



Environmental Impact Statement

Kamay Energy Storage

171-189 Captain Cook Drive, Kurnell

Submitted to Department of Planning, Housing and Infrastructure
on behalf of Ausgrid

Prepared by Colliers Urban Planning

21 May 2026 | 2250674



'Gura Bulga'

Liz Belanjee Cameron

'Gura Bulga' – translates to Warm Green Country. Representing New South Wales.



'Dagura Buumarri'

Liz Belanjee Cameron

'Dagura Buumarri' – translates to Cold Brown Country. Representing Victoria.



'Gadalung Djarri'

Liz Belanjee Cameron

'Gadalung Djarri' – translates to Hot Red Country. Representing Queensland.

Colliers Urban Planning acknowledges the Traditional Custodians of Country throughout Australia and recognises their continuing connection to land, waters and culture.

We pay our respects to their Elders past and present.

In supporting the Uluru Statement from the Heart, we walk with Aboriginal and Torres Strait Islander people in a movement of the Australian people for a better future.

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Appendices

Appendix	Author	Date
A. SEARs Compliance Table	<i>Colliers Urban Planning</i>	20 April 2026
B. Site Plan	<i>Colliers Urban Planning</i>	20 April 2026
C. Statutory Compliance Table	<i>Colliers Urban Planning</i>	20 April 2026
D. Community Engagement Table	<i>Colliers Urban Planning</i>	20 April 2026
E. Consolidated Mitigation Measures	<i>Colliers Urban Planning</i>	20 April 2026
F. EDC Report	<i>Investstructure</i>	26 November 2025
G. Engagement Outcomes Report	<i>Ausgrid</i>	April 2026
H. Biodiversity Development Assessment Report	<i>Anderson EP</i>	20 April 2026
I. Preliminary Site Investigation	<i>Neo Consulting</i>	15 April 2026
J. Water Impact Assessment	<i>GHD</i>	23 March 2026
K. Aboriginal Cultural Heritage Assessment Report	<i>Apex Archaeology</i>	11 February 2026
L. Noise and Vibration Impact Assessment	<i>AECOM</i>	2 February 2026
M. Traffic Impact Assessment	<i>Amber</i>	18 December 2025
N. Preliminary Hazard Analysis	<i>Aurecon</i>	16 January 2026
O. Bushfire Risk Assessment	<i>Blackash</i>	13 March 2026
P. Landscape and Visual Impact Assessment	<i>Colliers Urban Planning</i>	17 December 2025
Q. Statement of Heritage Impact	<i>Apex Archaeology</i>	18 November 2025
R. Social and Economic Impact Assessment	<i>Colliers Urban Planning</i>	14 April 2026
S. Lighting Report	<i>Lighting, Art + Science</i>	27 March 2026

Glossary

Term/Acronym	Definition
ACHAR	Aboriginal Cultural Heritage Assessment Report
AEP	Annual Exceedance Probability
AHIMS	Aboriginal Heritage Information Management System
AIMD	Active Implanted Medical Device
Applicant	Ausgrid
ANO	Authorised Network Operator
APZ	Asset Protection Zone
ASS / ASSMP	Acid Sulfate Soils / Acid Sulfate Soil Management Plan
BC Act	<i>Biodiversity Conservation Act 2016</i> (NSW)
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
CEMP	Construction Environmental Management Plan
CoPC	Contaminants of Potential Concern
CSM	Conceptual Site Model
CTMP	Construction Traffic Management Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DP	Deposited Plan
DPHI	Department of Planning, Housing and Infrastructure (NSW)
DPIRD	Department of Primary Industries and Regional Development
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMF	Electromagnetic Field
ENM	Excavated Natural Material
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EP&A Regulation	Environmental Planning and Assessment Regulation 2021
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
EPA / NSW EPA	Environment Protection Authority
ESA	Economic Study Area
ESCP	Erosion and Sediment Control Plan
FRNSW	Fire and Rescue New South Wales
GLVIA	Guidelines for Landscape and Visual Impact Assessment
GSRP	Greater Sydney Region Plan
HIPAP	Hazardous Industry Planning Advisory Paper
HV	High Voltage
ICNIRP	International Commission on Non-Ionizing Radiation Protection
ISP	Integrated System Plan
KPPRA	Kurnell Precinct Progress Residents Association

Term/Acronym	Definition
LEP	Local Environmental Plan
LETS	Low Emissions Technology Statement
LGA	Local Government Area
LVIA	Landscape and Visual Impact Assessment
LUCRA	Land Use Conflict Risk Assessment
MW	Megawatt
MWh	Megawatt-hour
NCA	Noise Catchment Area
NCM	Nickel-Cobalt-Manganese (battery chemistry)
NEM	National Electricity Market
NVIA	Noise and Vibration Impact Assessment
OEMP	Operational Environmental Management Plan
OEM	Original Equipment Manufacturer
Operational Footprint	The area occupied by the Project's permanent operational infrastructure
OSOM	Oversize Overmass (vehicles)
PHA	Preliminary Hazard Assessment
Planning Systems SEPP	<i>State Environmental Planning Policy (Planning Systems) 2021</i>
Project	Construct, operate and maintain the Kamay BESS
Project Area	The development footprint i.e. the area that will be physically disturbed for construction and operation of the Project
PSI	Preliminary Site Investigation
R&H SEPP	<i>State Environmental Planning Policy (Resilience & Hazards) 2021</i>
site	The area of land owned by Ausgrid forming Lot 1, DP 869365. The address is 171-189 Captain Cook Drive, Kurnell, NSW 2231
SSD	State Significant Development
SSDA	State Significant Development Application
T&I SEPP	<i>State Environmental Planning Policy (Transport & Infrastructure) 2021</i>
TfNSW	Transport for NSW
TTA	Traffic and Transport Assessment
WAL	Water Access Licence

Signed Declaration

Project Details		
Project Name	Kamay Energy Storage	
Application Number	SSD-92494458	
Land to be Developed	171-189 Captain Cook Drive, Kurnell identified as Lot 1 DP 869365.	
Applicant Details		
Applicant Name	Ausgrid	
Applicant Address	24-27 Campbell Street, Haymarket	
Prepared By		
Name	Christopher Curtis	Jethro Yuen
Qualifications	Bachelor of Urban and Environmental Planning, RP+ (EIA)	Bachelor of City Planning (Hons), Bachelor of Laws, MPIA
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Declaration		
Name	Tim Ward	
Qualifications	Bachelor of Science, Masters of Environmental Management	
Registration Number	R80023	
Organisation Registered With	CENVP	
	The undersigned declares that this EIS: • has been prepared in accordance with the Environmental Planning and Assessment Regulation 2021; • contains all available information relevant to the environmental assessment of the development, activity or infrastructure to which the EIS relates; • does not contain information that is false or misleading; • addresses the Planning Secretary's environmental assessment requirements (SEARs) for the project; • identifies and addresses the relevant statutory requirements for the project, including any relevant matters for consideration in environmental planning instruments; • has been prepared having regard to the Department's <i>State Significant Development Guidelines - Preparing an Environmental Impact Statement</i>; • contains a simple and easy to understand summary of the project as a whole, having regard to the economic, environmental and social impacts of the project and the principles of ecologically sustainable development; • contains a consolidated description of the project in a single chapter of the EIS; • contains an accurate summary of the findings of any community engagement; and • contains an accurate summary of the detailed technical assessment of the impacts of the project as a whole.	
Signature		
Date	21 May 2026	

Summary

Overview

This Environmental Impact Statement (EIS) has been prepared on behalf of Ausgrid (the Applicant) in support of a State Significant Development Application (SSDA) identified as SSD-92494458. The EIS is submitted to the NSW Department of Planning, Housing and Infrastructure (DPHI) for a proposed Battery Energy Storage System (BESS) with a capacity of up to 150MW (the Project) within Ausgrid's existing Kurnell Zone Substation at 171-189 Captain Cook Drive, Kurnell (the site).

Development for the purposes of '*electricity generating works*' with an estimated development cost of more than \$30 million is identified in Schedule 1 of *State Environmental Planning Policy (Planning Systems) 2021* and is therefore declared to be State Significant Development (SSD) for the purposes of the *Environmental Planning & Assessment Act 1979* (EP&A Act).

A request for the issue of project Secretary's Environmental Assessment Requirements (SEARs) was sought on 28 August 2025. Accordingly, the SEARs for SSD-92494458 were issued on 26 September 2025.

This EIS is based on the site plans prepared by Colliers Urban Planning (**Appendix B**) and other supporting technical information appended to the report (see Table of Contents).

This EIS has been prepared in accordance with the requirements of Part 4 of the EP&A Act, clause 175 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation), and the issued SEARs. A SEARs Compliance Table provided at **Appendix A** that identifies where the SEARs have been addressed in this EIS. This EIS should be read in conjunction with the supporting information and plans appended to and accompanying this report. The EIS intends to inform the community and stakeholders about the Project, including its social, economic and environmental impacts, mitigation measures and benefits, as well as providing an environmental assessment of the Project.

The Project

This SSDA seeks development consent under 'Division 4.7 – Stage Significant Development' of the EP&A Act for the the Project. The Project will store electricity from the grid that can be released into the grid during peak periods of electricity demand and provide ancillary services to the NEM. The Project will be located within the existing fenced Kurnell Zone Substation property and will connect into the operating components of the substation via a proposed 33kV underground cable.

Specifically, this SSDA seeks approval for:

- Construction and operation of a BESS with up to a 150MW maximum power output capacity over a 2-hour duration (up to 300MWh)
- Connection of the BESS to the Kurnell Zone Substation infrastructure via a 33 kV underground cable
- Other ancillary infrastructure and services such as internal access roads, laydown areas, control and operational buildings

This EIS provides further description of the Project in **Section 3.0**. The Project will be undertaken in accordance with the site plans prepared by Colliers Urban Planning (**Appendix B**).

Engagement

Engagement with the community and stakeholders has been undertaken by Ausgrid. The engagement carried out included the following stakeholders:

- Adjoining landowners and surrounding community
- Sutherland Shire Council
- Government and agencies, including:
 - DPHI
 - Transport for NSW (TfNSW)
 - NSW Environment Protection Authority (NSW EPA)
 - Department of Climate Change, Energy, the Environment and Water (DCCEEW)
 - Ausgrid
 - Civil Aviation Safety Authority
 - DPIRD Fisheries
 - Emergency Services
- Local groups, including:
 - Kurnell Precinct Progress Association (KPPRA)
 - Gamay Rangers - Botany Bay
 - Kurnell Recreation Club
 - Kurnell Recreational Fishing Club
 - Kamay Botany Bay Environmental Education Centre

Feedback received from the local community and stakeholders has informed the Project and is discussed in **Section 5.0**.

Environmental Impacts and Mitigation Measures

This EIS provides an assessment of the environmental impacts of the Project in accordance with the issued SEARs (refer to **Appendix A**), and sets out the undertakings made by Ausgrid to manage and minimise potential impacts. A Preliminary Risk Assessment has been carried out as part of the Project and is included at **Section 6.1** of the EIS. Potential environmental impacts of the Project are set out as follows.

Aspect	Summary
Biodiversity	A Biodiversity Development Assessment Report (BDAR) (Appendix H) has been prepared to assess the impacts of the Project on biodiversity at and surrounding the site, including the nearby wetlands which are identified as Ramsar Wetlands. The Project is unlikely to have a significant impact on threatened species, ecological communities or their habitats. The Project has avoided direct impacts to native vegetation and threatened ecological communities, though it is noted that the BDAR includes an impact area of 0.01 hectares to enable the BAM-Calculator to generate a candidate species list and corresponding ecosystem credit requirement. Indirect impacts to Estuarine Swamp Oak Twig-rush Forest (PCT 4028) and Grey Mangrove-River Mangrove Forest (PCT 4091) have been identified, however it is concluded that these can be suitably managed through the mitigation measures provided. As a result, the BDAR has identified that one ecosystem credit is required.
Soils, Groundwater and Contamination	A Preliminary Site Investigation (Appendix I) has been undertaken to identify soil, groundwater and contamination risks associated with construction and operation of the Project. A Conceptual Site Model was developed to assess the potential risks associated with the contamination source and migration pathways for the site. The current risk at the site is considered low due to existing substation use, ground conditions and restricted site access limiting exposure to underlying soils which may contain imported fill materials. Minimal impact to groundwater is expected as the Project involves limited excavation. The assessment concludes that the Project is consistent with the land use and potential impacts can be appropriately managed through standard mitigation measures, and the Project is not expected to result in unacceptable impacts on soils or groundwater quality.

