometre
km/h	kilometre per hour
kV	Kilovolt
LBBAWP	Liddell Battery and Bayswater Ancillary Works Project, consisting of a battery energy storage system at Liddell, decoupling works, and works associated with the ongoing operation of Bayswater
m	metre
MW	Megawatt
NEM	National Energy Market
NHVR	National Heavy Vehicle Regulator
OOHW	Out of Hours Work
OSOM	Oversize overmass
POEO Act	<i>Protection of the Environment Operations Act 1997</i> (NSW)
Roads Act	<i>Roads Act 1993</i> (NSW)
RTS	Response to Submissions
SEARs	Secretary's Environmental Assessment Requirements
Site (the)	Location of the existing solar array area to be used for the BESS
SSD	State Significant Development
TMP	Traffic Management Plan

Term	Description
TTA	Traffic and Transport Assessment
V	Volt
WHS Act	<i>Work Health and Safety Act 2011 (Commonwealth)</i>
WOAOW	Bayswater Water and Other Associated Operational Works Project, which involves improvements to the management of ancillary processes at Bayswater power station and to facilitate an improved rehabilitation outcome for the ash disposal area. These works may occur at the same time as the LBBAWP.

## 1.0 Introduction

AECOM Australia Pty Ltd (AECOM) was commissioned by AGL Macquarie Pty Limited (AGLM) to prepare a Traffic Management Plan (TMP) for a Battery Energy Storage System (BESS) to be constructed as part of the Liddell Battery and Bayswater Ancillary Works Project (LBBAWP), NSW.

The LBBAWP is a State Significant Development (SSD) under the *State Environmental Planning Policy (State and Regional Development) 2011*<sup>1</sup>, and is subject to Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

An Environmental Impact Statement (EIS) was prepared in March 2021 in accordance with the Secretary's Environmental Assessment Requirements (SEARs). Development consent (SSD-8889679) was issued by the Department of Planning and Environment (DPE) (now Department of Planning, Housing and Infrastructure (DPHI)) on 8 March 2022.

### 1.1 Background

AGLM is progressing with plans to facilitate the efficient, safe and reliable continuation of electricity-generating works from the Bayswater and Liddell sites. The LBBAWP will be carried out in the following stages:

- Stage 1 - Decoupling Works: Alternative network connection arrangements for the Liddell 33 Kilovolt (kV) switching station that provides electricity to the infrastructure required for the ongoing operation of Bayswater power station, to associated ancillary infrastructure and to potential third-party industrial energy users
- Stage 2 - BESS: Replacement of a portion of Liddell's dispatchable electricity supply is required for the National Energy Market (NEM), including the construction of a grid-connected utility-scale BESS with a capacity of up to 500 megawatts (MW) and 2 gigawatt hours (GWh)
- Stage 3 - Bayswater Ancillary Works (BAW): Works associated with Bayswater power station, which may include upgrades to ancillary infrastructure, such as pumps, pipelines, conveyor systems, roads and assets, to enable maintenance, repairs, replacement or expansion
- Consolidated consents: Surrender and consolidation of various existing development approvals required for the ongoing operation of AGLM assets.

This management plan has been developed for Stage 2 only (i.e. the BESS), which is hereinafter referred to as 'the BESS Project'.

### 1.2 Site details

The AGLM landholding is located approximately 15 kilometres (km) southeast of Muswellbrook, 25 km northwest of Singleton, and approximately 165 km west northwest of Sydney in NSW. The total area of the AGLM landholding is approximately 10,000 ha, including the Bayswater and Liddell power station operational areas, the Ravensworth rehabilitation area, Lake Liddell and surrounding buffer lands.

Surrounding the AGLM landholding is predominantly land uses heavily influenced by industrial activity. The local area is dominated by large-scale infrastructure associated with Bayswater and Liddell power stations and open-cut mining activities. Agricultural clearing for the purposes of grazing is also present within and surrounding the AGLM landholding.

Elevations within approximately 10 kilometres of the AGLM landholding range from around 100 to 500 metres above sea level.

The majority of the AGLM landholding has been previously disturbed during the construction and operation of Liddell and Bayswater power stations and historic agricultural activity. The BESS will be located within the site of the existing solar array area (the site), shown as 'Area 2' in Figure 1. This location was selected as it is in close proximity to Liddell Power Station and is on previously disturbed

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<sup>1</sup> Now State Environmental Planning Policy (Planning Systems) 2021

operational lands no longer required for Liddell operations. Stockpiling for the BESS Project will occur within the former coal yards area, shown as 'Area 1' in Figure 1.

The solar array area consists of approximately 5 ha of solar thermal equipment. This consists predominantly of steel pipes used for heat absorption and water and steam transfer, mirror reflectors and steel mounting structures, as shown in Figure 2. The former coal yard consists of approximately 5 km of conveyor and associated stacker / reclaimer equipment.

### 1.3 Project description

The BESS Project involves the construction, operation and decommissioning of a BESS with the storage capacity to facilitate a maximum discharge of up to 500 MW for up to a four-hour period or up to 2 GWh. The BESS will be located within 'Area 2', the existing solar array area and will be connected to the existing TransGrid 330kV substation via a new 330kV high-voltage power line (refer to Figure 1).

