



Eraring BESS North

Scoping Report

Origin Energy Eraring Pty Limited

28 September 2026

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Acronyms and definitions

Acronyms	Definition
ACHA	Aboriginal Cultural Heritage Assessment
AEMO	Australian Energy Market Operator
AEP	Annual Exceedance Probability
AGTM	Austrroads Guide to Traffic Management
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information System
APZ	Asset Protection Zone
AS	Australian Standard
BAM	Biodiversity Assessment Method
BC Act	<i>Biodiversity Conservation Act 2016</i>
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
CCC	Community Consultative Committee
CEMP	Construction Environmental Management Plan
CER	Clean Energy Regulator
CHDDA	Cultural Heritage Due Diligence Assessment
CIA	Cumulative Impact Assessment
CSEP	Community Stakeholder Engagement Plan
DCA	Development Coordination Authority (NSW)
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DECC	Department of Environment and Climate Change (NSW)
DECCW	Department of Environment, Climate Change and Water (NSW)
DP	Deposited Plan
DPE	Department of Planning and Environment (NSW)
DPHI	Department of Planning, Housing and Infrastructure
DPI	Department of Primary Industries (NSW)
DPIE	Department of Planning, Industry and Environment (NSW)
EII Act	<i>Electricity Infrastructure Investment Act 2020 (NSW)</i>
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EP&A Regulations	Environmental Planning and Assessment Regulation 2021
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cwlth)</i>
EPS	Eraring Power Station
FAQs	Frequently asked questions
FIRA	Flood Impact and Risk Assessment
GW	Gigawatt
ha	hectare

Acronyms	Definition
IBRA	Interim Biogeographic Regionalisation for Australia
IPC	Independent Planning Commission
ISP	Integrated System Plan
kV	Kilovolt
km	kilometre
LALC	Local Aboriginal Land Council
LCVIA	Landscape Character and Visual Impact Assessment
LEP	Local Environmental Plan
LGA	Local Government Area
LiDAR	Light Detection and Ranging
MNES	Matters of National Environmental Significance
MW, MWh	Mega Watts and Mega Watt hour.
NATA	National Association of Testing Authorities
NEM	National Electricity Market
NGER	National Greenhouse and Energy Reporting
NRAR	Natural Resources Access Regulator
O&M	Operations and Maintenance
Origin	Origin Energy Eraring Pty Ltd
OSOM	Oversize and overmass
PAD	Potential Archaeological Deposit
PCB	Polychlorinated biphenyl
PCS	Power Conversion System
PCT	Plant Community Type
PFAS	Per- and polyfluoroalkyl substances, commonly used in fire fighting.
PHA	Preliminary Hazard Analysis
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
RAPs	Registered Aboriginal Parties
REZ	Renewable Energy Zone
RFS	Rural Fire Service (NSW)
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SoHI	Statement of Heritage Impact
SSD	State Significant Development
TEC	Threatened Ecological Communities
TfNSW	Transport for NSW
TUFLOW	Hydrodynamic flood modelling software

1. Introduction

1.1 Overview

This Scoping Report has been prepared by GHD Pty Ltd on behalf of Origin Energy Eraring Pty Ltd (Origin), to support the construction of a new Battery Energy Storage System (BESS).

The Eraring BESS North (the Project) proposes the construction of a grid-scale BESS with a discharge capacity of 500 megawatts (MW) and an accessible energy storage capacity of approximately 4,942 megawatt hours (MWh). The Project would require up to 22 hectares (ha) and the site is located on Origin owned land at Eraring Power Station (EPS) in New South Wales (NSW), located in the suburb of Eraring in the City of Lake Macquarie local government area (LGA).

The Project would operate in conjunction with the existing Eraring BESS as part of Origin's generation portfolio, which was granted State Significant Development (SSD) consent SSD-15950052 on 10 May 2022. Together, the existing and proposed BESS facilities would provide a combined maximum registered active power capacity of around 1,200 MW and a combined accessible energy storage capacity of approximately 8,600 MWh (subject to detailed design).

It is anticipated that the Project will constitute a SSD under Section 2.6(1) of the State Environmental Planning Policy (Planning Systems SEPP) 2021. Accordingly, it will be subject to Part 4, Division 4.7, Section 4.36 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), as it is permissible with consent and development for the purpose of electricity generating works that has an estimated development cost exceeding the triggers in Schedule 1, section 20 of the Planning Systems SEPP 2021. This will require the preparation of an Environmental Impact Statement (EIS) in accordance with Secretary's Environmental Assessment Requirements (SEARs).

1.2 Project background

1.2.1 Surrounding site

The Project site (the site) is located near the western shore of Lake Macquarie in NSW, within the Lake Macquarie LGA and the broader Hunter Region. It lies near the suburbs of Eraring and Dora Creek, approximately 5 kilometres (km) east of Morisset, and approximately 40 km south-west of Newcastle. It is accessible via Wangi Road (which connects to the M1 Pacific Motorway via Mandalong Road) and the Main Northern rail line, placing it within reach of key regional centres and infrastructure corridors. The surrounding area is a mix of industry, environmentally sensitive land, established suburbs, and areas earmarked for future growth.

Key features adjacent to the Project site are:

- The EPS – has an area of approximately 1,100 ha, which includes the power block, a cooling water system, a 250-ha ash dam storage, a coal stockpile and various related infrastructure. The EPS has been in operation since 1982 with planned closure in April 2029. The site was acquired by Origin from the NSW government in 2013.
- Existing substation – 330/500 kilovolt (kV) Transgrid substation is located within the footprint of the EPS.
- Existing Eraring BESS – comprises 3,658 MWh BESS which operates independently of the EPS. Eraring BESS was determined and granted consent (SSD-15950052) on 10 May 2022. The Eraring BESS (SSD-15950052) included the development of BESS compounds to house lithium-ion type batteries, power conversion systems (PCS), and high voltage electrical reticulation equipment; a BESS substation; 400 metres (m) of overhead 330 kV transmission line from the substation to TransGrid switchyard; and associated infrastructure. This approval has subsequently been modified twice:
 - SSD-15950052 Modification 1 sought a minor update to the configuration of the site to better represent the design of the Eraring BESS. Determined on 22 August 2023.
 - SSD-15950052 Modification 2 sought to change the final landform of the site and to increase the storage capacity from 2,800 MWh to 3,300 MWh. Development included the establishment of a southern bench and associated infrastructure for stormwater management, and additional BESS compounds. Determined on 5 December 2025.

The regional context of the area is shown in Figure 1.1.

The Project site is located within an area of established energy infrastructure where several renewable energy and storage projects have been approved or are currently under assessment. Table 1.1 lists the renewable energy and storage projects within approximately 10 km of the Project site, together with their current planning status and approximate distance from the site.

Table 1.1 *Renewable energy and storage projects in the vicinity of the Project site*

Project	Owner	Status	Description	Approximate distance
Eraring BESS (SSD-15950052)	Origin Energy Eraring	Approved May 2022, modified twice. Phase 1 is under operation, whereas Phase 2 is currently under construction, due to be complete in early 2027	Grid-scale BESS approved at 700 MW. Modification 2, determined 5 December 2025, increased storage capacity by 500 MWh and reconfigured the temporary laydown area into a permanent southern bench.	Adjoining. The Project site partly overlaps the approved project area.
Vales Point BESS (SSD-92629458)	Delta Power & Energy and Samsung C&T joint venture	Preparing EIS. SEARs issued; scoping report lodged August 2025	Construction, operation and decommissioning of a 400 MW / 800 MWh BESS and associated infrastructure, on the cleared former A Station footprint adjacent to existing Transgrid infrastructure.	Approximately 10 km south at Mannering Park, Central Coast LGA
Vales Point Solar Farm (SSD-8533)	Delta Electricity	Approved October 2018. Final investment decision on hold pending the REZ and Electricity Infrastructure Roadmap rollout	55 MW solar farm on a rehabilitated section of the Vales Point ash dam,	Approximately 10 km south, at Mannering Park
Awaba Bess (SSD-29702120)	AGL, formerly Firm Power	Approved December 2023. EPBC Act referral submitted June 2026	50 MW / 100 MWh BESS on a 1.45 ha site adjacent to the Ausgrid Awaba Substation, connecting via a 33 kV line,	Approximately 10 to 12 km north, near Toronto
Hidden Hill BESS	Private Energy Partners	Early stage. Concept plan and technical investigations underway. No State Significant Development application lodged yet.	Proposed BESS at Cooranbong connecting to the existing 330 kV transmission line that passes through the site. Capacity and storage duration to be confirmed as site investigations, technical assessments and design progress. Infrastructure would include battery units with fire detection and suppression systems, an electrical substation, connection to the existing transmission line, site office and access roads connecting to Freemans Drive,	Approximately 4 km from EPS, at Cooranbong in the Lake Macquarie LGA

1.2.2 Project site

The Project site is located within the broader EPS landholding, occupying an area of approximately 22 ha during construction. The majority of the site will be located directly north of the existing BESS footprint with the remaining portion located within the Eraring BESS (SSD-15950052). The development footprint of the Project is shown in Figure 1.2. This figure also shows the footprint of the Eraring BESS (SSD-15950052), as some of the construction area overlaps the existing BESS laydown, temporary site offices and borrow pit locations.

The Project site is in the suburb of Eraring and is located north of Rocky Point Road and east of Junction Road. Neighbouring suburbs include Cooranbong, Dora Creek and Myuna Bay.

The site has been previously disturbed and rehabilitated, making it an ideal location for infrastructure development with minimal environmental impact. A native plant nursery is located on a small portion of the site. Origin and the contracted nursery operator have worked together to find a suitable location within the wider EPS site for relocation of the nursery.

Table 1.2 outlines the key site identifiers and information.

Table 1.2 *Key Site identifiers*

Lot and DP	Lot 2 DP1295766 (Origin owned) and Lot 10 DP1050120 and Lot 1 DP1295766 (both Transgrid owned).
Approximate footprints	The total Project footprint, as shown in Figure 1.2, is approximately 22 ha of previously disturbed land, which comprises: – Approximately 11 ha of land within the existing Eraring BESS site – Approximately 11 ha of land adjacent to the existing Eraring BESS site
Street address	268 and 294 Rocky Point Road, Eraring NSW 2264
Ownership	Origin Energy Eraring Pty Limited
Land use zoning	SP2 – Infrastructure (Electricity Generating Works) – majority of site C2 – Environmental Conservation – minor area comprising Pony Club Road for access track/roadway improvements.



Figure 1.2 The Project Development footprint



Figure 1.3 The Project areas and layout

1.2.3 Key features of the Project

This proposed Project comprises the construction, operation and decommissioning phases, and includes the following, as shown in Figure 1.3:

- A total Project disturbance area of approximately 22 ha, comprising:
 - Approximately 11 ha of located outside of the Eraring BESS project area (SSD-1590052) (proposed New Disturbance area as shown in Figure 1.3)
 - Approximately 11 ha located within the existing Eraring BESS project area (SSD-1590052), utilising previously disturbed land.
- An energy discharge capacity of around 500 MW and energy storage capacity of approximately 4,942 MWh. If operated in conjunction with the existing Eraring BESS, this would bring the total Eraring Site BESS assets to a combined maximum energy discharge capacity of around 1,200 MW and a combined energy storage capacity of approximately 8,600 MWh (subject to detailed design).
- BESS equipment, which includes battery cells/technology, cooling and safety management systems, inverters and transformers, electrical switch rooms, control and ancillary buildings, earthing, lightning protection, lighting, security fencing, closed circuit television and environmental controls (subject to detailed design).
- New project substation compound, adjacent to the existing BESS substation with one 330 kV incoming feeder, two transformer switch bays two transformers earthing transformers, auxiliary services building, single circuit overhead transmission line and single circuit pole terminal structures or 330 kV underground cable and additional auxiliary transformer(s) which will be located in the transmission corridor. The point of connection is likely to be located in a vacant bay in the Transgrid 330/500kV substation.
- Water Supply – establishment of a new water supply or extension of the existing water supply infrastructure from the existing Eraring BESS to connect the new project area.
- Ancillary Infrastructure – new electricity buildings and kiosks, new office and amenities buildings, new internal access roads, utilities and communications, infrastructure and hardstands, expansion of existing and new operations and maintenance offices and O&M area.
- Temporary Facilities – A proposed borrow pit area, stockpile location and laydown area and temporary site offices areas are all located within the Approved Development Area as shown in Figure 1.3. The project will likely also include temporary site construction compounds and construction power supply, cut and fill earthworks staging areas, ad concrete batch plants (if required), water treatment plants and temporary roads (subject to detailed design).
- Site access to the facility is proposed to be via the canal bridge on Rocky Point Road.

The cost of the Project would be refined during further design. A formal Quantity Surveyor certified estimated development cost statement would be submitted with the EIS.

1.2.4 Project objectives

The Project has the following primary objectives:

- Additional capacity for delivering safe and reliable energy storage and to contribute to lowering emissions for electricity supply in NSW.
- Avoiding and minimising impacts to the environment.
- Contributing to Origin's commitments to achieve net zero by 2050.
- Building positive and respectful relationships between identified stakeholders and Origin and to address community and stakeholder concerns.

1.2.5 Key strategies to avoid, minimise or offset impacts

The Australian Government Department of Climate Change, Energy, the Environment and Water (Cwlth DCCEEW), the NSW Government State Significant Development Guidelines and the *Biodiversity Conservation Act 2016* (BC Act), outline the requirement for developments to follow an impact mitigation hierarchy. The hierarchy includes the following three step process:

1. Avoid
2. Minimise and/or mitigate
3. Offset / repair of impact

This Scoping Report summarises the initial steps undertaken to address this hierarchy in relation to potential impact areas/matters. This will be further developed through input from stakeholder consultation and through detailed studies undertaken as part of the EIS. Key steps carried out to date include:

- The alternate options investigated to avoid and minimise impacts at early design stages (refer to Section 2.5). This influences site and layout selection and the reuse of previously impacted areas within the Eraring BESS site.
- Constraints-led siting, with the outcomes of preliminary studies for heritage and biodiversity informing internal site layout development.
- Consideration of previous consultation feedback received during design and construction of the Eraring BESS. Some stakeholder concerns are likely to be similar across both projects and therefore are being used to inform construction methodology, where applicable.

Consistent with the BC Act and the Biodiversity Assessment Method (BAM), the Project has applied — and will continue to apply — the avoid, minimise and offset hierarchy as the guiding framework for managing impacts on biodiversity values, with offsetting considered only once reasonable avoidance and minimisation measures have been exhausted.

Where impacts cannot be avoided, the Project will implement measures to minimise their extent and severity, including establishment of construction exclusion zones and fencing around retained vegetation, weed and pathogen hygiene protocols, timing restrictions to avoid sensitive periods, infrastructure design measures to reduce fauna strike risk and progressive clearing protocols.

Impacts that remain after the above avoidance and minimisation measures have been applied will be addressed through the retirement of biodiversity credits under the NSW Biodiversity Offset Scheme, calculated in accordance with the BAM which will be detailed in the Biodiversity Development Assessment Report prepared for the EIS. Residual significant impacts on Matters of National Environmental Significance would be offset in accordance with the EPBC Act Offset Policy.

1.3 Approval pathway

It is anticipated that the Project will be a SSD under the Section 2.6 of the Planning Systems SEPP 2021, and will be subject to Part 4, Division 4.7, Section 4.36 of the EP&A Act, as described in Chapter 4. This is due to the estimated development cost of the Project being of more than \$30 million. This will require the preparation of an EIS in accordance with the SEARs.

It is Origin's preference the proposed action be assessed under the New South Wales and Commonwealth Government EPBC Act assessment bilateral agreement. The EIS will identify and assess any impacts on the Project on MNES. To facilitate this and comply with the requirements of the bilateral assessment agreement, the Minister for Planning and Public Spaces and Department of Planning, Housing and Infrastructure (DPHI) will need to issue guidelines for the assessment of impacts on MNES prior to the preparation of the EIS, informed by any comments from the Commonwealth Minister for the Environment and Water and DCCEEW.

1.4 Proponent details

Origin Energy Ltd is an Australian Securities Exchange-listed public company headquartered in Sydney and is one of Australia's largest integrated electricity businesses. Origin has a substantial portfolio of electricity generation assets across thermal and renewable technologies and is a major retailer supplying electricity to residential, commercial and industrial customers across the National Electricity Market (NEM). Origin Energy Ltd is the parent listed entity, while Origin Energy Eraring Pty Ltd is a wholly owned subsidiary established specifically to own and operate the Eraring Site.

The proponent's details are as follows:

- Proponent name: Origin Energy Eraring Pty Limited
- Address: 100 Barangaroo Avenue, Barangaroo, Sydney NSW 2000
- ABN: 31 357 688 069.

1.5 Purpose and structure of this report

This scoping report has been developed in accordance with the DPHI State Significant Development Guidelines – preparing a scoping report (DPIE, 2022) to the extent applicable to an EIS. It includes a description of the Project, the statutory framework, stakeholder engagement completed to date and proposed ongoing engagement, preliminary identification of relevant environmental matters, potential impacts and the proposed scope of the assessment to be undertaken in the EIS.

The EIS would be prepared in accordance with assessment requirements specified by DPHI, the EP&A Act and the *Environmental Planning and Assessment Regulation 2021* (the Regulation). The EIS will also identify and assess any impacts of the Project on MNES as per the EPBC Act.

The structure and information included in the report are listed in Table 1.3.

Table 1.3 *Structure of this report*

Chapter no.	Chapter Name	Content
1	Introduction	Provides a simple introduction to the Project, the proponent, location and outlines the purpose and structure of the Scoping Report.
2	Strategic context	Identifies the key strategic issues that are likely to be relevant to the justification and evaluation of the Project and will be investigated in more detail in the EIS.
3	Project description	Provides an overview of the Project.
4	Statutory context	Provides a simple overview of the key statutory requirements for the Project.
5	Stakeholder and community engagement	Explains what engagement has already been carried out for the Project, provides an early indication of community views on the Project, and describes what community engagement will be carried out during the preparation of the EIS.
6	Proposed assessment of impacts	Identifies the matters requiring further assessment in the EIS and the proposed approach to assessing each of these matters, having regard to key findings in each section of the scoping report.
7	Conclusion	Concluding statement.
8	References	A list of documents and information sources referenced throughout this Scoping Report.
-	Appendix A	Scoping summary table

2. Strategic context

2.1 Need for the Project

2.1.1 Electricity sector transitions

Electricity generation is the largest single source of greenhouse gas emissions in Australia. Decarbonising the sector requires both a substantial increase in renewable generation and the firming capacity needed to make that generation reliable.

The development of large-scale BESS projects is critical to the ongoing transition to renewable energy. Large-scale batteries provide the capacity needed to maintain a stable and secure power system, particularly during periods of low wind and solar output. The mechanism by which they do so is described in section 2.2.1.

