

APPENDIX H – Environmental Impact Statement

Water licensing strategy

Prepared for Lake Lyell Project Pty Ltd



Lake Lyell Pumped Hydro Energy Storage

Water licensing strategy

Lake Lyell Project Pty Ltd

E221111 RP5

November 2025

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1 Introduction

1.1 Background

EnergyAustralia Portfolio Holdings Pty Ltd (EnergyAustralia) in partnership with EDF power solutions Australia (EDFA), referred to as Lake Lyell Project Pty Ltd (LLP) as trustee, is developing the Lake Lyell Pumped Hydro Energy Storage (PHES) Project (the project). The project will have the capacity to store up to 3,080 megawatt hours (MWh) of energy and generate at 385 megawatts (MW) for 8 hours or generate up to around 440 MW for a shorter period. At a basic level, it will consist of upper and lower water reservoirs, a pipeline connecting them, and a hydro-electric power station connected to the national energy grid that is capable of generating or consuming electricity.

The project is located approximately 5 kilometres (km) west of Lithgow and 110 km west of the Sydney central business district, shown in Figure 1.1 and Figure 1.2. The project takes advantage of existing infrastructure (i.e. Lake Lyell) associated with Mt Piper power station which will be decommissioned in the coming decades and allows Lake Lyell to continue to serve a specific purpose in electricity generation (consistent with its existing use).

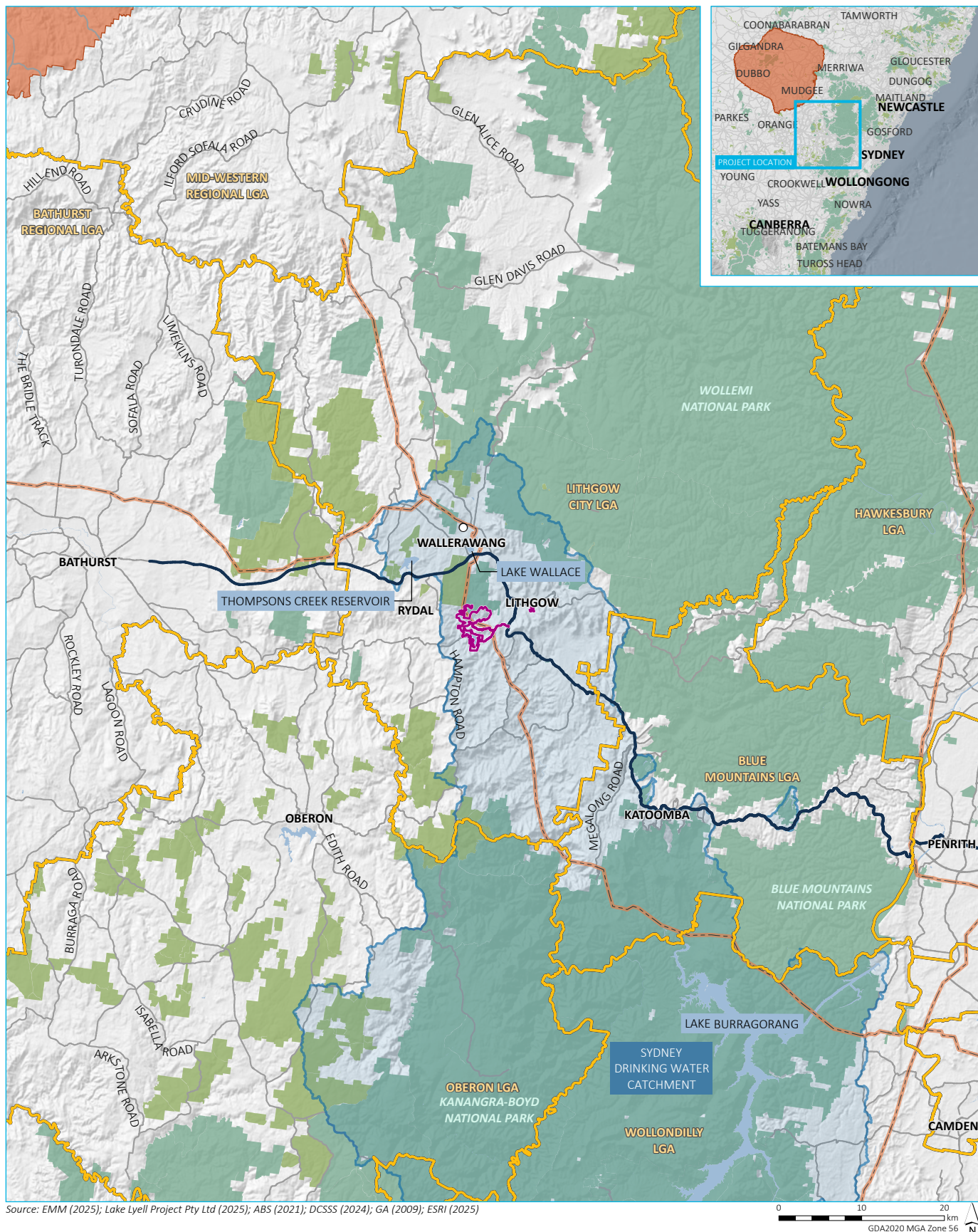
In June 2024, the Minister for Planning and Public Spaces declared the project to be critical State significant infrastructure (CSSI). Accordingly, approval for the project is required under Part 5, Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). This requires the preparation of an environmental impact statement (EIS) for the project in accordance with Secretary's environmental assessment requirements (SEARs) and the approval of the Minister. EMM Consulting Pty Limited (EMM) has been engaged by LLP to prepare the EIS.

1.2 Assessment guidelines and requirements

The purpose of this report is to outline the proposed pathway to meet the water licensing requirements under the NSW water regulatory framework for the construction and operation of the project. The strategy considers both surface water and groundwater licensing requirements under the NSW *Water Management Act 2000* (WM Act), the Water Management (General) Regulation 2025 (WM Regulation), the Access Licence Dealing Principles Order 2004 (ALDP Order) and the relevant statutory water sharing plans (WSPs).

This water licensing strategy is an appendix to the project's EIS and should be read in conjunction with it. Other technical reports that also support the EIS and are relevant to the water licensing strategy are:

- Surface water assessment (EMM 2025a) – Appendix F to the EIS
- Groundwater impact assessment (EMM 2025b) – Appendix G to the EIS
- Excavated rock management strategy (EMM 2025c) – Appendix I to the EIS.



