

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

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                                                                                                                                                                                                                                          |
| CCTV         | Closed-circuit television                                                                                                                                                                                                                                              |
| 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                                                                        |
| LDBS         | Liddell Battery Energy Storage System                                                                                                                                                                                                                                  |
| Liddell BESS | Liddell Battery Energy Storage System 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 |
| m            | metre                                                                                                                                                                                                                                                                  |
| MW           | Megawatt                                                                                                                                                                                                                                                               |
| NEM          | National Energy Market                                                                                                                                                                                                                                                 |
| 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 BESS                                                                                                                                                                                                                                                   |
| SSD          | State Significant Development                                                                                                                                                                                                                                          |
| TMP          | Traffic Management Plan                                                                                                                                                                                                                                                |
| TTA          | Traffic and Transport Assessment                                                                                                                                                                                                                                       |
| V            | Volt                                                                                                                                                                                                                                                                   |
| WHS Act      | <i>Work Health and Safety Act 2011</i> (Commonwealth)                                                                                                                                                                                                                  |

# 1. Introduction

AGL Macquarie Pty Limited (AGLM) has prepared this Traffic Management Plan (TMP) for the Battery Energy Storage System (BESS) which forms 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, operation and decommissioning 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 the operational phase of Stage 2 only (i.e. the BESS), which is hereinafter referred to as the Liddell BESS (LDBS).**

## 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.

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

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 LDBS is located at the former solar array area in Figure 1. This location was selected as it is in close proximity to Liddell Power Station and is on previously disturbed operational lands no longer required for Liddell operations.

### 1.3. Project description

LDBS has 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 is connected to the existing TransGrid 330kV substation via a 330kV high-voltage power line (refer to Figure 1).

Key components for the BESS are as follows:

- 1,548 pre-assembled battery enclosures containing 24,768 battery modules.
- 172 inverters with 86 core transformers
- One control room, two switchgear room and a warehouse/ workshop
- 33kV reticulation system and collector switch rooms
- Overhead, underground, or a combination of both, 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).

The site layout of LDBS is shown in **Figure 2**.

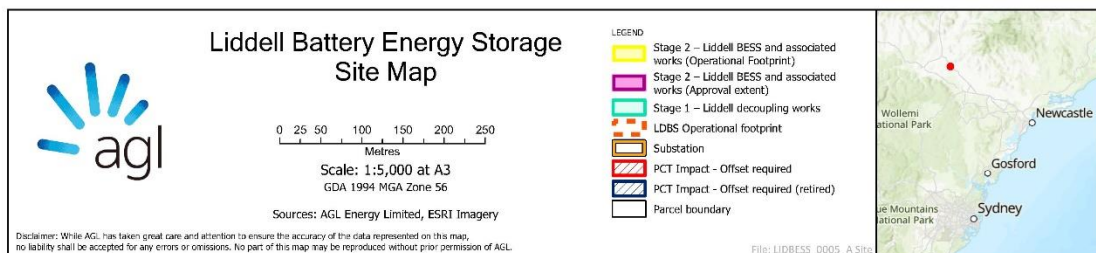
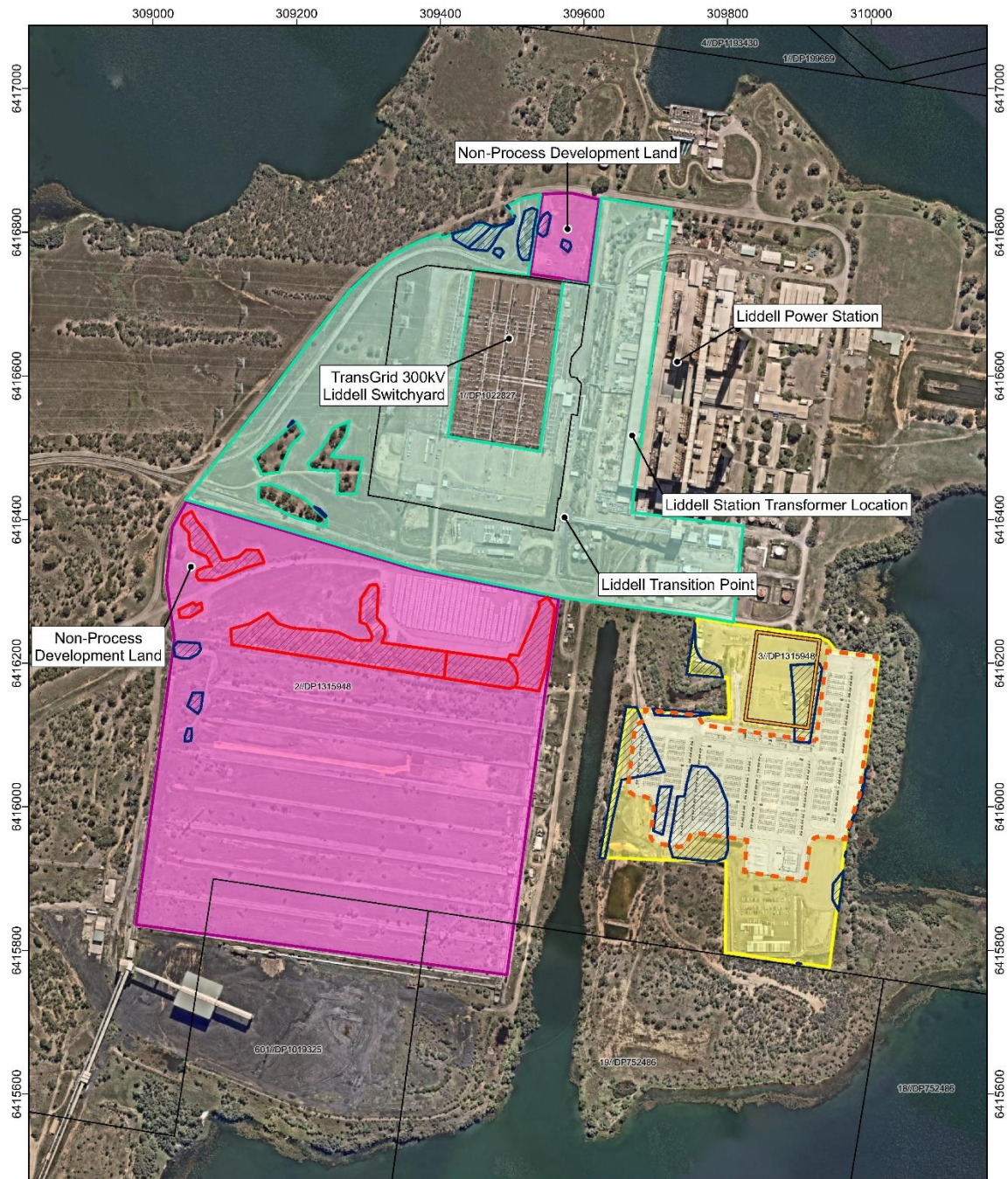