This Project responds to structural shifts in the NEM as the electricity sector transitions from coal-fired generation toward variable renewable energy, supported by dispatchable firming capacity such as electricity storage. The NSW Electricity Infrastructure Roadmap targets at least 12 gigawatts of renewable generation and 2 gigawatts of long-duration storage by 2030, while the Australian Energy Market Operator's 2024 Integrated System Plan forecasts that the NEM must triple grid-scale variable renewable energy by 2030, creating a firming gap that this Project will help address.

Table 2.1 sets out the key plans, policies and strategies relevant to the Project, together with the Project's alignment with each.

Table 2.1 Project's alignment with Key Strategic Plans and Policy Framework

Plans or policy	Description	Project's alignment
The Paris Agreement	The Paris Agreement is a legally binding international treaty on climate change adopted at the 2015 United Nations Climate Change Conference (COP21) in Paris. It aims to limit global warming to well below 2°C above pre-industrial levels, and preferably to 1.5°C. Australia is a signatory and has committed to reducing greenhouse gas emissions by 43 per cent below 2005 levels by 2030 and to reaching net zero emissions by 2050 (DCCEEW, n.d.).	The Project supports Australia's commitment under the Agreement by providing long duration storage that displaces fossil fuel-based firming. This enables a higher share of renewable energy in the National Electricity Market without compromising system security.
<i>Renewable Energy (Electricity) Act 2000</i> and the Renewable Energy Target	The primary Commonwealth legislation for renewable energy generation in Australia. It establishes the Renewable Energy Target, administered by the Clean Energy Regulator, which is designed to reduce electricity sector emissions and encourage additional generation from renewable sources. The current target is an additional 33,000 GWh of renewable energy a year from 2020 to 2030. Large scale renewable generators earn Large-scale Generation Certificates for each MWh produced, which electricity retailers must surrender to meet their legal obligations (CER, 2026).	The Project supports the objectives of the Renewable Energy Target by improving the utilisation of existing and future renewable generation. Long duration storage reduces curtailment of renewable output during periods of oversupply, including output from generators in the NSW Renewable Energy Zones (REZs). Refer to section 2.2.2.
Commonwealth Climate Change Act 2022	Commonwealth legislation establishing the legal framework for reducing Australia's greenhouse gas emissions. It sets binding national targets of a 43 per cent reduction in emissions by 2030 against 2005 levels, and net zero emissions by 2050, and requires annual reporting to Parliament on progress against those targets.	The Project directly supports the legislated national targets by enabling the retirement of coal fired generation without a corresponding loss of dispatchable capacity. With an energy discharge capacity of around 500 MW and storage capacity of approximately 4,942 MWh, the Project provides low emission firming directly at the point of generation exit.

Plans or policy	Description	Project's alignment
AEMO Integrated System Plan 2024	A 20-year roadmap for the National Electricity Market prepared by the Australian Energy Market Operator, setting out the optimal development path for generation, storage and transmission to reach net zero by 2050 while maintaining reliability and affordability. The 2024 plan identifies battery storage as a key element of Australia's future energy system, forecasts that the National Electricity Market must triple grid scale variable renewable energy by 2030, and identifies a critical firming gap emerging in New South Wales that coincides with coal fired generation retirements (Australian Energy Market Operator, 2026)	The Project responds directly to the firming gap the 2024 Integrated System Plan identifies in NSW and is consistent with the ISP's identification of battery storage as a key element of the future energy system. Refer to section 2.2.1.
Climate Change (Net Zero Future) Act 2023 (NSW)	New South Wales legislation establishing the State's legal framework for emissions reduction and climate resilience. It sets targets of at least a 50 per cent reduction below 2005 levels by 2030, at least a 70 per cent reduction below 2005 levels by 2035, and net zero emissions by 2050. It also sets out guiding principles for climate action, including consideration of impacts, opportunities and the need for timely intervention (NSW Government, 2023).	The Project supports the State targets of at least 50 per cent emissions reduction by 2030, at least 70 per cent by 2035 and net zero by 2050. By providing eight-hour storage capable of shifting renewable energy into evening peak periods, it enables a managed transition away from coal fired generation in New South Wales while maintaining reliability.
NSW Climate Change Policy Framework	The framework aims to maximise the economic, social and environmental wellbeing of New South Wales in the context of a changing climate and current and emerging international and national policy settings. Its aspirational long-term objectives are that New South Wales achieves net zero emissions by 2050 and is more resilient to a changing climate (State of New South Wales and Office of Environment and Heritage, 2016).	The Project advances both aspirational objectives of the framework. It contributes to net zero emissions by 2050 through displacement of fossil fuel firming, and it improves the resilience of the New South Wales electricity system by adding dispatchable capacity at a strategically located transmission node as existing thermal generation exits.
NSW Net Zero Plan Stage 1: 2020 to 2030	The New South Wales Government's plan for action on climate change over the decade to 2030. It targets a 35 per cent reduction in State emissions by 2030 against 2005 levels, while supporting around \$7 billion in regional investment and creating approximately 1,700 regional employment opportunities (NSW Government, 2020).	The Project delivers on the plan's dual emissions and regional investment objectives. Beyond its emissions contribution, the Project generates construction and operational employment and expenditure in the Lake Macquarie and Hunter regions, as set out in section 2.2.3.
NSW Electricity Strategy 2019	A framework for ensuring a reliable, affordable and sustainable electricity supply as the State transitions away from coal fired power. It focuses on improving reliability through a reserve target, attracting private investment in renewables and firming capacity such as battery energy storage, and upgrading transmission infrastructure. The strategy also aims to lower electricity costs through increased competition and efficiency and supports Renewable Energy Zones as a means of driving emissions reduction.	The Project addresses the strategy's core concerns of reliability, firming capacity and private investment. It represents private investment in firming capacity located at the site of a major retiring coal fired power station, using existing transmission infrastructure rather than requiring new network build.
NSW Electricity Infrastructure Roadmap	The State's strategy for transitioning to a cleaner, more reliable and more affordable energy system by replacing retiring coal fired power stations with renewable generation and storage. It targets at least 12 GW of renewable generation and 2 GW of long duration storage by 2030, and focuses on developing Renewable Energy Zones, expanding firming capacity, upgrading transmission infrastructure and attracting private investment.	The Project contributes materially to the roadmap target of 2 GW of long duration storage by 2030. Its approximately 4,942 MWh of storage, or approximately 8,600 MWh when operated with the existing Eraring BESS, represents a significant share of that target delivered at a single connection point with established grid access.

Plans or policy	Description	Project's alignment
Electricity Infrastructure Investment Act 2020	The legislation that gives effect to the NSW Electricity Infrastructure Roadmap. It establishes the framework for coordinating investment in renewable generation, long duration storage, firming and network infrastructure, and provides the mechanism under section 19(1) for declaring Renewable Energy Zones in strategic locations.	The Project is the kind of strategically located storage infrastructure the Act is designed to facilitate. It is sited on freehold land already connected to the Transgrid 330/500 kV substation, within a region the New South Wales Government has identified as well placed for renewable infrastructure. Approval pathway implications of the Act are addressed in Section 4.
Hunter Central Coast REZ	A New South Wales Government initiative to expand renewable energy capacity in the Hunter and Central Coast regions, declared in 2022 with an initial intended capacity of 1 GW. EnergyCo identifies the Hunter-Central Coast area as well placed for renewable infrastructure because existing rehabilitated mining land, electricity network infrastructure, and port and transport infrastructure can be used (EnergyCo, 2022).	The Project is located within the Hunter-Central Coast area that EnergyCo has identified as well-placed for renewable infrastructure and exemplifies the rationale for that identification. It delivers REZ objectives without the land use change associated with greenfield development. Site characteristics are set out in Table 2.2.
Hunter Regional Plan 2041	The New South Wales Government's strategic land use framework for guiding sustainable growth and economic development in the Hunter region, which includes the Lake Macquarie local government area. It focuses on diversifying the regional economy, supporting clean energy industries, improving infrastructure and strengthening environmental resilience, with the aim of transitioning the region from traditional coal-based industries to a renewable energy hub that draws on its skilled workforce and existing infrastructure.	The Project supports the plan's objective of transitioning the Hunter from coal-based industries toward clean energy. It reinvests in an existing energy generation site, retains the region's role as a centre of electricity supply, and supports the regional transition as EPS approaches closure. Refer to section 2.2.3.
Lake Macquarie LEP 2014	The principal environmental planning instrument for the Lake Macquarie local government area. Much of the Project site is zoned SP2 Infrastructure (Electricity Generating Works), a zone whose objectives provide for the development of infrastructure and associated uses and which permits electricity generating works. A narrow strip along Pony Club Road on the western boundary is zoned C2 Environmental Conservation, where the objectives relate to protecting and managing areas of high ecological value. Access track works are the only component proposed within the C2 zone. Full zoning and permissibility detail is provided in Section 4.	Electricity generating works are permitted within the SP2 zone and the Project is consistent with the objectives of that zone. Zoning constraints are set out in Table 2.2 and detailed permissibility is addressed in Section 4.
Lake Macquarie Environmental Sustainability Strategy and Action Plan 2020 to 2027	Council's strategy for improving environmental sustainability across the local government area. It aims to maximise efficient energy use and reduce reliance on and use of non-renewable energy sources, and sets supporting actions on emissions reduction, renewable energy uptake and climate resilience for the city (Lake Macquarie City Council, 2020).	The Project aligns with the strategy's aim of maximising efficient energy use and reducing reliance on non-renewable sources. It enables a greater share of renewable generation to be delivered to Lake Macquarie and the wider network.
Lake Macquarie local strategic planning statement 2025-2045	Council's 20-year land use vision, setting out the planning priorities that will guide growth, economic development and environmental management across the local government area, and the actions Council will take to deliver them. Priorities relating to economic diversification, infrastructure provision, and climate change and hazard resilience are the most relevant to the Project.	The Project supports Council's priorities for economic diversification, infrastructure provision and climate resilience. It sustains energy sector investment and employment in the local government area through the closure of EPS and adds infrastructure that strengthens the resilience of local electricity supply.

Plans or policy	Description	Project's alignment
Lake Macquarie community strategic plan 2025-2035	Council's highest-level plan, setting out the community's long-term vision and priorities for the city, including economic prosperity, environmental protection and sustainability, and infrastructure and services.	The Project contributes to the community's long-term priorities for economic prosperity and environmental sustainability. It provides construction and ongoing operational employment, supports local suppliers and contractors where possible, and advances the city's transition to lower emission energy infrastructure.

2.2 Project justification

2.2.1 Contributions to the National Electricity Market

The Project will use proven battery technology to store energy when generation exceeds demand and discharge it when demand is highest. This dispatchable capability decouples the Project's output from weather dependent generation profiles, allowing it to serve periods of high demand independent of wind and solar conditions, particularly during evening peak hours.

The NEM is undergoing significant structural change as major thermal generators reach the end of their operating lives. Following the closure of Liddell Power Station in 2023, and the planned closure of EPS, removing approximately 2,880 MW of dispatchable generation from the market. This represents the largest single generation exit in Australian electricity history and is expected to be followed by further retirements at Vales Point, Bayswater and Mount Piper power stations.

The 2024 ISP identifies a critical firming gap emerging in NSW coinciding with these coal retirements. Without replacement dispatchable capacity, the risk of unserved energy and the broader risk to system reliability increase materially.

The Project directly addresses this gap. With an energy discharge capacity of around 500 MW and an energy storage capacity of approximately 4,942 MWh, the Project provides eight hours of long duration storage at the site of the retiring generation it helps replace. If operated in conjunction with the existing Eraring BESS, the combined facility would reach a maximum energy discharge capacity of around 1,200 MW and an energy storage capacity of approximately 8,600 MWh, subject to detailed design.

Beyond energy volume, the Project partially replaces the firming and system strength services lost as EPS transitions to closure. Its connection to the 330 kV network, and adjacency to the 500 kV Sydney Transmission Ring via the Eraring to Kemps Creek line, position the Project to provide system strength and voltage support to a key part of the NSW network. Energy storage located adjacent to the existing 500 kV network can also defer a portion of the transmission augmentation identified in the Integrated System Plan, delivering a system-wide economic benefit.

2.2.2 Contributions to electricity prices and system reliability

The Project contributes to broader State and national economic objectives by enabling renewable investment, supporting electricity system resilience, and underpinning long-term energy affordability for NSW households, businesses and communities.

The eight-hour storage capacity described in section 2.2.1 contributes to mitigating price volatility in the wholesale market. Shifting low-cost renewable energy into high-price evening periods reduces the reliance on higher-cost peaking generation at the times when prices are highest.

The same capability reduces system-wide costs by lowering the frequency and severity of unserved energy events, where demand cannot be met by available supply. As dispatchable thermal generation exits the NEM, the availability of long-duration storage becomes an increasingly significant contributor to maintaining the reliability standard at least cost to consumers.

The availability of long-duration firming capacity also supports the investment case for renewable generators in the NSW REZs by providing a credible firming pathway for their intermittent output. In this way the Project contributes not only to the reliability of the existing system but to the pace at which new renewable generation can be brought forward.

2.2.3 Socio-economic benefits

The Project would deliver socio-economic benefits to the Lake Macquarie LGA and the broader Hunter region during both construction and operation. A detailed assessment of social and economic impacts will be undertaken as part of the Environmental Impact Statement (EIS) and is scoped in section 6.10.

Construction employment is expected to peak at approximately 125 full-time equivalent direct jobs. Local contractors and employees would be used where possible. Indirect employment and expenditure benefits would also be generated for local businesses supporting the construction workforce, including workforce accommodation, meal supply, lifestyle activities, local transport, equipment hire and materials supply.

Once operational, the Project would require up to five personnel on site for routine inspection and maintenance activities, with periodic larger maintenance campaigns drawing on additional contractor resources.

The Project also provides continuity of energy sector activity at the Eraring site through the closure of EPS. The skills and experience of the existing power station workforce are directly relevant to the construction and operation of grid-scale storage, and workforce transition has been identified as a matter of community interest during consultation undertaken to date (refer to section 5).

On this basis, the Project is not only strategically and environmentally aligned with Origin's Climate Transition Action Plan commitments (Origin, n.d.), but is economically essential to ensuring a stable, efficient and future-ready energy system for NSW and the broader NEM.

2.2.4 Site suitability

The Project site is located within Origin's landholding in the Lake Macquarie LGA, adjacent to EPS. The site leverages existing transmission infrastructure and operational knowledge established through earlier stages of the Eraring BESS, materially reducing development costs and delivery risk relative to greenfield alternatives.

Table 2.2 sets out the key site constraints and opportunities considered in selecting the Project site, together with the justification for the location selected.

Table 2.2 Key site constraints and justification

Area of constraint	Site justification
Alternative areas within the landholding	The Project site comprises approximately 22 ha within the broader EPS landholding. Approximately 11 ha is located within the existing Eraring BESS project area (SSD-15950052) and utilises previously disturbed land. The remaining approximately 11 ha is outside the existing approved footprint and would constitute new disturbance.
Grid access	Direct connection to the 330 kV transmission backbone is advantageous for grid-scale batteries in the NEM, allowing the Project to charge and discharge at scale without transmission bottlenecks and eliminating the significant network augmentation costs faced by new-entrant storage projects.
Network adjacency	The Project benefits from adjacency to the 500 kV network in NSW via the Eraring to Kemps Creek 500 kV line, part of the Sydney Transmission Ring. This provides a high-capacity link directly into Western Sydney, a rapidly growing load centre, and positions the Project to provide system strength and voltage support to this key part of the network as coal-fired generation retires.
Locational value	The site is positioned between the major NSW REZs (Central-West Orana and New England) and the Sydney and Hunter load centres, providing storage capacity for renewable energy where it is most needed
Land tenure	The site is held in freehold by Origin, removing land acquisition risk and the delays typically associated with securing greenfield land. The property lots owned by Transgrid as part of the Project will be the locations of Transgrid's grid connection works.

Area of constraint	Site justification
Prior disturbance and biodiversity	The selected location is highly disturbed. Much of the Project footprint was disturbed during the original construction of EPS from 1977, having been used as a contractor laydown area, and was further modified during construction of the cooling water dam (Attenuation Reservoir) between 2010 and 2013. Parts of the site have more recently been disturbed during construction of the Eraring BESS and during operation as a plant nursery. Refer to section 6.7.1.
Zoning	The majority of the site is zoned SP2 Infrastructure (Electricity Generating Works), which permits electricity generating works. A small strip comprising Pony Club Road on the western boundary is zoned C2 Environmental Conservation, and works in this area are limited to access track works to the existing roadway. Refer to Section 4.
Natural hazards	Parts of the site are mapped as bush fire prone land. Hazard and risk, bushfire and flooding matters are scoped for assessment in the EIS. Refer to Section 6.
Shared infrastructure	Proximity to the core Eraring infrastructure maximises the ability to leverage shared civil works, access roads, communications infrastructure, control systems, and operations and maintenance facilities established across the existing Eraring BESS, reducing both capital and ongoing operational costs.
Delivery timeline	Established site experience and infrastructure at Eraring support a faster pathway to commercial operations compared to earlier-phase alternatives, at a time when replacement dispatchable capacity is required to coincide with the closure of EPS.

2.3 Site features and surrounding land use

This section provides a strategic-level summary of the regional and local setting of the Project site. A detailed description of the site and its surrounds is provided in Section 1, and the existing social and economic environment is described in section 6.10

2.3.1 Regional community

The proposed Project site is located within Lake Macquarie LGA in the Hunter region of NSW. The region has a long-established relationship with the energy and resources sectors and retains a skilled workforce, established industrial land and mature transport connections. Its suitability for renewable energy infrastructure is addressed in Table 2.1.

2.3.2 Local community

The nearest communities to the Project site are the suburbs of Eraring and Dora Creek, with the neighbouring communities of Cooranbong, Myuna Bay, Bonnells Bay, Wangi Wangi and Arcadia Vale located in the wider area.

The local community has a long and established relationship with the EPS, which has been a significant local employer and contributor to the regional economy since the 1980s. This history means the community is familiar with energy generation activity at the site. Matters raised by the community during consultation undertaken to date are summarised in section 5.

2.3.3 Land use

Land use in the vicinity of the Project site comprises a mix of energy and resources infrastructure, environmentally sensitive land, established residential suburbs, and areas identified for future growth.

The dominant land use is EPS itself, including the power block, cooling water system, ash dam storage and coal stockpile, together with the adjoining Transgrid 330/500 kV substation and the existing Eraring BESS. The site is also in proximity to neighbouring coal mining operations, the Main Northern rail line, and Lake Macquarie and its foreshore reserves. The Project site is surrounded by buffer lands, bushland and EPS infrastructure.

2.4 Community benefits

Origin recognises the importance of ensuring that the communities hosting energy infrastructure share in its benefits. Community benefit arrangements for the Project, including the potential for a community benefit fund and opportunities for local employment and local procurement, will be developed during preparation of the EIS, having regard to the relevant NSW guidance on benefit sharing for renewable energy and storage projects.

The proposed Project is located within Origin's existing Eraring energy generation site in an established SP2 Infrastructure zone. While it is not a greenfield renewable energy development targeted by the Benefit-Sharing Guideline, Origin will continue to consider the principles of the guideline as the Project progresses. This includes opportunities to support local employment and industry participation, Aboriginal procurement and participation, a commitment to workforce development and potential supplementary community benefit sharing initiatives.