KEY

- Project area
- Local government area
- Sydney Drinking Water Catchment
- Central West Orana Renewable Energy Zone
- Mt Piper Power Station
- Major road
- Great Western Highway
- 330 kV transmission line
- Named waterbody
- NPWS reserve
- State forest
- NPWS reserve
- State forest

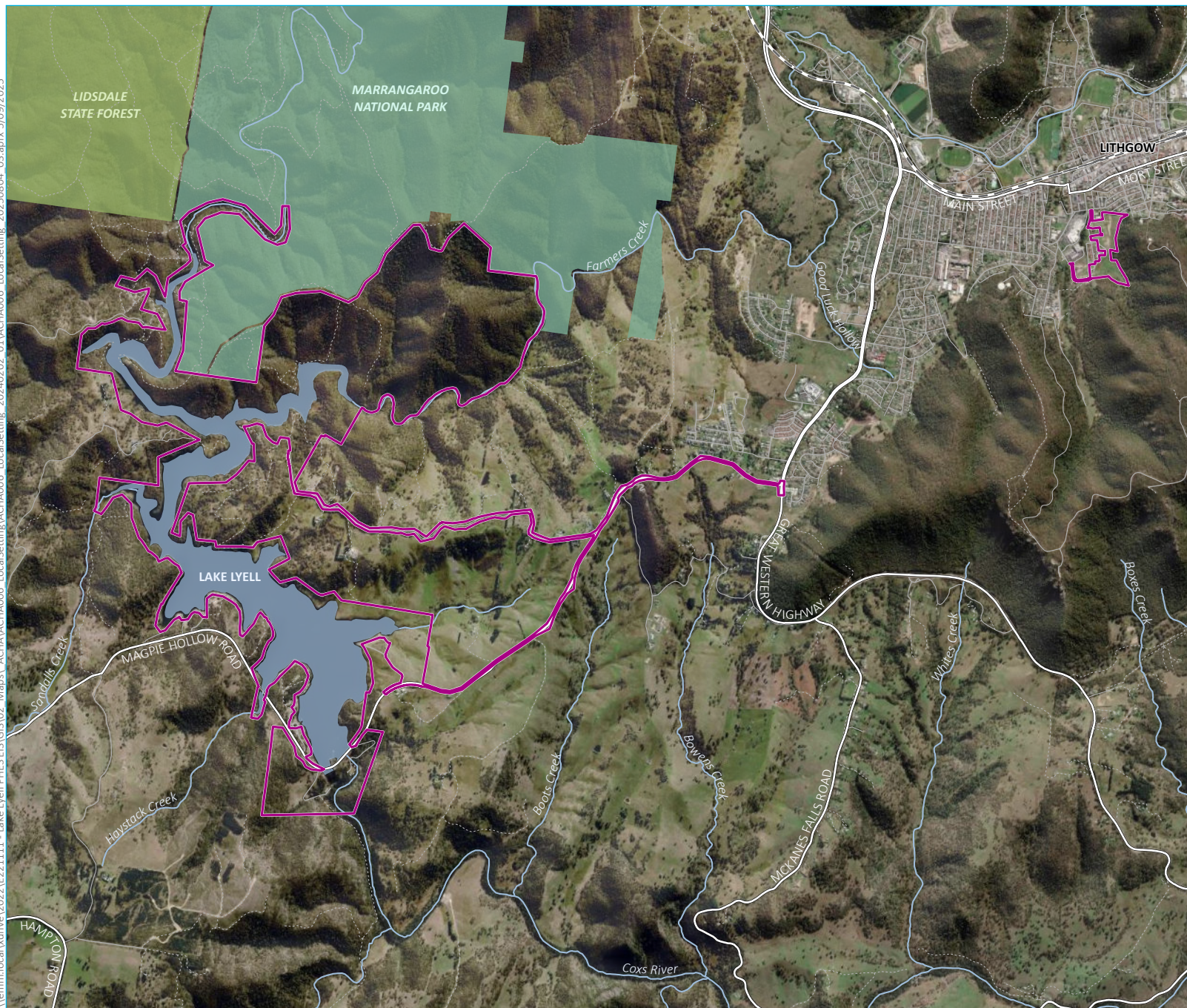
INSET KEY

- Major road
- NPWS reserve
- State forest
- Central West Orana Renewable Energy Zone

Regional context

Lake Lyell PHES
Water Licensing Strategy
Figure 1.1

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KEY

- Project area
- Existing environment
 - Rail line
 - Major road
 - Minor road
 - Vehicular track
 - Named watercourse
 - Named waterbody
 - NPWS reserve
 - State forest

Local context

Lake Lyell PHES
Water Licensing Strategy
Figure 1.2

2 Description of the project

2.1 Key project elements

A detailed description of the project, including an overview of its design, construction and operation is provided in the project's EIS. The EIS (specifically Chapter 3 and Appendix B) should be read in conjunction with this report. A summary of the project's key elements is provided below.

The project design, as shown in Figure 2.1, can be broadly categorised into:

- pumped hydro generation components – including a 5.3 gigalitre (GL) upper reservoir to be constructed behind the southern ridge of Mount Walker, a 33.5 GL lower reservoir (existing Lake Lyell), inlet/outlet structures, and an underground powerhouse, surge shaft and waterway tunnels
- transmission connection components – including a new high voltage switchyard and connection to the existing 330 kilovolt (kV) transmission line that runs through the site
- site access and ancillary facilities – including upgrade of existing and construction of new access roads and bridges, a diversion and infill of a section of Lake Lyell, administration and utilities
- other construction components or works – including geotechnical investigations, temporary workforce accommodation, site work pads, laydown areas and facilities, and spoil management.

Construction will be completed in stages, including:

- pre-construction / enabling works – consisting of initial access works (internal and external roads), geotechnical investigations, site establishment and preparation of the worker's accommodation camp
- main works – consisting of all other construction activities needed to enable operation of the project.

During operation, the project will act as an electrical energy storage system through the conversion of electrical to kinetic energy to gravitational energy and back via water as it is transferred from the elevated upper reservoir to a lower reservoir. The project will provide services to the wholesale 'spot' market on the National Electricity Market, and support ancillary services used to manage the power system reliably.

After the 80 to 100-year design life of the project, the asset may remain viable for a plant refurbishment and extension of life as has been seen for other older assets globally. Following the plants final refurbishment or once it has reached the end of its serviceable life then the project would look to return the site to a more natural state and encourage community beneficial use.

2.2 Lake Lyell operation

2.2.1 Construction

During construction, Lake Lyell levels will be regulated using riparian releases from Lilyvale Dam and pumping to Thompsons Creek Reservoir. One or more fusegates on the Lilyvale Dam spillway will also be temporarily removed to lower the full supply level (FSL) by 3.2 metres Australian Height Datum (mAHD) to 782.3 mAHD (the construction phase FSL). The fusegates will be restored at the end of construction.