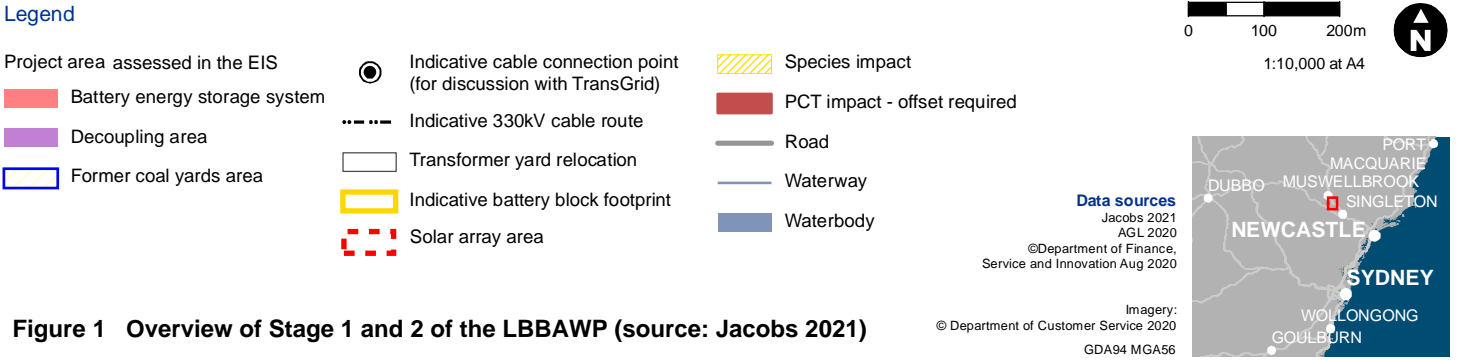
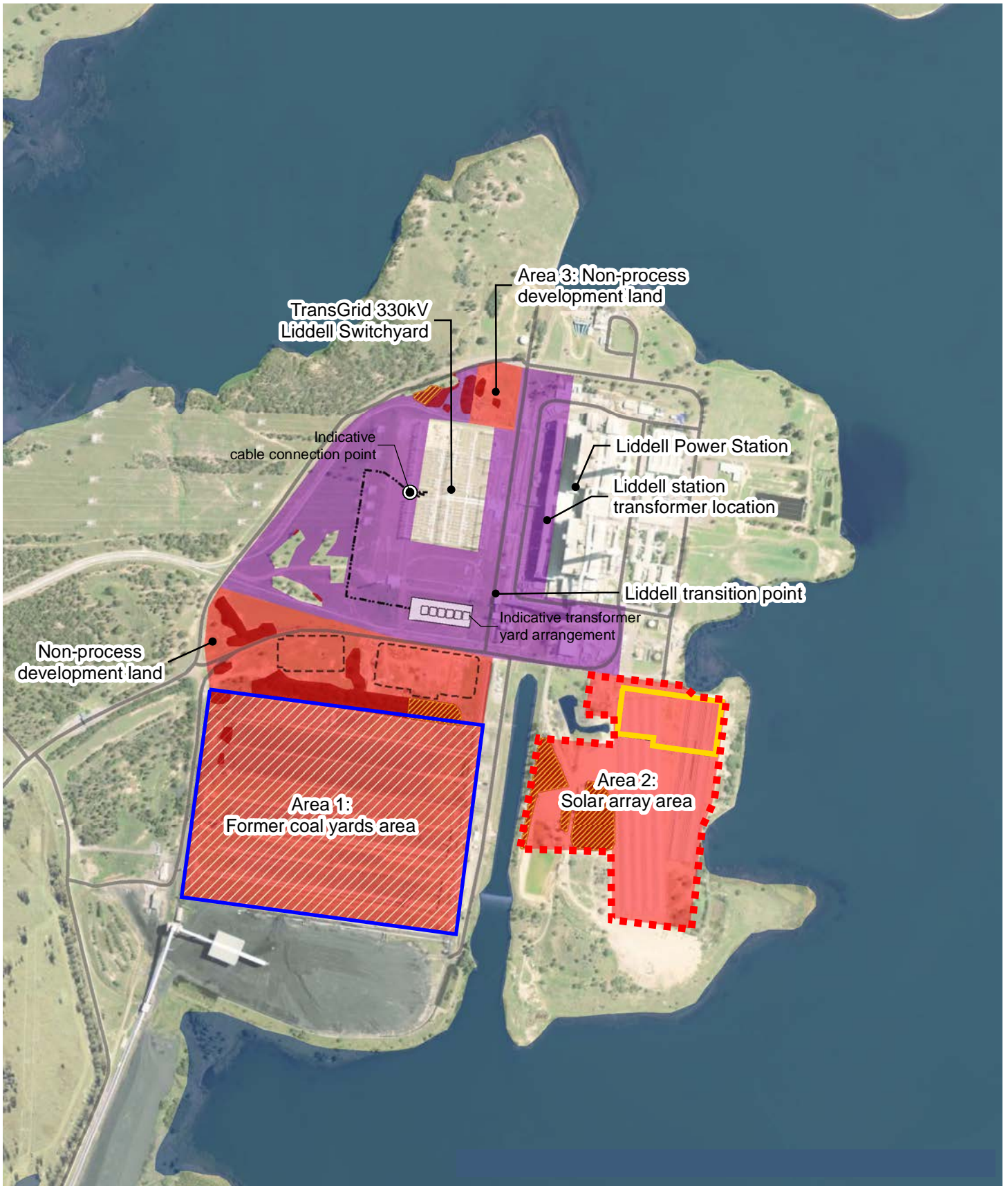
The BESS Project will involve the demolition of the existing solar array area for construction of the BESS and the former coal yard infrastructure for stockpiling purposes. Other redundant equipment may also require demolition and deconstruction to support construction of the BESS Project. The disturbance area for the BESS is expected to be around 20 hectares (ha). The BESS will be mounted on slab footings and will be containerised or otherwise enclosed in a formalised layout.

The approximate component requirements to achieve the maximum storage capacity for the BESS (based on indicative information provided by potential technology providers) are as follows:

- Approximately 900 pre-assembled battery enclosures containing lithium-ion type batteries, internal cooling and fire suppression systems
- Approximately 148 medium voltage skid (inverter and transformers)
- Approximately 148 of 630 Volt (V) to 33 kV step-up transformers
- One control room, two electrical rooms, one social facility room and four storage rooms
- 33 kV reticulation system and collector switchrooms
- Overhead, underground, or a combination of both, subject to detailed design, 330 kV line to connect to TransGrid 330 kV substation
- Two 33 kV / 33kV / 330 kV three-winding transformers and 330 kV connection equipment
- Ancillary infrastructure, including water tanks for bushfire protection purposes, lightning protection, security fencing and closed-circuit television (CCTV).

An indicative layout of the BESS is shown in Figure 3.