Opportunities for community benefit initiatives, and any potential Voluntary Planning Agreement associated with the proposed Project, will be considered in regard to the cumulative impacts and opportunities associated with development and operations across the broader Eraring site, as well as in the context of Origin's existing commitment to local benefit-sharing programs. These include:

- The **Eraring Community Investment Fund**, a dedicated shared benefit initiative to support local communities through the future closure of the EPS and associated transition of the Eraring site. The Fund will invest \$5 million locally between 2023 and 2032 across the priority areas of community wellbeing, resilience, economic transition and diversification, environmental protection, and outdoor amenity.
- The **Generation Regional Communities Fund** through which Origin provides funding to local initiatives that support and strengthen the regional communities hosting our generation assets, including the Eraring Battery and EPS. We also partner with these communities through volunteering, and in-kind support programs, reflecting our ongoing commitment to sharing benefits and helping local communities thrive.
- Origin has partnered with Ausgrid to deliver the **Community Battery Program** in nearby Cooranbong, providing eligible local households with access to the benefits of locally stored energy, helping to reduce electricity costs.

Feedback received during consultation undertaken to date, including matters relating to local employment and the transition of the existing EPS workforce described in section 2.2.3, will inform the development of these arrangements. Further detail on consultation undertaken and proposed is provided in Section 5.

2.5 Alternatives considered

As part of design development, multiple options have been assessed to enhance the positive outcomes of the proposed Project and minimise impacts. These comprise the following:

1. Alternative: Do Nothing
2. Alternative locations in NSW
3. Alternative areas within the Eraring site.

2.5.1 Alternative: Do Nothing

The 'do nothing' alternative would see no new long-duration storage capacity developed at the Eraring site. This option is not considered viable given the following context:

- EPS is planned to close in April 2029, removing approximately 2,880 MW of dispatchable generation from the NEM. This represents the largest single generation exit in Australian electricity history.
- Australian Energy Market Operator's 2024 Integrated System Plan identifies a critical firming gap emerging in NSW coinciding with coal retirements. Without replacement dispatchable capacity, unserved energy and system reliability risks increase materially.
- The existing 330/500 kV transmission infrastructure at Eraring represents a stranded asset if no generation or storage investment is made, foregone network value that cannot be recovered elsewhere.
- The do-nothing alternative would not align with the NSW Electricity Infrastructure Roadmap's target of 2 GW of energy storage by 2030 and Origin's Climate Transition Action Plan commitments to achieve net zero by 2050.

On this basis, the do-nothing alternative was rejected at an early stage and is not carried forward for further assessment.

2.5.2 Alternative locations in NSW

Origin evaluated a broad range of potential BESS development locations, including a range of greenfield and REZ connected sites across the State. The preferred location represents a strong, medium-term option for development. In addition, the alternative locations which were evaluated are at an earlier stage of development and are yet to have land tenure secured for the benefit of Origin. While these sites remain valuable for long-term optionality, none provide a lower-risk or faster-delivery alternative to the Project for meeting near-term system reliability requirements.

The factors that differentiate the Project site from alternative NSW locations, including grid access, land tenure, delivery timeline and locational value, are set out in Table 2.2.

2.5.3 Alternative areas within the Eraring Site

Within the EPS site, alternative land parcels and layout configurations were assessed as potential locations for the Project. While the EPS site offers significant overall land area, not all portions were suitable for large-scale battery storage development. Alternative areas were considered but ultimately discontinued from further assessment for the following reasons:

- **Zoning conflicts:** Certain land parcels within the broader Eraring landholding are subject to zoning classifications or land use restrictions that are incompatible with the operational requirements of a grid-scale BESS facility. These constraints limited the viable development envelope and excluded some otherwise technically feasible areas.
- **Increased connection costs:** Alternative areas situated further from the existing Transgrid 330/500 kV substation would require additional high-voltage transmission infrastructure, busbars, and switchgear to achieve grid connection. These augmentation costs would materially increase project capital expenditure without delivering commensurate technical benefit.
- **Distance from shared infrastructure:** As the distance from the core Eraring infrastructure increases, the ability to leverage shared civil works, access roads, communications infrastructure, control systems, and operations and maintenance facilities established across existing Eraring BESS diminishes significantly. The preferred location maximises the use of this existing shared infrastructure, reducing both capital and ongoing operational costs.
- **Biodiversity values and constraint:** The selected location is highly disturbed with much of the site disturbed during the original construction of the EPS from 1977 and further impacted during construction of the Attenuation Reservoir between 2010 and 2013. Parts of the site have more recently been impacted during construction of the Eraring BESS and during operation as a plant nursery.

On this basis, the preferred layout positions in proximity to the existing Eraring BESS footprint, enabling integration with shared infrastructure while remaining within land areas that are appropriately zoned and adjacent to the transmission network at lowest incremental cost.

3. Project description

3.1 Overview

Origin proposes to construct and operate a new, grid-scale BESS at the Project site within the EPS landholding, with an energy discharge capacity of around 500 MW and an energy storage capacity of approximately 4,942 MWh. The BESS facility would comprise a total disturbance area of 22 ha, of which approximately 11 ha would be adjacent to the existing Eraring BESS project area (SSD-15950052) and approximately 11 ha would be located within existing Eraring BESS project area (SSD-15950052), utilising previously disturbed land.

If operated in conjunction with the existing Eraring BESS project area (SSD-1590052), the project would bring the combined Eraring BESS Assets to a combined maximum energy discharge to around 1,200 MW and energy storage capacity of approximately 8,600 MWh (subject to detailed design).

Table 3.1 summarises the particulars of the proposed development. The layout and key components of the Project are shown in Figure 3.1.

Table 3.1 *Project summary*

Project element	Description
Project site	268 & 294 Rocky Point Road, Eraring NSW 2264 Lot 2 DP1295766 (Origin owned) and Lot 10 DP1050120 and Lot 1 DP1295766 (both Transgrid owned).
BESS capacity	Energy discharge of around 500 MW and energy storage capacity of approximately 4,942 MWh
Operation	24 hours a day, 7 days a week, 365 days per year
Development footprint	The Project site is approximately 22 ha of which approximately 11 ha are outside the existing approved Eraring BESS project footprint (SSD-15950052) and would therefore constitute new disturbance footprint for the development (New Disturbance Area shown in diagram 3.1). The remaining approximately 11 ha is located within the existing BESS footprint and would utilise previously disturbed land.
BESS equipment	The Project site would include: – BESS equipment including lithium-ion (Lithium Iron Phosphate) type batteries with internal cooling and safety management systems – Inverters and transformers (power conversion systems or PCS) – Electrical switch rooms – Control and ancillary buildings – Earthing systems and lightning protection – Site lighting, security fencing and lightening protection systems – Closed-circuit television and environmental controls – Electrical buildings and kiosks – Office, Operations and Maintenance and amenities buildings.
Substation Infrastructure	New BESS substation and connection infrastructure, including: – A 330 kV incoming feeder – Two banded transformer switch bays and Two transformers – A transmission configuration comprising a single-circuit overhead transmission line, single-circuit pole terminal structures installed in a new transmission easement, or an alternative of a 330 kV underground cable, installed in the existing transmission easement or a new easement. – The point of connection is located in a vacant connection bay in the Transgrid 330/500kV substation.
Supporting infrastructure	Establishment or extension of the existing water supply infrastructure including new water pipelines to connect to the new project area. Drainage and attenuation/retention pond, water storage facilities, lightening and fire protection systems, (subject to detailed design and fire safety studies). Internal access roads, parking areas and hardstands.

Project element	Description
	New electricity buildings and kiosks, including: – New office and amenities buildings as well as utilisation of existing operations office area and facilities – New internal access roads, utilities and communications infrastructure and hardstands – Expansion of existing and new operations and maintenance compounds. Site access to the facility is proposed to be via the canal bridge on Rocky Point Road. There will also be some road improvement works along Pony Club Road.
Temporary Facilities	Temporary facilities will likely consist of site construction compounds and site offices, construction power supply, borrow pit, laydown areas, temporary stockpiles and water storage areas, cut and fill earthworks staging areas, water treatment plants and concrete batch plants (if required), temporary roads.

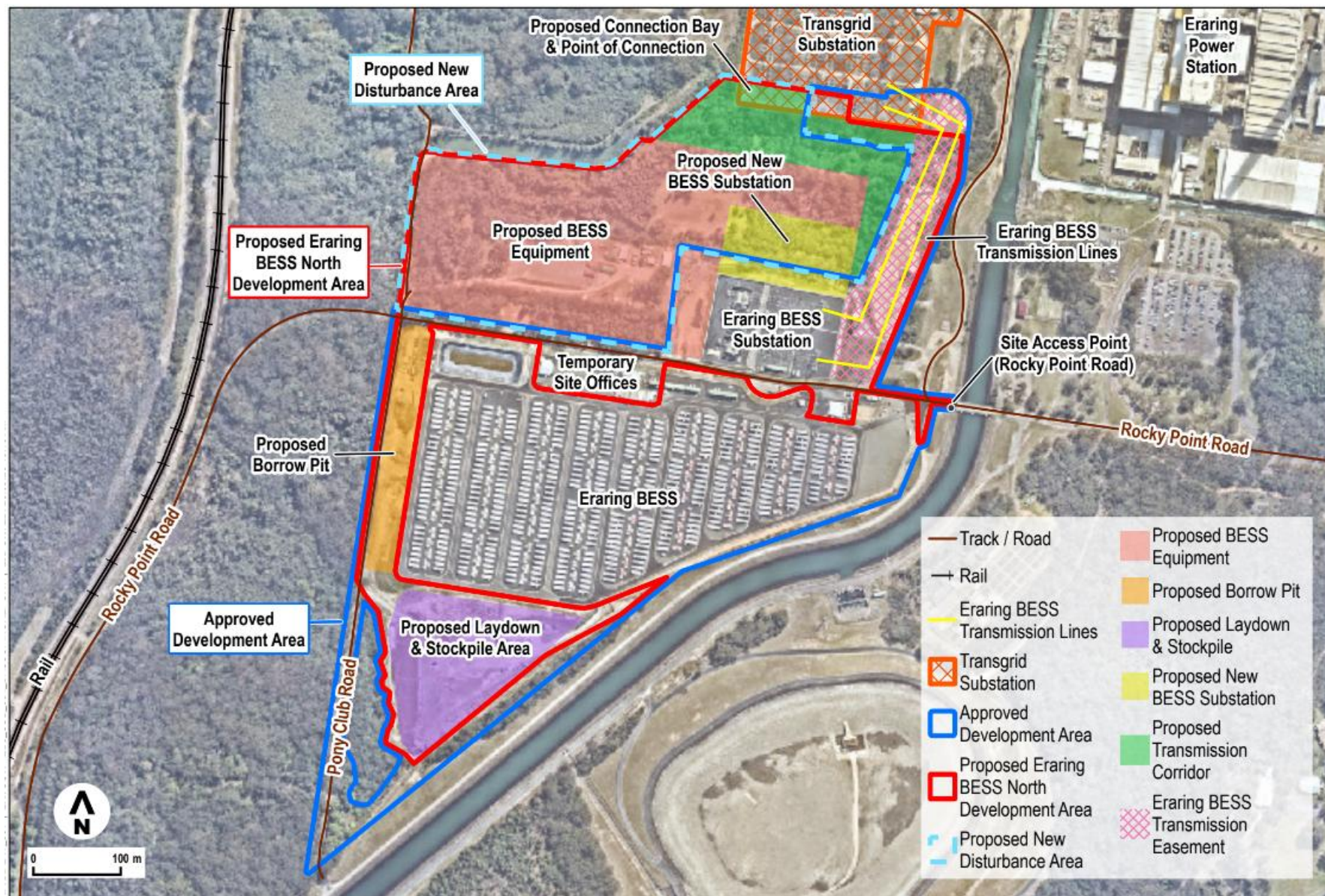


Figure 3.1 Project layout and key components

3.2 Construction

3.2.1 Construction staging and duration

Construction and commissioning of the Project is expected to take between two to three years to complete.

The project would be managed in four sequential phases.

- Phase 1 – Site Establishment: Mobilisation of plant, establishment of site infrastructure, access, environmental controls.
- Phase 2 – Cut and fill: Earthworks to the battery compound and transformer yard, establishment of hardstand pads and benching.
- Phase 3 – Structural works: Civil and structural construction and foundations to support battery enclosures, inverters, transformers and associated buildings and compounds.
- Phase 4a – Delivery and fit-out: Delivery of components by heavy vehicle, installation by crane, and full electrical fit-out.
- Phase 4b – Air track drilling for transmission structure footing: This applies only to potential requirement for overhead transmission structures and within the first stage of construction and will be of short duration.

3.2.2 Construction methodology

Construction of the Project would include the following indicative activities:

Site establishment:

- Installation and maintenance of environmental controls including drainage and sediment controls
- Upgrading of the construction access track from the existing internal access road to the battery location.

Cut and fill and groundworks:

- Vegetation clearing including transmission easement and asset protection zones
- Cut and fill to level areas and establish a hardstand pad
- Groundworks would have following disturbance levels for different activities:
 - Complete disturbance – Vegetation clearing, cut and fill, bulk earthworks to establish the main compound, access tracks, drainage infrastructure and the transformer area
 - Partial disturbance – Within the transmission alignment, limited to footing establishment and vegetation clearance for line clearance purposes or for underground cable installation purposes
 - Limited disturbance – For the laydown area, which can be positioned on existing cleared and levelled ground, minimising the need for preparatory works.

Main structural works, delivery and fit out:

- Structural works – numerous individual slabs to support battery modules, power conversion system and transformer structures
- Establishment of a noise control solution, if required by the stage under construction
- Delivery, installation and electrical fit-out of battery modules, PCS, and transformers
- Installation of 330kV overhead or underground cabling from the BESS substation transformers to the Transgrid substation
- Minor works to connect the battery to the vacant bay within the Transgrid 330/500kV substation, or more extensive works for bench extension and installation of a new bay if required.

Commissioning and demobilisation:

- Testing and commissioning activities
- Removal of construction equipment and rehabilitation of construction areas.

Temporary infrastructure for construction:

The Project would require the use of temporary facilities to support the construction works. These would include:

- Construction compounds and site offices
- Construction power supply
- Laydown areas and stockpile areas
- Cut and fill earthworks
- Concrete batch plants (if required)
- Temporary roads and access tracks.

The proposed location of stockpile and laydown areas, borrow pits for fill earthworks, and temporary site offices are indicated in Figure 3.1.

3.2.3 Construction workforce

The Project construction workforce is expected to peak at approximately 125 full-time equivalent direct jobs. The Project is expected to generate indirect employment benefits for local businesses that support construction activities, including workforce accommodation providers, meal supply, lifestyle activities, local transport, equipment hire and materials supply.

Local contractors and employees would be utilised where possible. This is an indicative workforce and would be further refined as the methodology and staging progress through detailed design and Project development.

An accommodation strategy will be prepared for the construction program. Labour would be sourced locally wherever possible; however, specialist technical staff may need to be brought in from outside of the region. Specific details of the workforce will be finalised following the engagement of the construction contractor. The current accommodation strategy is to house the construction workforce in local accommodation, consistent with the approach adopted for the previous Eraring BESS projects. Once the Project timing and construction workforce requirements are better understood, Origin will work with Council to identify an appropriate offsite accommodation solution should one be required. This assessment will have regard to anticipated workforce numbers and the cumulative workforce demand arising from other concurrent projects within the region.

3.2.4 Traffic and access

Site access would be via Wangi Road and Rocky Point Road. Existing internal routes will provide direct access to the Project footprint, with no new access points proposed. Access arrangements remain unchanged and will continue to use what was previously approved.

During construction, the Project would generate light and heavy vehicle movements, along with a limited number of oversize/overmass (OSOM) vehicle movements associated with the delivery of plant and equipment.

3.3 Operation

3.3.1 Key operational aspects of the Project

Once commissioned, the BESS will operate continuously, responding to NEM demand signals. The operational profile is as follows:

- **Operating hours:** 24 hours per day, 365 days per year, with no scheduled downtime windows.
- **Discharge capacity:** The facility can discharge at full capacity for up to eight hours, or at partial capacity for a longer duration, depending on market dispatch instructions.
- **Operational life:** The expected operational life of the facility is 20-25 years, with the possibility of extension through component replacement or technology upgrade.

On this basis, the operational hours profile reflects the nature of a grid-connected energy storage asset, which must remain available at all times to fulfil its contracted and market obligations.

The Project has been designed to operate with a minimum on-site workforce. The BESS is capable of being operated remotely, and as such, the permanent on-site staffing requirement during operations is limited to inspection and maintenance activities rather than continuous operational supervision. The operational workforce is expected to comprise:

- Routine inspection and Maintenance Personnel: Up to 5 personnel will be on site on a continuous basis to conduct routine inspection and maintenance activities. These personnel are responsible for the ongoing physical condition monitoring of the facility, minor maintenance activities, and adherence to site safety and operational protocols.
- Larger Maintenance Activities: Periodically, larger maintenance activities may be undertaken that require a temporary or contractor workforce beyond the routine complement. These engagements are expected to occur over short durations and are not associated with a permanent increase in the operational workforce.

Traffic generated by the operation workforce is consistent with the minimal staffing model described above. Daily staff light vehicle movements are anticipated at up to 10 vehicles per day (10 inbound and 10 outbound movements). Ad hoc deliveries of replacement parts may involve heavy vehicles, though this is not anticipated to exceed one inbound and one outbound heavy vehicle movement per day under normal operating conditions.

3.3.2 Interactions between the Project and Eraring BESS

The Project has been designed to integrate with the existing BESS facility once operational.

The Project will interface with the existing and approved Eraring BESS development across a number of shared site functions. Key interactions include:

- The utilisation of existing operations offices.
- The existing borrow pit.
- Existing construction laydown and hardstand areas.
- Rocky Point Road and Pony Club Road provide operations access for the existing Eraring BESS and will also provide construction access for Eraring BESS North, requiring coordinated traffic management and control checkpoints at the canal crossing on Rocky Point Road.
- Site staff and remote staff would service both BESS projects, as needed, during operation and maintenance activities.

There is also likely to be an interaction between the stormwater management systems of the existing Eraring BESS and Eraring BESS North, given the natural south-to-north surface water flow across the Eraring BESS North site, and this will include consideration to ensure the two systems function cohesively rather than in isolation.

Further, the new Eraring BESS North substation will be constructed adjacent to the existing Eraring BESS substation, and as such there may be additional interactions relating to civil works, stormwater management, and earthing grids between the two substations that will need to be coordinated by Transgrid.

4. Statutory context

The key requirements of the EP&A Act and other statutory instruments in relation to the approval and assessment of the project are summarised in Table 4.1.