Figure 1 Site Map

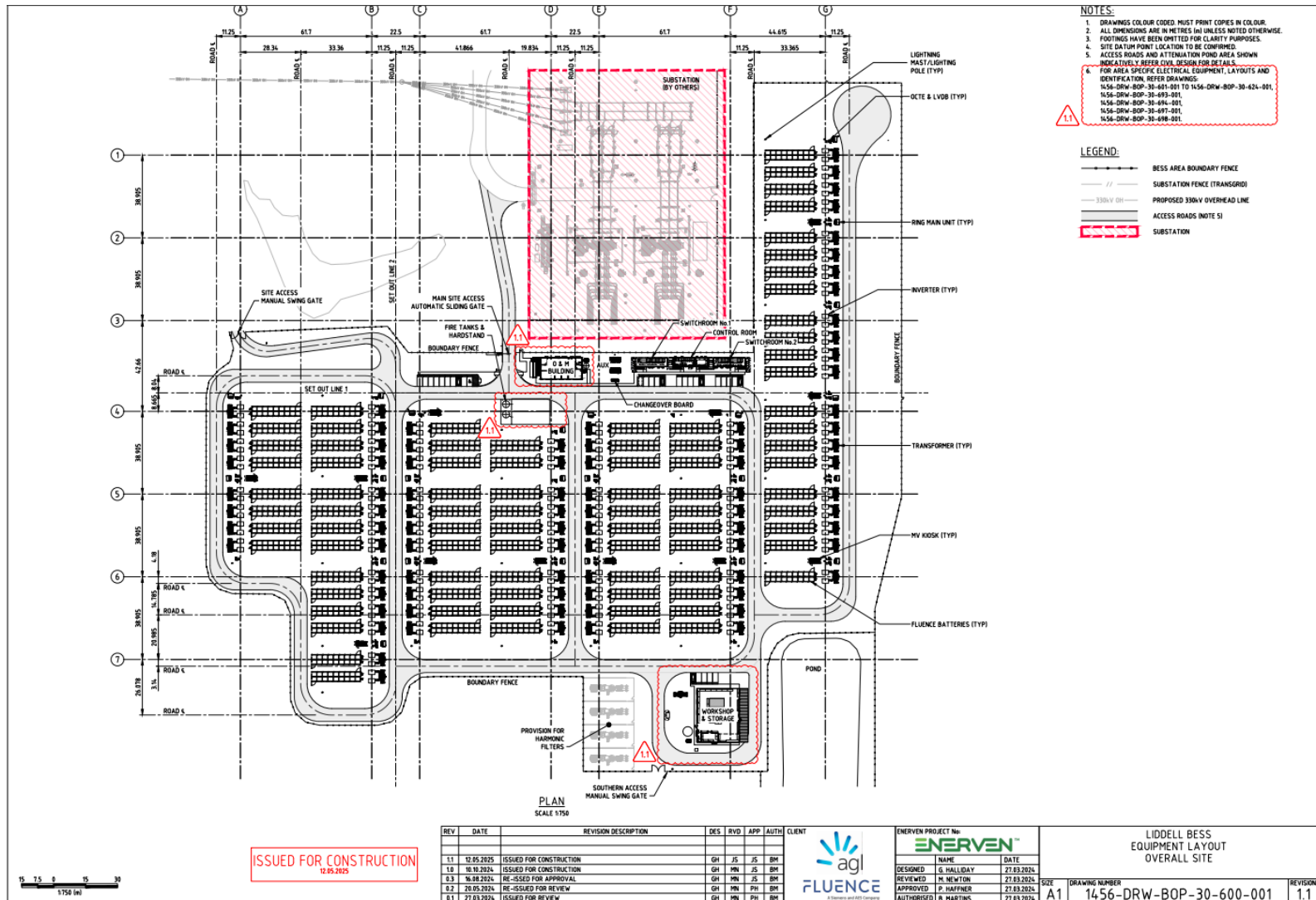


Figure 2 LDBS layout

## 1.4. Relevant approvals and conditions

### 1.4.1. Project approvals

Development consent (SSD-8889679) was granted for the AGL Macquarie Limited on 8 March 2022, which includes the voluntary surrender and consolidation of various existing development approvals into SSD-8889679. This approval includes the development of Liddell Battery and Bayswater Ancillary Works.

The site does not constitute a scheduled activity and is therefore not subject to obtaining a separate EPL. The site however does sit within the boundaries of EPL 2122, held by AGL Macquarie, and utilises licence discharge point 27 for discharge of water from site to Lake Liddell and therefore is subject to the provisions of the licence.

### 1.4.2. Development consent conditions

In accordance with SSD-8889679 development consent condition C1, an Environmental Management Strategy (EMS) has been prepared for the LDBS 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 during operation and decommissioning of the LDBS. 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> <ul style="list-style-type: none"> <li>(e) include: <ul style="list-style-type: none"> <li>(i) the following subplans: <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> </li> </ul> </li> </ul> | This management plan |
| A11       | <p>Unless the Applicant and the applicable authority agree otherwise, the Applicant must:</p> <ul style="list-style-type: none"> <li>repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and</li> <li>relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.</li> </ul>                                                                                                                                                                                                                                                                    | Section 5            |

| Condition | Requirement                                                                                                                                                                                                                                                                      | Reference                                     |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
|           | 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.                                                                                                                             |                                               |
| A12       | <p>The Applicant must ensure that all plant and equipment used on site, or in connection with the development, is:</p> <ul style="list-style-type: none"> <li>maintained in a proper and efficient condition; and</li> <li>operated in a proper and efficient manner.</li> </ul> | Section 5 specifically management measure TT5 |

## 1.5. 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)

The purpose of this TMP is to:

- Summarise potential traffic impacts of the operation and decommissioning of the LDBS 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 operation of the LDBS and to maintain compliance with SSD-8889679.

All works undertaken at the LDBS must comply with the environmental management measures outlined in **Section 5** of this plan.

## 2. 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 1993 (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

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The *Roads Act 1993* 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

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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

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*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)

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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

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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

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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

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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

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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

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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

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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