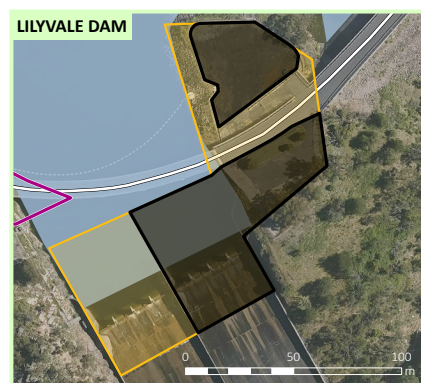
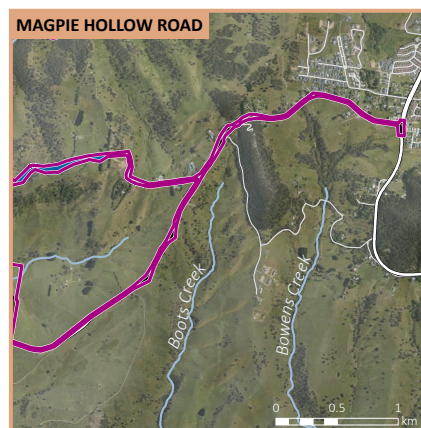
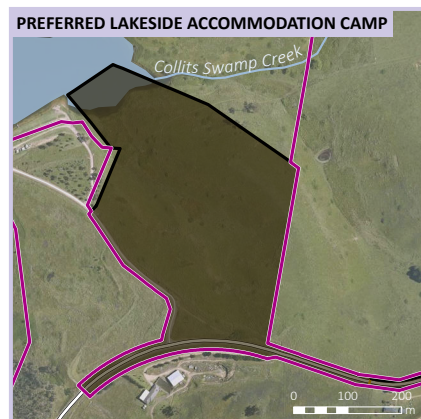
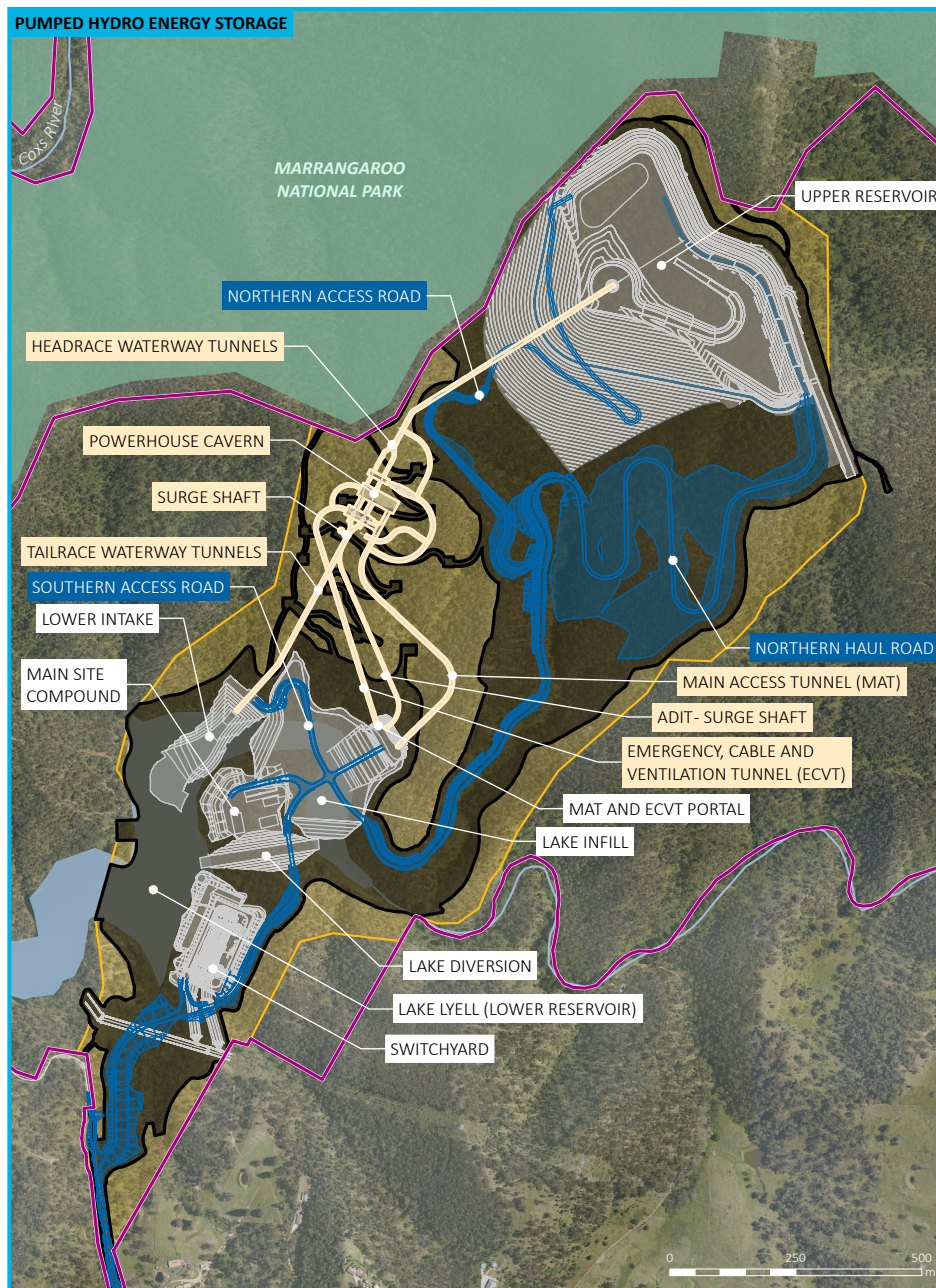
During the initial construction period, Lake Lyell levels will be reduced to and maintained at around 772 mAHD to enable construction of the coffer dam and other in lake works. Once these initial works are completed the lake levels will be allowed to rise to the construction phase FSL.

Higher water levels may occur for short periods during high lake inflow events.

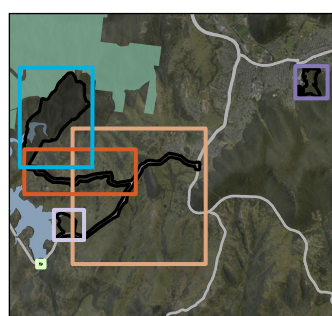
Aside from the temporary changes to the management of Lake Lyell water levels described above, no changes to the existing lake operating approach or environmental releases are proposed.

2.2.2 Operation

During operation of the project, Lake Lyell levels will fluctuate daily due to PHES operations. Lake levels will generally be maintained within the target PHES operating range of 781.0 mAHD to 784.5 mAHD. This will be achieved when the upper level (784.5 mAHD) is not exceeded at the end of a discharge cycle and the lake level does not drop below the lower level (781.0 mAHD) at the end of a pump cycle. Therefore, Lake Lyell and the upper reservoir will need to maintain an active storage volume of approximately 33,000 megalitres (ML) to support the ongoing operational requirements of the project. When lake water levels exceed the target PHES operating range, water will be either released from the lake via the riparian outlet or pumped to Thompsons Creek Reservoir via the Lilyvale pump station.



Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009); MetroMap (2025)



KEY

- | | |
|---|--|
| Project area | — Existing environment |
| Permanent road | Major road |
| Above ground design | Minor road |
| Underground design | Named watercourse |
| Construction envelope | Named waterbody |
| Disturbance footprint | NPWS reserve |

GDA2020 MGA Zone 56



Project overview

Lake Lyell PHES
Water Licensing Strategy
Figure 2.1

3 Regulatory framework

3.1 Water Management Act 2000

The primary legislation for managing water resources in NSW is the WM Act, which provides for sustainable and integrated management of the State's water for the benefit of both present and future generations. Relevant to the project, it sets the framework for sharing the state's water resources, statutory rights, licences and approvals that allow for taking and using of water, including surface water and groundwater. It also establishes the mechanisms for acquiring licences and approvals and for trading licences and the water allocations associated with these. The WM Act must be administered in accordance with, and so as to promote, its broad ranging water management principles set out section 5 of the WM Act.

The WM Act is supported by the WM Regulation which specifies procedural and technical matters related to the administration of the WM Act, including exemptions from licensing and approvals requirements.

3.2 Water sharing plans

WSPs are statutory documents developed under the WM Act that establish the rules for the sustainable sharing of water between the environment and water users, and between different types of water use at a water source scale and for specific types of water resources (regulated rivers, unregulated rivers and groundwater).