Table 4.1 Summary of statutory requirements for the Project

Matter	Comment
Permissibility	Lake Macquarie Local Environmental Plan (LEP) 2014 The Project would be developed in the following Lake Macquarie Local Environmental Plan (LEP) 2014 land use zones, as shown on Figure 4.1: – SP2 Infrastructure (Electricity Generating Works) – comprising the majority of the site. Development for the purpose, being Electricity Generating Works, as depicted on the LEP Land Zoning Map including any development that is ordinarily incidental or ancillary to development for that purpose, is permitted with consent in that zone. – C2 Environmental Conservation – narrow strip comprising Pony Club Road immediately adjacent to the western boundary of the Project site to enable access track works to the existing roadway. Apart from access track works to the existing roadway, the Project otherwise has no additional impacts on this land use zone. The Project is permitted with consent in the SP2 Infrastructure (Electricity Generating Works) of the Lake Macquarie LEP 2014. The C2 Environmental Conservation zone in the Lake Macquarie LEP 2014 does not state that Electricity Generating Works are permitted with consent. State Environmental Planning Policy (Transport and Infrastructure) 2021 The Project meets the definition of ‘electricity generating works’ under Section 2.35 of the <i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i>, being a “a building or place used for the following purposes, but does not include a solar energy system—(a) making or generating electricity, (b) electricity storage”. Development for ‘electricity generating works’ is permitted with consent on any land in a prescribed non-residential zone under section 2.36 of the <i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i>. SP2 Infrastructure is a prescribed non-residential zone. C2 Environmental Conservation is also considered a prescribed non-residential zone on the basis it may be considered a land use zone that is equivalent to any of the zones listed in the definition of ‘prescribed non-residential zone’ in section 2.35 of the <i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i>. Accordingly, it is considered that the Project is permissible with consent in the SP2 Infrastructure zone. It is considered that the Project is permissible with consent in the C2 Environmental Conservation zone provided this zone is considered equivalent to any of the zones listed in the definition of ‘prescribed non-residential zone’ in section 2.35 of the <i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i>. The extent of works proposed within the C2 Environmental Conservation zone is limited to access track works to the existing roadway.
Power to grant consent	Section 4.36(2) of the EP&A Act provides that a State environmental planning policy may declare any development, or any class or description of development, to be SSD. Clause 2.6(1) of the Planning Systems SEPP provides that development that is permissible with development consent under Part 4 of the EP&A Act (as addressed in the previous section “Permissibility”) and is of a type listed in Schedule 1 of the SEPP are declared to be SSD. For the purpose of Schedule 1, this includes (in clause 20) development for the purpose of electricity generating works that: – Has an estimated development cost of more than \$30 million. or – Has an estimated development cost of more than \$10 million and is located in an environmentally sensitive area of State significance. The application of the relevant SSD triggers will be identified in the EIS. As the Project is permissible with consent and it is declared SSD, the NSW Minister for Planning and Public Spaces, or their delegate is the consent authority for the project (unless the Independent Planning Commission is designated as the consent authority for the Project under clause 2.7 of the Planning Systems SEPP) (section 4.5 of the EP&A Act).

Matter	Comment
Other approvals	Approvals that must be applied consistently If development consent is granted to the Project (as SSD) any application for an approval listed in section 4.42(1) cannot be refused if it is necessary for carrying out the Project. Any such approval must also be consistent with the development consent for the Project. Those approvals potentially relevant to the Project are considered below. EPL under Chapter 3 of the Protection of the Environment Operations Act 1997 (POEO Act) Schedule 1 of the POEO Act lists scheduled activities for which an EPL is required. Subject to the final design of the Project it may include elements which are considered scheduled activities including: – Contaminated soil treatment – Crushing, grinding or separating works – Extractive industries – Waste disposal (application to land). Activities which are deemed to meet the definitions and thresholds to be considered scheduled activities will be outlined in the EIS. The EPS currently operates under EPL 1429 and this Project may require a variation to this existing EPL. Approvals not required for approved SSD In accordance with section 4.41 of the EP&A Act the following approvals, which may otherwise have been required, are not required for SSD and are therefore not relevant to the Project: – A permit under sections 201, 205 and 219 of the <i>Fisheries Management Act 1994</i>. – An approval under Part 4 or an excavation permit under section 139 of the <i>Heritage Act 1977</i>. – An Aboriginal heritage impact permit under section 90 of the <i>National Parks and Wildlife Act 1974</i>. – A bush fire safety authority under section 100B of the <i>Rural Fires Act 1997</i>. A water use approval under section 89, a water management work approval under section 90, or an activity approval (other than an aquifer interference approval) under section 91 of the <i>Water Management Act 2000</i>. Other approvals Environment Protection and Biodiversity Conservation Act 1999 (Cth) In accordance with the EPBC Act, any action that will, or is likely to, have a significant impact on matters of national environmental significance protected by the EPBC Act must be referred to the Commonwealth Minister for the Environment and Water to determine whether it is a Controlled Action and requires approval from the Minister. A referral for the Project has been submitted via the Commonwealth's EPBC Act Business Portal. It is envisaged that the Project will be assessed under the bilateral assessment agreement between the Commonwealth and NSW governments. To facilitate this, the Minister for Planning and Public Spaces (or his delegate) or the Planning Secretary will need to issue guidelines for the assessment of the proposed actions for the purpose of the EPBC Act, informed by any comments from the Commonwealth Minister / DCCEEW, to ensure that any impacts on MNES are adequately assessed in the EIS. The NSW Minister for Planning and Public Spaces and DPHI will also need to ensure that the EIS meets the requirements of the bilateral assessment agreement and includes a recommendation regarding the determination of the applications for approval of the proposed actions referred under the EPBC Act, and any recommended conditions to manage impacts on MNES.
Pre-conditions to exercising the power to grant approval	Biodiversity Conservation Act 2016 Part 7 of the BC Act applies to biodiversity assessments and approvals under the EP&A Act. Section 7.9 provides that an application for approval of SSD must be accompanied by a biodiversity development assessment report (BDAR) unless the proposed development is not likely to have a significant impact on biodiversity values. A BDAR will be prepared to support the EIS (see Section 6.2). Section 7.14 provides that, when determining an application for development consent in accordance with the EP&A Act, the Minister for Planning and Public Spaces must take into account the likely impact of a proposed development on biodiversity values as assessed in the BDAR.
Mandatory matters for consideration	Mandatory considerations are the matters that the consent authority, being the Minister for Planning and Public Spaces (or their delegate) is required by the EP&A Act to consider when determining an application for development consent. For this Project, which is SSD, these include the matters as of relevance to the subject development application that the Minister for Planning and Public Spaces (or their delegate) in section 4.15 of the EP&A Act. Additionally, section 4.39 of the EP&A Act provides for the regulations to specify the requirements and process for a proponent to submit an EIS for approval to carry out SSD and making information publicly available. The EIS will need to meet the minimum form and content requirements prescribed by the <i>Environmental Planning and Assessment Regulation 2021</i> (the EP&A Regulation). The EP&A

Matter	Comment
	Regulation provides requirements for environmental assessment of SSD and requirements for EISs. These will be addressed by the EIS. The EIS will also be prepared consistently with the State Significant Development Guidelines and the SEARs issued by the Planning Secretary.
Other relevant legislation	The Project complements NSW's REZs and supports electricity reliability. It aligns with the <i>Electricity Infrastructure Investment Act 2020</i>, which facilitates the development of renewable energy infrastructure in strategic locations.

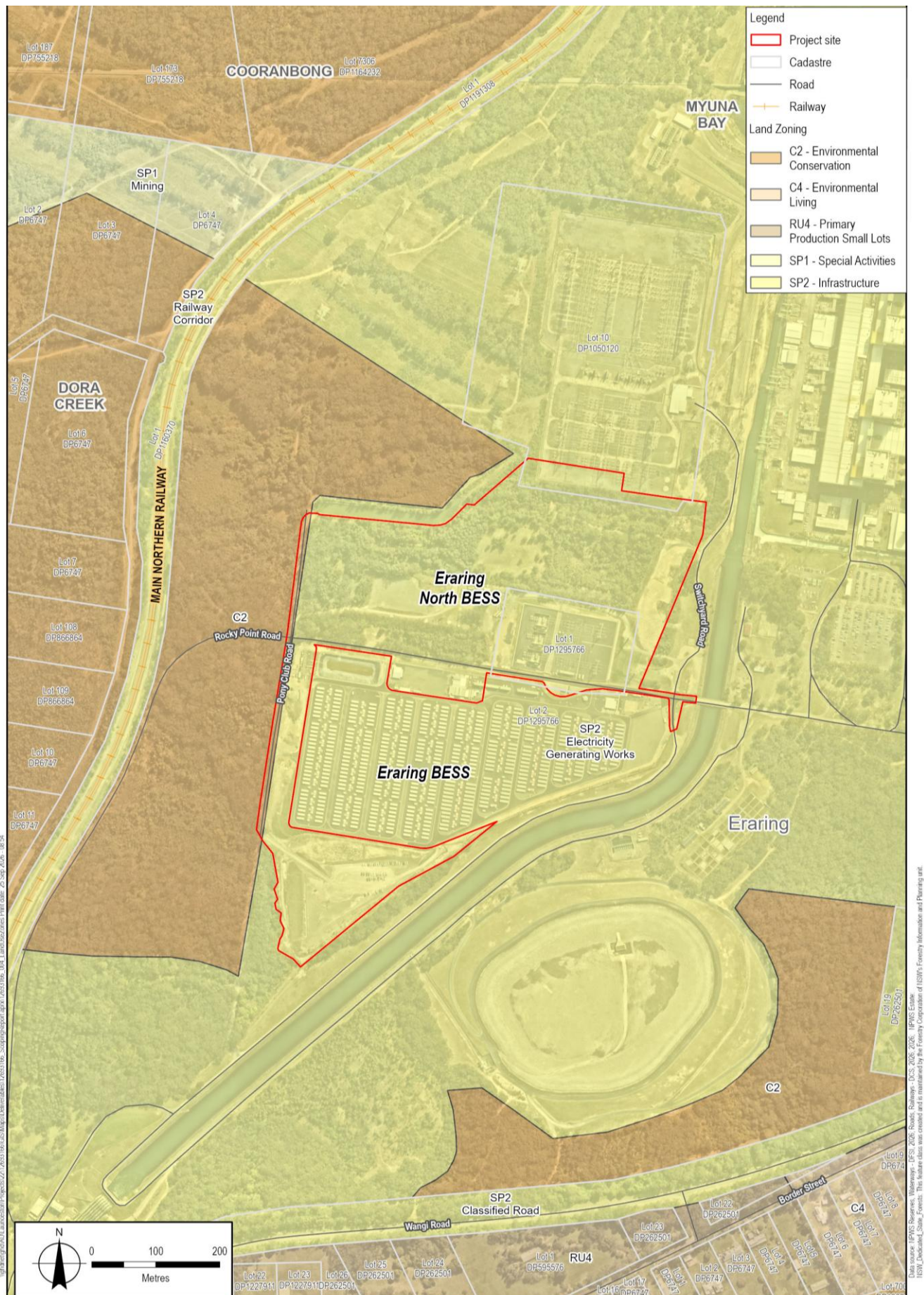


Figure 4.1 Lake Macquarie Local Environmental Plan 2014 land use zones

5. Stakeholder and community engagement

5.1 Consultation strategy

Origin is committed to ensuring community and stakeholders are informed about the proposed Project, and understand how Origin will identify and mitigate social, economic and environmental impacts.

To guide the consultation strategy for the Project and associated activities, a Community Stakeholder Engagement Plan (CSEP) has been developed. The strategy outlined in the CSEP has been designed to establish and build on existing relationships with the community and external stakeholders and ensure impacted and interested stakeholders have an opportunity to provide feedback and input into the proposed Project.

Origin will be transparent about how stakeholder feedback will be used throughout the planning and assessment process. Engagement activities will clearly communicate which aspects of the Project are open to influence, the extent of that influence on decision making, and any regulatory, technical, safety or operational constraints that may limit opportunities to modify certain Project elements. Feedback received through consultation will be documented, considered as part of Project design and assessment, and responses provided to stakeholders where appropriate.

Origin's approach to communication and stakeholder engagement is to ensure that the right information will be communicated to the right people, at the right time and in the most appropriate way for that stakeholder. This approach is centred around being proactive, transparent and inclusive.

The proposed Project is in its early stages of development with environmental and socio-economic assessment proceeding in parallel with detailed design. Origin's approach to engagement and messaging will continue to adapt as the outcomes of these assessments become available.

Origin's CSEP will continue to be reviewed and refined as detailed design of the proposed Project continues.

5.1.1 First Nations engagement

Origin is committed to meaningful, respectful, and ongoing engagement with Aboriginal and Torres Strait Islander peoples. This commitment recognises the enduring connection of Traditional Owners to Country and the importance of engaging in a manner that supports self-determination, cultural continuity, and positive long-term outcomes.

To support this commitment, the Project will align with Origin's First Nations Stakeholders and Community Engagement Approach, led by an appointed First Nations Engagement Specialist. This approach acknowledges that building genuine, trusted relationships requires time, consistency, cultural awareness, and a clear understanding of the diverse cultural protocols, governance structures, decision-making processes, and aspirations unique to each Aboriginal and Torres Strait Islander group. Central to this approach is respect for Cultural Knowledge systems and the protection of Indigenous Cultural and Intellectual Property, ensuring that any shared knowledge is handled appropriately and only used with free, prior and informed consent.

This understanding informs how Origin engages, supporting an approach that is culturally appropriate, transparent, and effective in building long-term relationships. It underpins collaborative impact management, the protection and management of cultural heritage, and the identification of opportunities for economic participation, capacity building, and benefit sharing with First Nations communities. All engagement activities are undertaken with respect for cultural authority, confidentiality, and the ownership of Cultural Knowledge held by Traditional Owners.

Origin recognises that meaningful engagement is an ongoing and evolving process. This approach will continue to be refined as we learn from our experiences and receive feedback from Aboriginal and Torres Strait Islander peoples. Through this continuous improvement process, Origin aims to ensure that its engagement practices remain relevant, respectful, and effective, and contribute to positive, mutually beneficial outcomes for all stakeholders.

A site visit was carried out with the Biraban Local Aboriginal Land Council (LALC) on the 21 August 2026 as part of the Aboriginal cultural heritage due diligence assessment (CHDDA) process. The purpose of this was to initiate early engagement with Biraban elders who already have a keen understanding of the landscape and have had involvement on previous heritage investigations. This engagement will be summarised in the CHDDA which will be

attached to the EIS and once comments from the Biraban LALC have been provided on the report, it can be provided.

5.2 Stakeholder identification

Origin has undertaken initial stakeholder review and identified the key stakeholder groups to engage with which include, but are not limited to, those outlined in Table 5.1.

Table 5.1 Summary of stakeholders

Government agencies	Community	Industry
NSW Department of Planning, Housing and Infrastructure Commonwealth Department of Climate Change, Energy, Environment and Water NSW Environment Protection Authority Lake Macquarie City Council Emergency Services	Eraring Community Forum Eraring Ash Dam Community Consultative Committee Residential near neighbours Local residents in nearby suburbs (Eraring, Dora Creek, Wangi Wangi, Arcadia Vale Cooranbong, Bonnells Bay and Myuna Bay) Traditional owner Groups (Biraban LALC, RAPs) Community and Environment Interest groups Local schools Broader community	EPS and existing BESS Staff and contractors Nearby and related businesses Centennial Coal Energy industry groups

5.3 Community and Stakeholder Engagement

5.3.1 Existing community engagement channels

Origin has been operating EPS since 2013 and has established a number of key channels to keep stakeholders, community and staff members informed about operations and activities related to the Eraring Site.

These existing channels form an important part of Origin's approach to engagement for the proposed Project supplemented by additional engagement through other tools and channels.

Eraring Community Forum

For over twenty years EPS has hosted a regular Community Forum to facilitate engagement with local stakeholder groups on matters relating to operations. Following a hiatus during the COVID-19 pandemic the Forum was re-established in 2023 with a broader stakeholder membership to reflect the diverse interests associated with the future closure and decommissioning of EPS and development at the Eraring Site.

The Forum has an independent chairperson appointed by Origin and includes 20 members as outlined below.

- 10 community organisation representatives
- Biraban Local Aboriginal Land Council
- 4 business/industry organisations
- 2 representatives from Lake Macquarie Council
- Representative NSW Government Member for Lake Macquarie (or delegate)
- Representative Federal Government Member for Hunter (or delegate)
- Representative University of Newcastle.

The group provides an ongoing forum for discussion between Origin and local stakeholder representatives about EPS operations, including new development projects.

The Forum has enabled early engagement, with members sharing community views and concerns regarding development projects and changes proposed at the Eraring Site including feedback on design and potential impacts and opportunities for the neighbouring community. A briefing on the Project was provided at the Eraring Community Forum on 5 August 2026. Questions were raised regarding the role of battery storage in supporting grid security during the energy transition and these matters will continue to be discussed with stakeholders as the Project progresses.

The group meets quarterly with minutes published on Origin's website.

Community Consultative Committee

A Community Consultative Committee (CCC) was established in 2020 as a condition of approval relating to the expansion of the EPS ash dam. The CCC meets three times a year and includes representatives of the community which includes those living close to EPS, from the broader community, and Lake Macquarie City Council. The CCC provides a further opportunity for Origin to update active members of the community on other development activities at Eraring, and for the community members to raise matters with Origin. Eraring Community Newsletter

The Eraring Community Newsletter is published three times each year and is one of Origin's most important channels for direct communication with the community immediately surrounding the Eraring site. It is typically four pages in length and contains a message from EPS Group Manager, and news and updates relating to the site and community.

The newsletter is distributed to 8,100 addresses across Eraring, Dora Creek, Cooranbong, Bonnells Bay, Yarrowonga Park, Balcolyn, Arcadia Vale, and Wangi Wangi. A digital version of the newsletter is also distributed to approximately 200 recipients via the EPS subscriber list and published on Origin's website.

An introduction to the proposed Project has been included in the upcoming September 2026 edition of the newsletter.

5.3.2 Engagement undertaken to date

Origin undertook stakeholder consultation following the public announcement of their plans to develop a BESS at the Origin landholding in January 2021. This was reported in the Environmental Impact Assessment for Eraring Battery Energy Storage System (Jacobs 2021). Ongoing project updates and consultation on the Eraring BESS and subsequent modifications, have continued since this time through the established stakeholder channels.

Formal project-specific stakeholder consultation for this BESS Project has commenced and is guided by the Project Community and Stakeholder Engagement Plan.

A summary of consultation activities undertaken to date is provided in Table 5.2.

Table 5.2 Consultation activities

Stakeholder Group	Activities
Government Agencies	Introductory meeting with DPHI to introduce the Project on 28 April 2026 Introductory meeting with DCCEEW to introduce the Project to the Commonwealth on 6 July 2026 Introductory meeting with Lake Macquarie City Council on 4 August 2026 Briefing letter to local Members of Parliament on 4 September 2026
Community	Introductory meeting with Biraban Local Aboriginal Land Council (LALC) on 30 July 2026 Briefing to Eraring Community Forum on 5 August 2026 Phone call to near neighbour on 13 August 2026 Letter and FAQ letter to near neighbours (within 1km) on 14 August 2026 Aboriginal Cultural Heritage Due Diligence Assessment (CHDDA) site walk over with Biraban LALC representative on 21 August 2026 Email correspondence with CCC on 3 September 2026
Industry	Briefing with Eraring Wai-ila Native Plant Nursery operators on 11 May 2026 Internal briefings to EPS and BESS staff and contractors in August 2026 Briefing letter to neighbouring Centennial Coal operations on 1 September 2026.