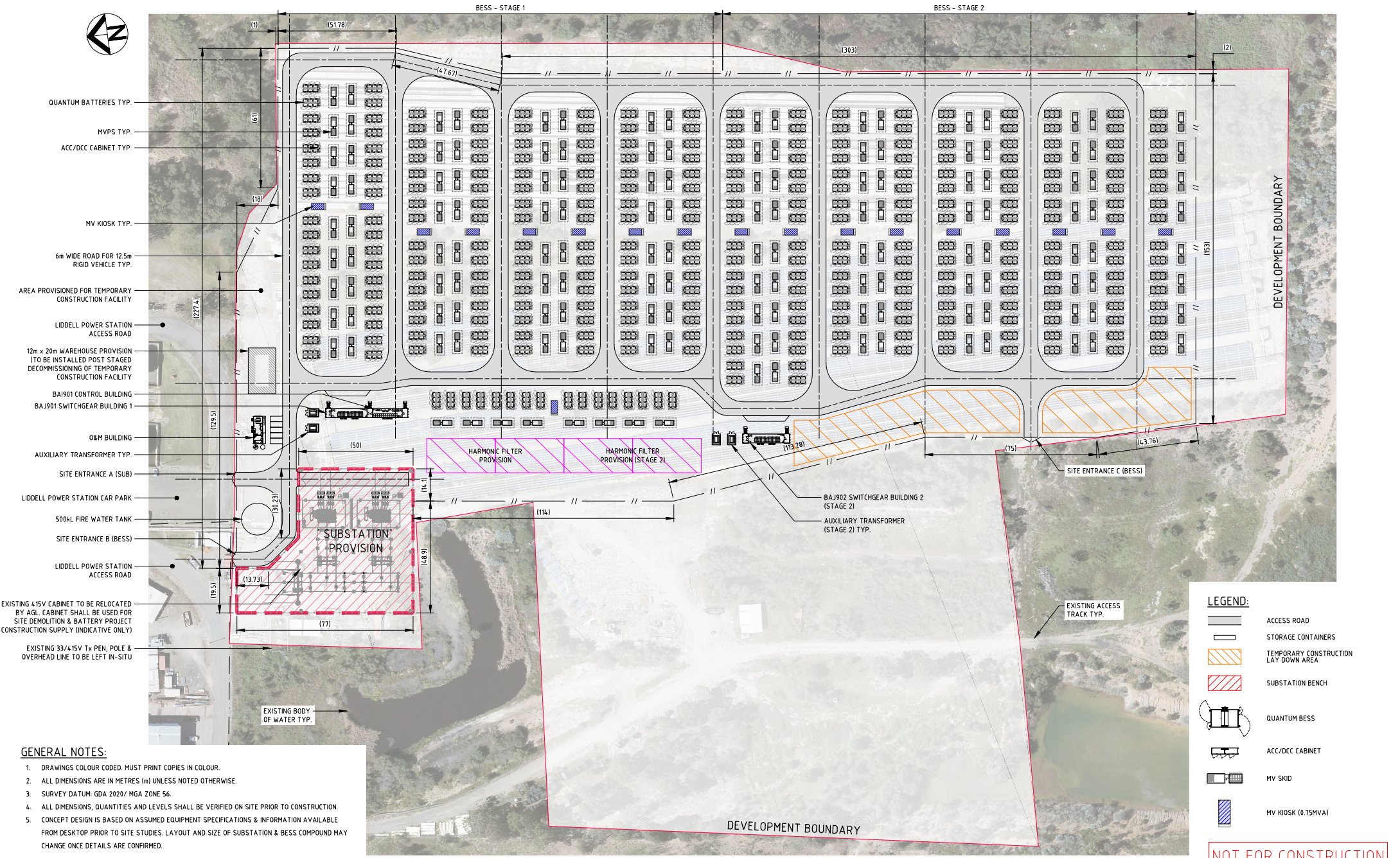




**Figure 1 Overview of Stage 1 and 2 of the LBBAWP (source: Jacobs 2021)**



**Figure 2 Existing solar array area**



- QUANTUM BATTERIES TYP.
- MVPS TYP.
- ACC/DCC CABINET TYP.
- MV KIOSK TYP.
- 6m WIDE ROAD FOR 12.5m RIGID VEHICLE TYP.
- AREA PROVISIONED FOR TEMPORARY CONSTRUCTION FACILITY
- LIDDELL POWER STATION ACCESS ROAD
- 12m x 20m WAREHOUSE PROVISION (TO BE INSTALLED POST STAGED DECOMMISSIONING OF TEMPORARY CONSTRUCTION FACILITY)
- BAJ901 CONTROL BUILDING
- BAJ901 SWITCHGEAR BUILDING 1
- O&M BUILDING
- AUXILIARY TRANSFORMER TYP.
- SITE ENTRANCE A (SUB)
- LIDDELL POWER STATION CAR PARK
- 500ℓ FIRE WATER TANK
- SITE ENTRANCE B (BESS)
- LIDDELL POWER STATION ACCESS ROAD
- EXISTING 4.15V CABINET TO BE RELOCATED BY AGL. CABINET SHALL BE USED FOR SITE DEMOLITION & BATTERY PROJECT CONSTRUCTION SUPPLY (INDICATIVE ONLY)
- EXISTING 33/4.15V Tx PEN, POLE & OVERHEAD LINE TO BE LEFT IN-SITU

- LEGEND:**
- ACCESS ROAD
  - STORAGE CONTAINERS
  - TEMPORARY CONSTRUCTION LAY DOWN AREA
  - SUBSTATION BENCH
  - QUANTUM BESS
  - ACC/DCC CABINET
  - MV SKID
  - MV KIOSK (0.75MVA)

- GENERAL NOTES:**
1. DRAWINGS COLOUR CODED. MUST PRINT COPIES IN COLOUR.
  2. ALL DIMENSIONS ARE IN METRES (m) UNLESS NOTED OTHERWISE.
  3. SURVEY DATUM: GDA 2020/ MGA ZONE 56.
  4. ALL DIMENSIONS, QUANTITIES AND LEVELS SHALL BE VERIFIED ON SITE PRIOR TO CONSTRUCTION.
  5. CONCEPT DESIGN IS BASED ON ASSUMED EQUIPMENT SPECIFICATIONS & INFORMATION AVAILABLE FROM DESKTOP PRIOR TO SITE STUDIES. LAYOUT AND SIZE OF SUBSTATION & BESS COMPOUND MAY CHANGE ONCE DETAILS ARE CONFIRMED.