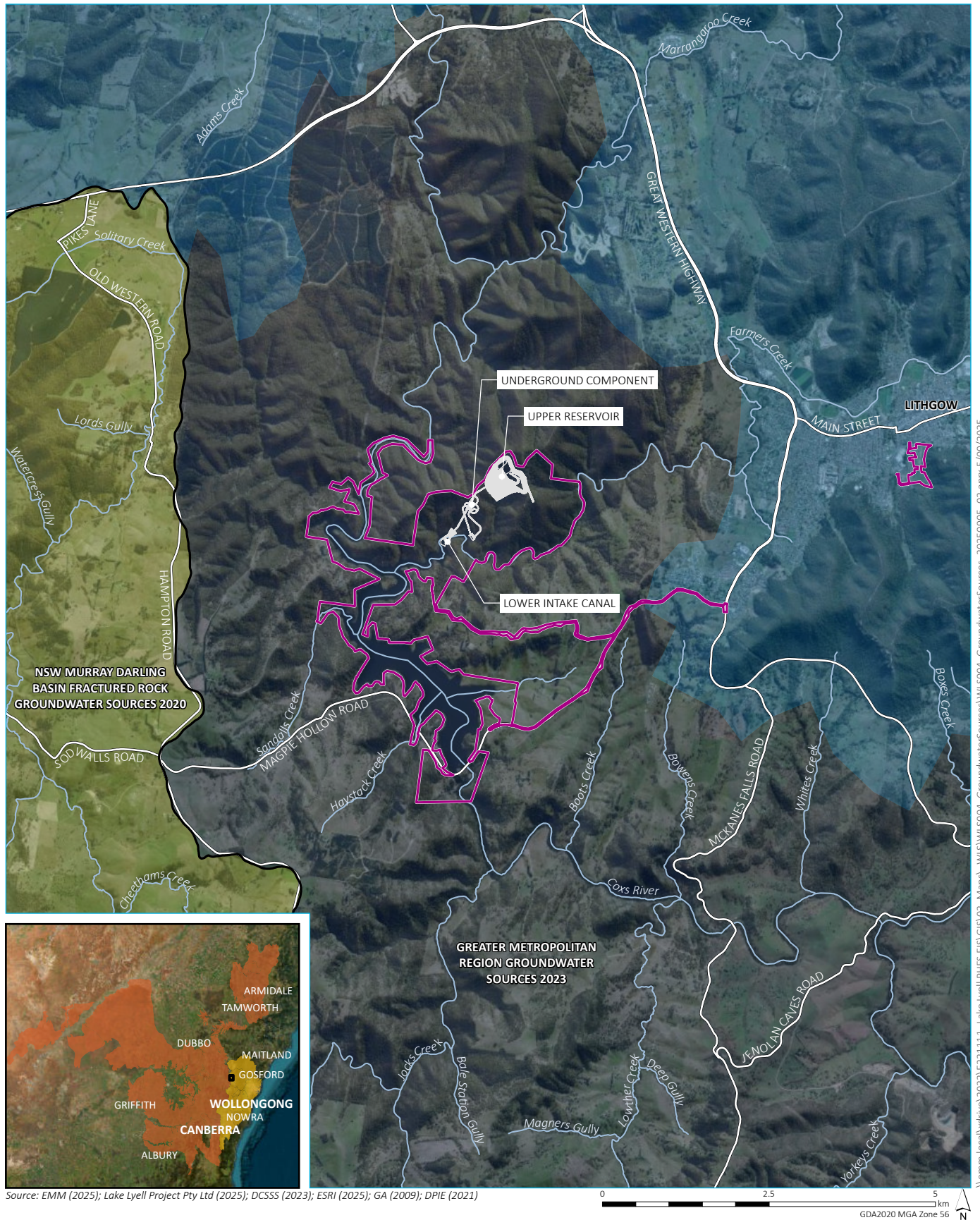
Long-term average annual extraction limits are set by WSPs to define the limit of water that can be taken sustainably for all purposes. Sharing of water is prioritised for the environment, with planned environmental water prescribed under the rules of each WSP to protect the fundamental health of rivers or aquifers and the ecosystems that depend on them.

The WSPs specify water requirements for basic landholder rights and contain rules that determine the water available for different categories of use. They also set the rules for managing water in licence accounts, for trading licence entitlements and allocations, and for managing the works used to take licensed water.

The following WSPs and water sources are relevant to the project:

- *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2023:*
 - **Lachlan Fold Belt Greater Metropolitan Groundwater Source** – applies to groundwater at the project site.
 - **Sydney Basin West Groundwater Source** – minor project elements are located in this water source. No water take is proposed to occur from the water source.
- *Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources 2023:*
 - **Wywanddy Water Source** – applies to surface water at the project site, including Lake Lyell. This water source is part of the Upper Nepean and Upstream Warragamba Extraction Management Unit, which is a catchment scale unit comprising 17 water sources that is used to manage extraction within specified limits.
 - **Dharabuladh Water Source** – minor project elements are located in this water source. No water take is proposed to occur from the water source.

Groundwater and surface water sources are shown in Figure 3.1 and Figure 3.2 respectively.



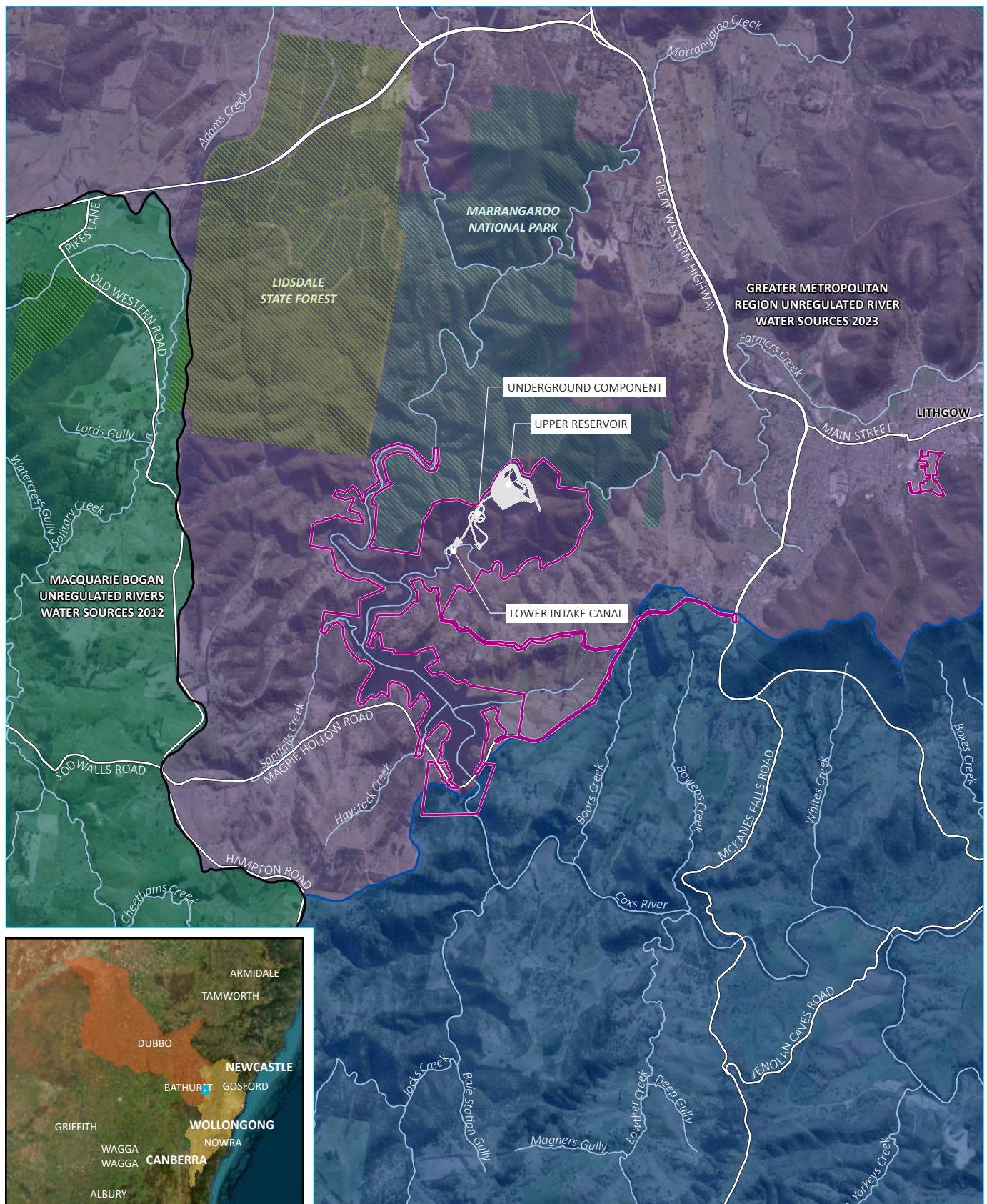
Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2023); ESRI (2025); GA (2009); DPIE (2021)