5.3.3 Future Engagement Activities

Stakeholder and community engagement will continue with Project stakeholders and the broader community throughout the detailed design and assessment phase and be conducted in accordance with *Undertaking Engagement Guidelines for State Significant Projects (DPIE, 2021)*. Consistent with the Guidelines, consultation materials and engagement activities will clearly identify:

- the purpose of engagement;
- the decisions being considered;
- aspects of the Project that stakeholders can influence;
- matters constrained by legislation, safety, operational or technical requirements;
- how feedback will be considered; and
- how Origin will communicate consultation outcomes and any resulting Project requirements.

A summary of proposed future consultation activities are outlined in Table 5.3 and are designed to ensure neighbours and key stakeholders are informed of the assessment process and anticipated Project impacts such that concerns can be addressed and managed through the design process.

Table 5.3 Summary of future engagement as contained in the CSEP

Engagement method	Activities
Continued engagement with established stakeholder groups	Quarterly briefing and consultation with the Eraring Community Forum and its member community groups. Three briefings yearly and consultation with the Eraring Ash Dam Community Consultative Committee.
Sensitive receiver/neighbour notification and feedback	Letters to sensitive receivers at key project stages, including bulk earthworks and OSOM transport, with direct contact channels for information and feedback.
Targeted Briefings and updates	Ongoing consultation on identified issues of concern with government, traditional owners and interested stakeholders including RFS and Fire and Rescue NSW. Respond to requests for information from interested stakeholder groups.
Project updates via the Eraring Community Newsletter	Keep the broader community up to date and invite direct feedback via Project updates, delivered to over 8,000 addresses three times a year.
Project webpage	Maintain up to date accessible project and contact information via a Project webpage including Frequently Asked Questions.
Project fact sheet	Development of Eraring BESS fact sheet to cover existing project and this proposed stage of development, accessible at in person engagement events and on the Project webpage.
1800 number	Call 1800 677 315 for further information and to lodge any complaints or concerns
Project email	Email powerdevelopmentprojects@originenergy.com.au for further information and to lodge any complaints or concerns
Subscriber updates	Email registered parties and Eraring subscribers at major project milestones
Media release	Media release at major Project milestones to share information with broader local and regional community and in state/national media outlets.
Public exhibition of EIS	In line with State Significant Development requirements.

The CSEP will be actively monitored to ensure that tools, activities, and stakeholders are updated so that the plan remains relevant to the local community and supports successful delivery of the program of works. Updates to this CSEP will be carried out once SEARs are received and ongoing as required, and the outcomes of consultation will be included in the EIS and relevant technical studies.

5.4 Community views

5.4.1 Geographic extent of interest

Local (<5 km): The highest level of interest is expected from local residents and stakeholders within approximately 5 km of the Eraring Site, primarily in the suburbs of Eraring and Dora Creek. This is reflected in the distribution area of the Eraring Community Newsletter (8,100 addresses). The residential near neighbours (<1 km) have a direct interest in construction-related impacts (e.g. noise, vibration).

Regional (5–100 km): A low to moderate level of interest is expected from stakeholders within the broader Lake Macquarie local government area and Hunter region, reflecting the membership of the Eraring Community Forum (including Lake Macquarie City Council, the University of Newcastle, and business/industry representatives) and interest in employment, investment and grid security outcomes associated with the Eraring Site's transition.

State (>100 km): Limited interest is expected with exception of government agencies and industry stakeholders with a policy or regulatory interest in energy security, grid reliability and the energy transition.

5.4.2 Key issues raised

Engagement conducted in the preparation of this Scoping Report, in addition to feedback and key issues raised in earlier engagement undertaken as part of the development and construction of the existing Eraring BESS (SSD-15950052), have provided insight on key matters of community concern. A summary of issues identified through all engagement activities to date and associated opportunities to influence project design are outlined in Table 5.4 below, denoting prior feedback recorded for the existing Eraring BESS. The issues are reflected in the respective sections of 6.0 Proposed assessment of impacts.

Table 5.4 Summary of stakeholder feedback

Issue	Feedback to date	Project Response	Scope of stakeholder influence
Social Economic	Displacement of Eraring Native Plant nursery during development and opportunity to relocate to an alternate site. Investment value and local employment opportunities, including the involvement of existing EPS workers in the battery project. (Eraring BESS) Concerns regarding grid security following retirement of EPS and the ability of the battery to replace EPS capacity (Eraring BESS and current).	Separate planning process commenced to support Nursery relocation. Social and economic assessment will consider workforce transition initiatives. Whilst outside of scope of this Project, the broader energy transition and EPS operations will continue to be discussed with stakeholders via our existing Forums.	Stakeholder input will directly influence the transition planning, location and design of the new nursery.
Amenity concerns	Noise and vibration impacts from earthworks and reversing alarms (Eraring BESS and current) Cumulative impacts of projects across the Eraring Site. Air quality impacts (Eraring BESS) The potential for increased traffic congestion particularly school hours (Eraring BESS)	Assessment to include noise and vibration generated by the operation of heavy machinery during bulk earthworks. An assessment of cumulative impacts is a key component of the EIS. Construction controls to manage potential air quality impacts (dust) from construction will be included. An assessment of traffic and transport impacts will consider the risk of increased congestion safety risks on local roads.	Stakeholder feedback may influence construction noise, vibration and dust mitigation measures and management plans and communication protocols, however construction activities required to deliver the Project cannot be avoided entirely. Feedback may inform transport scheduling, traffic controls and notification measures.

Issue	Feedback to date	Project Response	Scope of stakeholder influence
Hazard and risk	Interest in the advancement of the technology and performance of batteries over time, the life and disposal of batteries and source of electricity for charging in the future. Concern regarding fire risk of a BESS and adequacy of fire protection systems (Eraring BESS)	A review of fire protection measures and emergency management is included. Information on battery charging and technology improvements provided in person at Community Forum. FAQs on Project website include information on how the batteries may be reused to maximise their value at the end of their life.	Feedback may inform information sharing, emergency planning and communications, however technical safety standards and regulatory requirements will determine final system design.
Biodiversity	Potential impacts on the green and golden bell frog population in Muddy Lake. Protections in place for wildlife during site clearing for battery construction (Eraring BESS)	Biodiversity assessment to investigate potential impacts and mitigation opportunities.	Feedback may assist identify locally important environmental values that can inform biodiversity mitigation and management measures.
Water	Water management at the Project site. (Eraring BESS)	A water impact assessment will be prepared and include surface water, groundwater, flooding, and water quality impacts.	Stakeholder feedback may assist in identifying local water-related issues and informing water management and mitigation measures.

In addition to the engagement channels described in Table 5.3, the CSEP will be actively monitored and updated during the detailed design and environmental assessment phase to ensure that tools, activities, and stakeholders are regularly updated to include issue-specific engagement on the above matters and any others that may arise.

6. Proposed assessment of impacts

6.1 Overview

Existing environmental conditions and features were examined for the purposes of analysing the potential impact of the works and scoping an appropriate level of environmental assessment to be undertaken in the EIS.

The proposed level of assessment outlined in this section is categorised with reference to the State significant development guidelines (DPHI, 2026) and State significant development guidelines – preparing a scoping report (DPIE, 2022) as requiring either:

- **Detailed assessment** – the Project may result in significant impacts on the matter, including cumulative impacts, or involve uncertainties. The assessment of the impacts will therefore require detailed studies and investigations carried out by technical specialists.
- **Standard assessment** – the Project is unlikely to result in significant impacts on the matter, including cumulative impacts, and the impacts are likely to be typical for similar proposals and capable of being mitigated to comply with relevant standards.
- **No further assessment is required** – the Project will have no impact on the matter or the impacts on the matter will be so small that they are not worth considering.

An overview of the results of the scoping assessment for the Project and the assessment approach for the matters requiring further assessment in the EIS is described in the following sections. The scoping assessment is based on preliminary environmental investigations only and impacts may be refined as the assessment is further developed, design mitigation measures are applied, and further environmental assessments are carried out.

6.2 Biodiversity

6.2.1 Existing environment

The site is located to the west of Lake Macquarie, NSW within the Lake Macquarie Local Government Area (LGA). It occurs within the Sydney Basin Interim Biogeographic Regionalisation for Australia (IBRA) Bioregion of NSW, within the Wyong Subregion (Cwlth DCCEEW, 2026). The Sydney Basin Bioregion extends from Batemans Bay in the south to Nelson Bay in the north and inland to Mudgee, and is characterised by a combination of coastal plains, low hills and dissected sandstone plateaus (Cwlth DCCEEW, 2018). The Wyong Subregion, located between northern Sydney and the lower Hunter Valley, is characterised by low-lying coastal plains, estuaries, coastal lakes and sand barriers, underlain by sedimentary rocks of the Sydney Basin and extensive Quaternary coastal, estuarine and alluvial sediments (Cwlth DCCEEW, 2023).

The northern part of the Project area has been subject to significant historical disturbances since the 1960s to mid-2010s such as vegetation clearing, earthworks and the application of fill; further details are provided in section 6.7.1 with a photo from 1984 shown in Figure 6.1. Despite this disturbance, native revegetation has been progressively regenerating across undeveloped areas, with most vegetation aged 10-40 years, except for a small number of less disturbed remnants. Four plant community types (PCT) in good and moderate condition are present in the project area - see Table 6.1 below. Of these four PCTs, all four are commensurate with Threatened Ecological Communities (TECs) listed under the NSW *Biodiversity Conservation Act 2016* (BC Act) and/or the EPBC Act. PCTs and their associated TECs are provided in Table 6.2 below. Preliminary assessments of the conservation advice and final determinations for each TEC indicates that the following four TECs are likely to be present in the project area, although further assessment is required to confirm this:

- Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions – listed as endangered under the BC Act
- Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions – listed as endangered under the BC Act.

- Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community – listed as endangered under the EPBC Act
- Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland – listed as endangered under the EPBC Act

One additional TEC, Kincumber Scribbly Gum Forest in the Sydney Basin Bioregion – listed as Critically Endangered under the BC Act is unlikely to be present. However further assessment is required to confirm this.

Table 6.1 *Vegetation within the project area*

PCT ID	PCT name	Condition class	Area (ha)	Has associated TEC? Yes/no
3436	Hunter Coast Sandy Creekflat Low Paperbark Scrub	Good	0.42	Yes
3582	Hunter Coast Lowland Apple-Bloodwood Forest	Good	0.77	Yes
		Moderate	0.06	Yes
		Moderate – wet influence	1.39	Yes
		Planted	0.12	No
4020	Coastal Creekflat Layered Grass-Sedge Swamp Forest	Moderate	1.08	Yes
4028	Estuarine Swamp Oak Twig-rush Forest	Good	0.50	Yes
		Moderate	2.92	Yes
Exotic vegetation	Not applicable	Not applicable	0.82	No

Table 6.2 *PCTs and their associated TECs*

PCT ID	Associated TEC	Listing	Is the PCT commensurate with the TEC?	Reasoning
3436	Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	Endangered under the EPBC Act	No	Project area is outside the NSW North Coast and SE QLD IBRA bioregions
3582	Kincumber Scribbly Gum Forest in the Sydney Basin Bioregion	Critically endangered under the BC Act	Unlikely	While the project area is outside of the former Gosford LGA boundaries, the TEC is considered likely to occur elsewhere in the Sydney Basin IBRA Bioregion. Further assessment to be completed in the BDAR required to confirm
4020	Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Endangered under the BC Act	Likely	Further assessment to be completed in the BDAR required to confirm
	Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	Endangered under the EPBC Act	No	Project area is outside the NSW North Coast and SE QLD IBRA bioregions
	Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland ecological community	Endangered under the EPBC Act	Likely	Further assessment to be completed in the BDAR required to confirm

PCT ID	Associated TEC	Listing	Is the PCT commensurate with the TEC?	Reasoning
4028	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	Endangered under the BC Act	Likely	Further assessment to be completed in the BDAR required to confirm
	Coastal Swamp Oak (<i>Casuarina glauca</i>) Forest of New South Wales and South East Queensland ecological community	Endangered under the EPBC Act	Likely	Further assessment to be completed in the BDAR required to confirm

Some areas (considered to be of moderate condition), most notably areas around waterways, are impacted with thickets of Lantana (*Lantana camara*) and other environmental weeds, preventing establishment of a native understorey. Whereas other areas (deemed good condition) are largely devoid of these weeds allowing a structurally diverse ground and shrub layer to regenerate. However, given the recent age of the vegetation, habitat features, such as hollows, are limited, with no hollows suitable for large forest owls or cockatoo identified in the project area. Smaller hollows that are not visible from the ground are likely to be present. Various aquatic habitats are present throughout the Project site, as natural and artificial ephemeral waterways, standing water bodies and flooded areas. The Muddy Lake Settling Basin adjoins the project area to the north.

Desktop assessments and targeted surveys within the Project site and the greater EPS site indicate threatened flora, fauna and migratory species are predicted to occur within the Project site. One flora species, the Red Helmet Orchid (*Corybas dowlingii*) – listed as Endangered under the BC Act has been identified in a portion of the Project site during recent surveys. Targeted surveys for other threatened flora and fauna species have commenced in accordance with the BAM and are ongoing, with no additional threatened species recorded to date.

The northern part of the Project site provides habitat for a range of threatened fauna due to the presence of native vegetation, ephemeral aquatic habitats (drainage lines, standing water bodies and flooded areas) and connectivity with adjoining native vegetation. These habitat features support foraging, shelter, refuge and movement opportunities for species such as the Koala (*Phascolarctos cinereus*) and Green and Golden Bell Frog (*Litoria aurea*), which have been recorded on connected vegetation 260 metres (m) north-west and 300 south-west of the site (respectively) in surveys completed by Umwelt (2021) and Lake Macquarie City Council (2025).

Although the relatively young vegetation limits the availability of suitable breeding habitat for hollow-dependent fauna, the site may provide foraging habitat for species such as the Swift Parrot (*Lathamus discolor*), Gang-gang Cockatoo (*Callocephalon fimbriatum*), Greater Glider (*Petauroides volans*), Large-eared Pied Bat (*Chalinolobus dwyeri*) and Grey-headed Flying-fox (*Pteropus poliocephalus*). The site may also provide roosting habitat for the Grey-headed Flying-fox and supports habitat values that contribute to biodiversity function and connectivity at the local landscape scale.

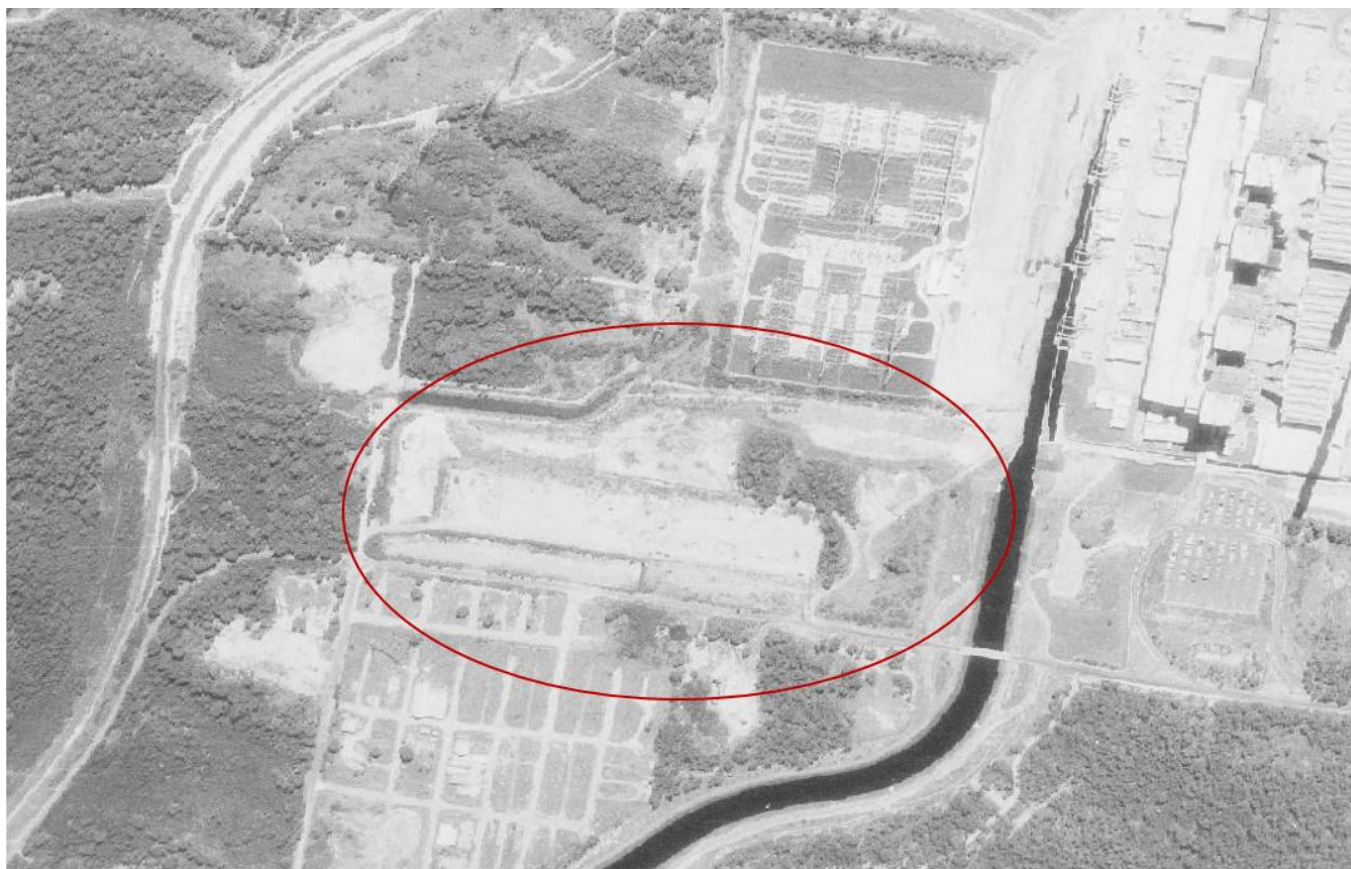


Figure 6.1 Aerial photo from 1984, northern part of Project site circled

6.2.2 Issues for consideration

Potential impacts to Matters of National Environmental Significance (MNES) will be addressed through a referral to the Commonwealth Minister under the EPBC Act. For the purposes of this assessment, it has been assumed that the proposed action is likely to constitute a controlled action and will therefore require assessment and approval under the EPBC Act. It is further assumed that assessment of MNES will occur under the applicable bilateral assessment arrangements between the Commonwealth and New South Wales governments. Accordingly, impacts to MNES are anticipated to be assessed in detail within the forthcoming Biodiversity Development Assessment Report (BDAR), which will inform both the State and Commonwealth assessment processes.