ITEM	STAGE 1 (250MW/500MWh)	STAGE 2 (250MW/500MWh)	TOTAL (500MW/1000MWh)
AUX TRANSFORMER	2	2	4
MV KIOSK	8	8	16
MV SKID (INVERTER + TRANS.)	74	74	148
GRIDSOLY QUANTUM	444	444	888
ACCDC CABINET	148	148	296

**SITE PLAN**  
SCALE 1:500

REV	DATE	REVISION DESCRIPTION	DES	RVD	APP	AUTH	CLIENT
0.2	17.02.2023	EQUIPMENT & LAYOUT REVISED	L.M.	K.M.	J.L.	A.M.	
0.1	10.02.2023	ISSUED FOR INFORMATION	L.M.	K.M.	J.L.	A.M.	



ENERVEN PROJECT No: 699

**ENERVEN™**

NAME	DATE
DESIGNED L. MUNIZ	10.02.2023
REVIEWED K. MACKAY	10.02.2023
APPROVED J. LOMBARD	10.02.2023
AUTHORISED A. MALCOLM	10.02.2023

**LIDDELL BESS  
CONCEPT SITE LAYOUT  
SITE PLAN - SATELLITE OVERVIEW**

SIZE	DRAWING NUMBER	REVISION
A1	699.EEI.GN.DWG.003	0.2

**NOT FOR CONSTRUCTION**  
17.02.2023 11:40 AM

**Figure 3 Preliminary site layout (indicative only)**

## 1.4 Construction activities

Construction works associated with the BESS Project would be likely to involve:

- Installation and maintenance of environmental controls, including temporary and permanent water management infrastructure
- Establishment of access from the Liddell access road
- Demolition or deconstruction of existing infrastructure as required, including the existing solar array area and former coal yard infrastructure
- Establishment of a hardstand pad and construction laydown areas, including dedicated stockpiling areas
- Cut and fill to battery compound, transformer compounds, footings and construction laydown area
- Trenching of 33kV reticulation system
- Trenching and/or overhead line installation to TransGrid 330 kV substation
- Structural works to support enclosures, inverters, transformers, buildings and transformer compounds
- Delivery, installation and electrical fit-out
- Testing and commissioning activities
- Removal of construction equipment and reinstatement of construction areas.

Potential traffic and transport risks are outlined in Section 4.3.

## 1.5 Relevant approvals and conditions

### 1.5.1 Project approvals

Liddell power station was commissioned in 1971 and formed part of AGLM's integrated power generation complex. This complex also incorporates Bayswater power station (commissioned in 1985) and a range of supporting water management, coal supply, power supply and control system infrastructure.

Bayswater and Liddell power stations are regulated under several planning approvals. Most development at the site pre-dates current planning requirements enforced through the EP&A Act, however, alterations and additions after 1 September 1980 were subject to the provisions of the Act.

Development consent (SSD-8889679) was granted for the LBBAWP on 8 March 2022, which includes the voluntary surrender and consolidation of various existing development approvals into SSD-8889679.

In accordance with Section 55 of the *Protection of the Environment Operations Act 1997* (POEO Act), Liddell operated under Environment Protection Licence (EPL) 2122, which is still active for the site even though power generation operations have ceased for the power station. Bayswater is operated under EPL 779.

The following licences and permits are required prior to the commencement of construction, where these licences and permits become relevant:

- A permit under Section 138 of the *Roads Act 1993* (Roads Act)
- A permit from the National Heavy Vehicle Regulator (NHVR) (separate approval process).

### 1.5.2 Development consent conditions

In accordance with SSD-8889679 development consent condition C1, an Environmental Management Strategy (EMS) has been prepared for the BESS Project to provide a strategic framework for the environmental management of the development. A range of subplans has been developed to support the EMS and address development consent condition C1(e)(i).

This TMP has been developed to manage the potential environmental impacts arising from traffic and transport. The relevant conditions are outlined below in Table 1.

**Table 1 Development consent conditions – traffic and transport management**

Condition	Requirement	Reference
C1	<p>Prior to commencing construction, the Applicant must prepare an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must:</p> <p>(e) include:</p> <p>(i) the following subplans:</p> <ul style="list-style-type: none"> <li>• soil, stormwater, water quality, flood and spoil management;</li> <li>• construction and decommissioning noise, including an out-of-hours works protocol;</li> <li>• air quality management;</li> <li>• contamination, including an unexpected finds protocol</li> <li>• waste management; and</li> <li>• <b>traffic.</b></li> </ul>	This management plan
A11	<p>Unless the Applicant and the applicable authority agree otherwise, the Applicant must:</p> <p>(a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and</p> <p>(b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.</p> <p>This condition does not apply to the upgrade and maintenance of the road network, which is expressly provided for in the conditions of this consent.</p>	Section 4.3, specifically management measure TT4
A12	<p>The Applicant must ensure that all plant and equipment used on site, or in connection with the development, is:</p> <p>(a) maintained in a proper and efficient condition; and</p> <p>(b) operated in a proper and efficient manner.</p>	Section 4.3, specifically management measure TT5

## 1.6 Scope, purpose and objectives

This TMP has been developed in accordance with SSD-8889679 development consent condition C1 and to address relevant requirements associated with:

- SSD-8889679 development consent conditions
- EIS management measures, which were amended in the Response to Submissions (RTS) (Jacobs 2021)
- Bayswater Water and Other Associated Operational Works Project (WOAOW) management measures
- AGL plans and procedures.

The purpose of this TMP is to:

- Summarise potential traffic impacts of the BESS Project as assessed in the EIS (Jacobs 2021)
- Identify environmental management measures to be implemented to minimise traffic impacts.

The objective of this TMP is to mitigate and manage potential traffic impacts on the local environment as a result of the BESS Project and to maintain compliance with SSD-8889679.

All works undertaken by the Project Contractor must comply with the environmental management measures outlined in Section 6.0 of this plan.

## 1.7 Related reports and plans

There are environmental assessments, management plans and monitoring programs for existing and proposed operations within the AGLM landholdings. The following documents are considered related and may need to be read in conjunction with this TMP:

- Traffic and Pedestrian Management Procedure (AGLM-HSE-PRO-007.04.02)
- Liddell Decoupling Works Traffic Management Plan (Jacobs 2022) (Stage 1 LBBAWP).