Aspect	Summary
Surface Water and Flooding	Surface water and flooding impacts have been assessed in a Water Impact Assessment (Appendix J) to understand potential changes to drainage patterns, flood behaviour and water quality. No significant change to the flood hazard is expected as flood impacts are suitably managed through the Project's design incorporating the placement of battery units on plinths and inclusion of bunding. Additionally, the Project is considered to improve surface water quality discharge with the inclusion of gross pollutant traps. The assessment concludes that the Project will not exacerbate flood risk and that surface water impacts can be effectively managed through the proposed drainage design and mitigation measures.
Aboriginal Heritage	An Aboriginal Cultural Heritage Assessment Report (ACHAR) (Appendix K) has been undertaken to identify and assess potential impacts on Aboriginal objects and places. Given the absence of remaining physical evidence on the site, it is assessed as having limited historic and social value, and having no remaining scientific, aesthetic or archaeological significance. The Project Area is considered to have low archaeological significance based on its limited research potential, representativeness, rarity and integrity. As such, the assessment concludes that the Project is unlikely to result in significant impacts on Aboriginal heritage, subject to the implementation of the recommended management and mitigation measures.
Noise and Vibration	A Noise and Vibration Impact Assessment (Appendix L) has been prepared to assess potential construction and operational impacts on surrounding sensitive receivers. Construction noise levels are expected to exceed the Noise Management Levels during standard hours for most receivers, however there are no receivers predicted to be highly affected and these works are temporary in nature. Operational noise impacts were modelled based on a mitigated scenario that incorporates 8m high noise walls and limiting the duty cycle of the battery units. Under the mitigated scenario, the predicted operational noise levels comply with the Project specific noise criteria at all receivers and during all time periods, except for minor exceedances of 1 dB(A) and 2 dB(A) which is considered negligible and barely perceptible to the human ear, particularly in the context of fluctuating ambient noise levels in the area. The assessment concludes that predicted noise and vibration impacts are acceptable and largely comply with relevant criteria through the implementation of recommended mitigation measures.
Traffic and Transport	A Traffic Impact Assessment has been prepared (Appendix M). The Project is expected to generate up to 134 light vehicle trips and 70 heavy vehicle trips per day during the peak construction period. Traffic is expected to be distributed evenly toward the site in the morning peak and away from the site during the afternoon peak. During the peak construction period, access to the site from Captain Cook Drive is expected to operate efficiently at a Level of Service A (free flow conditions) with little queuing or delays expected. During operation, traffic generation of up to four vehicle movements per week which would result in a negligible change to the traffic environment. The assessment concludes that the surrounding road network can accommodate the traffic generated by the Project, and that traffic and access impacts can be managed to an acceptable level with the proposed measures.
Hazards and Risks	A Preliminary Hazard Assessment (PHA) (Appendix N) has been prepared for the Project. The PHA identifies hazards associated with the Project which were assessed in accordance with a risk rating matrix. All identified hazards, including those with 'potential' significant off-site risks, can be effectively managed through appropriate technical and safety management safeguards, significantly reducing the residual risks and the likelihood of any potential significant off-site consequences. During a fire at the Project, any associated firefighting water will be contained on the site through a combination of bunding, storage tanks and cut off valves, and will therefore not pose offsite impacts.
Bushfire	A Bushfire Risk Assessment (Appendix O) has been undertaken for the Project. The Project is not located on bushfire prone land and is within an area of lowest risk within the Sutherland Bush Fire Risk Management Plan 2025. Whilst a formal Asset Protection Zone is not required, the assessment indicates that a minimum 10m setback is available which meets the minimum requirements of the Planning for Bushfire Protection (PBP). During operation, the risk of the BESS starting a bushfire will be significantly mitigated by design and operational procedures including the physical separation of the Project from native vegetation, classification of surrounding vegetation and management in accordance with the Fire Safety Study (FSS).
Estimated Development Cost	The Project has an estimated development cost of approximately \$165 million. Refer to the EDC Report (Appendix F).
Land Use Conflict	A Land Use Conflict Risk Assessment has been completed for the Project in accordance with the Department of Agriculture and Industries' <i>Land Use Conflict Risk Assessment Guidelines</i> at Section 15.0 of the EIS. This identifies potential conflicts which may arise as a result of the Project, and includes an evaluation based on pre-mitigation and post-mitigation. It is concluded that following the mitigation and design measures to be implemented, the residual risk rating of the Project is acceptable.

Aspect	Summary
Social and Economic	A Social and Economic Impact Assessment Report has been prepared for the Project (Appendix R). Social benefits of the Project include increased local employment, contribution to clean energy and grid reliability. Negative impacts have been identified including change to local character, community perceived fear of health and safety impacts and temporary construction impacts. The Project will result in a number of economic benefits including capital investment of which some will flow to the local economy and will result in nil to low adverse economic impacts. The assessment concludes that the Project is expected to not result in any significant adverse social or economic impacts, provided that the recommended mitigation measures are implemented.
Landscape and Visual Impact	A Landscape and Visual Impact Assessment (LVIA) (Appendix P) has been prepared to identify the Project's likely visual impacts and their acceptability. The Project will have minimal impact on the visual amenity of the site and surrounds, given the Project will be visually integrated with the existing Kurnell Zone Substation, and will not involve the removal of any vegetation. The surrounding dense vegetation obstructs views towards the site. In addition, the distance to some key viewpoints from the site also results in the visibility of the Project being imperceptible, reducing the overall impact on visual amenity. Overall, the Project will have a negligible impact to the existing views surrounding the site.
Non-Aboriginal Heritage	A Statement of Heritage Impact (SoHI) has been prepared (Appendix Q) to assess the heritage impact of the Project on the historic significance of the area. This site is not a heritage item and therefore the Project will not result in any impact to heritage fabric or any historical heritage values of the site. There are several heritage items within the vicinity of the site. In relation to the Towra Point Nature Reserve (which has state heritage significance), the Project will not encroach into the Reserve's curtilage, will not change the site's existing industrial character and is considered unlikely to impact further on the heritage values of the Reserve. In relation to the Australian Oil Refinery (which has local heritage significance), the Project will not affect its heritage significant as it will not be out of place with wider industrial landscape and will not affect its operation.
Waste	This EIS includes a qualitative assessment of construction and operational waste impacts. Construction and demolition waste is expected to be minimal and can be readily managed through standard mitigation measures including the appropriate separation, storage, classification and disposal of waste. Operational waste in the form of general waste and recycling is expected to be minimal as the Project has low staffing requirements, and will be managed using conventional waste collection, handling and disposal procedures in compliance with regulatory requirements.
Lighting	A Lighting Report (Appendix S) has been prepared to assess the obtrusive lighting impacts of the Project, specifically to inform indirect lighting impacts to fauna in the surrounding wetlands. The Lighting Report concludes that the lighting design of the Project is capable of achieving compliance with the relevant obtrusive lighting criteria while meeting the operational lighting requirements of the Project. Cumulative light spill levels beyond the site boundary, accounting for existing lighting at the Kurnell Zone Substation, will be limited to a marginal increase relative to the existing condition. The proposed construction noise walls will assist in mitigating light spill. In the context of the site's proximity to the Towra Point Nature Reserve, the overall outcome is considered acceptable, as the design minimises spill light and aligns with the intent of AS/NZS 4282:2023.

A complete assessment of each issue identified within the issued SEARs is provided in Section 6.0. A consolidation of mitigation measures proposed is provided at **Appendix E**.

Conclusion and Justification

Having regard to environmental, economic, and social considerations, the carrying out of the proposal is justified for the following reasons:

- The Project is permissible with consent and meets the relevant statutory requirements of the relevant environmental planning instruments, including the Sutherland LEP 2015.
- The Project will not result in adverse environmental impacts, with appropriate mitigation measures that will minimise any potential impact.
- The Project will support a more reliable electricity network and the future transition from non-renewable to renewable energy sources through the development of a BESS which will store electricity off-grid.
- The Project utilises a currently underutilised site which has been considered the most suitable site for the Project.
- The Project is suitable for the site and in the public interest.

1.0 Introduction

This Environmental Impact Statement (EIS) has been prepared by Colliers Urban Planning on behalf of Ausgrid (the Applicant) in support of a State Significant Development Application (SSDA). The EIS is submitted to the NSW Department of Planning, Housing and Infrastructure (DPHI) for a proposed Battery Energy Storage System (BESS) with a capacity of up to 150MW (the Project) within Ausgrid's existing Kurnell Zone Substation at 171-189 Captain Cook Drive, Kurnell (the site).

Development for the purposes of 'electricity generating works' with an estimated development cost of more than \$30 million is identified in Schedule 1 of *State Environmental Planning Policy (Planning Systems) 2021* and is therefore declared to be State Significant Development (SSD) for the purposes of the *Environmental Planning & Assessment Act 1979* (EP&A Act).

A request for the issue of project Secretary's Environmental Assessment Requirements (SEARs) was sought on 28 August 2025. Accordingly, the SEARs for SSD-92494458 were issued on 26 September 2025.

This EIS is based on the site plans prepared by Colliers Urban Planning (**Appendix B**) and other supporting technical information appended to the report (see Table of Contents).

This EIS has been prepared in accordance with the requirements of Part 4 of the EP&A Act, clause 175 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation), and the issued SEARs. A SEARs Compliance Table provided at **Appendix A** identifies where the SEARs have been addressed in this EIS. This EIS should be read in conjunction with the supporting information and plans appended to and accompanying this report. The EIS intends to inform the community and stakeholders about the Project, including its social, economic and environmental impacts, mitigation measures and benefits, as well as providing an environmental assessment of the Project.

1.1 The Applicant

The Applicant's details are presented in **Table 1** below.

Table 1 Applicants Details

Applicant	Ausgrid
Address	24-28 Campbell Street, Sydney NSW 2000
ABN	78 508 211 731

1.2 Overview of Project

This SSDA seeks development consent under 'Division 4.7 – Stage Significant Development' of the EP&A Act for the development of a BESS with up to 150MW maximum power output capacity with 2-hour duration (300MWh), referred to as the Project. The Project will store electricity from the grid that can be released back into the grid during peak periods of electricity demand and provide ancillary services to the NEM. The Project will be located within the existing fenced Kurnell Zone Substation property and will connect into the operating components of the substation via a proposed 33kV underground cable.

Specifically, this SSDA seeks approval for:

- Construction and operation of a BESS with up to a 150MW maximum power output capacity over a 2-hour duration (up to 300MWh)
- Connection of the BESS to the Kurnell Zone Substation infrastructure via a 33 kV underground cable
- Other ancillary infrastructure and services such as internal access roads, laydown areas, control and operational buildings

This EIS provides further description of the Project in **Section 3.0**. The Project will be undertaken in accordance with the site plans prepared by Colliers Urban Planning (**Appendix B**).

1.3 Objectives of the Project

The Project seeks to develop capacity for energy storage at Kurnell through the development of a BESS. The objectives of the Project are to:

- Ensure the provision of battery storage infrastructure at the site to contribute to broader electricity network reliability
- Provide firming capability to support increasing levels of renewable energy generation
- Provide electricity to the National Energy Market during peak periods and store excess electricity during periods of low demand
- Provide system services to help correct and/or stabilise the wider transmission network.

1.4 Background

Ausgrid is proposing to install a BESS on several of its existing zone substation sites in order to support the National Electricity Market transition from fossil fuel-based electricity baseload to a grid based primarily on renewable energy.

Kamay Energy Storage will store electricity from the grid, release electricity during periods of high demand and provide other ancillary services to the NEM. It will enhance grid flexibility and optimise the efficiency of the existing electrical network. By responding to pricing signals, the system will charge during low-price periods and discharge during peak demand, thereby contributing to regulating energy availability. This will address challenges with power intermittency that can otherwise occur on an electricity network dominated by renewable energy. The capacity to store excess energy during low demand and supply additional energy during peak demand will improve grid efficiency, support more stable generation, and provide consumers with a more reliable and consistent energy supply. It therefore will contribute to further integration of low-cost solar and wind generation in the grid and help reduce pressure on electricity prices by meeting peaks in consumer demands.