KEY

- Project area
- Key project infrastructure
- Existing environment
- Major road
- Named watercourse
- Water sharing plan boundary
- Water sharing plan boundary (refer to inset)
- Greater Metropolitan Region Groundwater Sources 2023
- NSW Murray Darling Basin Fractured Rock Groundwater Sources 2020
- Groundwater source**
- Greater Metropolitan Region Groundwater Sources 2023
- Lachlan Fold Belt Greater Metropolitan Groundwater Source
- Sydney Basin West Groundwater Source
- NSW Murray Darling Basin Fractured Rock Groundwater Sources 2020
- Lachlan Fold Belt MDB Groundwater Source

Groundwater sources

Lake Lyell PHES
Water Licensing Strategy
Figure 3.1



Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2023); ESRI (2025); GA (2009); DPIE (2021)

KEY

- Project area
- Key project infrastructure
- Existing environment
- Major road
- Named watercourse
- NPWS reserve
- State forest
- Water sharing plan boundary
- Water sharing plan boundary (refer to inset)
- Greater Metropolitan Region Unregulated River Water Sources 2023
- Macquarie Bogan Unregulated Rivers Water Sources 2012
- Surface water source**
- Macquarie Bogan Unregulated Rivers Water Sources 2012
- Fish River Water Source
- Greater Metropolitan Region Unregulated River Water Sources 2023
- Wywandy Water Source
- Dharabuladh Water Source

Surface water sources

Lake Lyell PHES
Water Licensing Strategy
Figure 3.2

3.3 Access licences and approvals

Under the WM Act, unless authorised under a basic landholder right or an exemption applies, it is an offence to take water from a water source without a water access licence (WAL) and the applicable approvals.

3.3.1 Access licences

An access licence entitles its holders to:

- specified shares in the available water within a particular water source – a WAL share component or entitlement, defined as either a volume per year or a number of unit shares
- take water at specified times, rates or circumstances from specified areas or locations.

There are WAL categories that may have different priorities when available water is shared, have different rules and conditions applied through a WSP and, in the case of specific purpose access licences (SPALs), specify the purpose for which water may be used. Categories relevant to the project include unregulated river, aquifer, local and major utilities and domestic and stock.

The tenure of a WAL may be perpetual for a continuing WAL, or for the duration of the purpose for which the licence was issued for a SPAL.

At the start of each water year (1 July), available water determinations (AWDs) are made by the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) on behalf of the Minister for Water (the Minister). These AWDs specify the 'water allocation' credited to the water allocation account of each WAL by category. AWDs are dependent on water availability (e.g. dam levels, river flows, catchment and aquifer conditions) and are not guaranteed.

Water allocations may be between zero and 100% of the full entitlement specified on a WAL. Full allocation is equivalent to 1 megalitres (ML)/unit share or 100% of the volumetric entitlement specified on the WAL. Depending on the WSP rules and the licence category, unused allocations in water allocation accounts may be carried over from one water year to the next.

EnergyAustralia currently holds two WALs:

- SPAL 27428 with 25,000 megalitres per year (ML/yr) of major utility entitlement within the Wywandy Water Source for the purpose of power generation
- WAL 45574 with 350 unit shares of aquifer entitlement within the Lachlan Fold Belt Greater Metropolitan Groundwater Source.

3.3.2 Approvals

An approval granted under the WM Act authorises the holder to carry out an activity at a specific location on a landholding. Approvals cannot be traded to other properties or locations.

A water supply work and use approval, which are generally combined into one instrument, authorises the holder to construct and use a water supply work at a specified location to take water from a river, lake or aquifer. Water supply works generally refer to infrastructure that has the capacity to extract, store or convey water (e.g. pumps, bores, dams). The approval may also condition the use of the water on land, normally to prevent adverse environmental impacts such as waterlogging or impacting sensitive environments such as wetlands.

A controlled activity approval is required for the removal or deposition of material or for any activity that affects the quantity or flow of water in a water source in, on or under waterfront land. Waterfront land includes the bed and bank of any river, lake or estuary, as well as land within 40 metres (m) of the highest bank of the river, lake or estuary.

Aquifer interference approvals requirements under section 91(3) of the WM Act have yet to commence. However, take of water that results from an aquifer interference activity may still require a WAL. An aquifer interference activity includes the penetration of an aquifer, the interference with water in an aquifer, obstruction of the flow of water in an aquifer, the taking of water from an aquifer in the course of carrying out mining, or any other activity prescribed by the regulations, or the disposal of water taken from an aquifer in the course of carrying out mining, or any other activity prescribed by the regulations.

3.3.3 Licence and approval exemptions

A number of exemptions for the requirement to hold WALs and approvals under the WM Act are provided for under the WM Regulation and the EP&A Act. The exemptions that are applicable to the project are discussed below.

i State significant infrastructure

Approved State significant infrastructure projects, including CSSI projects, do not require water supply work, water use or controlled activity approvals under the WM Act, in accordance with section 5.23(g) of the EP&A Act.