Impacts are likely to occur as a result of the following:

- the loss of threatened species and TECs listed under the BC Act
- the loss of threatened species, migratory species, TECs and other MNES listed under the EPBC Act;
- the loss of species habitat through clearing of vegetation and other habitat features (e.g. leaf litter, fallen logs, aquatic habitat).

Table 6.3 Potential impacts to known and potential threatened and migratory species

Direct impacts	Indirect impacts
Removal of habitat used for foraging, shelter, roosting or breeding	Disturbance from noise, vibration, lighting and human activity
Injury or mortality during vegetation clearance or earthworks	Displacement of individuals into sub-optimal habitat
Loss of key habitat features (e.g. tree hollows, ground cover, fallen timber)	Reduced breeding success due to disturbance during critical life stages
Entrapment or harm in open excavations or construction infrastructure	Increased predation pressure due to habitat simplification

Direct impacts	Indirect impacts
Vehicle strike during construction activities	Reduced habitat connectivity affecting movement and migration
Direct disturbance to nesting, roosting or breeding sites	Increased stress and altered behaviour

Table 6.4 *Potential impacts to threatened ecological communities (TECs)*

Direct impacts	Indirect impacts
Clearing or physical disturbance resulting in loss of TEC extent	Degradation of condition through edge effects
Damage to vegetation structure from machinery or ground disturbance	Increased weed invasion and pest species establishment
Removal of characteristic native species	Altered microclimate (light, wind, moisture) at remnant edges
Soil disturbance affecting regeneration capacity	Changes to hydrology affecting moisture-dependent TECs
Fragmentation of TEC remnants	Long-term decline in ecological function and resilience

6.2.3 Assessment approach

Table 6.5 details the Project's proposed approach to the assessment of potential impacts to biodiversity.

It is noted that the mitigation hierarchy applies in a strict order, with avoidance being the first and highest priority. This is followed by minimisation, with offsetting only considered for residual impacts that remain after genuine avoidance and minimisation have been demonstrated. As such, refinement of the Project may need to be considered where feasible to reduce impacts and associated offset obligations. However, the extent of any reduction will depend on the final design and the outcomes of the BDAR assessments.

Table 6.5 *Biodiversity – assessment approach*

Biodiversity	
Proposed level of assessment	Detailed
Relevant guidelines	– BAM (DPIE, 2020) – NSW survey guidelines for 'Species credit' threatened bats and their habitats – NSW survey guidelines for threatened frogs – NSW Koala – Biodiversity Assessment Method survey guide – NSW threatened reptiles – Biodiversity Assessment Method survey guide – Matters of National Environmental Significance Significant Impact Guidelines 1.1 – Commonwealth Department of the Environment – Nationally Threatened Ecological Communities and Threatened Species Guidelines (various); threatened mammals; Survey guidelines for Australia's threatened birds; threatened bats; reptiles – NSW Groundwater Dependent Ecosystem Policy (NSW Department of Land and Water Conservation, 2002) – NSW Department of Primary Industries and Regional Development Part 7 test of significance, in accordance with Part 7A of Fisheries Management Act 1994)
Proposed approach to assessment	A BDAR will be prepared in accordance with the BAM (DPIE, 2020) to accompany the EIS. The BDAR will involve: – Identification of flora, fauna, and any matters of national environmental significance (MNES) likely to be located within the proposed footprint. – Site surveys for flora and fauna species, to occur from 2026 to early 2027. – A description of the application of the avoid, minimise and offset framework. – Assessment of potential impacts on State and Commonwealth listed terrestrial species, populations, ecological communities or their habitats, including any cumulative impacts with the Eraring BESS or other projects.

Biodiversity	
	– Assessment of potential impacts to MNES that would trigger assessment under the Significant Impact Guidelines 1.1. – Identification of measures that will be implemented to mitigate the impacts of the Project on species, populations, ecological communities and their habitats, where applicable. – Assessment of any biodiversity offsets required by NSW DPIE's BAM in relation to the Project. The BDAR will be prepared by an accredited assessor in accordance with the NSW <i>Biodiversity Conservation Act 2016</i> and BAM.

6.3 Noise and vibration

6.3.1 Existing environment

The existing noise and vibration environment surrounding the Project site is influenced by a combination of industrial (EPS, the existing Eraring BESS and mining operations), transport (Main North Rail Line and Wangi Road), and local residential sources. The proposed Project site is located within an established industrial setting on the western shore of Lake Macquarie, where operational noise from power generation plant, ancillary equipment, and on-site vehicle movements has historically contributed to the ambient noise environment.

The Project site lies near the small townships of Eraring and Dora Creek, approximately 5 km north of Morisset, and approximately 40 km south-west of Newcastle

Vibration is generated from existing operations in the power block area, the rail loop and from mobile plant and equipment. These are generally generated at a low level and only transmitted short distances from this equipment.

Overall, the baseline noise environment reflects a mix of industrial and transport-related noise, with quieter conditions typically occurring during night-time periods.

6.3.2 Issues for consideration

The proposed Project has the potential to generate temporary noise and vibration impacts associated with groundworks and increased vehicle movements during construction. While the site is located within an established industrial setting with a history of power generation operations, surrounding residential and recreational land uses represent sensitive receivers that may be affected if emissions are not appropriately managed.

Key noise and vibration issues for consideration include:

- **Construction noise and vibration:** including noise and vibration generated by the operation of heavy machinery.
- **Out of hours works:** should works be required outside standard daytime hours, which may result in increased potential for disturbance during evening or nighttime periods when background noise levels are lower.
- **Traffic related noise and vibration:** including increased light and heavy vehicle movements to and from the site, which may temporarily elevate noise levels along access routes and at nearby residences.
- **Amenity impacts at sensitive receivers:** including residential dwellings and recreational areas around Lake Macquarie, particularly where line of sight exposure or limited buffering exists.
- **Cumulative noise impacts:** works may coincide with ongoing industrial operations in the area or traffic movements on surrounding road networks, potentially increasing overall noise exposure.

6.3.3 Assessment approach

Table 6.6 details the Project's proposed approach to the assessment of potential noise and vibration impacts.

Table 6.6 Noise and vibration – assessment approach

Noise and vibration	
Proposed level of assessment	Standard
Relevant guidelines	The assessment will address operational noise, construction noise, traffic noise, vibration, and cumulative noise impacts, in accordance with: – Operational noise — NSW Noise Policy for Industry (EPA, 2017) – Construction noise — Interim Construction Noise Guideline (DECC, 2009) – Traffic noise — NSW Road Noise Policy (2011) – Vibration — Assessing Vibration: A Technical Guideline (DECC, 2006).
Proposed approach to assessment	Operational noise will be assessed against the noise limits in the existing BESS Development Consent, which apply at non-associated residences within the five Noise Catchment Areas identified in the consent, with criteria established with reference to background noise monitoring results. Noise predictions will be made using the SoundPLAN 3D modelling package. Predictions will be made cumulatively with the existing facility and, where relevant, other approved or known developments in the vicinity, so that combined noise is assessed against the consent limits. Predicted levels will be reviewed for annoying noise characteristics (tonality, low frequency), with penalties applied per Fact Sheet C of the NPfl where warranted. Construction noise will be addressed under the Interim Construction Noise Guideline (DECC, 2009). Construction and operational vibration will be assessed against Assessing Vibration: A Technical Guideline (DECC, 2006), with commentary on any potential impacts at sensitive receptors. A traffic noise assessment will be undertaken in accordance with the NSW Road Noise Policy (2011) to address any change in road traffic noise from construction and/or operational vehicle movements. Where any exceedance is predicted (operational, construction, traffic or vibration), the required noise reduction and feasible mitigation measures will be identified (equipment attenuation, layout revisions, barriers or mounding). Consistent with Eraring BESS (SSD-15950052), a representative measurement position will be nominated with stage-by-stage allowable levels to verify compliance following construction. The assessment will be documented in an Environmental Noise Assessment report.

6.4 Landscape character and visual amenity

6.4.1 Existing environment

The Project site is located within a highly modified industrial landscape. The site is surrounded by large scale power generation infrastructure, including turbine halls, cooling systems, stacks, coal handling facilities, and associated transmission infrastructure, which form prominent built elements within the local landscape. The broader landscape comprises a mix of urban, semi urban, and natural elements, including Lake Macquarie, foreshore reserves. The Project site includes areas of regrowth vegetation.

The EPS is a dominant visual feature within the local landscape and is visible from a range of public viewpoints, including surrounding residential areas, local roads, and recreational areas along the lake foreshore. Specifically, the two exhaust stacks reach heights of approximately 200 m and are the most visually prominent feature of the site from the surrounding visual catchment, while the cooling water inlet canal flows directly through the suburb of Dora Creek.

Adjacent to the Project site is the existing Eraring BESS, which houses equipment of the same and a similar scale to that proposed for the Project.

6.4.2 Issues for consideration

The Project has the potential to result in both temporary and long-term changes to the existing landscape character and visual environment within the local area:

- Temporary effects: arising from the introduction of visually prominent, short duration elements and activities such as cranes, plant equipment, temporary hoardings, laydown and storage areas, stockpiles, and increased vehicle movements. This may alter the perceived scale, movement, and industrial intensity of the area. Influenced by the duration and staging of works, potential night-time lighting, and the visibility of intermittent high intensity activities.
- Long-term effects: primarily arising from the additional BESS equipment required for the Project. Due to the existing BESS located adjacent to the site, it is anticipated that the long-term visual changes to the site will be minimal.

In accordance with a landscape character and visual impact assessment (LCVIA) approach, the assessment would focus on defining the landscape character areas, establishing the visual catchment and representative viewpoints, determining the sensitivity of receptors and value of views, and evaluating the magnitude of change to derive significance across both the temporary works period and the longer-term post works condition.

6.4.3 Assessment approach

Table 6.7 details the Project's proposed approach to the assessment of potential landscape character and visual amenity impacts.

Table 6.7 Landscape character and visual amenity - assessment approach

Landscape and visual	
Proposed level of assessment	Standard
Relevant guidelines	– Environmental Impact Assessment Practice Note – Guideline for landscape character and visual impact assessment (TfNSW, 2023). – Guidance Note for Landscape and Visual Assessment (Australian Institute of Landscape Architects 2018) (AILA, 2018) – Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (Landscape Institute of Environmental Management & Assessment, 2013) and Notes and Clarifications on aspects of the 3rd Edition (Landscape Institute of Environmental Management & Assessment, 2024). – Technical Supplement – Landscape and Visual Impact Assessment, Large-Scale Solar Energy Guideline (NSW Department of Planning and Environment, 2022). While there are no specific guidelines for BESS, this supplement will be considered during the assessment.
Proposed approach to assessment	The LCVIA will include: – Desktop review to identify the key areas that view the site including sensitive landscape areas and visual receivers. – Site investigation to determine the landscape character and the visibility of the Project. Sensitive visual receptors and confirm the key viewpoints. – Preliminary assessment and identification of public and private viewpoints. Identification of an appropriate number of representative viewpoints for further analysis. – Identification of landscape character zones and analysis and description of landscape character. – Assessment of the impacts of the Project on the landscape character of each identified landscape character zone. – Assessment of the visual impacts (both temporary and long-term) of the Project on key viewpoints. – Visual representations to include the preparation of 'before and after proposed works' photomontages. Identify mitigation measures to be considered as part of the Project during works.

6.5 Traffic and transport

6.5.1 Existing environment

The primary road connection of the site to the surrounding road network is via Rocky Point Road and Wangi Road grade separated interchange. This interchange provides four way movement for all vehicles travelling in and out, north and south on Wangi Road.

Wangi Road is a 13 km state road (part of route B53) that runs between the townships of Toronto to the northeast and Dora Creek to the southwest. It serves as a key link along the western shore of Lake Macquarie, connecting local settlements to the M1 Pacific Motorway and Newcastle's western suburbs. Wangi Road is primarily a single carriageway with one lane in each direction, with overtaking lanes provided at three locations. The standard posted speed limit is 90 km per hour, which reduces to 60 km per hour near the townships of Toronto and Dora Creek.

Rocky Point Road intersects with Wangi Road via a grade-separated interchange. Its western end provides access to the proposed Project site, while the eastern end offers public access to the suburb of Eraring. Rocky Point Road is generally a single carriageway with one lane per direction and a posted speed limit of 60 km per hour, reducing to 40 km per hour in proximity to the EPS. West of the EPS, Rocky Point Road becomes a private road.

Other transport in the area includes:

- The Main Northern rail line to the west of the site.
- The closest train station is Dora Creek Station, located about 1.5 km south of the site
- Two bus routes operated by Hunter Valley Buses: with the nearest bus stop on Wangi Road opposite Horn Street (Stop ID 2264163).

6.5.2 Issues for consideration

The proposed Project would result in traffic generation associated with the mobilisation of the workforce and the transport of plant, equipment, and material to and from the site.

Heavy vehicles will predominantly be used for the transport of large equipment and construction materials, while light vehicle movements will primarily be associated with workforce access to the site.

Potential traffic and transport impacts and issues for consideration include:

- The use of oversize /overmass vehicles for delivery or removal of large equipment, which may require special permits and route management to minimise disruption.
- An increase in heavy vehicle traffic, which could contribute to accelerated wear and tear on local roads, particularly at key intersections and along routes with limited capacity.
- Potential temporary congestion and reduced traffic flow efficiency on Wangi Road, Rocky Point Road, and surrounding intersections during peak construction periods.
- Increased road safety risks arising from higher volumes of heavy vehicles, light vehicles, and pedestrian traffic, especially in areas with limited pedestrian infrastructure.
- Sequencing of deliveries, heavy vehicle movements and light vehicle access to avoid peak school drop-off and pick-up times to avoid increased congestion.

6.5.3 Assessment approach

Table 6.8 details the Project's proposed approach to the assessment of potential impacts to traffic and transport.

Table 6.8 Traffic and transport – assessment approach

Traffic and transport	
Proposed level of assessment	Standard
Relevant guidelines	– Guide to Transport Impact Assessment (2024) – Guide to Traffic Management Part 3: Traffic Studies and Analysis Methods (Austroads, 2020). – Austroads Guide to Traffic Management (AGTM) Part 3: Traffic Studies and Analysis Methods (AGTM, 2020). – Austroads typical vehicle size classifications.
Proposed approach to assessment	The traffic and transport assessment would include: Desktop study: – Contact Lake Macquarie City Council and TfNSW for existing traffic volumes on Wangi Road and Rocky Point Road. – Review available reports and recent/proposed road works. – Desktop review of sight lines for site access points. Impact assessment: – Confirm construction/operational traffic volumes and transport routes. – Identify cumulative traffic from other planned developments including existing BESS construction activities. – Identify appropriate haulage routes for restricted heavy vehicles and oversize overmass vehicles. – Review historical crash data for road safety analysis. – Determine trip generation for construction and operation. – Assess impacts to public transport, pedestrians and cyclists. – Warrant assessment for turning lanes on Wangi Road. – Vehicle count analysis of construction traffic on surrounding road network. – Swept path analysis for heavy vehicles. – Identify traffic management/mitigation measures.

6.6 Hazard and risk

6.6.1 Existing environment

The existing hazards and risk environment reflects the historical use for electricity generation and associated infrastructure.

The existing environment of the Project site leading to potential hazards and risks include:

- Existing BESS: the Project is adjacent to the existing BESS. The highest risk associated with the BESS is the consequences of a lithium-ion battery failure mode known as thermal runaway.
- Utilities and infrastructure: infrastructure such as Transgrid's substation may result in potential risks associated with works near live high-voltage electrical assets. These risks would require appropriate design, construction controls and consultation with relevant asset owners to avoid impacts.
- Bushfire risk associated with surrounding vegetation and regional fire weather conditions: land within and surrounding Project site includes areas mapped as bush fire prone land under NSW Rural Fire Service certified bush fire prone land mapping. However, in the Central Coast Bushfire Risk Management Plan, the vegetated areas surrounding the Project site are not classified as Strategic Fire Advantage Zones or Land Management Zones. While the site itself is highly modified and industrial in nature, bushfire risk may be elevated at the interface between cleared operational areas, remnant vegetation and temporary laydown or waste storage areas during construction and operation.

- Flooding risk: low lying areas of the site, drainage infrastructure and proximity to Lake Macquarie and associated waterways, may create potential exposure to flooding during intense rainfall events.

These potential hazards form the baseline risk environment against which potential changes in risk during demolition and site remediation will be assessed as part of the EIS.

6.6.2 Issues for consideration

Risk considerations aligned with those existing site risks (battery fire, bushfire, flood risk and associated impacts to batteries etc) will need to be assessed in both the context of the Project itself and the potential cumulative risks it presents with the existing BESS infrastructure in this location. In addition, high level consideration of potential electromagnetic fields exposure risk to the public from the operation of the BESS with consideration to its remote location, site security and restriction of public access.

6.6.3 Assessment approach

Table 6.9 details the Project's proposed approach to the assessment of hazard and risk.

Table 6.9 Hazard and risk – assessment approach

Hazard and risk	
Proposed level of assessment	Standard
Relevant guidelines	– Hazardous Industry Planning Advisory Paper No 4 – Risk Criteria for Land Use Safety Planning (DPE, 2011a) – Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis (DPE, 2011b) – Multi-level Risk Assessment (DPE, 2011c) – Planning for Bush Fire Protection A guide for councils, planners, fire authorities and developers (NSW RFS, 2019)
Proposed approach to assessment	Preliminary Hazard Analysis (PHA) Undertake preliminary risk screening to understand the likelihood and consequence of identified hazards, consistent with the State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP) and NSW Department of Planning, Industry and Environment (previously Department of Planning) Applying SEPP 33 (2011). This will include: – Assessment of health hazards (electromagnetic fields, grid connection, contamination) – BESS preliminary hazard assessment using SEPP process to select appropriate level (anticipated Level 2) – Utilisation of other studies including flooding in relation to battery hazard risk, and traffic and transport in relation to transport of hazardous materials. – Preliminary hazard assessment steps: System Definition, Hazard Identification, Likelihood Analysis, Consequence Analysis – Risk Assessment, Risk Evaluation – Demonstrate residual risk levels are acceptable in relation to surrounding land uses. Bushfire risk The bushfire assessment will follow the assessment framework applied in Bushfire Planning Australia, March 2023. The assessment will be in accordance with Clause 44 of the Rural Fires Regulation 2013 and section 4.14 of the EP&A Act 1979 and include: – Vegetation classification assessment – Slope assessment – Asset Protection Zone (APZ) assessment using the slope and vegetation to identify appropriate APZs in accordance with Planning for Bushfire Protection 2019 (NSW Rural Fire Service 2019) – Review of bush fire protection measures for access, water supply, landscaping and emergency management.

6.7 Soils and contamination

6.7.1 Existing environment

The Project area is located immediately north of the existing Eraring BESS and substation site, which is currently in commissioning. Much of the Project footprint was disturbed during the original construction of the EPS from 1977, having been used as a contractor laydown area, and was further modified during construction of the Attenuation Reservoir between 2010 and 2013. Part of the site has more recently operated as a site plant nursery.