## 2.0 Legislation and guidelines

### 2.1 Legislation

This TMP has been prepared in accordance with the relevant legislation and regulatory requirements within the EMS. Specifically:

- Roads Act (NSW)
- *Road Transport Act 2013* (NSW)
- *State Environmental Planning Policy (Transport and Infrastructure) 2021* (NSW)
- *Heavy Vehicle National Law (2013 No 42a)* (NSW)
- *Work Health and Safety Act 2011* (NSW)
- Work Health and Safety Regulation 2017 (NSW).

#### 2.1.1 Roads Act

The Roads Act regulates the carrying out of certain activities on public roads, provides the classification of roads, declares Transport for NSW and other public authorities as roads authorities and establishes procedures for opening and closing public roads.

#### 2.1.2 Road Transport Act 2013

The *Road Transport Act 2013* aims to consolidate in one Act most of the existing statutory provisions concerning road users, road transport and the improvement of road safety in this jurisdiction.

#### 2.1.3 State Environmental Planning Policy (Transport and Infrastructure) 2021

*State Environmental Planning Policy (Transport and Infrastructure) 2021* aims to facilitate the effective delivery of infrastructure across the State.

#### 2.1.4 Heavy Vehicle National Law (2013 No 42a)

The *Heavy Vehicle National Law (2013 No 42a)* aims to establish a national scheme for facilitating and regulating the use of heavy vehicles on the road.

#### 2.1.5 Work Health and Safety Act 2011

The *Work Health and Safety Act 2011* (WHS Act) provides a national framework to secure the health and safety of workers.

#### 2.1.6 Work Health and Safety Regulation 2017

The Work Health and Safety Regulation 2017 prescribes matters which fall under the WHS Act.

## 2.2 Standards and guidelines

The main standards and guidelines relevant to this TMP include:

- NSW Road Noise Policy (Department of Environment, Climate Change and Water 2011)
- Traffic Management in Workplaces Code of Practice (Safe Work Australia 20130)
- Guide to Traffic Management (Austroads 2020)

- Guide to Temporary Traffic Management (Austroads 2021)
- Traffic Control at Worksites Technical Manual (Transport for NSW 2022)
- Australian Standard AS1742- Manual of Uniform Traffic Control Devices (Standards Australia 2020).

### **2.2.1 NSW Road Noise Policy**

The NSW Road Noise Policy aims to identify the strategies that address the issue of road traffic noise from existing roads, new road projects, road redevelopment projects and new traffic-generating developments and defines criteria to be used in assessing the impact of this noise.

### **2.2.2 Traffic Management in Workplaces Code of Practice**

The Traffic Management in Workplaces Code of Practice provides guidance on managing risks associated with traffic in the workplace. It applies to all businesses or undertakings where there is a risk of vehicles and powered mobile plant colliding with people in the workplace. The Code does not provide guidance for managing traffic-related risks when working on or near a public road.

### **2.2.3 Guide to Traffic Management**

The Guide to Traffic Management provides traffic management guidance for practitioners involved in traffic engineering, road design and road safety.

### **2.2.4 Guide to Temporary Traffic Management**

The Guide to Temporary Traffic Management aims to help road authorities meet their legislative responsibilities for workplace and public safety. It covers the planning, design, and implementation of safe, economical, and efficient temporary traffic management.

### **2.2.5 Traffic Control at Worksites Technical Manual**

The Traffic Control at Worksites Technical Manual provides the requirements for temporary traffic management at Transport for NSW construction and maintenance work sites in line with recent industry and national practice updates. The Manual aims to improve the safety of road workers and road users as they interact with these roadwork sites in NSW.

### **2.2.6 Australian Standard AS1742 - Manual of Uniform Traffic Control Devices**

The Australian Standard AS1742 - Manual of uniform traffic control devices covers the signs used for regulating, warning and guiding road users. It specifies the sign classifications and the numbering system used and sets out the basic design of signs in terms of colour and shape coding.

## **2.3 Environmental impact assessment**

A Traffic and Transport Assessment (TTA) was prepared by Jacobs (2021) in accordance with the SEARs issued for the LBBAWP and to support the EIS. The key purpose of the TTA was to assess potential traffic and transport-related impacts as a result of the LBBAWP.

The TTA recommended suitable mitigation and management measures which have been included in this TMP in Section 6.0, where relevant to the BESS.

The EIS was placed on public exhibition for a period of 28 days, between 15 April 2021 to 12 May 2021. Following this, a RTS report (Jacobs 2021) was prepared to consider and respond to any submissions received during the exhibition period, which resulted in changes to some of the management measures from the EIS. Therefore, the management measures in the RTS report supersede those in the EIS, where changes have been made.

## **3.0 Roles and responsibilities**

Section 4.3 of the EMS outlines key roles and responsibilities for both AGLM and the Project Contractor working on the BESS Project.

## 4.0 Environmental setting and potential impacts

### 4.1 Road network and access

The AGLM landholding, including Liddell and Bayswater power stations, is connected to the surrounding road network via an access road and grade-separated interchange to and from the New England Highway.

The New England Highway is a national highway linking Newcastle to Brisbane. In the vicinity of the BESS Project, the New England Highway is a dual carriageway with two lanes in each direction and a central median. It has a posted speed limit of 100 kilometres per hour (km/h). The unnamed access road is a single-carriageway road with one lane in each direction (east-west) and has a posted speed limit of 60 km/h.

All light and heavy vehicles associated with the BESS Project will travel via the New England Highway and the Liddell and Bayswater interchange.

No public transport services operate, and no formal off-road pedestrian or cycling facilities are provided on the road network in the vicinity of the BESS Project.

### 4.2 Heavy vehicles and oversize overmass

Between the AGLM landholding and Port of Newcastle, the road network consists of a number of motorways and State roads, carrying moderate volumes of traffic, including heavy vehicles. These form part of the approved 25 / 26 metre (m) B-double network and oversize overmass (OSOM) load-carrying vehicle networks and include the New England Highway, the unnamed east-west access road, Maitland Road, John Renshaw Drive and the Hunter Expressway.

All heavy vehicles would travel to the site via the New England Highway and the Liddell and Bayswater interchange which leads to the unnamed east-west access road. The approved 25/26m B-double routes in the vicinity of the LBBAWP are shown in Figure 4.