1.5 Related Development

Ausgrid will continue to operate the Kurnell Zone Substation. As shown on the existing site plan (see **Appendix B**), Ausgrid is separately augmenting the electricity transmission infrastructure on the site including:

- Undergrounding two 132kV above ground transmission towers and associated cables within the site
- Installing an additional high voltage transformer.

In accordance with Ausgrid's role as a public authority for the purposes of electricity transmission and distribution under Chapter 2 Division 5 of *State Environmental Planning Policy (Transport and Infrastructure) 2021*, these augmentation works will be separately assessed and determined by Ausgrid as development without consent under Part 5 of the EP&A Act.

To support new and changing customer connections associated with the renewable energy transition, Ausgrid is undertaking separate high voltage (HV) connection works at the Kurnell Zone Substation. These works include the installation of new HV infrastructure, similar to the augmentation approach being applied across Ausgrid's grid-scale BESS program. The works are being assessed and determined by Ausgrid under Part 5 of the EP&A Act, consistent with its role as an Authorised Network Operator (ANO) and prescribed public authority for development associated with the electricity transmission and distribution network.

These works are separate to the SSD assessment for this Project but are required to enable future customer connections, including the Project.

The area subject to the HV connection infrastructure works is shown in yellow in **Figure 3** and **Figure 20**.

1.6 Restrictions or Covenants

The site is subject to one easement for water supply purposes 6m wide across the northeastern corner of the site. The Project will not affect this easement. There are also a range of easements surrounding the site in favour of Ausgrid for the purpose of electricity transmission. The Project will not impact on any of these electricity transmission easements.

2.0 Strategic Context

This section identifies key strategic matters relevant to the assessment of the Project, including the site's features, context, strategic context and other development in the surrounding area. This section also provides an analysis of feasible alternatives that were considered in light of the Project's objectives.

2.1 Site Location and Context

The site is located at 171-189 Captain Cook Drive, Kurnell and is located within the Sutherland Shire Local Government Area (LGA).

Major transport routes surrounding the site include Captain Cook Drive which the site fronts onto, Taren Point Road located approximately 10km west of the site and Princes Highway A1 located approximately 13km west of the site.

There are coastal wetlands within Quibray Bay, which is part of Botany Bay, immediately to the west of the site, including the Towra Point Nature Reserve. The eastern part of Kurnell Peninsula comprises the Kamay Botany Bay National Park, which includes the significant historical landmark of Captain Cook's landing place.

Kurnell is generally comprised of industrial uses south of Captain Cook Drive, including the Ampol fuel storage depot and Sydney Desalination Plant, and residential receivers north along Captain Cook Drive. The site is approximately 130m south of the closest residential receivers located within the Kurnell residential village.

The site is underneath the flight path for Sydney Kingsford Smith Airport.

A site context map is provided in **Figure 1** below.

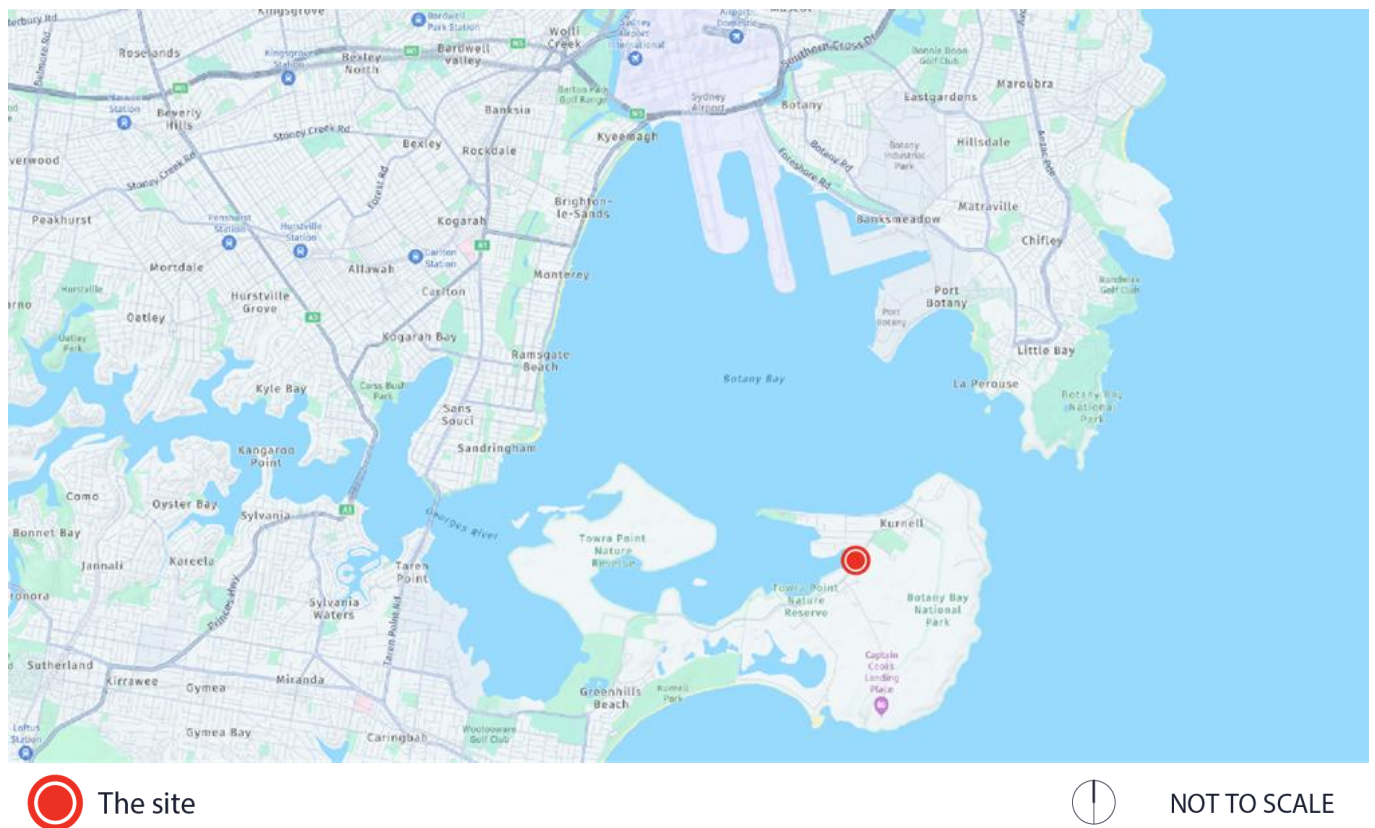


Figure 1 Site Context Map

Source: Nearmaps, Colliers Urban Planning

2.2 Key Features of Site and Surrounds

2.2.1 Site Description

The site is irregular in shape and comprises one allotment legally identified as Lot 1, DP 869365, with a site area of approximately 2.04ha. The site is bounded by Captain Cook Drive to the east and wetland vegetation to all other boundaries. The site is currently accessed via two driveways access points along Captain Cook Drive.

An aerial map of the site is provided in **Figure 2** below.



 The site



NOT TO SCALE

Figure 2 Site Aerial Map

Source: Nearmaps, edited by Colliers Urban Planning

2.2.2 Existing Development

Development on the site consists of the existing Kurnell Zone Substation. The site is largely paved with hardstand concrete or gravel and contains limited vegetation. Specifically, the site contains the following:

- A substation building at the north-eastern corner that consists of an active 132kV switch room, control room and 11kV switch room
- Two high voltage transformers along the northern boundary, and one vacant transformer bay around and between which there are concrete fire walls approximately 6m in height
- Six reactors
- An unused area within the centre of the site that contains former substation infrastructure
- Vacant area long the south-eastern boundary that is currently used as pole storage
- Perimeter fencing and gates
- Two driveways from Captain Cook Drive

This SSDA assumes that the electrical infrastructure works outlined in **Section 1.4.1** has been undertaken, with its completed form taken to be the existing development. This is reflected in the existing site plan prepared by Collier Urban

Planning (**Appendix B**) and excerpt provided at **Figure 3**. It is highlighted that the fenced area of the substation sits inside the site boundary.

Photographs of development at the site are provided from **Figure 4** to **Figure 11**.

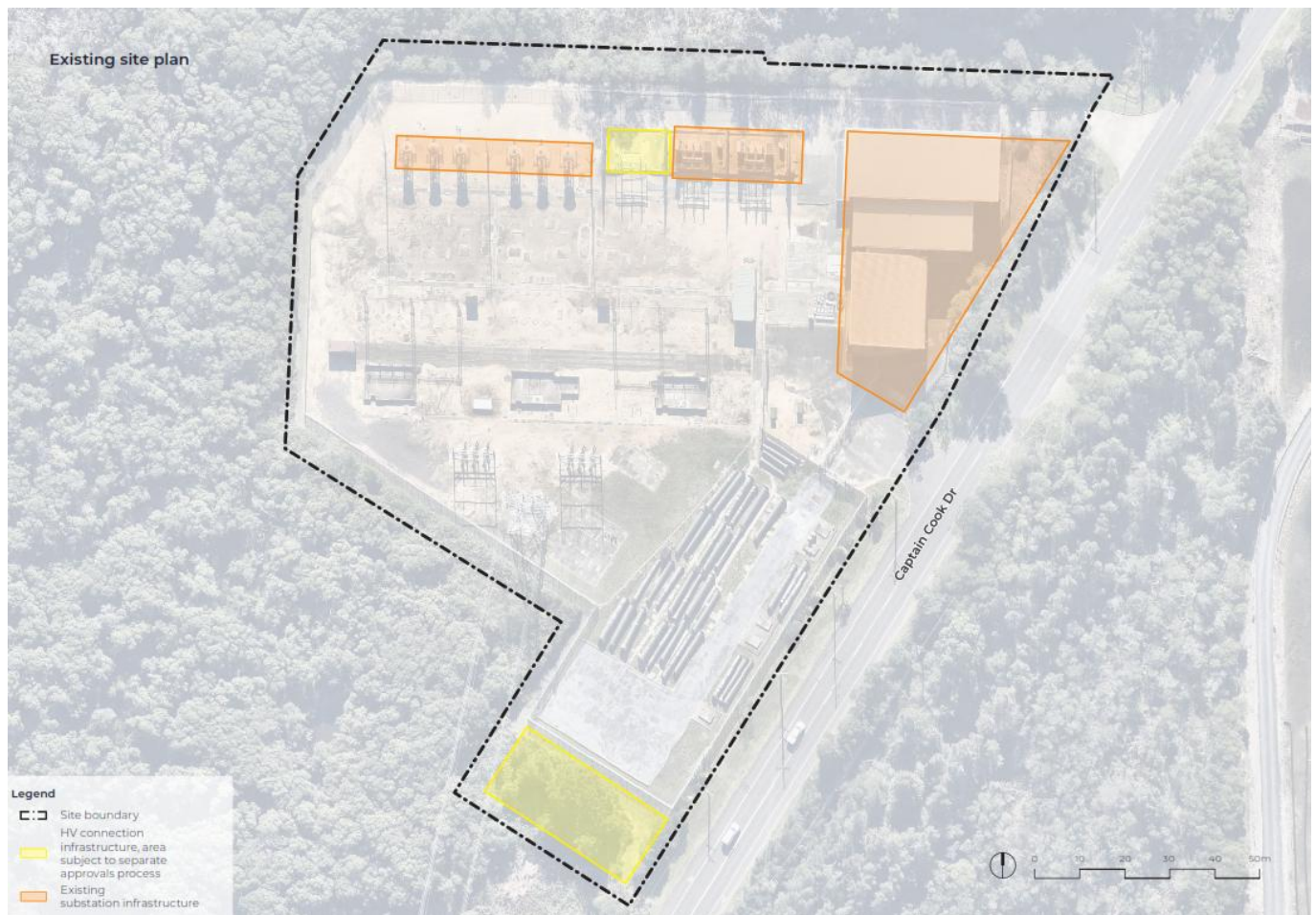


Figure 3 Existing Site Plan

Source: Ausgrid



Figure 4 Vacant pole storage area in the south-eastern portion of the site looking north-west



Figure 5 Vacant pole storage area in the south-eastern portion of the site looking south-east