The intent of this exemption is for the proponent to avoid the need to seek duplicate assessment and approvals. However, there is still a requirement that all approval-related works and activities be adequately assessed to DCCEE's satisfaction as part of the project impact assessment process. The assessment process ensures the construction and use of works adequately considers and mitigates potential impacts on water sources and dependent ecosystems or on access to water by other authorised water users.

ii Excluded works

Excluded works specified in schedule 4, part 7 of the WM Regulation are exempt from the requirement for WALs and water supply work and use approvals. The primary excluded work that is applicable to the project is for a dam for drainage or effluent that is:

- a) constructed and used to capture, contain and recirculate drainage or effluent to prevent the contamination of a water source, and
- b) either, in relation to the use referred to in paragraph (a)
 - of a structural size that is the minimum necessary for the use, or
 - required by a public authority for the use, and
- c) located on, or within a catchment of, a minor stream.

iii Coastal construction of infrastructure

Schedule 4, clause 6 of the WM Regulation provides an exemption from the requirement to hold a WAL for water taken from a coastal water source that occurs in connection with the construction of infrastructure, including permanent structures for public or private use. This exemption is in place until 30 June 2029.

The *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2023* is listed as a coastal water source under this exemption.

Schedule 4, clause 17 of the WM Regulation provides an exemption from the requirement to hold a WAL for the movement of water between the storages in a pumped hydro-electricity generation scheme. This exemption applies only to water originally taken under an access licence or a basic landholder right for the purposes of operating the scheme.

4 Water licensing requirements

Aspects of the project that require consideration under the water management regulatory framework have been identified as:

- water supply during construction of the project elements
- initial fill, where water is drawn from Lake Lyell and stored in the upper reservoir for the first time during the commissioning phase of the project
- ongoing operational top-up to replace systems losses (e.g. evaporation and leakage)
- incidental water take throughout construction and operation phases, including:
 - groundwater inflows to works below the groundwater table
 - catchment runoff captured by the upper reservoir and other water storages.

4.1 Construction water supply

Water will be required during the construction of the project for dust suppression, concrete batching, construction of site and transmission infrastructure, vehicle washdown and cleaning, potable water supply to the accommodation camp and construction site amenities and for general site maintenance. The volume of water required for construction is estimated to be up to 311 ML/year over the five-year construction stage of the project.

Any incidental water taken via groundwater interception (refer to Section 4.4) and surface water interception (refer to Section 4.5) during construction will be preferentially reused to meet water requirements. Additional water demands will be met by:

- surface water extracted from Lake Lyell, authorised under a WAL held in the Wywandy Water Source
- groundwater extraction, which will be exempt from requiring licensing until 30 June 2029 under the coastal construction of infrastructure exemption (refer to Section 3.3.3iii) or, if after this time, authorised under a WAL held in the Lachlan Fold Belt Greater Metropolitan Groundwater Source.

4.2 Circulation of water

The project will circulate water between the upper reservoir and Lake Lyell to generate electricity. The initial filling of the upper reservoir will occur gradually over multiple pump and discharge cycles during the commissioning phase of the project. The initial filling will be complete the first time the upper reservoir is filled to the FSL, which will remove 6,300 ML of water from Lake Lyell.

The first pump cycle where water is drawn from Lake Lyell and stored in the upper reservoir for the first time will be authorised under a WAL held in the Wywandy Water Source. After this 'one-off' take occurs, the ongoing circulation of water in the system during the operational phase of the project is exempt from the requirement to hold a WAL (refer Section 3.3.3iv).

4.3 Operational system losses

During the operational phase of the project, there will be system losses, resulting primarily from evaporation from the surface of the upper reservoir and seepage through the walls and floor of the upper reservoir and tunnels into the groundwater system. At times, the volume of water pumped from Lake Lyell to the upper reservoir will be greater than the volume of water released back to Lake Lyell from the upper reservoir.

Direct rainfall onto the surface of the upper reservoir will offset some of the evaporative losses. This is not licensable, consistent with the regulatory approach applied to all reservoirs across the State. Catchment runoff to the upper reservoir in excess of the 'net' system losses (i.e. evaporation and leakage minus direct rainfall) will flow to Lake Lyell during a generation cycle and thus be returned to the water source.

Therefore, the licensable water take from the Wywandy Water Source during the operational phase of the project is the 'net system losses' from the water source, being the evaporation and seepage minus direct rainfall.

Table 4.1 presents the potential licensable water take using this approach under different climate scenarios, as estimated in the surface water assessment (EMM 2025a) for the project.

Table 4.1 Licensable system losses during operation

	Dry conditions	Median conditions	Wet conditions
	10 th percentile	50 th percentile	90 th percentile
Evaporation (ML/yr)	111	107	99
Seepage (ML/yr)	66	66	66
Rainfall (ML/yr)	70	106	134
Licensable volume (ML/yr)	107	67	31

The water allocation account management rules for the Wywandy Water Source permit carryover of up to 1 ML per share of unregulated river shares, with a maximum water take of 3 ML per share over any three-year period. Given this, a licensing requirement of 107 ML/year (equivalent to the estimated 10th percentile conditions) is considered appropriate for the project.

4.4 Incidental groundwater interception

The project will intercept a fractured rock groundwater system, regulated under the Lachlan Fold Belt Greater Metropolitan Groundwater Source. The construction and operation of infrastructure below the groundwater table may induce some groundwater inflow that is considered water take under the NSW Aquifer Interference Policy (DPI 2012).

In addition, water table drawdown caused by groundwater flow into the subsurface infrastructure may also result in a reduction in baseflow or streamflow to overlying surface water sources. Baseflow losses are considered to be water take from the Lachlan Fold Belt Greater Metropolitan Groundwater Source. Streamflow losses are considered to be water take from the Wywandy Water Source.

The volume of water associated with incidental groundwater interception has been estimated by hydrogeological modelling (EMM 2025b) and is provided in Table 4.2.

Groundwater take will be exempt from requiring licensing until 30 June 2029 under the coastal construction of infrastructure exemption (during the construction phase only, refer Section 3.3.3iii) or authorised under a WAL held in the Lachlan Fold Belt Greater Metropolitan Groundwater Source (during the construction phase after 1 July 2029 and during the operational phase). Surface water take, for both the construction and operational phases, will be authorised under a WAL held in the Wywandy Water Source.

Table 4.2 Water licensing requirements associated with incidental groundwater interception

Project phase	Water take mechanism	Maximum water take (ML/yr)	
		Lachlan Fold Belt Greater Metropolitan Groundwater Source	Wywandy Water Source
Construction	Groundwater inflow to excavated/tunnelled infrastructure	62	–
	Reduced baseflow for connected watercourses	24	–
	Leakage via watercourse streambed	–	1
	Licensable volume	86	1
Operation	Groundwater inflow to excavated/tunnelled infrastructure	26	–
	Reduced baseflow for connected watercourses	8	–
	Leakage via watercourse streambed	–	1
	Licensable volume	34	1

Notes:

1. Based on the 90th percentile results presented in the Groundwater Impact Assessment (EMM 2025b)
2. Values are rounded up to the nearest ML/year

4.5 Incidental surface water interception

4.5.1 Conceptual water management system

The water management system for the construction and operational phases of the project is detailed in the surface water assessment (EMM 2025a) for the project. Conceptually, water management will consist of a contaminated water system and a stormwater system that will be operated to prevent contamination of the downstream water source. The conceptual water management system will be further developed at the detailed design stage.

i Contaminated water system

Sources of potentially contaminated water will vary over the construction program and may continue into the operational phase of the project. The key sources are:

- runoff (during construction) and seepage (during and after construction) from permanent spoil emplacements (PSEs)
- water pumped from subsurface excavations during construction
- surface water runoff from high intensity construction areas, for example activities that use blasting to assist excavation, require large scale concreting or grouting works or require intensive use of plant and equipment.