Most of the main project components requiring OSOM delivery are expected to originate from the Port of Newcastle. The traffic assessment in the EIS proposed two options for OSOM vehicle routes to the site from the Port of Newcastle. However, both options have restrictions in accordance with the NSW OSOM Load Carrying Vehicles Network Map (Transport for NSW, 2020). These restrictions are described in Table 2 and shown in Figure 5.

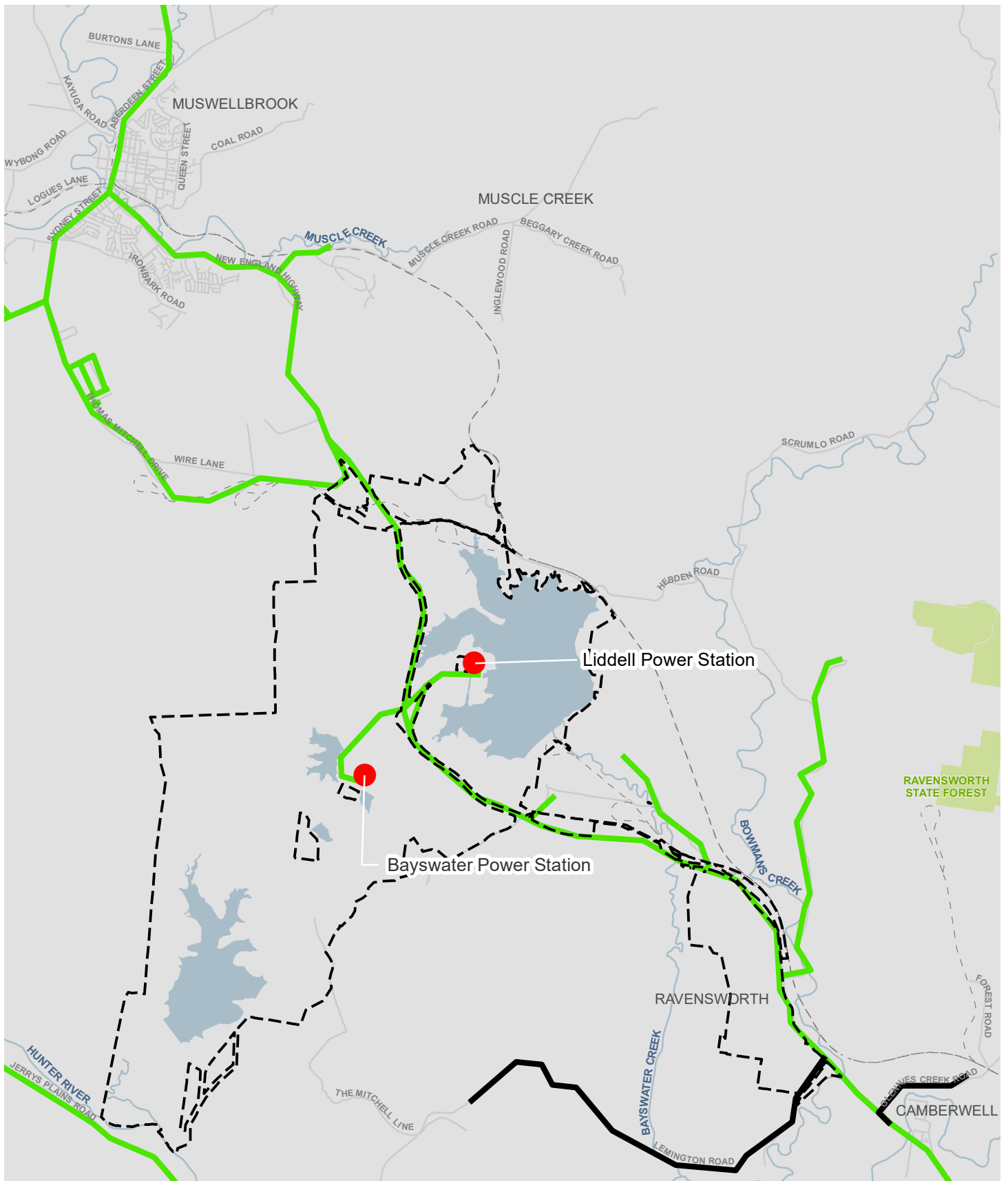
To manage these OSOM vehicle movements, a permit would be sought from the NHVR. This permit would require a separate approval process, and a suitable haulage contractor will need to be engaged. The haulage contractor will need to develop a construction traffic management plan (CTMP) and determine a suitable route based on the required OSOM vehicle dimensions and mass in consultation with AGLM and the NHVR. These vehicle movements would need to be undertaken under police escort and in accordance with any OSOM permit conditions.

**Table 2 Proposed oversize overmass vehicles routes and restrictions**

Proposed routes	Distance (km)	Restrictions
<b>Option 1:</b> From Port of Newcastle: Selwyn Street, George Street, Industrial Drive, Maitland Road, New England Highway, John Renshaw Drive, Hunter Expressway, New England Highway, Golden Highway via Jerrys Plains, Denman Road, Thomas Mitchell	168	<ul style="list-style-type: none"> <li>New England Highway between Hexham and John Renshaw Drive: vehicles or combinations exceeding 3.5 m wide or 25 m long are not permitted to travel between 8:30am and sunset on weekends, or a state-wide public holiday</li> <li>Hunter Expressway between John Renshaw Drive and New England Highway: vehicles or combinations exceeding 3.2 m wide are not permitted to travel from Monday to Friday from 5:00am to 9:00am and from Monday to Friday from 4:00pm to 6:00pm (except on state-wide public holidays)</li> </ul>