Source: Colliers Urban Planning



Figure 6 *Vacant area within the site*



Figure 7 *Vacant area within the site*



Figure 8 *Existing transformer and vacant transformer bay*



Figure 9 *Existing reactors*



Figure 10 *Substation building and northern driveway to Captain Cook Drive*

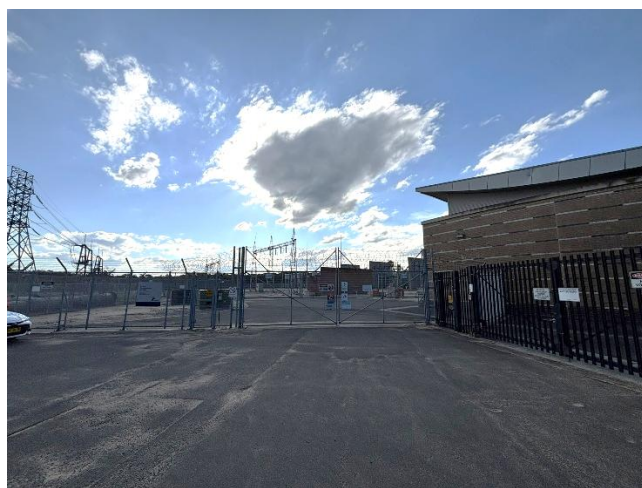


Figure 11 *Substation building and southern driveway from Captain Cook Drive*

Source: Colliers Urban Planning

2.2.3 Surrounding Development

The area surrounding the site is characterised by a mix of residential, industrial and environmental land uses. Surrounding development specifically comprises of the following:

- **North:** Immediately north of the site consists of land zoned W1 Natural Waterways, which consists of Towra Point Nature Reserve. Further north is bushland which is zoned C2 Environmental Conservation as well as low density residential development on land zoned C4 Environmental Living comprising Kurnell residential village. The nearest sensitive receivers are located in this low-density residential area, which is approximately 130m north of the site and separated from the site by the Towra Point Nature Reserve (see **Figure 16**). North of the residential development is Botany Bay.
- **East:** The site is bounded to the east by Captain Cook Drive and the former Kurnell Ampol Terminal further east zoned E5 Heavy Industrial.
- **South:** South of the site is the Sydney Desalination plant and land zoned E5 Heavy Industrial including a Removals and Storage business and a range of commercial and industrial developments. Bushland identified as C1 National Parks and Nature Reserves is located further south along Captain Cook Drive.
- **West:** Consists of existing wetlands identified as W1 Natural Waterways, including Quibray Bay and the Towra Bay Nature Reserve – a wetland of international importance under the Ramsar Convention on Wetlands.

Photographs of surrounding development are provided at **Figure 12** to **Figure 15** below.



Figure 12 Wetlands to the west



Figure 13 Wetlands and the Towra Point Nature Reserve to the north



Figure 14 Ampol site to the east

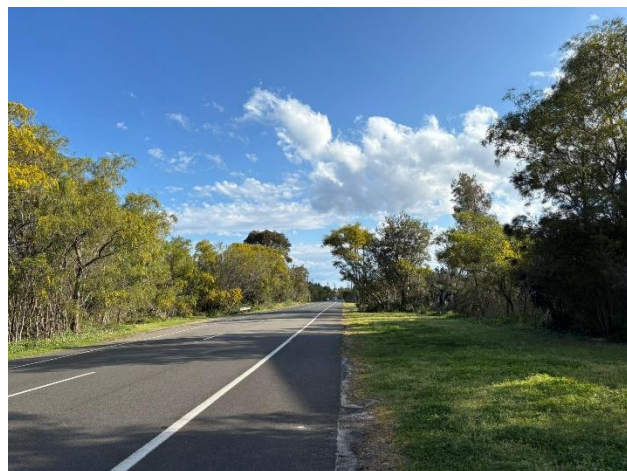


Figure 15 Captain Cook Drive looking south

Source: Colliers Urban Planning

2.2.4 Sensitive Receivers

Figure 16 illustrates the surrounding land uses and identifies the nearest sensitive receiver.



Figure 16 Sensitive Receivers Surrounding the Site

Source: Colliers Urban Planning

2.2.5 Surrounding Environmental Constraints

The site is subject to a number of surrounding environmental constraints:

- It is located near the following heritage items:
 - Towra Point Nature Reserve and Quibray Bay (Item No. A2528/2509), identified as having state heritage significance
 - Australian Oil Refinery (Item No. A2524), identified as having local heritage significance
- It is located adjacent to land identified as coastal wetlands under *State Environmental Planning Policy (Resilience and Hazards) 2021* (the R&H SEPP)
- It is located adjacent to land identified within the Biodiversity Values Map of the *Biodiversity Conservation Regulation 2017*

The majority of the site is located within a proximity area for coastal wetlands as identified in the R&H SEPP. A fringe portion of coastal wetland area extends into the site boundary, but does not extend into the Project Area. The environmental constraints are shown at **Figure 17** below.

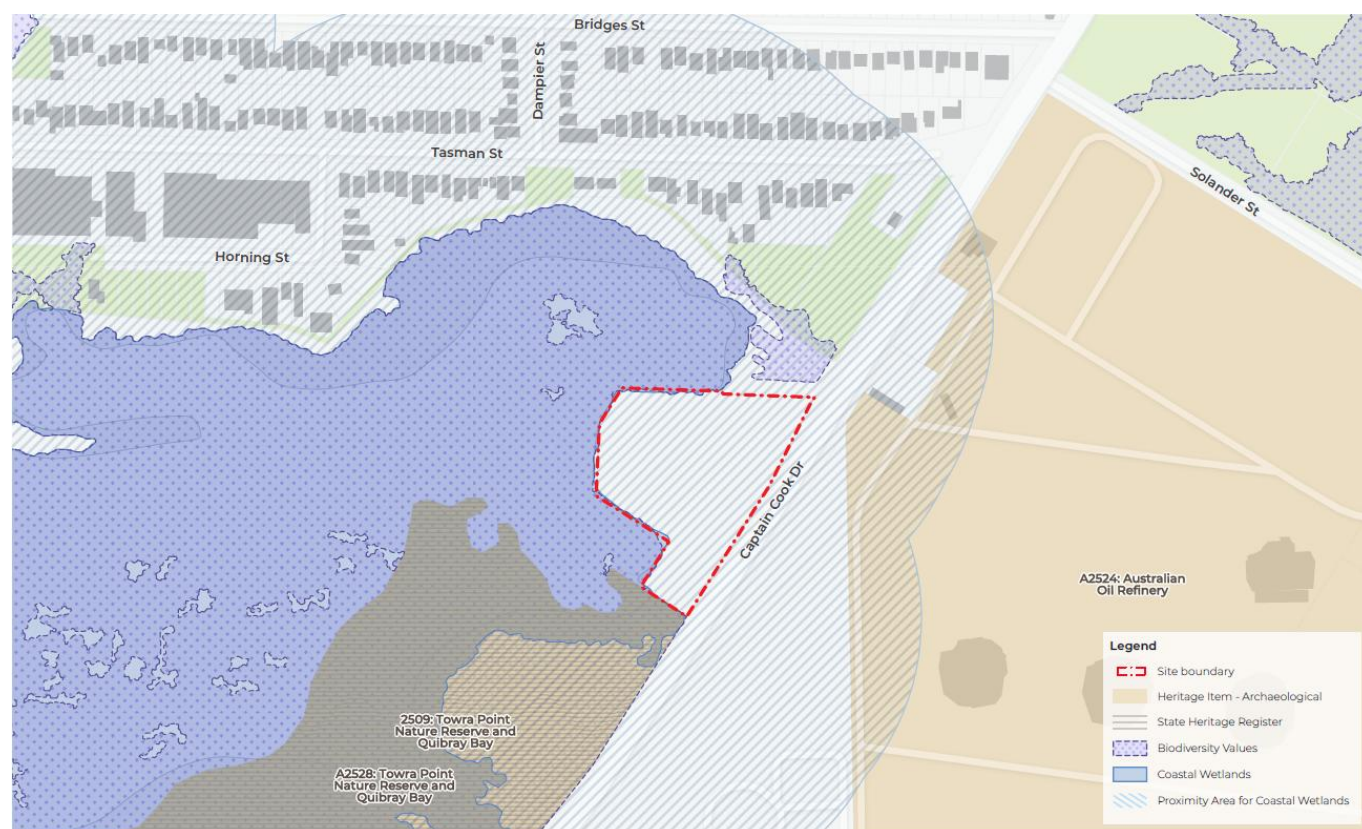


Figure 17 Surrounding Environmental Constraints Map

Source: Colliers Urban Planning

2.3 Strategic Planning Context

The Project is consistent with the relevant Government plans, policies and guidelines applying to the site as outlined in **Table 2** below.

Table 2 *Summary of Strategic Context*

Strategic Plan	Strategic Context
<i>Australia's Long Term Emissions Reduction Plan</i>	Australia's whole-of-economy Long-Term Emissions Reduction Plan is focused on technology and achievement of net zero emissions in Australia by 2050 (DCCEEW, 2022a). The Project will contribute to deployment of BESS at scale, to keep energy prices down with affordable and reliable power, which is one of its key objectives. The plan outlines how government will: • Drive down the cost of low emissions technologies (including battery storage). Deploy these technologies at scale • Help regional industries and communities seize economic opportunities in new and traditional markets • Work with other countries on the technologies needed to decarbonise the world's economy The current Low Emissions Technology Statements (LETS) (2021) which is a requirement of the Technology Investment Roadmap, includes energy storage as an existing priority technology for government investment. The Project will provide a source of reliable, dispatchable electricity, and therefore is consistent with the principles of the LETS to facilitate further integration of low-cost solar and wind electricity in the grid through broad deployment of BESS, and to reduce pressure on electricity prices by meeting peaks in consumer demands.
<i>NSW Electricity Strategy</i>	The NSW Electricity Strategy is the NSW Government's plan for a reliable, affordable, and sustainable electricity future. The strategy outlines three approaches for the NSW government to meet these objectives: • Support the market to deliver reliable electricity at the lowest price, while protecting the environment • Set an Energy Security Target to ensure that the State has sufficient generation capacity to cope with unexpected generator outages during periods of peak demand, such as during heat waves • Ensure the State has sufficient powers to deal with an electricity emergency if one arises The strategy states that a mix of renewables, gas and energy storage facilities is the cheapest and most efficient pathway to transition away from coal-fired power. This Project therefore supports this objective by contributing towards a reliable grid-scale energy storage system and facilitating affordable electricity in the future.
<i>Integrated System Plan</i>	The Integrated System Plan (ISP) is a whole-of-system plan that provides a coordinated generation and transmission investment plan to transition the NEM over the next 30 years. The Australian Energy Market Operator (AEMO) updates the ISP every two years, and the most recent ISP was published in June 2024. The 'Step Change' scenario in the 2024 ISP is the most likely scenario. This scenario would require the NEM to cater for significant investment in generation capacity, storage, firming generation and transmission augmentation as coal generation withdraws through to 2050. It predicts that 49 gigawatt (GW) / 646 GWh of new battery and hydro storage (both distributed and utility scale), would be required to replace the generation and firming capacity of the 21 GW of coal capacity expected to retire by 2034-35. The Project supports the objectives of this plan through contributing to increased capacity for electricity storage within the electricity network as coal generation withdraws and renewable energy generation increases.
<i>NSW Electricity Infrastructure Roadmap</i>	The NSW Electricity Strategy (DPIE, 2019) is to be implemented through the NSW Electricity Infrastructure Roadmap (DPIE, 2020). The Project is in keeping with its vision for a modern electricity system in NSW and its five pillars as: • It represents a private regional investment • Delivers energy storage • It is appropriately zoned and uses existing transmission infrastructure • Provides security to the NEM through battery capacity that can be rapidly deployed • It provides cost effective and reliable electricity with negligible additional emissions Moreover, this Project contributes to Ausgrid's ambition to be the first energy distribution organisation to achieve net-zero emissions by 2045 while still responding to the requirements of consumers in the market in relation to reliable and affordable electricity.