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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

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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 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 5, where relevant to the operation of the LDBS.

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. Roles and responsibilities

Section 4.3 of the EMS outlines key roles and responsibilities for all staff working at LDBS.

## 4. 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, which 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 LDBS 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 LDBS.

### 4.2. Heavy vehicles

Between the AGLM landholding and Port of Newcastle, the road network consists of several 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 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 3Error! Reference source not found..

### 4.3. Potential impacts

Traffic generated by the LDBS during operation would be negligible and would primarily be light vehicles traveling to and from site. Heavy vehicle movements may be required on occasion; however they are not expected during normal operation.



## 5. Environmental management measures

The management measures provided in **Table 2** will be implemented to minimise potential traffic and transport impacts from the operation of LDBS. For completeness, measures relevant to decommissioning have been included, however where they are not applicable to the operational phase they have been marked in grey. Measures identified for pre-construction have been excluded as that phase has been completed.

*Table 2 Environmental management measures - traffic and transport (EIS / RTS / development consent)*

| Reference | Environmental management measures                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Responsibility                                            | Timing                       |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------|
| TT1       | <p>The haulage contractor will prepare and implement a construction traffic management plan (CTMP) for oversize overmass (OSOM) vehicle movements, which will include:</p> <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> | Haulage contractor                                        | Decommissioning              |
| 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.                                                                                                                                                                                                                                            | AGLM<br>Decommissioning Contractor                        | Decommissioning              |
| 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.                                                                                                                                                                                                                                                                     | AGLM                                                      | Operation<br>Decommissioning |
| TT4       | <p>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).</p> <p>This does not apply to the upgrade and maintenance of the road network.</p>                                                                                                                                                                                                          | AGLM<br>Decommissioning Contractor (decommissioning only) | Operation<br>Decommissioning |
| TT5       | All plant and equipment used on site, or in connection with the LDBS will be maintained and operated in a proper and efficient condition.                                                                                                                                                                                                                                                                                                                                         | AGLM<br>Decommissioning Contractor (decommissioning only) | Operation<br>Decommissioning |

# Compliance and reporting

## 5.1. Monitoring and reporting

There will be no operational monitoring associated with the LDBS.

## 5.2. 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.

## 5.3. 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.

This document will also be reviewed and updated prior to the commencement of decommissioning.