Potentially contaminated water will be collected and managed in the contaminated water system that will be sized to minimise spills into the stormwater system. Where practical, drainage works will be implemented to divert clean water and stormwater around high intensity construction areas to minimise the volume of contaminated water that requires treatment during and after wet weather.

Water from the contaminated water system will be beneficially used to supply non-potable water for construction purposes, with any surplus water treated and discharged to the Farmers Creek arm of Lake Lyell.

ii Stormwater system

Where practical, clean water will be diverted around stormwater management areas to minimise the volume of stormwater that requires management. This includes two permanent watercourse diversions (one first order watercourse and one third order watercourse) to convey clean water runoff from a catchment area to the south of the laydown pad (PSE 3) into Lake Lyell.

The stormwater system will be separated from the contaminated water system and will manage runoff from areas disturbed by activities that have a low risk of producing contaminated water, including:

- roads and earthworks areas (excluding drill and blast areas)
- accommodation camp (during construction and operation of the camp)
- construction pads.

Stormwater will be collected and managed in the stormwater system that will be designed in accordance with the methods described in *Managing Urban Stormwater: Soils and Construction Volume 1* (Landcom 2004). Water captured in sedimentation basins will be either beneficially used for construction or treated and discharged to Lake Lyell or Farmers Creek.

4.5.2 Excluded works dams

The conceptual water management system will incorporate water storages that are constructed and used to capture, contain and recirculate drainage or effluent to prevent the contamination of a water source. Those dams that are located on, or within the catchment of, a minor stream are considered to be 'excluded works' (refer to Section 3.3.3ii) and are exempt from requiring a WAL. These excluded works dams may include clean water dams during the construction phase that prevent runoff from undisturbed upstream catchments becoming potentially contaminated (DPE 2022).

4.5.3 Licensable dams

Any water storages incorporated into the contaminated water and stormwater systems that are not located on, or within the catchment of, a minor stream will require licensing as they do not fulfil the requirements of any exemptions provided for in the WM Regulation. Surface water runoff captured by these dams will be estimated at the detailed design stage when the conceptual water management system is further developed. Incidental surface water interception by the water management system during both construction and operation of the project that requires licensing will be authorised under a WAL held in the Wywandy Water Source.

4.6 Summary of water licensing requirements

A summary of the annual water licensing requirements for the construction, initial fill and operation of the project is provided in Table 4.3.

Table 4.3 Summary of water licensing requirements

Project phase	Water take mechanism	Estimated peak licensing requirement	
		Lachlan Fold Belt Greater Metropolitan Groundwater Source ³	Wywandy Water Source
Construction	Construction water supply ¹	Up to 311 ML/yr	Up to 311 ML/yr
	Groundwater inflow to excavated/tunnelled infrastructure	62 ML/yr	–
	Reduced baseflow for connected watercourses	24 ML/yr	–
	Leakage via watercourse streambed	–	1 ML/yr
	Incidental surface water interception	–	TBC ⁴
	Total ²	335 ML/yr	TBC
Initial fill	First pump cycle to fill upper reservoir	–	6,300 ML ⁵
	Total	–	6,300 ML
Operation	Operational system losses	–	107 ML/yr
	Groundwater inflow to excavated/tunnelled infrastructure	26 ML/yr	–
	Reduced baseflow for connected watercourses	8 ML/yr	–
	Leakage via watercourse streambed	–	1 ML/yr
	Incidental surface water interception	–	TBC
	Total	34 ML/yr	TBC

Notes:

1. A total of 311 ML/yr of construction water will be required for the project, supplied from the Lachlan Fold Belt Greater Metropolitan Groundwater Source and/or the Wywandy Water Source
2. Incidental groundwater and surface water interception will be preferentially used as construction water supply, reducing the total licensing requirements
3. Groundwater take during the construction phase until 30 June 2029 is exempt from licensing (refer to Section 3.3.3iii)
4. Incidental surface water interception that requires licensing will be estimated at the detailed design stage
5. Initial fill water take will occur once only

5 Water market

5.1 Overview

Entering the water market is the generally accepted pathway to secure WAL entitlements. The most common trades (known as ‘dealings’ under the WM Act) are:

- entitlement trade (known as a ‘permanent trade’), where all or part of a WAL is sold permanently in a single transaction, which entitles the new owner to accrue all future allocations made to the traded WAL
- allocation assignment (known as a ‘temporary trade’), which is a sale or transfer of all or part of the water allocation held in the vendor’s water allocation account to the purchaser’s water allocation account.

5.2 Lachlan Fold Belt Greater Metropolitan Groundwater Source

The existing entitlements in the Lachlan Fold Belt Greater Metropolitan Groundwater Source are shown in Table 5.1, sourced from the *NSW Water Register* (WaterNSW 2025).

Annual AWDs of 1 ML/share (i.e. 100% allocation) have historically been made in the Lachlan Fold Belt Greater Metropolitan Groundwater Source. Available data indicate there is very little use of existing aquifer entitlement in the groundwater source (WaterNSW 2025). However, the data likely reflects a lack of metering or monitoring of extraction from authorised bores or works, or public reporting of licensable incidental groundwater take.

Notwithstanding, use is likely to be far less than the entitlement available.

Historical trading has been limited in the Lachlan Fold Belt Greater Metropolitan Groundwater Source, with 10 permanent trades and 15 temporary trades recorded in the groundwater source over the previous 10 years, primarily during periods of drought.

Table 5.1 Entitlements available in the Lachlan Fold Belt Greater Metropolitan Groundwater Source

Access licence category	Number of licences	Total share component
Aquifer	174	8,373.5 unit shares
Aquifer (town water supply)	2	100 ML

5.3 Wywanddy Water Source

The existing entitlements in the Wywanddy Water Source are shown in Table 5.2, sourced from the *NSW Water Register* (WaterNSW 2025). AWDs of 1 ML/unit share (i.e. 100% allocation) have been made each year for the Wywanddy Water Source. Limited water use has been recorded by the *NSW Water Register* (WaterNSW 2025). No water trading has occurred to date in the water source.

Table 5.2 Entitlements available in the Wywanddy Water Source

Access licence category	Number of licences	Total share component
Domestic and stock (domestic)	1	1 ML
Domestic and stock (town water supply)	1	1,500 ML
Major utility	1	0 ML
Major utility (power generation)	1	25,000 ML
Unregulated river	6	211 unit shares

6 Water licensing strategy

6.1 Groundwater take

As presented in Table 4.3, groundwater take is estimated to be up to 335 ML/yr during construction and 34 ML/yr during operations.

Groundwater take during the construction phase is exempt from requiring a WAL until 30 June 2029. Following expiry of this exemption, the project will utilise WAL 45574 for 350 unit shares of aquifer entitlement within the Lachlan Fold Belt Greater Metropolitan Groundwater Source. This licence is sufficient to account for groundwater take associated with inflow to excavated / tunnelled infrastructure and reduced baseflow for connected watercourses during construction of up to 86 ML/yr (refer to Table 4.3). If required, the existing WAL 45574 of 350 unit shares could also supply up to an additional 264 ML/yr of the construction water supply.