Strategic Plan	Strategic Context
<i>NSW Renewable Energy Planning Framework</i>	This EIS responds to the NSW Government's Renewable Energy Planning Framework to help achieve the transition to renewable energy. The framework provides a suite of policies that guide the planning and assessment process for renewable energy development and infrastructure with a view to enabling faster and more consistent planning decisions as well as providing communities more transparency on how these projects are assessed. Under the Framework, a 'large-scale renewable energy project' includes a development for a battery energy storage system that comprises State significant development. As such, this Project would be a large-scale renewable energy project and must be assessed in accordance with the requirements of the Framework. The two relevant parts of the Framework for this Project and its assessment are: • The <i>Benefit Sharing Guidelines</i> sets out principles to ensure large-scale renewable energy projects deliver positive, tangible and long-term socio-economic benefits for local communities. These Guidelines do not apply to BESS on non-rural-zoned land. Notwithstanding, Ausgrid is considering benefit sharing as part of a broader program-wide strategy. Refer to Section 5.2 for further detail on engagement with Council regarding a VPA and benefit sharing. • The <i>Large-Scale Solar Energy Guideline</i> and associated Technical Supplement - Landscape and Visual Impact Assessment. Whilst this Guideline does not strictly apply to BESS projects, it provides a suitable and robust methodology for the assessment of visual impacts associated with BESS projects. A detailed and robust Landscape and Visual Impact Assessment has been prepared and accompanies this EIS at Appendix P.
<i>NSW State Infrastructure Strategy 2022-2042</i>	The NSW State Infrastructure Strategy (SIS) 2022-2042 (Infrastructure NSW, 2022) sets out the government's priorities for the next 20 years and highlights that ongoing investment is required to keep pace with population growth, ensure competitiveness of NSW industry and meet Governments social and economic goals. This Project will provide a grid-scale BESS which will efficiently and effectively meet the objectives and strategic direction of the SIS to grow the reliability and resilience of NSW's infrastructure, achieve an orderly and efficient transition to Net Zero emissions, protect the natural environment, and ensure coordinated infrastructure and land use planning.
<i>Greater Sydney Region Plan – A Metropolis of Three Cities</i>	The Greater Sydney Region Plan – A Metropolis of Three Cities (Greater Sydney Commission, 2018) (GSRP) aims to improve the connectedness of residents to the necessary services and infrastructure required for liveable communities and healthy lives. This Project is specifically consistent with objective 33 of the GSRP to achieve “A low-carbon city (that) contributes to net zero emissions by 2050 and mitigates climate change”. The Project will provide the necessary firming and storage required to allow NSW to transition away from coal-fired power and support renewable energy growth to reduce climate change impacts without affecting energy security. As such, this Project will contribute towards Greater Sydney's liveability, productivity and sustainability as it grows.
<i>Sutherland Shire Local Strategic Planning Statement</i>	The Sutherland Shire Local Strategic Planning Statement (LSPS) expresses the vision and planning principles to guide land use decisions in the Sutherland Shire for the next 20 years. This Project is consistent with Planning Priority 22 – Efficiency and Innovation: “Explore new approaches to improve energy, water and waste efficiencies to improve the resilience of Sutherland Shire”, as the Project involves the uptake of new grid-scale battery technology to store the renewable electricity generated in the Sutherland Shire. The LSPS also identifies that the Kurnell industrial area provides for special industries and population-serving support industries, and confirms that these industrial and urban service lands will be retained to support employment growth and managed to prevent land use conflicts that preclude industrial or urban service uses. This Project is consistent with the strategic land use outcome for Kurnell and will not preclude industrial or urban service uses elsewhere in the industrial precinct. The LSPS also identifies the Kurnell Peninsula is affected by a range of natural hazards, including bushfire, flooding and coastal risks, as well as the ongoing safety risks associated with the Kurnell Ampol Terminal. The LSPS confirms that these risks will continue to be managed through the planning framework, and that residential density in Kurnell will continue to be limited. Natural hazards and land use safety risks have been assessed for the Project in this EIS.
<i>Sutherland Shire Council – Environment and Sustainability Strategy</i>	This strategy sets out the Sutherland Shire's approach for a sustainable future. It emphasises energy efficient design and sustainable building techniques, which includes a focus on installing solar energy on council buildings to generate electricity for sale back to the grid. The Project will support this action by providing a battery storage facility that can store this energy in the grid once produced, such that the electricity generated is not wasted and unused in the grid.
<i>Climate Strategy 2050 – Thrive. Design. Lead.</i>	This strategy outlines how Sutherland Shire Council aims to achieve net zero emission by 2050. It notes that adoption of battery storage is a key step in reducing reliance on coal and fossil gas, which this Project imbues. Sutherland Shire Council is committed to partnering with government to deliver grid-scale batteries. This Project is also consistent with priority objective 1.3 for Council to “Investigate and where appropriate, support large-scale battery storage options to stabilise the electricity grid, increase local renewable energy use, and build grid resilience”.

2.4 Analysis of Alternatives

Alternative options have been considered by the Applicant in response to the strategic need and objectives for the Project. This includes not undertaking any works on the site ('do nothing'), proceeding with a different use on the site, and proceeding with the Project).

2.4.1 Do Nothing

The 'do nothing' approach would not achieve the firming and storage capacity that the NEM requires to meet electricity demand and keep electricity prices low, particularly with the projected increase in future demand for energy storage as the uptake of renewable energy increases. The site has substantial underutilised space that is suitable for BESS. Given the existing network capacity, lack of suitable land holdings in the locality, and existing infrastructure already on the site, any comparable alternate solution will likely come at higher cost and higher community and environmental impact than that proposed. The 'do nothing' option would decelerate NSW's transition away from coal-fired power, contribute to rising electricity prices and overall would not meet the objectives of the Project (section 1.2) or the demands on the NEM (refer to section 2.1) and is therefore not considered a feasible option.

2.4.2 Use of the Site for an Alternative Purpose

Ausgrid has completed a detailed site selection review, to identify sites that can accommodate BESS without causing unacceptable environmental and social impacts, grid connection capacity and which do not constrain constructability..

The site was selected due to:

- Proximity to the electricity transmission network
- The buffer provided between the site and sensitive receivers to the north
- Capacity of the transmission network to deliver electricity stored without constraint
- Availability of suitably zoned land with compatible existing industrial land uses surrounding the site (refer to section 2.2.3)
- Minimal impacts on the environment, compared with developing at other sites
- Access for the delivery of heavy construction loads
- Availability of skilled construction and operational workforce

2.4.3 BESS technology and provider alternatives

This SSDA proposes an overall BESS capacity of up to 150MW maximum power output capacity with 2-hour duration (up to 300MWh), while maintaining flexibility in relation to the BESS technology provider. This flexibility is critical as BESS technology is rapidly evolving and Ausgrid is regularly assessing the efficiency, system reliability, inverter readiness and integrator compatibility of new BESS technologies as they come to market. The eventual Original Equipment Manufacturer and specific battery system will be determined in detailed design development.

3.0 Project Description

3.1 Project Overview

This SSDA seeks development consent under 'Division 4.7 – Stage Significant Development' of the EP&A Act for the Project. The Project will store electricity from the grid that can be released back into the grid during peak period of electricity demand and provide ancillary services to the NEM. The Project will be located within vacant sections of the site and will connect into the Kurnell Zone Substation via a proposed 33kV underground cable.

Specifically, this SSDA seeks approval for:

- Construction and operation of a BESS with up to 150MW maximum power output capacity with 2-hour duration (up to 300MWh)
- Connection of the BESS to the Kurnell Zone Substation infrastructure via a 33 kV underground cable
- Other ancillary infrastructure and services such as noise walls, internal access roads, laydown areas, control and operational buildings

Construction of the Project may be carried out in multiple delivery stages, though the development consent is not proposed to be staged.

The Project is discussed further in the following subsections and detailed on the site plans prepared by Colliers Urban Planning, included at **Appendix B** and excerpt provided in **Figure 20**.

3.2 Key Project Information

3.2.1 Project Area

The Project is located wholly within the site. It does not change any electricity transmission infrastructure beyond the site. The total Project Area is 12,705m² (approximately 1.27ha), and shown below in **Figure 18**. It is noted that the fence line of the existing Kurnell Zone Substation, which the Project Area is within, is setback inside the site boundary.

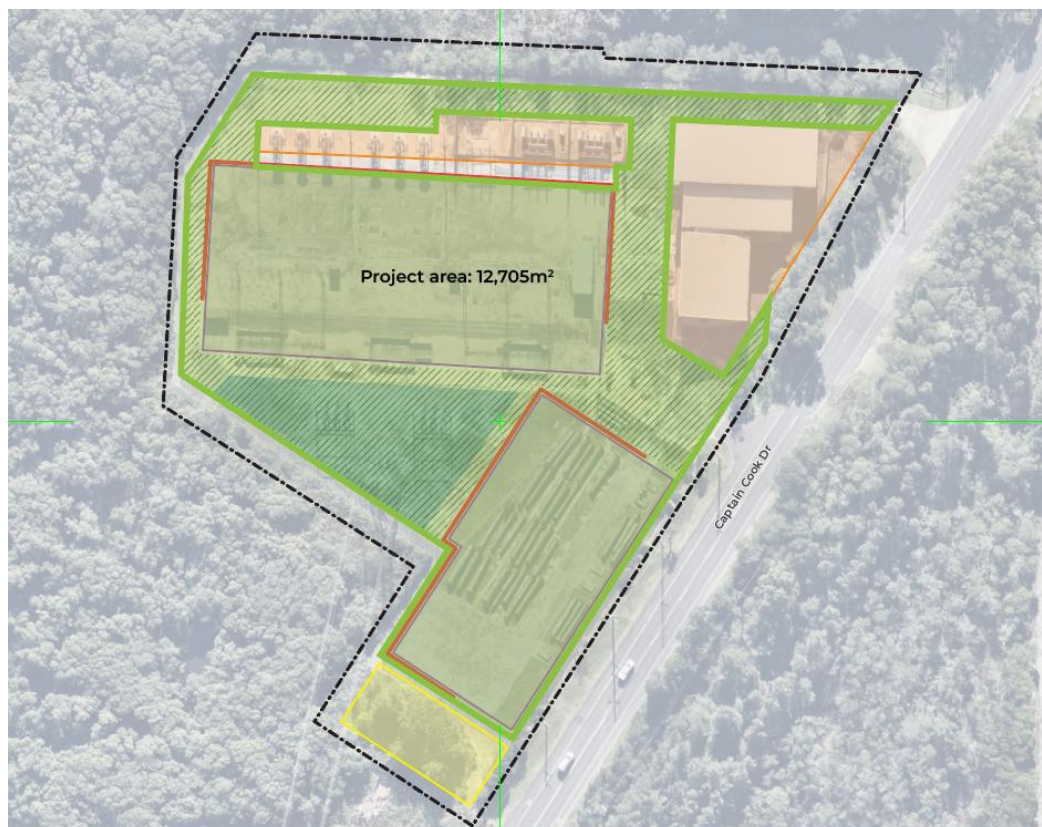


Figure 18 Project Area (shaded green)

Source: Colliers Urban Planning

3.2.2 Project Details

The key Project details are outlined in **Table 3** below.

Table 3 *Key Project Details*

Component	Description
Proposed Land Use	Battery Energy Storage System, which is a type of Electricity Generating Work
Legal Description of Site	Lot 1 DP869365
Site Area	2.062ha
Project Area	1.27ha
Battery storage capacity	Up to 150MW / up to 300MWh
BESS Lifespan	The BESS is intended to have an operational life of up to 50 years
Associated Infrastructure	• 33kV underground cable connects the BESS infrastructure to the existing Kurnell Zone Substation • 3m high safety wall along the Captain Cook Drive frontage within the site • 8m high noise walls around the north-eastern, north-western and south-western edges of the battery units • Security fencing and lighting, as required • Removal of existing former substation infrastructure which is unused, to facilitate site access and temporary construction laydown and site office areas • Ancillary office with amenities • An operations building with a control room and switch room • A workshop area with a warehouse and outdoor undercover area to support operation and maintenance activities • A fire water tank • Internal site roads
Vehicle Access	No change to existing vehicle access arrangements. Road access for all Project vehicles will continue to be provided from the existing driveway off Captain Cook Drive, with Kurnell Zone Substation access to be maintained via the existing northern driveway off Captain Cook Drive.
Construction Timeframe	Construction is expected to commence in 2027 and be completed by 2029 (approximately 22 months).
Construction Hours	Construction that would generate audible noise at any sensitive receiver would occur during standard construction hours between 7am and 6pm Monday to Friday and 8am and 1pm on Saturday. Activities that may be required to be completed outside of those standard hours would be completed in accordance with an Out of Hours Work procedure and may include (but not be limited to): • Electrical commissioning and testing • Emergency situations where work is required to prevent harm to persons or property
Operational Hours	24 hours, 7 days per week
Construction Jobs	130 FTE construction-related jobs supported
Operational Jobs	2 FTE direct operational jobs and 5 FTE indirect jobs
Estimated Development Cost	Approximately \$165,000,000

3.3 Battery Storage Technology

The BESS technology provider is to be confirmed during detailed design development. However, it would consist of a series of containerised lithium-iron phosphate chemistry battery units. The integrated battery units have indicative and approximate dimensions of 2.8m in height, 1.7m in width and 8.8m in length, and will be mounted onto a concrete or compacted gravel slab. It is intended that these integrated battery units will be arranged in a suitable grid format with appropriate manufacturer specified separation between each unit.