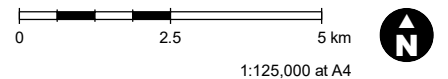


Proposed routes	Distance (km)	Restrictions
Drive, New England Highway and Power Station Access Road to the site		<ul style="list-style-type: none"> <li>New England Highway between Hunter Expressway and Golden Highway: vehicles or combinations exceeding 3.2 m wide are not permitted to travel from Monday to Friday from 5:00am to 9:00am and from Monday to Friday from 3:00pm to 6:00pm (except on state-wide public holidays).</li> </ul>
<b>Option 2:</b> From Port of Newcastle: Selwyn Street, George Street, Industrial Drive, Maitland Road, New England Highway, John Renshaw Drive, Hunter Expressway, New England Highway and Power Station Access Road to the site	111	<ul style="list-style-type: none"> <li>New England Highway between Hexham and John Renshaw Drive: vehicles or combinations exceeding 3.5 m wide or 25 m long are not permitted to travel between 8:30am and sunset on weekends, or a state-wide public holiday</li> <li>Hunter Expressway between John Renshaw Drive and New England Highway: vehicles or combinations exceeding 3.2 m wide are not permitted to travel from Monday to Friday from 5:00am to 9:00am and from Monday to Friday from 4:00pm to 6:00pm (except on state-wide public holidays)</li> <li>New England Highway between Hunter Expressway and Singleton: vehicles or combinations exceeding 3.2 m wide are not permitted to travel from Monday to Friday from 5:00am to 9:00am and from Monday to Friday from 3:00pm to 6:00pm (except on state-wide public holidays).</li> </ul>



**Legend**

- Project site
- AGL owned land
- 25/26m B-double routes
- Approved routes with travel conditions
- Railway
- Road
- Waterway
- Waterbody
- State Forest
- National Park



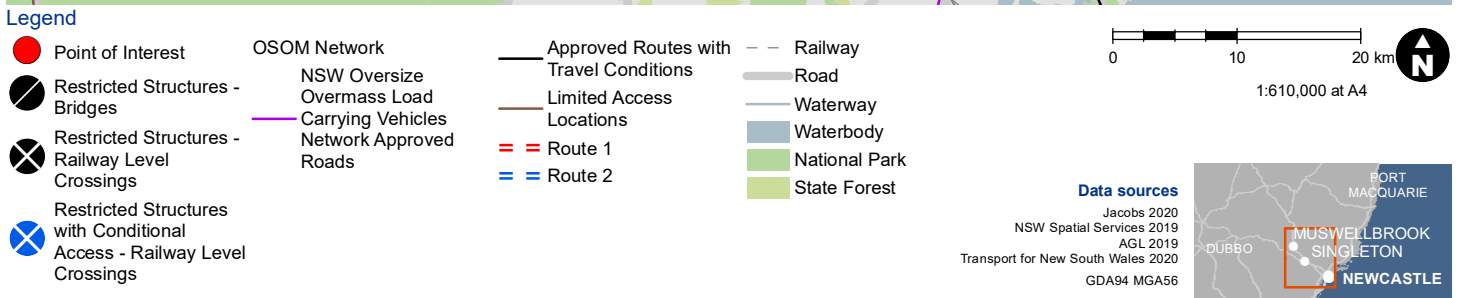
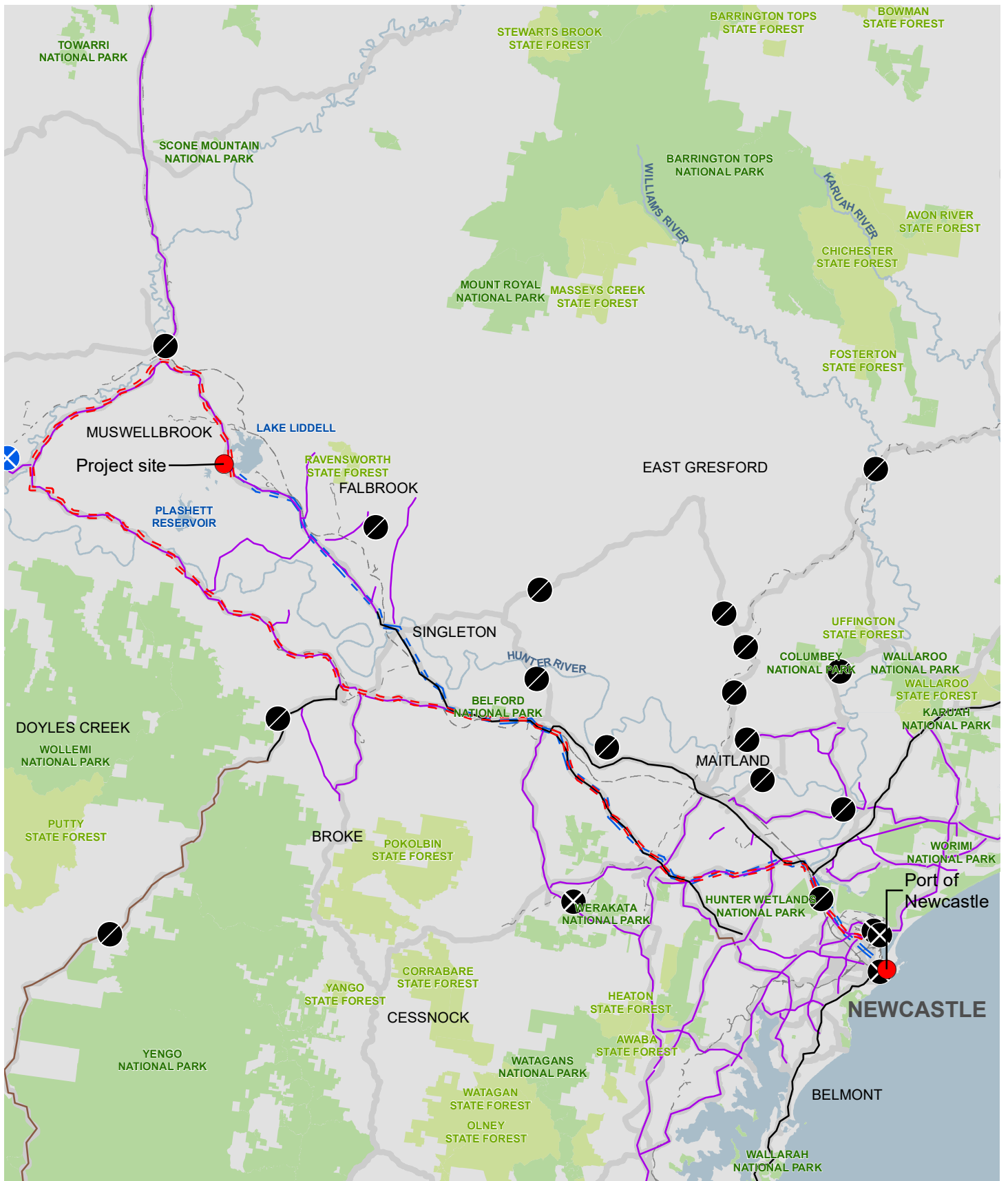
**Data sources**

- Jacobs 2020
- NSW Spatial Services 2019
- Transport for New South Wales 2020
- GDA94 MGA66



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**Figure 4 25/26m B-Double routes (source: Jacobs 2021)**



**Figure 5 Proposed oversized overmass routes (source: Jacobs 2021)**

**Data sources**  
 Jacobs 2020  
 NSW Spatial Services 2019  
 AGL 2019  
 Transport for New South Wales 2020  
 GDA94 MGA56

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### 4.3 Potential impacts

Traffic generated by the BESS Project would involve the transportation of personnel, plant, equipment and materials.