The groundwater take during construction of the project is expected to be less than 350 ML/yr and accounted for using the 350 unit shares of entitlement associated with WAL 45574. Any additional groundwater extraction in excess of 350 ML/yr that may be required to meet construction demands can be acquired via trading for additional permanent entitlement and/or temporary allocation within the water source. As shown in Table 5.1, a total of 8,373.5 unit shares of aquifer entitlement is available in the Lachlan Fold Belt Greater Metropolitan Groundwater Source. This indicates there is sufficient depth in the water market to acquire entitlements to account for the likely small volumes of any additional groundwater required for construction of the project.

Groundwater take during the operational phase of the project of 34 ML/yr will be accounted for using the 350 unit shares of entitlement associated with WAL 45574.

6.2 Surface water take

WAL entitlements in the Wywandy Water Source are very limited, with a total of 211 unit shares in the unregulated river licence category (refer to Table 5.2). In the unlikely event that this could all be acquired via the market, it would not be sufficient for the project's requirements for construction, initial fill and operation. Other options for licensing of surface water take from this water source are discussed below.

6.2.1 Existing specific purpose access licence

EnergyAustralia currently holds SPAL 27428 for 25,000 ML of entitlement within the Wywandy Water Source in a major utility (power generation) licence category. A major utility access licence can only be held by a major utility specified in schedule 2 of the WM Act. EnergyAustralia is listed as a major utility in Schedule 2 of the WM Act, along with six other power generation and water utilities operating in NSW.

As LLP is not listed as a major utility in schedule 2 of the WM Act, for SPAL 27428 held by EnergyAustralia to be used to account for the project's construction and operational requirements, an amendment to the ALDP Order would be required. This amendment would allow an allocation assignment (i.e. temporary trade) from the SPAL to an unregulated river WAL held by LLP for the project in the Wywandy Water Source. This would allow a water allocation from the SPAL to be used to account for surface water taken during the construction and operation of the project. The NSW Minister for Water (or their delegate) can amend the ALDP Order.

Mt Piper power station water usage data, presented in section 4.2.5 of the surface water assessment (EMM 2025a), shows that over the six years from 2018/19 to 2023/24 water year, no more than around 6,000 ML/yr has been supplied from the Cocks River water supply scheme, which is licensed with SPAL 27428. This indicates that there is sufficient entitlement to use the SPAL to account for both the water take associated with the supply to Mt Piper power station as well as the construction, initial fill and operation of the project.

The use of the SPAL for the project was confirmed as a viable pathway by representatives of DCCEEW in a meeting of 12 June 2024 (noting that the ownership of the project by LLP, in which EnergyAustralia is a partner, was not discussed at this meeting).

6.2.2 New specific purpose access licence

If the preferred licensing pathway of using SPAL 27428 for the project discussed in Section 6.2.1 is not accepted, a new SPAL will be applied for under the category of 'unregulated river pumped hydro-electricity generation (construction and initial storage fill) access licence', as provided for in part 3, division 1(12) of the WM Regulation. This would enable water take from the Wywandy Water Source for the project construction and initial fill phases of the project.

A new SPAL may require the *Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources 2023* to be amended to provide for AWDs for the SPAL and to specify the allocation account management and dealing rules for the SPAL category.

The SPAL application will be for the minimum volume required for the proposed project construction and initial fill phases of the project and will include an assessment of potential impacts associated with the water take, for example impacts on environmental water and water dependent ecosystems, other water users (including both basic landholder rights and licensed water users) and features of indigenous significance.

6.2.3 Future water opportunities

DCCEEW is currently developing the Fish River-Wywandy Regional Water Strategy to address water issues for Lithgow and its surrounds, the Upper Macquarie and the Upper Blue Mountains. The strategy will consider how to manage and potentially reallocate water entitlements currently allocated for coal mining and coal-fired electricity generation as the NSW energy system shifts away from using fossil fuels, including the entitlement associated with SPAL 27428 held by EnergyAustralia.

Mt Piper power station is expected to close by 2040, at which point water would no longer be required for power generation by Mt Piper power station, which is the specific purpose of SPAL 27428. The NSW Minister for Water may cancel this licence, which would prevent LLP from continuing to temporarily trade allocation from SPAL 27428 to the zero share WAL held for the project, as discussed in Section 6.2.1.

There are likely to be opportunities to obtain any reallocated water entitlement as part of the Fish River-Wywandy Regional Water Strategy. Ideally, the regional water strategy planning process will provide the opportunity for LLP to acquire sufficient entitlement to account for water take from the Wywandy Water Source during the operation of the project. This will provide long-term certainty for the project's surface water requirements.

7 Summary

A summary of the proposed water licensing strategy for construction, initial fill and operational phases of the project for both groundwater and surface water take is provided in Table 7.1. As discussed in Section 6, there are a number of options available to satisfy project water demands and the water licensing requirements of the project. In short, the recommended pathway consists of:

- exercising statutory exemptions from the requirement to hold a WAL for groundwater taken in connection with construction of infrastructure, water taken by excluded works dams and the circulation of water between the lower and upper reservoirs
- use of WAL 45574 to account for up to 350 ML/yr of groundwater take from the Lachlan Fold Belt Greater Metropolitan Groundwater Source, with any additional groundwater required traded from the water market
- for surface water take from the Wywandy Water Source:
 - temporary use of EnergyAustralia's SPAL 27428 (subject to regulatory change) for construction, initial fill and operational phases of the project
 - alternatively, apply for a new SPAL under the 'unregulated river pumped hydro-electricity generation (construction and initial storage fill) access licence' for the construction and initial fill phases of the project
 - pursue a long-term solution for surface water take during operation of the project in the Fish River-Wywandy Regional Water Strategy to allow LLP to obtain the required water entitlement.

Table 7.1 **Water licensing strategy**

Water source	Project phase	Strategy
Lachlan Fold Belt Greater Metropolitan Groundwater Source	Construction	Exemption Groundwater take is exempt from requiring an access licence until 30 June 2029 (schedule 4, clause 6 of the WM Regulation)
		Existing entitlement After 1 July 2029, up to 350 ML/yr of groundwater take will be accounted for with existing entitlement associated with WAL 45574
		Trade for entitlement/allocation After 1 July 2029, for groundwater take more than 350 ML/year, temporary trade of allocation and/or permanent trade of entitlement on water market
	Operation	Existing entitlement Groundwater take will be accounted for with existing entitlement associated with WAL 45574
Wywandy Water Source	Construction and initial fill	Existing entitlement Temporary use of EnergyAustralia's SPAL 27428 to account for surface water take (subject to regulatory change)
		New specific purpose access licence Apply for a new SPAL under the category 'unregulated river pumped hydro-electricity generation (construction and initial storage fill) access licence'
	Operation	Existing entitlement Temporary use of EnergyAustralia's SPAL 27428 to account for surface water take (subject to regulatory change)
		Acquire reallocated entitlement Engage in the Fish River-Wywandy Regional Water Strategy development process to obtain reallocated entitlement

References

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EMM 2025a, *Lake Lyell Pumped Hydro Project: Surface Water Assessment*, prepared by EMM Consulting Pty Ltd for EnergyAustralia Portfolio Holdings Pty Ltd

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