The Original Equipment Manufacturer and exact BESS technology model will not exceed the maximum power output approved, and will be determined during detailed design development.

Battery units would be light in colour to reduce heat absorption. **Figure 19** below illustrates the typical battery energy storage unit and container at the site.



Figure 19 *Render of typical battery energy storage units*

Source: Ausgrid

3.4 Proposed Site Layout and Associated Infrastructure

The layout of the Project at the site is to be in accordance with the proposed site layout plan provided at **Figure 20** below. The relevant associated infrastructure for the Project is outlined at **Table 3** above.



Figure 20 *Proposed Site Layout Plan*

Source: Colliers Urban Planning

3.5 Construction

Construction activities will likely include the following in **Table 4**, which will be managed by a detailed Construction Environmental Management Plan prepared by the Contractor prior to works commencing. For clarity, no bulk earthworks are anticipated as the site is an existing operating substation, however, some minor excavations may be required for utilities installation.

Table 4 *Key Project Details*

Construction Activity	Description	Construction Plant and Equipment
Enabling Works	- Removal of redundant electricity infrastructure on the site - Establishment of a laydown area within the site - Installation of erosion and sediment controls and site fencing - Installation and maintenance of environmental controls	- Front end loaders - Dump trucks - Road trucks - Water trucks - Excavators - Graders - Compactors - Light vehicles
Civil, structural, mechanical and electrical works	- Alterations and upgrades to site access points and internal access roads - Earthworks to form the BESS pad, switchyard area/s, and construction laydown areas - Concrete works associated with equipment and building foundations/footings - Construction of permanent stormwater drainage network - Structural works to support BESS facilities - Construction of supporting structures, e.g., temporary site compound, permanent operations and amenities building, and storage areas - Delivery, installation and electrical fit-out of battery units and transformers - Construction of the cable connection between the BESS and Kurnell Zone Substation - Installation of a diesel generator for use during operation and in case of emergency	- Front end loaders - Road trucks - Graders - Concrete trucks and pumps - Dump trucks - Excavators - Bobcats - Compactors and rollers - Elevated work platforms - Cranes - Concrete saws and grinders - Water trucks - Light vehicles - Backhoe - Generators
Testing and commissioning activities	Testing and commissioning activities to ensure that the BESS is operating correctly according to relevant standards	- Elevated work platforms - Cranes - Generators - Light vehicles.
Demobilisation	Removal of construction equipment and rehabilitation of temporary construction areas, including landscaping.	- Water trucks - Compactors - Backhoe - Light vehicles.

3.6 Operation

3.6.1 Operational Activities

Activities during the operation of the Project include:

- Operation, maintenance, testing and management of the BESS and its associated infrastructure
- General office activities
- Receipt of goods
- Waste removal
- General site maintenance

3.6.2 Operational Plant and Equipment

A variety of plant and equipment is expected to be present on-site during operation of the Project, including but not limited to:

- Light vehicles
- Whipper snippers
- Chainsaws
- Elevated work platforms
- Tractors
- Generators

These plant and equipment would largely be used during maintenance periods for the Project and broader site.

3.6.3 Operational Workforce and Hours

The Project is proposed to operate 24 hours a day, seven days a week. The BESS would be managed remotely and staffed as required during maintenance periods. The Project will provide up to five part time roles during operation, equating to 1-2 full time equivalent roles.

3.7 Utilities and Infrastructure

The site is currently connected to power, water and sewer. Ausgrid will manage the connection between the Project and Kurnell Zone Substation by way of a new underground 33kV cable. A diesel generator will be installed for use during operation in case of emergency loss of power connection to the grid. New utility connections may be required for the Project.

3.8 Stormwater and Drainage

The site currently contains stormwater drainage infrastructure which will be enhanced and utilised for the Project, noting that the current onsite stormwater drainage infrastructure does not contain significant stormwater quality infrastructure. To provide the appropriate stormwater infrastructure, existing inlet pits are to be retrofitted to include at-source gross pollutant traps. The management of stormwater quantity and quality should be implemented as part of the detailed design of the Project.

3.9 Decommissioning

The BESS is intended to have an operational life of up to 50 years, during which component replacement may be undertaken.

In the event that a full battery unit replacement is required prior to the conclusion of the 50 year-operational life of the Project, then it will be undertaken in consultation with the relevant statutory authority at the time.

In the event that the Project reaches its operational life and is not upgraded or replaced, the Project infrastructure will be decommissioned and the site returned to pre-development conditions, to the extent that it is possible.

4.0 Statutory Context

The sections below outline the Project's key statutory requirements. This section is complemented by a Statutory Compliance Table included at **Appendix C** that identifies all statutory requirements and where those requirements have been addressed in the EIS.

4.1 Power to Grant Approval

The legislative pathway under which the consent is sought, why the pathway applies, and the relevant consent authority is outlined in **Table 5** below.

Table 5 Power to Grant Consent

Matter	Consideration
Declaration of State Significant Development	Development consent is sought under 'Division 4.7 - Stage Significant Development' of the EP&A Act. Section 4.36(2) of the EP&A Act states that: <i>A State environmental planning policy may declare any development, or any class or description of development, to be State significant development.</i> Schedule 1 of State Environmental Planning Policy (Planning Systems) 2021 lists development that is declared State significant development. Section 20 of Schedule 1 states: <i>Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that—</i> <i>(a) has an estimated development cost of more than \$30 million, or</i> <i>(b) has an estimated development cost of more than \$10 million and is located in an environmentally sensitive area of State significance.</i> As the Project is for the purposes of electricity generating works and has an estimated development cost of approximately \$172 million, it is declared State significant development. Before a State significant development can be determined, it is subject to a comprehensive assessment under the EP&A Act.
Consent Authority	Section 4.5 of the EP&A Act and Section 2.7 of <i>State Environmental Planning Policy (Planning Systems) 2021</i> stipulate that the consent authority is the Minister for Planning and Public Spaces (or the DPHI as their delegate) unless the development triggers the matter set out in Section 2.7(1) in which case the consent authority will be the Independent Planning Commission.

4.2 Permissibility

The permissibility of the Project considering the proposed land use and land zoning is outlined in **Table 6** below.

Table 6 Permissibility

Matter	Consideration
Land Use	The Project constitutes electricity generating works as defined under the Standard Instrument.
Land Zoning	The site is zoned SP2 Infrastructure (Electricity Transmission) under the <i>Sutherland Local Environmental Plan 2015</i> (Sutherland LEP 2015). The objectives of this zone are: • To provide for infrastructure and related uses • To prevent development that is not compatible with or that may detract from the provision of infrastructure The Project is consistent with the objectives as it will provide electricity storage infrastructure which is compatible with the existing use of the site, and which will not detract from the existing Kurnell Zone Substation infrastructure on the site.
Permissibility	The electricity generating works use is permissible with consent under the SP2 Infrastructure (Electricity Transmission) zone under the Sutherland LEP 2015. BESS are considered to be 'electricity generating works' under clause 2.35 of <i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i> and are permissible with consent in prescribed special infrastructure zones which includes the SP2 Infrastructure (Electricity Transmission) zone.

4.3 Other Approvals

The other legislative approvals required for the Project in addition to a development consent under Division 4.7 of the EP&A Act are outlined in **Table 7** below.

Table 7 Other Approvals

Matter	Consideration																		
Approvals not required for SSD	Section 4.41 of the EP&A Act stipulates that certain authorisations are not required for State significant development. The following legislative approvals would otherwise be required if the Project was not declared to be State significant development. <table> <tr> <th>Legislation</th><th>Approval Otherwise Required</th></tr> <tr> <td colspan="2">Legislation that does not apply to State Significant Development</td></tr> <tr> <td><i>Fisheries Management Act 1994</i></td><td>No</td></tr> <tr> <td><i>Heritage Act 1977</i></td><td>No</td></tr> <tr> <td><i>National Parks and Wildlife Act 1974</i></td><td>No</td></tr> <tr> <td><i>Rural Fires Act 1997</i></td><td>No</td></tr> <tr> <td><i>Water Management Act 2000</i></td><td>Yes - a Controlled Activity Approval would otherwise be required for works within 40m of a watercourse</td></tr> </table>	Legislation	Approval Otherwise Required	Legislation that does not apply to State Significant Development		<i>Fisheries Management Act 1994</i>	No	<i>Heritage Act 1977</i>	No	<i>National Parks and Wildlife Act 1974</i>	No	<i>Rural Fires Act 1997</i>	No	<i>Water Management Act 2000</i>	Yes - a Controlled Activity Approval would otherwise be required for works within 40m of a watercourse				
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<i>Rural Fires Act 1997</i>	No																		
<i>Water Management Act 2000</i>	Yes - a Controlled Activity Approval would otherwise be required for works within 40m of a watercourse																		
Consistent Approvals	Section 4.42 of the EP&A Act stipulates that certain authorisations cannot be refused if they are necessary for carrying out State significant development. The following table lists legislative approvals that are required for the Project and cannot be refused if the Project is approved. <table> <tr> <th>Act</th><th>Approval Required</th></tr> <tr> <td colspan="2">Legislation that must be applied consistently</td></tr> <tr> <td><i>Fisheries Management Act 1994</i></td><td>No</td></tr> <tr> <td><i>Mine Subsidence Compensation Act 1961</i></td><td>No</td></tr> <tr> <td><i>Mining Act 1992</i></td><td>No</td></tr> <tr> <td><i>Petroleum (Onshore) Act 1991</i></td><td>No</td></tr> <tr> <td><i>Protection of the Environment Operations Act 1997</i></td><td>No</td></tr> <tr> <td><i>Roads Act 1993</i></td><td>No</td></tr> <tr> <td><i>Pipelines Act 1967</i></td><td>No</td></tr> </table>	Act	Approval Required	Legislation that must be applied consistently		<i>Fisheries Management Act 1994</i>	No	<i>Mine Subsidence Compensation Act 1961</i>	No	<i>Mining Act 1992</i>	No	<i>Petroleum (Onshore) Act 1991</i>	No	<i>Protection of the Environment Operations Act 1997</i>	No	<i>Roads Act 1993</i>	No	<i>Pipelines Act 1967</i>	No
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<i>Protection of the Environment Operations Act 1997</i>	No																		
<i>Roads Act 1993</i>	No																		
<i>Pipelines Act 1967</i>	No																		
EPBC Approval	The <i>Environmental Protection and Biodiversity Act 1999 Act</i> (EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places. These are known as matters of National Environmental Significance. If the Project will, or is likely to, impact a matter of National Environmental Significance, then it is required to be referred to the Federal Department of the Environment for assessment to determine if it constitutes a 'controlled action' requiring EPBC approval. Presently, a bilateral agreement allows the Commonwealth Minister for the Environment to rely on the NSW environmental assessment process when assessing a controlled action under the EPBC Act. While a search of the EPBC Act Protected Matters Search Tool (PMST) for the site with a 10km buffer identified the presence of national heritage places, a wetland of international importance, a commonwealth marine area, threatened ecological communities and species, and migratory species within the broader area, the site itself is heavily disturbed and does not contain any significant habitat value or any other matters of National Environmental Significance. In particular, the Towra Point Nature Reserve comprises wetlands of international significance protected under the Ramsar Convention on Wetlands. The Project will be located entirely within the existing site and will not involve any direct impacts on the Towra Point Nature Reserve, or any of the habitats or species within the reserve. Therefore, the Project is not likely to impact a matter of National Environmental Significance and the Project is not required to be referred to the Commonwealth Department of Climate Change, Energy, the Environment and Water to determine if it constitutes a controlled action.																		