Construction of the BESS would include up to 100 workers travelling to Liddell Power Station, generating an expected 100 two-way light vehicle movements per day (i.e. 100 inbound movements and 100 outbound movements). Furthermore, an additional 20 two-way heavy vehicle movements and 32 two-way OSOM vehicle movements are expected to be generated per day during the construction of the BESS.

## 5.0 Environmental management measures

The management measures provided in Table 3 will be implemented to minimise potential traffic and transport impacts from the BESS Project. These management measures are consistent with those of the WOAOW project. Relevant environmental management measures included in the Traffic and Pedestrian Management Procedure (AGLM-HSE-PRO-007.04.02) will also apply to the BESS Project. These are listed in Table 4.

**Table 3 Environmental management measures - traffic and transport (EIS / RTS / development consent)**

Reference	Environmental management measures	Responsibility	Timing
TT1	The haulage contractor will prepare and implement a construction traffic management plan (CTMP) for oversize overmass (OSOM) vehicle movements, which will include: <ul style="list-style-type: none"> <li>• Identification of the routes</li> <li>• Measures to provide an escort for the loads</li> <li>• Times of transporting to minimise impacts on the road network</li> <li>• Communication of strategy and liaising with emergency services and police.</li> </ul>	Project Contractor	Pre-construction Construction
TT2	An oversized vehicle permit will be sought for all OSOM vehicle movements where required. The OSOM movements would be in accordance with the permit requirements and be outside of peak traffic periods where reasonable and feasible.	Project Contractor	Pre-construction Construction
TT3	The Construction Environmental Management Plan (CEMP) and general site induction will inform construction personnel of the risk of collisions, particularly with animals during rain or periods of low light.	Project Contractor	Construction
TT4	If any public infrastructure is damaged, AGLM will repair or relocate, or pay the full costs associated with repairing or relocating the infrastructure (unless agreed otherwise).  This does not apply to the upgrade and maintenance of the road network.	AGLM / Project Contractor	Construction Operation Decommissioning
TT5	All plant and equipment used on site, or in connection with the BESS Project will be maintained and operated in a proper and efficient condition.	Project Contractor	Construction Decommissioning

**Table 4** Relevant environmental management measures from AGLM-HSE-PRO-007.04.02 Traffic and Pedestrian Management Procedure

Reference	Environmental management measures	Responsibility	Timing
TT6	The following measures will be implemented in accordance with AGLM-HSE-PRO-007.04.02 Traffic and Pedestrian Management (TPM) Procedure: <ul style="list-style-type: none"> <li>Site speed limits will be established, signed and communicated</li> <li>Traffic control signage will be installed and maintained, detailing the road rules</li> <li>Designated loading and unloading zones will be established</li> <li>Site driving rules will be applicable to all personnel on-site</li> <li>All personnel are required to drive to the designated traffic flows appointed for the site</li> <li>Right of way rules for vehicles and pedestrians will be applicable to all personnel</li> <li>An external security provider will ensure the prevention of unauthorised vehicles</li> <li>Parking protocols for vehicles and mobile plant will be followed where practicable.</li> </ul>	Project Contractor	Pre-construction
TT7	All roadways and/or access ways to be used by vehicles or any other mobile plant will be designed in accordance with the TPM procedure	Project Contractor	Pre-construction
TT8	All vehicles will be maintained and driven in accordance with the TPM procedure	Project Contractor	Construction Decommissioning
TT9	Transportation of materials will follow processes outlined in the TPM procedure.	Project Contractor	Construction Decommissioning
TT10	Drivers and operators will undertake pre-start inspections of their vehicle/ equipment prior to the use of such equipment and will notify their supervisor of any defects recorded	Project Contractor	Construction Decommissioning

## 6.0 Compliance and reporting

### 6.1 Monitoring and reporting

A recommended monitoring and inspection plan for construction and decommissioning of the BESS Project is provided in Table 5. There will be no operational monitoring associated with the BESS Project.

**Table 5** Traffic management monitoring plan

Type	Frequency	Responsibility	Records	Timing
Environmental site inspection: <ul style="list-style-type: none"> <li>Inspection of internal roads for signs of deterioration and maintenance requirements</li> </ul>	Weekly	Project Contractor	Inspection checklist	Construction Decommissioning

Type	Frequency	Responsibility	Records	Timing
<ul style="list-style-type: none"> <li>Inspection of traffic signage installed for the BESS Project to ensure they are: <ul style="list-style-type: none"> <li>Clearly visible and mounted securely</li> <li>Performing their function in directing traffic and alerting road users of heavy vehicles and potential safety issues</li> </ul> </li> <li>Inspection of site entrances to ensure they are clear, free of overgrowth and a clear line of sight is provided for vehicles exiting the site.</li> </ul>				
Adverse weather event inspection: <ul style="list-style-type: none"> <li>Inspection of internal roads following periods of heavy rain or an adverse weather event.</li> </ul>	As required	Project Contractor	Inspection checklist	Construction Decommissioning

The Project Contractor will establish and maintain a system of records that provides full documentation of all inspections.

## 6.2 Incidents and complaints

Incident management will be managed in accordance with the process outlined in Section 4.5 of the EMS.

Complaints and enquiries will be managed in accordance with the process outlined in Section 5.3 of the EMS.

## 6.3 Document review and update

It is a requirement of the EMS that all associated plans, studies and strategies are reviewed and updated within three months of the following events:

- The submission of an environmental incident report
- The submission of an audit report
- The approval of any modification to the conditions of the development consent
- A direction of the Secretary.