A borrow area at the corner of Pony Club Road and Rocky Point Road was used to source fill material during construction of the existing Eraring BESS and is proposed to be re-used for the Project. The Project site has been previously disturbed and only partially rehabilitated. Initial Geotechnical site investigations show that, across the Project site, the fill/imported material generally comprises reworked sandy/gravelly clay and clayey/gravelly sand of low to medium plasticity, with trace organics noted in places and roadbase material and general refuse, varying in thickness from the surface to depths of roughly 0.9 m to 4.0 m before transitioning into natural clay.

Jacobs (IS463100, March 26) has completed an initial geotechnical and contamination Site Appraisal, data gap assessment, and preliminary investigation plan for Origins proposed Eraring BESS North, and a comprehensive program of geotechnical and contamination testing has been planned, with the results to be included in the EIS submission.

Drawing on prior geotechnical and contamination reports (Douglas Partners, Aurecon, AECOM, GHD, Qualtest), historical construction drawings, soil and geological mapping, lidar, aerial imagery, and a February 2026 site walkover, the report divides the site into five geotechnical zones based on expected fill depth and underlying material: from estuarine creek alluvium and deep fill (up to 7m) over the old creek line in the plant nursery area, through saturated alluvium in the diverted creek corridor, to shallower fill and better residual soils on higher ground.

The report identifies a history of uncontrolled fill of unknown composition, high groundwater/seepage (including iron-fouled surface water suggestive of acidic conditions), potential acid sulfate soils below 5m Australian Height Datum (AHD), and location within the West Lake Mine Subsidence District, all of which will affect foundation choices and earthworks/ground improvement strategies similar to those used on Eraring BESS.

On contamination, Jacobs reviewed three prior assessments (ERM 2015, AECOM 2021, Aurecon 2023) covering areas adjacent to, but mostly not within, the Eraring BESS North footprint. Where testing has occurred nearby, no soil contamination was found (aside from trace PFAS below criteria), but groundwater at several wells showed heavy metals (copper, zinc, lead, nickel) exceeding site assessment criteria.

6.7.2 Issues for consideration

Construction works have the potential to result in impacts to soil and contamination of the surrounding environment, including:

- Mobilisation of existing contaminants or acid sulfate soils if present
- Risks associated with an accidental fuel spill from equipment in the event of a vehicle or construction equipment incident.

All construction work areas would be isolated and secured from the public.

The final layout of the BESS compound is likely to comprise large areas of hardstand that will minimise the potential for any direct contact with subsurface soil during operations. No ongoing contamination risks to human health are likely to result from the Project. Operation of the Project is not expected to increase contamination risk across the site.

6.7.3 Assessment approach

As minimal soil sampling and no groundwater sampling have been undertaken within the Project site itself, Jacobs concluded that the available data are insufficient to adequately assess contamination risk associated with construction. Accordingly, a further scope of investigation has been recommended, comprising geotechnical investigation with the collection of three soil samples at each planned borehole locations. These samples would be submitted for laboratory analysis of heavy metals, hydrocarbons, pesticides, polychlorinated biphenyls (PCBs), per- and polyfluoroalkyl substances (PFAS), and asbestos. In addition, targeted acid sulfate soil screening would be conducted in the vicinity of observed seepage areas; and the installation of a minimum of three groundwater monitoring wells to assess groundwater levels and quality prior to any dewatering activities.

A comprehensive program of geotechnical and contamination testing has been planned, in line with the recommended scope of works, and the results will be included in the EIS submission.

Table 6.10 details the Project's proposed approach to the assessment of potential impacts to soils and contamination.

Table 6.10 Soils and contamination – assessment approach

Soils and contamination	
Proposed level of assessment	Standard
Relevant guidelines	The framework for the assessment should be based on relevant guidelines including: – Contaminated Land Guidelines: sampling Design part 1 – application (NSW EPA, 2022). – Contaminated Land Guidelines: Consultants Reporting on Contaminated Land (NSW EPA, 2020). – National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended by the National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1), National Environment Protection Council, May 2013. (NEPC, 2013). – Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme (3rd edition). (NSW EPA, 2017).
Proposed approach to assessment	Preparation of Preliminary Site Investigation (PSI). The PSI will be carried out including a review of available historical investigations for the site, intrusive soil investigation for identified contaminants of potential concern to evaluate the potential risk to human health and/or environment for the future development. This assessment will be supported by a geotechnical investigation and contamination investigation. Geotechnical assessment The detailed geotechnical investigation will provide an understanding of the strength, composition and depth of soil, fill and rock beneath the site. The program will comprise boreholes, test pits, groundwater monitoring wells, and in-situ testing of soil electrical and thermal properties. Selected boreholes will be converted into groundwater monitoring wells, allowing groundwater levels to be measured and monitored over a six-month period; this information will be used to inform dewatering and drainage design, and to assess whether groundwater levels or seasonal variation could affect construction. Contamination investigation A contamination assessment will be carried out concurrently with the geotechnical work, using the same borehole and test pit locations. Soil samples will be collected at regular depth intervals and tested by a NATA-accredited laboratory (the recognised Australian accreditation body for testing facilities) for a standard range of potential contaminants, including heavy metals, hydrocarbons, pesticides and asbestos. Field screening for asbestos-containing material and acid sulfate conditions will be carried out. Groundwater collected from the monitoring wells, together with a surface water sample and sediment samples from nearby drainage features, will also be tested for the same range of contaminants. Results will be assessed against the relevant national and NSW Environment Protection Authority guidelines for contaminated land and waste classification.

6.8 Aboriginal and non-Aboriginal heritage

6.8.1 Existing environment

6.8.1.1 Aboriginal Heritage

The Project site is located within the traditional lands of the Awabakal people, who maintain a cultural and spiritual connection to the region.

A search of the Aboriginal Heritage Information Management System (AHIMS) was undertaken on 29 July 2026. The search identified five previously recorded Aboriginal objects within an approximate buffer of 3 km around the outer edge of the Project site. No Aboriginal sites or Cultural Places are registered within or adjacent to the Project site.

Jacobs (2021) completed an Aboriginal Cultural Heritage Assessment for the Eraring BESS that covered a large portion of the Project site. Previous archaeological assessments within the area and surrounding region identified a concentration of Aboriginal sites along Lake Macquarie foreshore and freshwater tributaries. Consultation with Registered Aboriginal Parties (RAPs) in line with required guidelines and archaeological investigation was completed across the entire Eraring BESS project area. RAPs identified the significance of Lake Macquarie but stated that as the BESS project area is some distance from this area and has been subject to previous disturbances, the area was not considered to be of high cultural value (Jacobs 2021). No previously recorded sites existed within the BESS project area. No new Aboriginal sites or Potential Archaeological Deposits (PADs) were identified within the BESS project area. No further investigation was recommended.

More recently, Umwelt (2026) prepared an Aboriginal due diligence assessment report on behalf of Origin for geotechnical investigations for the northern part of the Project site. The assessment identified a low Aboriginal archaeological potential in this area. The landform was identified as being used for transition between other areas and contained high levels of disturbance. The disturbance was directly linked to the establishment of EPS in 1976 where any remaining landscape feature was removed to make way for its construction. The extent of disturbance meant that the likelihood of identifying potential archaeological deposits was low.

6.8.1.2 Non-Aboriginal Heritage

A search of available non-Aboriginal heritage databases identified that the Project is located within the EPS heritage item listed in the LEP (ID 93). The Great Northern Railway (ID 189) is located to the west of the site and is also listed on the Lake Macquarie LEP as a heritage item with local significance.

EPS Heritage Management Plan (Origin, 2023) identified nine historic sites primarily associated with mid-20th-century rural land use prior to development of the EPS. Of these, three items remain and are required to be retained and protected, and are located outside of the Project site:

- EE2 – Remains of a historical homestead/structure, including building foundations, plantings, roof material and domestic refuse.
- EE6 – Remnant fence line comprising two fence posts, likely representing a former property boundary.
- EE9 – An empty historic farm dam approximately 20 m in diameter, located within an erosion channel.

Historic photos from 1996 show the northern part of the site was used for a cricket pitch and supporting equipment. By 2024 the existing Eraring BESS was being constructed, and some parts of the Project site were covered by areas of hard stand, and the community plant nursery was established. The proposed Project includes use of a previous borrow pit and laydown area. These locations were highly disturbed during the construction works of the existing BESS.

The Jacobs (2021) Statement of Heritage Impact (SoHI) for the Eraring BESS project covered a large portion of the Project site. The results of the desktop assessment confirmed the presence of one locally listed heritage item (LEP item #93). The SoHI found that no demolition of the key heritage elements of the EPS itself were proposed and that the addition of the Eraring BESS would not impact on the technological or historical significance of the power station, and it would contribute to the continuing operation of the site for its significant historical use. As such, the Eraring BESS was assessed as having negligible adverse impact on the heritage significance of the EPS (LEP 93).

6.8.2 Issues for consideration

Construction

Construction would involve ground disturbance for the BESS compound, ancillary infrastructure, access tracks and drainage. Given the highly disturbed nature of the site and the absence of recorded Aboriginal or non-Aboriginal heritage items, the potential for impacts to cultural heritage is considered low. It is unlikely that previously unidentified Aboriginal objects or historical archaeological remains will be encountered during construction works.

Operation

No operational impacts to Aboriginal or non-Aboriginal heritage are anticipated for the project.

6.8.3 Assessment approach

As previously noted, high levels of disturbance in the project site there is a low risk of impacting Aboriginal objects during the construction of the Project.

The approach to assessment was discussed with Biraban LALC who acknowledge the considerable level of prior disturbance that has occurred at this site and agreed that a DDA is a suitable level of assessment.

A site inspection was undertaken by a GHD heritage specialist, accompanied by a representative of the Biraban LALC, on 21 August 2026. The inspection covered all landscape features within the Project site.

The walkover confirmed the highly disturbed nature of the site. The landscape has been rehabilitated and revegetated with grass and scattered Eucalyptus trees, and an unsealed track used to access the adjacent substation traverses the site. Vegetation did not materially impede ground surface visibility, and no remnant infrastructure associated with past land uses was observed. Remnants of an ephemeral tributary were noted heading west out of the project site.

No Aboriginal objects, sites or places, and no items of non-Aboriginal heritage, were identified during the inspection. The outcomes of the walkover support the finding that the Project site has low potential to contain intact Aboriginal or non-Aboriginal archaeological resources, and that no significant heritage constraints apply to the site. Consistent with the AHIMS results and the site's disturbance history, the Biraban LALC representatives indicated that they did not consider further assessment warranted above the CHDDA currently being prepared, given the extent of previous disturbance across the site.

There is considered little value in undertaking an Aboriginal Cultural Heritage Assessment for the proposed Project site.

Findings from the desktop review and findings from the site inspection did not identify any further non-Aboriginal items or features associated with the existing Eraring Power Station LEP item #93. The proposed Project works does not occur within an area where there are key heritage items listed on LEP item #93. There is negligible adverse impact on historical heritage of the EPS (LEP 93) from the Project site works. No further non-Aboriginal impact assessment is required in addition to the CHDDA for the proposed Project site, and no requirement for a SoHI.

Table 6.11 Heritage – assessment approach

Heritage	
Proposed level of assessment	Standard
Relevant guidelines	– Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECCW, 2010).
Proposed approach to assessment	Aboriginal heritage assessment In recognition of the high levels of previous disturbances within the Project site, a cultural heritage due diligence assessment (CHDDA) is being undertaken in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW, 2010). This will be supported by additional stakeholder engagement with the Biraban LALC. It will include: – Review the heritage database searches and AHIMS searches and undertake additional research into similar archaeological investigations. – A description of Aboriginal objects and declared Aboriginal places located within the area of the proposed activity, if any. – A description of the cultural heritage values, including the significance of the Aboriginal objects and declared Aboriginal places, that exist across the whole area that will be affected by the proposed activity and the significance of these values for the Aboriginal people who have a cultural association with the land. – A summary of the walkover of the Project site with the Biraban LALC carried out on 21 August 2026. – The views of those Aboriginal people regarding the likely impact of the proposed activity on their cultural heritage. – Actual or likely harm posed to the Aboriginal objects or declared Aboriginal places from the proposed activity, with reference to the cultural heritage values identified. – Any practical measures that may be taken to protect and conserve those Aboriginal objects or declared Aboriginal places; and any practical measures that may be taken to avoid or mitigate any actual or likely harm, alternatives to harm or, if this is not possible, to manage (minimise) harm. The findings from the CHDDA will be provided for comment to the Biraban LALC, prior to inclusion in the EIS. Consultation will also occur with NSW Development Coordination Authority Heritage Advisory early during the EIS preparation. Non-Aboriginal heritage assessment A non-Aboriginal Heritage Impact Assessment will be recorded in the CHDDA. This will determine the potential impacts of the proposed works on heritage items present and make recommendations concerning impact mitigation and management during the proposed works. Desktop research will include: – Review of all relevant local, state and Commonwealth databases and heritage inventories. – Review of the Lake Macquarie 2014 LEP to assess local significance. – Review of previously undertaken assessments and publications to establish the local and regional context and historical land use of the study area. – EPS Heritage Management Plan and related onsite heritage listing information. – Summary of the findings of the site visit conducted on 21 August 2026.

6.9 Water resources

6.9.1 Existing environment

Surface water

A number of drainage lines cross the site and generally drain towards a concrete stormwater channel that runs along the northern boundary of the site. Water leaving the site then travels in a south-westerly direction to Muddy Lake and then Lake Macquarie.

The drainage infrastructure within the Project site is operated under an established water management framework as part of the EPS operations. This includes a site-specific Water Management Plan and Environmental Protection Licence 1429, which outlines regulatory limits, discharge points, and water quality requirements associated with EPS operations.

Flooding

An investigation for the wider EPS site indicated that during major flood events (e.g. June 2007, April 2015) (JBS&G, 2023), high rainfall and storm surge conditions resulted in elevated lake and creek levels, causing inundation of low-lying areas, particularly along Dora Creek and parts of the Eraring Site access roads.

6.9.2 Issues for consideration

Key issues for consideration are outlined as follows.

- Runoff of water impacted by construction activities has the potential to impact downstream water quality through mobilisation of pollutants such as that associated with existing site contamination, or total suspended solids associated with general earthworks activities.
- Management of water for the borrow pit including erosion and sediment control measures.
- Potential impacts to levels, flows and water quality of:
 - Groundwater
 - Surface water hydrology
- Flooding.

6.9.3 Assessment approach

Table 6.12 details the Project's proposed approach to the assessment of potential impacts to water.

Table 6.12 Water – assessment approach

Water	
Proposed level of assessment	Detailed
Relevant guidelines	– ANZG 2018 / ANZECC 2000 Water Quality Guidelines. – Australian Rainfall and Runoff (Geoscience Australia, 2019). – Floodplain Development Manual (DIPNR, 2005). – Guidelines for Controlled Activities on Waterfront Land (NRAR, 2018). – Managing Urban Stormwater – Soils & Construction (Landcom, 2004). – NSW Aquifer Interference Policy. – Water Management Act 2000. – Site investigation for battery energy storage system – Flood study report (GHD, 2021). – Guide to Road Design Part 5 impact criteria (Austroads, 2023) – NSW Flood Risk Management Manual 2023.

Water	
Proposed approach to assessment	Water Impact Assessment A Water Impact Assessment will be prepared. This will include an assessment of surface water, groundwater, flooding, and water quality impacts. Desktop study: – Confirm the regulatory context of the proposed Project with respect to the water resources. – Establish the baseline surface and groundwater conditions based on available site information and publicly available data and data gained from the contamination and geotechnical assessment results. Impact assessment An impact assessment will be undertaken that considers: – Qualitative impact assessment waterways, drainage and riparian: review topography, catchments, drainage features, watercourse mapping. – Summary of the findings of a hydrology and flood assessment conducted for the development. – Groundwater: Summarise receptors, groundwater-dependent ecosystems, landholder bores. Characterise hydrogeological environment. Qualitative discussion of potential impacts per NSW Aquifer Interference Policy. – Summary of operational and construction water quality. Summary of construction water quality: Identify risks, develop a conceptual erosion and sediment control strategy per Landcom 2004. – Construction and operational water demands would be discussed Hydrology and flood assessment A Hydrology and flood assessment would be undertaken and comprise the following key activities: – A combined hydrologic/hydraulic TUFLOW model will be used, applying the rainfall-on-grid method, with rainfall and losses applied directly to the hydraulic model. Rainfall inputs, losses, storm duration and design events will follow Australian Rainfall and Runoff 2019 (v4.2), using Bureau of Meteorology 2016 IFD data, and will be assessed across the full range of AEP events (1-in-5 through to 1-in-200) plus the Probable Maximum Flood broader than the August 2025 Flood Impact and Risk Assessment. – Rainfall will also include a climate change uplift under Australian Rainfall and Runoff 2019 Book 1 Chapter 6, consistent with the August 2025 FIRA's adoption of the Year 2060 SSP2-4.5 scenario as the design rainfall (30-year design life). The downstream boundary will use the 2015 Dora Creek Flood Study (WMA Water) Muddy Lake flood elevations (2.4 m AHD for the 1% AEP, 2.0 m AHD for the 5% AEP). – The hydraulic model will use a quadtree grid refined near the Project footprint, consistent with the approach in the August 2025 Flood Impact and Risk Assessment, built from a site LiDAR or survey data and the Project civil concept design (earthworks and drainage). – Roughness values will be reassessed from current aerial imagery in accordance with Australian Rainfall and Runoff 2019 Book 6, using the same surface-based values adopted in the August 2025 Flood Impact and Risk Assessment, as a starting reference. Both existing and post-construction earthworks design conditions will be modelled, comparing flow rates at observation points to inform the drainage design and confirm it does not increase downstream flood risk. – The flood assessment will include pre-development and post-development flood modelling and would consider cumulative impacts.

6.10 Social and economic

6.10.1 Existing environment

The proposed Project is located within the Lake Macquarie LGA, which supports a diverse social and economic profile comprising established residential communities, industrial and energy related land uses, tourism and recreation associated with Lake Macquarie, and regional service centres such as Morisset.

Surrounding communities include the suburbs of Eraring, Dora Creek, Myuna Bay, Bonnells Bay, Wangi Wangi, Arcadia Vale, and Morisset, which are characterised by a mix of residential, rural residential, and foreshore oriented lifestyles. These suburbs make up the local social locality and the Lake Macquarie LGA for the regional social locality. Social infrastructure in the area includes schools, community facilities, recreational reserves, and transport networks that service both local residents and workers commuting to industrial and employment areas.

As a long established facility, the EPS and its supporting infrastructure forms part of the existing social context of the area, with community awareness of its operations and an existing relationship between the facility, local employment, and regional economic conditions.