4.4 Pre-Conditions to Exercising the Power to Grant Consent

The pre-conditions to be fulfilled by the consent authority before exercising their power to grant development consent are identified and considered in **Table 8** below.

Table 8 Pre-Conditions to Exercising the Power to Grant Consent

Matter	Consideration
Biodiversity Conservation Act 2016	In accordance with this Act, an assessment of any State Significant proposal's biodiversity impacts must be undertaken as part of the provision of any SSDA, including the provision of a Biodiversity Development Assessment Report (BDAR) in instances where it is required. Section 7.14 requires the consent authority to take into consideration the likely impact of the Project on biodiversity values as assessed in the BDAR. A BDAR prepared by Anderson EP is provided at Appendix H. The Project is not expected to result in significant direct or indirect impacts to biodiversity values. The development footprint occurs entirely within an already disturbed electrical infrastructure site and does not reduce the extent or connectivity of habitat within the surrounding landscape. Accordingly, the Project is considered unlikely to have a significant impact on threatened species, ecological communities or their habitats, subject to implementation of the proposed mitigation measures. The Project has avoided direct impacts to native vegetation and threatened ecological communities, though it is noted that the BDAR includes an impact area of 0.01 hectares to enable the BAM-Calculator to generate a candidate species list and corresponding ecosystem credit requirement. One ecosystem credit is required. Refer to Section 7.0 for further assessment.
State Environmental Planning Policy (Transport and Infrastructure) 2021	The <i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i> (T&I SEPP) aims to facilitate the effective delivery of infrastructure of the State. Section 2.48 of this policy relates to determination of development applications that are likely to affect an electricity transmission or distribution network. Specifically, section 2.48(1) states that “<i>this section applies to a development application... for development comprising or involving any of the following:</i> (a) <i>The penetration of ground within 2m of an underground electricity power line or an electricity distribution pole or within 10m of any part of an electricity tower,</i> (b) <i>Development carried out – (a) within or immediately adjacent to an easement for electricity purposes (whether or not the electricity infrastructure exists), or (b) immediately adjacent to an electricity substation, or</i> (c) <i>within 5m of an exposed overhead electricity power line.</i> (c) <i>[not relevant]</i> (d) <i>Development involving or requiring the placement of power lines underground, unless an agreement with respect to the placement underground of power lines is in force between the electricity supply authority and the council for the land concerned.”</i> Before determining an application to which section 2.48 relates, the consent authority must: (a) <i>Give written notice to the electricity supply authority for the area in which the development is to be carried out, inviting comments about potential safety risks, and</i> (b) <i>Take into consideration any response to the notice that is received within 21 days after the notice is given.</i> The Project would involve development within an existing electricity easement, as well as connection to the existing Kurnell Zone Substation
State Environmental Planning Policy (Resilience and Hazards) 2021	Chapter 2 (Coastal Zone) Chapter 2 of the <i>State Environmental Planning Policy (Resilience and Hazards) 2021</i> (R&H SEPP) aims to promote an integrated and coordinated approach to land use planning in the coastal zone consistent with the objectives of the <i>Coastal Management Act 2016</i>. As illustrated at Figure 21 below the lot is marginally with the coastal wetland zone at its northern and western boundaries (noting the site fencing sits inside of the allotment boundary) and therefore considers section 2.7(1), which states: (1) <i>The following may be carried out on land identified as “coastal wetlands” or “littoral rainforest” on the Coastal Wetlands and Littoral Rainforests Area Map only with development consent—</i> (a) <i>the clearing of native vegetation within the meaning of Part 5A of the <u>Local Land Services Act 2013</u>,</i> (b) <i>the harm of marine vegetation within the meaning of Division 4 of Part 7 of the <u>Fisheries Management Act 1994</u>,</i> (c) <i>the carrying out of any of the following—</i> (i) <i>earthworks (including the depositing of material on land),</i> (ii) <i>constructing a levee,</i> (iii) <i>draining the land,</i>

- (iv) environmental protection works,
 (d) any other development.
 (2) Development for which consent is required by subsection (1), other than development for the purpose of environmental protection works, is declared to be designated development for the purposes of the Act.

However, no works are proposed on the land mapped as coastal wetlands. Per a recent decision in *Goldcoral Pty Ltd v Richmond Valley Council* [2024] NSWLEC 77, as the Project does physically relate to and impact on land identified as “costal wetland”, Clause 2.7 does not apply.

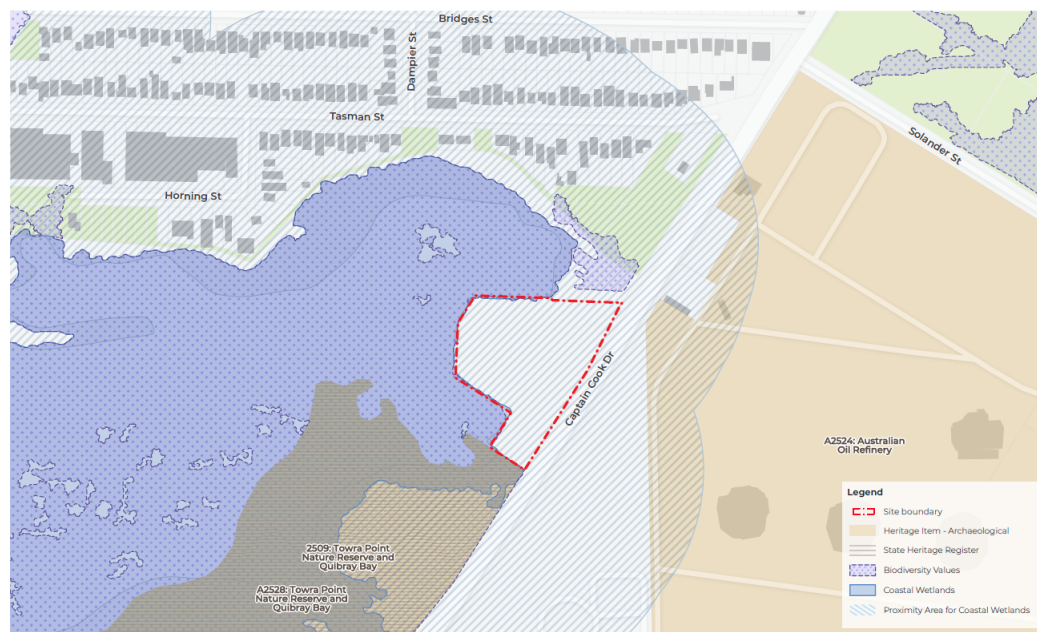


Figure 21 Map showing coastal wetland area slightly extending across site boundary

Source: Colliers Urban Planning

The site is located in an area mapped as “proximity area for coastal wetlands” and is therefore subject to section 2.8(1), which states:

(1) Development consent must not be granted to development on land identified as “proximity area for coastal wetlands” or “proximity area for littoral rainforest” on the Coastal Wetlands and Littoral Rainforests Area Map unless the consent authority is satisfied that the proposed development will not significantly impact on—

- (a) the biophysical, hydrological or ecological integrity of the adjacent coastal wetland or littoral rainforest, or*
(b) the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest.

The site is also located within the coastal environment area and is therefore subject to section 2.10 of the R&H SEPP, and also within the coastal use area, and is therefore subject to section 2.11 of the R&H SEPP. Development consent cannot be granted unless the consent authority is satisfied that the relevant clauses in sections 2.10 and 2.11 are met.

A detailed assessment against the clauses above is provided in **Table 10**.

Chapter 3 (Hazards)

Part 3 under Chapter 3 of the R&H SEPP applies to developments that is considered “potentially hazardous or offensive industry”. The definition of a potentially hazardous industry and potentially offensive industry is provided in section 3.2 of the R&H SEPP. Development that constitutes a potentially hazardous industry must be accompanied by a Preliminary Hazard Analysis (PHA). A PHA is provided at **Appendix N** and includes an assessment of the potential impact of battery storage units on the site and for surrounding development. Section 3.12 of the R&H SEPP sets out the mandatory matters for consideration, and an assessment against these matters is provided in **Table 10**.

Matter	Consideration
	Chapter 4 (Remediation of Contaminated Land) Chapter 4 of the R&H SEPP aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment. Section 4.6 stipulates that a consent authority must not consent to the carrying out of development unless: • It has considered whether the land is contaminated, and if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out • If the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is suitable that the land will be remediated before the land is used for that purpose A Preliminary Site Investigation has been prepared by Neo Consulting, which confirms that the site can be made suitable for the Project and does not require remediation, taking into account that there are limited areas that are accessible for potential assessment due to the critical infrastructure onsite, that the site is located within an industrial area, and that the Project will not change the current land use. Refer to Appendix I and Section 8.3.1 which considers contamination risks and appropriate mitigation measures for managing and dealing with any potential contaminated material that may be encountered on site during construction works (but which would not preclude the intended land use).

4.5 Mandatory Matters for Consideration

The matters that the consent authority is required to consider in deciding whether to grant consent to any development application are identified and considered in **Table 9** below.

Table 9 *Mandatory Matter for Consideration*

Legislation	Matters for Consideration
<i>Environmental Planning & Assessment Act 1979</i>	The Project is consistent with the objects of the EP&A Act for the following reasons: • Promotes the conservation of the State's natural resources through developing infrastructure that will facilitate greater energy storage capacity to support the transition towards renewable energy. • Promotes the economic and orderly use of land through establishing infrastructure for energy storage and increase the capacity of the existing electricity network. • Promotes participation in environmental planning and assessment through the engagement process which has been undertaken as part of the EIS (See Section 5.0). • Promotes resilience to climate change through the development of infrastructure which can provide greater capacity for the storage of renewable energy. • Protect the environment through assessing and providing mitigation measures to reduce the impacts of the development to the surrounding natural environment and native species. • Promotes Ecologically Sustainable Development through the development of infrastructure which can support increased electricity storage, providing greater capacity for the storage of renewable energy and other energy sources.
<i>Environmental Planning and Assessment Regulation 2021 (EP&A Regulations)</i>	Part 8, Divisions 2 and 5 of the <i>Environmental Planning and Assessment Regulation 2021</i> (EP&A Regulations) sets out procedures which relate to the preparation and submission of EIS. This EIS has been prepared in accordance with Sections 190 and 192 of Division 5 which relate to the form and content of the EIS. Similarly, the EIS has addressed the principles of ecologically sustainable development through the precautionary principle (and other considerations), which assesses the threats of any serious and irreversible environmental damage (refer Section 6.0).
<i>Water Management Act 2000</i>	The Project is located within the Cooks River and Botany Bay Water Source which is regulated by the WSP for the Greater Metropolitan Region Unregulated River Water Sources 2023. It is also located within Botany Management Zone 2 of the Botany Sands Groundwater Source, regulated by the WSP for the Greater Metropolitan Region Groundwater Sources 2023. Ausgrid do not seek to obtain water from the surface water or groundwater as part of a Water Access Licence (WAL) for the Project