6.10.2 Issues for consideration

The Project has the potential to result in temporary and longer term social and economic impacts at the local and regional level. Key issues for consideration include:

- Changes to direct and indirect employment: including the construction workforce requirements and potential flow on impacts to local businesses, contractors, and service providers.
- Transitional socio-economic and infrastructure demand: from the presence of a construction workforce, including increased demand for accommodation, services, and local infrastructure, and changes to traffic patterns that may affect community amenity during the works period.
- Longer term impacts and opportunities: associated with the Project.
- Potential impacts on community wellbeing: including perceptions of change, uncertainty, and the extent to which the Project aligns with broader regional planning objectives, workforce transition initiatives, and economic diversification strategies within the Lake Macquarie region.

6.10.3 Assessment approach

Table 6.13 details the Project's proposed approach to the assessment of potential impacts to the social and economic environment.

Table 6.13 Social and economic – assessment approach

Social and economic	
Proposed level of assessment	Standard
Relevant guidelines	– NSW Social Impact Assessment Guideline for State Significant Projects (DPHI, 2025) – Benefits-Sharing Guideline (DPHI, 2024)
Proposed approach to assessment	The social and economic impact assessment will comprise the following key tasks: Scoping of social and economic impacts The level of assessment for potential socio-economic impacts would be determined following a scoping exercise to identify potential impacts arising from the Project and associated communities. Potential social and economic impacts and benefits of the Project may include: – Amenity impacts for nearby communities during construction works (e.g. increased noise, vibration, dust). – Local employment and procurement opportunities. – Impacts due to non-resident workforce if relevant e.g. demand on accommodation, health and emergency services, social cohesion in nearby towns. – Potential impact on employment, workforce change and transition.

Social and economic	
	– Cumulative impacts due to other Projects in the area e.g. demand for skilled workforce and accommodation, and increased traffic. Desktop study and socio-economic baseline A socio-economic baseline would be prepared including community profile, lifestyle/values, land use, regional industries, social infrastructure, economic environment. This would identify key stakeholders for the Project such as: – Lake Macquarie City Council. – Residents of local settlements. – Groups who may experience direct Project impacts such as road users. – Depending on the construction workforce accommodation strategy, short term accommodation providers in nearby suburbs (e.g. Dora Creek, Awaba, Eraring, Myuna Bay). – Users of Community facilities and social infrastructure located on haulage/construction vehicle routes (if relevant). – The Business community including business groups (e.g. Business Hunter, Lake Macquarie Business, Dantia) and businesses who may experience direct impacts and benefits. Impact assessment Key tasks in the assessment would comprise: – Preparation of the socio-economic baseline – Findings from stakeholder consultation, and community concerns about construction works. – Identifying potential social and economic impacts and benefits of the Project. – Cumulative impacts due to other Projects in the area, e.g. demand for skilled workforce and accommodation, and increased traffic. – Review accommodation demands which may be generated by the Project – The assessment will identify potential socio-economic impacts and benefits and rank their significance based on the DPHI Social Impact Assessment Guideline criteria. – Mitigation strategies will be based on the significance of impacts identified. Practical impact mitigation strategies will be identified. This includes consideration of the application of the Benefits-Sharing Guideline (DPHI, 2024) or other more appropriate contributions mechanism as section 1.2 of the Benefits-Sharing Guideline (DPHI, 2024) indicates that it does not apply to BESS projects on non-rural zoned land regardless of being in or outside of a declared renewable energy zone.

6.11 Other topics

A number of additional, more minor topics would be discussed as chapters within the EIS. These are summarised in Table 6.14.

Table 6.14 Other topics

Aspect	Consideration / assessment approach
Air quality (Particulates)	The construction of the Project is not anticipated to have a significant impact on air quality given the distance to sensitive receptors and would mostly be related to dust during dry periods and vegetation removal. Key air quality matters for consideration are: – Short-term dust emissions: Earthworks and associated activities will generate short-term dust emissions that have the potential to affect nearby sensitive receptors if not adequately managed, particularly during dry or windy conditions. – Borrow pit and transport of material: establishment and use of borrow pit(s), and the transport of material to and from the site, may generate localised dust and vehicle-related emissions. These air quality impacts have the potential to affect nearby sensitive receptors if not appropriately managed, particularly along haul routes and during dry or windy conditions. A desktop study of the construction phase would be conducted with findings discussed qualitatively. The mitigation measures such as the requirement for a CEMP will be outlined to demonstrate how air quality impacts would be managed during the construction phase. Impacts to air quality during operation would be negligible. The Project would contribute to improved air quality in the long term by supporting renewable energy developments that reduce greenhouse gas emissions.

Aspect	Consideration / assessment approach
	Standard assessment: This study will be provided as a chapter in the EIS.
Waste management	Waste would be managed in accordance with the waste provisions contained within the Protection of the Environment Operations Act 1997 and, where reused off-site, would comply with relevant NSW EPA resource recovery exemptions issued pursuant to the Protection of the Environment Operations (Waste) Regulation 2014. A desktop assessment will be carried out to consider the NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (NSW EPA, 2014), the waste hierarchy and the existing waste management conditions within Environmental Protection Licence 1429. The majority of waste generated will be during the construction period and may include green waste from cleared vegetation and general waste from construction material and activities associated with workforce. Waste generated during operation of the Project would be minor and mostly associated with maintenance activities and equipment replacement as required in the long term. This would be managed in line with the existing Origin operational management plans and licence requirements. A standard desktop study waste management assessment will be carried out for the Project and will include details of: – Estimated quantity of key waste streams that may be generated – Identification of a management hierarchy to reduce the volume of spoil needing to be disposed – Assessment of the potential waste management approach and impacts – Summary of the approach to managing contaminated spoil should these be encountered – Identification of mitigation and management measures, including a waste management plan to be included within the CEMP. Standard assessment: This study will be provided as a chapter in the EIS.
Land use conflict risk assessment	The proposed Project will involve activities that are expected to alter existing ground levels and drainage patterns. The potential for conflicts would be identified and assessed in the EIS. Issues considered would include the following: – Amenity – Water – Traffic – Biosecurity – Chemical exposure – Property impacts – Bushfire – Social impacts. An assessment in accordance with the Land Use Conflict Risk Assessment Guide (NSW DPI 2011), would be carried out to identify and manage potential conflicts between the Project and surrounding land uses. Key steps would involve: – Step 1: Desktop study – Step 2: Evaluate the risk level of each activity – Step 3: Risk Reduction Management strategies. Standard assessment: This study will be provided as a chapter in the EIS.

6.12 Cumulative impacts

The EP&A Act plays a key role in the NSW Government's statutory framework for managing cumulative impacts across NSW. An assessment of cumulative impacts is a key component of an environmental impact assessment. The 'cumulative environmental effect with other existing or likely future activities' will be considered when assessing the likely impacts of the Project.

The consideration of cumulative impacts in this Scoping Report has been undertaken having regard to the Cumulative Impact Assessment Guidelines for State Significant Projects (DPHI, 2026). A scoping-level review would be carried out to:

- Identify other developments with the potential to interact with the Project
- Define the spatial and temporal scope of the cumulative impact assessment
- Identify which environmental, social and economic matters warrant cumulative assessment in the EIS and which do not

- Confirm the proposed approach to cumulative assessment within each technical assessment.

6.12.1 Spatial scope

A primary spatial scope of approximately 10 km from the Project site has been adopted. This reflects the extent within which construction traffic, amenity effects and localised environmental interactions are reasonably likely to combine with those of other developments.

A wider regional scope has been applied to workforce, accommodation and employment matters, reflecting the labour and accommodation market across the Lake Macquarie LGA and the broader Hunter region, and to the movement of oversize and overmass (OSOM) vehicles on the wider road network.

For matters that are inherently localised, including noise and vibration, hazard and risk, and biodiversity, the relevant scope is the EPS landholding and its immediate surrounds, as this is where the interactions of consequence occur.

6.12.2 Temporal scope

The temporal scope covers the Project's construction and commissioning period of approximately two to three years, together with its operational life. The defining temporal consideration for the Project is the planned closure of the EPS in April 2029, which means Project construction is likely to coincide with continued power station operation, and Project operation is likely to coincide with power station closure and subsequent decommissioning activity.

The existing Eraring BESS (SSD-15950052) is in commissioning, and construction activity associated with that project and any subsequent works may also overlap with the Project's construction period.

6.12.3 Developments considered

The renewable energy and storage projects identified within approximately 10 km of the Project site are listed in Table 1.1. Table 6.15 summarises the developments considered in this cumulative review, together with the potential for interaction with the Project.

Table 6.15 *Developments considered in the cumulative impact review*

Development	Relationship to the Project	Potential for cumulative interaction
Eraring Power Station	Adjoining, same landholding	High. Continued operation during Project construction, followed by closure in April 2029. Potential interactions across noise and vibration, traffic, air quality, hazard and risk, water management and social and economic matters. Carried forward for assessment in the EIS.
Eraring BESS (SSD-15950052), including Modifications 1 and 2	Adjoining and partly overlapping	High. The Project partly overlaps the approved project area and shares access, civil works and operational infrastructure. Potential interactions across noise and vibration, traffic, hazard and risk, biodiversity and visual amenity. Carried forward for assessment in the EIS.
Neighbouring Centennial Coal operations	Adjoining	Moderate. Forms part of the existing environment described in Chapter 1. Potential interactions limited to traffic on shared access routes, air quality and regional workforce demand. Carried forward for consideration in the relevant technical assessments.
Other renewable energy and storage projects within approximately 10 km	Refer to Table 1.3	Low to moderate. These developments are located at a distance from the Project site and are separated by intervening land uses and topography. Potential interactions are limited to regional matters, being construction workforce and accommodation demand, OSOM vehicle movements on the wider road network, and regional employment effects. Carried forward for consideration in the social and economic and traffic and transport assessments only.
Other State significant developments in the Lake Macquarie LGA and Central Coast LGA	Regional	Low. Considered for regional workforce, accommodation and supply chain effects only. To be confirmed by a further review of the NSW Major Projects portal prior to preparation of the EIS.

Development	Relationship to the Project	Potential for cumulative interaction
Hunter Transmission Project (HTP) (SSI-70610456)	Adjoining	Moderate. Consideration of cumulative amenity impacts from the installation of transmission infrastructure and connection to the Transgrid substation.

6.12.4 Potential cumulative impacts

The cumulative assessment for each matter will be undertaken within the relevant technical assessment rather than as a standalone study, consistent with the approach set out in the Cumulative Impact Assessment Guidelines for State Significant Projects (DPHI, 2026).

6.12.5 Proposed approach in the EIS

Cumulative impacts will be addressed within each technical assessment supporting the EIS, in accordance with the Cumulative Impact Assessment Guidelines for State Significant Projects (DPHI, 2026). Each assessment will:

- Confirm the developments relevant to that matter, having regard to Table 6.15 and to any further developments identified prior to preparation of the EIS
- Define the spatial and temporal scope applicable to that matter
- Assess the combined effect of the Project with those developments, rather than the effect of the Project in isolation
- Identify mitigation and management measures where the cumulative effect is greater than the effect of the Project alone

The developments listed in Table 6.16 will be reviewed and updated prior to preparation of the EIS to capture any further projects lodged, approved or commenced in the intervening period. The outcomes of the cumulative assessment will be consolidated into a dedicated cumulative impacts chapter of the EIS, drawing on the findings of each technical assessment.

Cumulative impacts were also raised by the community during consultation undertaken to date, specifically in relation to the combined effect of projects across the Eraring site (refer to Table 5.4). Engagement on this matter will continue through the established Eraring Community Forum and Community Consultative Committee during preparation of the EIS.

6.13 Issues requiring no further assessment

The following matters have been considered to warrant no further assessment in the EIS. A brief outline of the issue, potential impacts and justification for this outcome is provided in Table 6.16.

Table 6.16 No further assessment required

Existing environment	Justification
Greenhouse gas	
Under the <i>National Greenhouse Gas and Energy Reporting Act 2007</i> , constitutional corporations in Australia (including Origin) which exceed thresholds for greenhouse gas emissions or energy production or consumption are required to measure and report data to the Clean Energy Regulator on an annual basis. The National Greenhouse and Energy Reporting (Measurement) Determination 2008 identifies the methodologies to account for greenhouse gas from specific sources relevant to the BESS.	No further assessment. The operational emissions of the expanded BESS will be reported on as part of the existing Eraring BESS. This will be carried out annually through existing National Greenhouse and Energy Reporting requirements. Therefore, additional reporting for the Project is not included within the assessment scope.
Aviation and airspace	
The proposed Project is not located within protected or prescribed airport airspace.	No further assessment. Construction or operational works are unlikely to interfere with aviation navigation, radar, or flight paths.

Existing environment	Justification
Heritage – natural	
The Project site is highly disturbed and contains extensive fill materials. The water courses comprises constructed channels and drainage infrastructure.	Natural heritage assets within the Project site would relate to threatened species and other biodiversity matters that would be assessed under biodiversity (section 6.2). Therefore, these matters do not require separate assessment.

7. Conclusion

Origin is seeking approval for the Eraring BESS North Project, which is anticipated to be SSD under the *State Environmental Planning Policy (Planning Systems) 2021* due to its scale, estimated development cost and classification as electricity generating works. The Project will therefore be assessed under Part 4, Division 4.7 of the EP&A Act, requiring the preparation of an EIS in accordance with the SEARs. It is also anticipated that the Project will constitute a controlled action under the EPBC Act, with assessment proposed to occur through the bilateral assessment process between the NSW and Commonwealth Governments.

This Scoping Report provides an overview of the Project, its strategic context, and the environmental and social considerations relevant to the assessment process. It identifies the key matters for investigation and outlines the proposed technical studies required to support the EIS. The report has been prepared to inform the SEARs application and establish a robust framework for the environmental assessment of the Project. Following the issue of SEARs, Origin will undertake the detailed investigations and stakeholder engagement required to prepare and lodge the EIS in support of the Project's approval application.

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Appendix A

Scoping summary table

Table A.1 Scoping summary

Level of assessment	Matter	CIA	Engagement	Relevant government plans, policies and guidelines	Scoping report reference
Detailed	Biodiversity	Yes	Yes	– Biodiversity Assessment Method (BAM) (DPIE, 2020). – NSW survey guidelines for 'Species credit' threatened bats and their habitats. – NSW survey guidelines for threatened frogs. – NSW Koala – Biodiversity Assessment Method survey guide. – NSW threatened reptiles – Biodiversity Assessment Method survey guide – Matters of National Environmental Significance Significant Impact Guidelines 1.1 – Commonwealth Department of the Environment – Nationally Threatened Ecological Communities and Threatened Species Guidelines (various); threatened mammals; Survey guidelines for Australia's threatened birds; threatened bats; reptiles – NSW Groundwater Dependent Ecosystem Policy (NSW Department of Land and Water Conservation, 2002). – NSW Department of Primary Industries and Regional Development Part 7 test of significance, in accordance with Part 7A of Fisheries Management Act 1994).	Section 6.2
Standard	Noise	Yes	Yes	– Interim Construction Noise Guideline (Department of Environment, Climate Change and Water, 2009) – Assessing Vibration: A Technical Guideline (Department of Environment and Conservation, 2006) – Noise Policy for Industry (NPfI) (EPA, 2017) – Road Noise Policy (DECCW, 2011)	Section 6.3
Standard	Landscape and visual	Yes	Yes	– Environmental Impact Assessment Practice Note – Guideline for landscape character and visual impact assessment (TfNSW, 2023). – Guidance Note for Landscape and Visual Assessment (Australian Institute of Landscape Architects 2018) (AILA, 2018) – Guidelines for Landscape and Visual Impact Assessment, 3rd Edition (Landscape Institute of Environmental Management & Assessment, 2013) and Notes and Clarifications on aspects of the 3rd Edition (Landscape Institute of Environmental Management & Assessment, 2024).	Section 6.4
Standard	Traffic and transport	Yes	Yes	– Guide to Transport Impact Assessment (2024) – Guide to Traffic Management Part 3: Traffic Studies and Analysis Methods (Austroads, 2020). – Austroads Guide to Traffic Management (AGTM) Part 3: Traffic Studies and Analysis Methods (AGTM, 2020). – Austroads typical vehicle size classifications.	Section 6.5

Level of assessment	Matter	CIA	Engagement	Relevant government plans, policies and guidelines	Scoping report reference
Standard	Hazard and risk	Yes	Yes	– Hazardous Industry Planning Advisory Paper No 4 – Risk Criteria for Land Use Safety Planning (DPE, 2011a). – Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis (DPE, 2011b). – Multi-level Risk Assessment (DPE, 2011c). – Planning for Bush Fire Protection A guide for councils, planners, fire authorities and developers (NSW RFS, 2019).	Section 6.6
Standard	Soils and contamination	Yes	Yes	– Contaminated Land Guidelines: sampling Design part 1 – application (NSW EPA, 2022). – Contaminated Land Guidelines: Consultants Reporting on Contaminated Land (NSW EPA, 2020). – National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended by the National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1), National Environment Protection Council, May 2013. (NEPC, 2013). – Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme (3rd edition). (NSW EPA, 2017).	Section 6.7
Standard	Aboriginal heritage	Yes	Yes	– Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECCW, 2010).	Section 6.8
Standard	Historic heritage	Yes	Yes	– Guidelines for preparing a statement of heritage impact NSW (DPE, 2023c). – Assessing Heritage Significance (Heritage Council of NSW, 2025c). – Assessing significance for historical archaeological sites and relics (NSW Heritage Branch, 2009). – Fact Sheet Heritage guidance for applicants (NSW Department of Planning, Industry and Environment, 2020).	Section 6.8
Standard	Water	Yes	Yes	– ANZG 2018 / ANZECC 2000 Water Quality Guidelines. – Australian Rainfall and Runoff (Geoscience Australia, 2019). – Floodplain Development Manual (DIPNR, 2005). – Guidelines for Controlled Activities on Waterfront Land (NRAR, 2018). – Managing Urban Stormwater – Soils & Construction (Landcom, 2004). – NSW Aquifer Interference Policy. – <i>Water Management Act 2000</i>. – Site investigation for battery energy storage system – Flood study report (GHD, 2021). – Guide to Road Design Part 5 impact criteria (Austroads, 2023) – NSW Flood Risk Management Manual 2023.	Section 6.9
Standard	Social	Yes	Yes	– NSW Social Impact Assessment Guideline for State Significant Projects (DPHI, 2025)	Section 6.10

Level of assessment	Matter	CIA	Engagement	Relevant government plans, policies and guidelines	Scoping report reference
Standard	Air quality	Yes	Yes	– Qualitative discussion only.	Section 6.11
Standard	Waste management	Yes	Yes	– <i>Protection of the Environment Operations Act 1997</i> – Protection of the Environment Operations (Waste) Regulation 2014. – NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (NSW EPA, 2014).	Section 6.11
Standard	Land use	Yes	Yes	– Land Use Conflict Risk Assessment Guide (NSW DPI 2011)	Section 6.11.
No further assessment	Greenhouse Gases	N/A	N/A	-	Section 6.13
No further assessment	Aviation and airspace	N/A	N/A	-	Section 6.13
No further assessment	Heritage – natural	N/A	N/A	-	Section 6.13