Legislation		Matters for Consideration
<i>State Environmental Planning Policy (Planning Systems) 2021</i>		The Project is declared as SSD under section 2.6 of the Planning Systems SEPP. The Project is considered 'electricity generating works' and has an estimated development cost of more than \$30 million. It is therefore declared SSD under Schedule 1 Section 20 of the Planning Systems SEPP.
<i>State Environmental Planning Policy (Sustainable Buildings) 2023</i>		<i>State Environmental Planning Policy (Sustainable Buildings) 2021</i> (Sustainable Buildings SEPP) aims to encourage the design and delivery of sustainable buildings for certain types of non-residential development. The Sustainable Buildings SEPP is not relevant to development for the purpose of BESS, as the Project is not located within a habitable building.
<i>State Environmental Planning Policy (Transport and Infrastructure) 2021</i>		The State Environmental Planning Policy (Transport and Infrastructure) 2021 (TI SEPP) aims to facilitate the effective delivery of infrastructure across the State. The site is zoned SP2 Electricity Transmission under the Sutherland Shire LEP. This land use zone is defined as a 'prescribed non-residential zone' for the purpose of electricity generating works. Under section 2.36 of the TI SEPP the Project is considered permissible with consent at the site. Section 2.48 relates to the determination of development application likely to affect an electricity transmission distribution network. The Project would involve development partially within an existing electricity easement, and a connection to the existing Kurnell Zone Substation. Notification to the electricity supply authority (that being Ausgrid as the Applicant) for the area is therefore required under Section 2.48 of the TI SEPP.
<i>State Environmental Planning Policy (Biodiversity and Conservation) 2021</i>		The State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BC SEPP) aims to support the protection of biodiversity across NSW. Chapter 2 relates to the protection of biodiversity values of vegetation within non-rural areas. Under section 2.6(1) a permit is required for the clearing of vegetation in any non-rural area. In addition to this, section 2.6(2) dictates that the clearing of native vegetation any non-rural area of the State that exceeds the biodiversity offset scheme threshold cannot be undertaken without the authority conferred approval of the Native Vegetation Panel. The BDAR (Appendix H) confirms that the Project is considered unlikely to have a significant impact on threatened species, ecological communities or their habitats, subject to implementation of the proposed mitigation measures. The Project has avoided direct impacts to native vegetation and threatened ecological communities, though it is noted that the BDAR includes an impact area of 0.01 hectares to enable the BAM-Calculator to generate a candidate species list and corresponding ecosystem credit requirement. One ecosystem credit is required. Refer to Section 7.0 for further assessment.
<i>Sutherland Local Environmental Plan 2015</i>	<i>Clause 2.3 Zone Objectives and Land Use Table</i>	The Project is consistent with the objectives of the zone and permissible with development consent within the SP2 Infrastructure zone.
	<i>Clause 4.3 Height of buildings</i>	Not applicable.
	<i>Clause 4.4 Floor Space Ratio</i>	Not applicable.
	<i>Clause 5.21 Flood planning</i>	Clause 5.21 identifies considerations for land identified within a flood planning area. The site is not located on land identified as flood planning area by Sutherland Shire Council. The Water Impact Assessment prepared by GHD at Appendix J assesses the impact of the Project on the risk of flooding at the site. An assessment of the existing and proposed flood conditions at the site has been included at Section 9.0, which concludes that the Project will result in minimal change to the flood conditions at the site. The design and mitigation measures proposed as part of this Project are considered adequate to respond to flooding at the site.
	<i>Clause 5.22 Special flood considerations</i>	Clause 5.22 provides special flood considerations for sensitive or hazardous development within the flood planning area and the probable maximum flood. As confirmed in the Water Impact Assessment prepared by GHD at Appendix J, the site is not located within the flood planning area and therefore this clause is not relevant to consider for the site.
	<i>Clause 6.1 Acid Sulfate Soils</i>	The site is partially affected by Class 2 and Class 3 Acid Sulfate Soils. The PSI at Appendix I assesses the impact of the Project in relation to Acid Sulfate Soils at the site. It recommends that if the Project requires excavation below 1m, an Acid Sulfate Soil Management Plan (ASSMP) should

be prepared and implemented to minimise potential impacts on local Acid Sulfate Soils. This is included in the Mitigation Measures at **Appendix E**. An Acid Sulfate Map is provided at **Figure 22** on the next page.

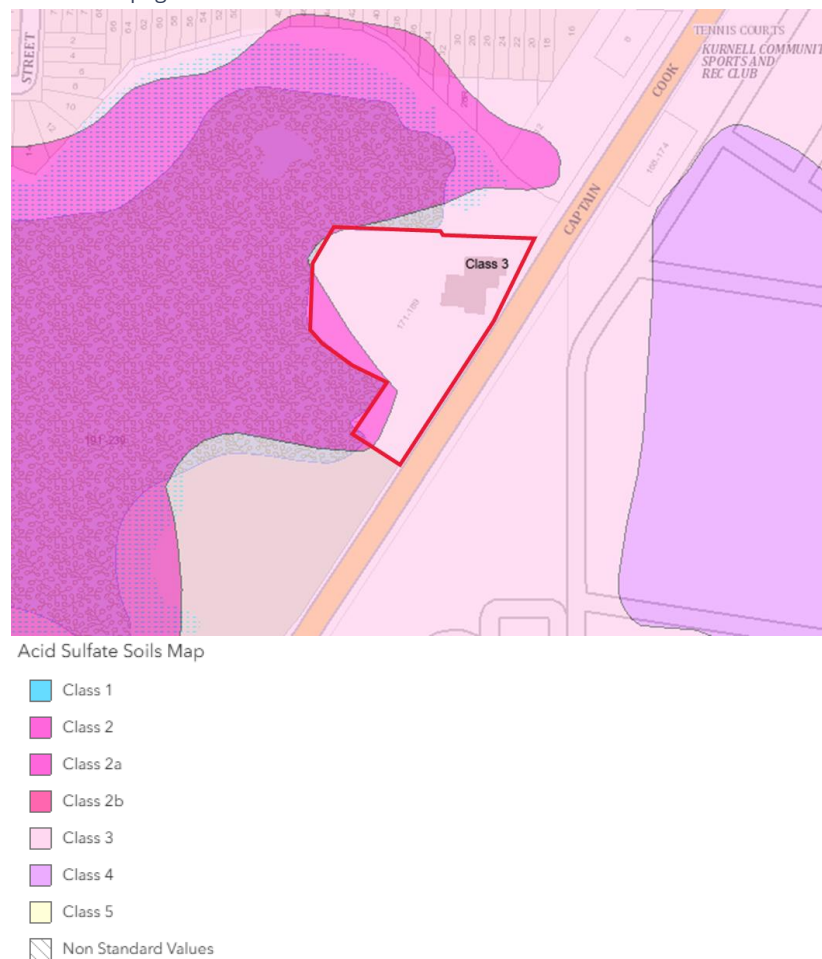


Figure 22 Acid Sulfate Soils Map

Source: Sutherland Local Environmental Plan 2015

*Clause 6.5
Environmentally
sensitive land –
terrestrial
biodiversity*

The site is identified as environmentally sensitive land under the Terrestrial Biodiversity Map.

This clause requires the consent authority to consider whether the development is likely to have:

- Any adverse impact on the condition, ecological value and significance of the fauna and flora on the land
- Any adverse impact on the importance of the vegetation of the land to the habitat and survival of native fauna
- Any potential to fragment, disturb or diminish the biodiversity structure, function and composition of the land, and
- Any adverse impact on the habitat elements providing connectivity on the land
- Any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development

The site comprises an existing cleared and developed area which contains predominantly hardstand and infrastructure, a BDAR Waiver was prepared for the site, however it was determined due to the site's proximity to a wetland area and environmental conservation land that a BDAR would be required.

The BDAR (**Appendix H**) assesses the direct and indirect impacts on a range of identified Plant Community Types and species identified at and surrounding the site. The majority of the assessed impacts are expected to take place during construction, with several mitigation measures provided to manage this. The BDAR has also assessed the requirement to provide credits for the Project based on the potential impact.

Refer to **Section 7.0** for a detailed assessment of biodiversity impacts at the site.

<i>Clause 6.6</i> <i>Environmentally sensitive land – groundwater vulnerability</i>	Clause 6.6 provides additional requirements for land identified as environmentally sensitive on the Ground Water Vulnerability Map. It aims to protect vulnerable ground water resources and maintain the hydrological functions of key groundwater systems. The consent authority is required to consider the following when granting consent for development on land identified as environmentally sensitive: • the likelihood of groundwater contamination from the development (including from any on-site storage or disposal of solid or liquid waste and chemicals) • any adverse impacts the development may have on groundwater dependent ecosystems • the cumulative impact the development may have on groundwater (including impacts on nearby groundwater extraction for a potable water supply or stock water supply) • any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development The Water Impact Assessment at Appendix J and PSI at Appendix I assess the impact of the Project on groundwater and surrounding hydrological ecosystems. While the PSI states that there is known groundwater contamination in the locality, the Project is unlikely to disturb groundwater as there is minimal excavation required. If groundwater is encountered, it will be managed in accordance with the CEMP.
<i>Clause 6.7</i> <i>Environmentally sensitive land – riparian land and watercourses</i>	Clause 6.7 aims to protect and maintain the water quality, habitats and ecological processes within watercourses and riparian areas. The consent authority is required to consider the following when granting consent for development on land identified as environmentally sensitive: • whether or not the development is likely to have any adverse impact on the following: - the water quality and flows within the watercourse - aquatic and riparian species, habitats and ecosystems of the watercourse - the stability of the bed and banks of the watercourse - the free passage of fish and other aquatic organisms within or along the watercourse - any future rehabilitation of the watercourse and riparian areas • whether or not the development is likely to increase water extraction from the watercourse, and • any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development A Water Impact Assessment is provided at Appendix J. It outlines measures to manage water flow, quality and erosion during the construction and operational phase of the Project, to ensure that contaminated water will not be discharged from the site into the adjoining wetlands. It also notes that hydrological processes during operation are not expected to be substantially affected by the Project and will be managed by the existing and proposed stormwater infrastructure on the site. These findings are included in the BDAR (Appendix H). The Project will not result in any unacceptable impacts to surrounding riparian land and watercourses.
<i>Clause 6.16</i> <i>Urban Design - general</i>	The battery units are designed to be functional electricity generation infrastructure. The proposed design maximises the capability and functionality for energy storage at the site to meet the overall objectives of the Project. A Landscape Visual Impact Assessment (Appendix P) contains photomontages from the areas with the highest visual quality, ridgelines and landmark locations near the site, showing that the Project cannot be seen from any of those areas. The streetscape is characterised by industrial development and vegetation, and is generally only viewable by drivers along Captain Cook Drive. As such, the Landscape Visual Impact Assessment (Appendix P) recommends specifying colours consistent with surrounding landscape and vegetation for the proposed noise and safety walls and low level boundary planting along the southern section of the site's Captain Cook Drive frontage to enhance the views of the Project to the public domain. Overall, the siting of the battery units have been designed to ensure visual quality and views and vistas are maintained. The Project is consistent with the existing character of the site and surrounding area, which is generally characterised by industrial development.

Legislation	Matters for Consideration
<i>Clause 6.19 Kurnell Peninsula</i>	The site is on land identified as a “Refinery Risk Area” on the Activity Hazard Risk Map, therefore clause 6.19 applies to the site. Clause 6.19 specifies that: <i>Development consent must not be granted for development on land to which this clause applies unless the consent authority has considered the contents of any reports relating to Kurnell Peninsula about the following matters that have been prepared by the Department and given to the Council:</i> • <i>risk assessment</i> • <i>transportation</i> • <i>dangerous goods routes</i> • <i>guidelines on risk assessment criteria and methodology</i> A Preliminary Hazard Risk Assessment (PHA) Report has been prepared at Appendix N which assesses the risk of the Project. The PHA has identified potential risks associated with the Project. Subject to the implementation of design and mitigation measures provided in the PHA, it concluded that the residual risk for the risks identified are acceptable. Refer to Section 13.0 for further assessment.

4.6 State Environmental Planning Policy (Resilience and Hazards) 2021

Assessment of the Project against the relevant requirements of the R&H SEPP is provided below at **Table 10**.

Table 10 Assessment of the R&H SEPP

Section	Control	Assessment
2.7 Development on certain land within coastal wetlands and littoral rainforests area	(1) The following may be carried out on land identified as “coastal wetlands” or “littoral rainforest” on the <i>Coastal Wetlands and Littoral Rainforests Area Map</i> only with development consent—	Not applicable, no native vegetation is proposed for removal.
	(a) the clearing of native vegetation within the meaning of Part 5A of the <i>Local Land Services Act 2013</i> ,	
	(b) the harm of marine vegetation within the meaning of Division 4 of Part 7 of the <i>Fisheries Management Act 1994</i> ,	Not applicable. The Project will not harm marine vegetation.
	(c) the carrying out of any of the following— (i) earthworks (including the depositing of material on land), (ii) constructing a levee, (iii) draining the land, (iv) environmental protection works,	Not applicable, the Project does not include these specified works on land within coastal wetlands.
	(d) any other development.	The Project does not include any physical works or change in operation on land within the coastal area. This is because land mapped as coastal wetlands is beyond the fence line of the existing Kurnell Zone Substation infrastructure and beyond the Project Area.
	(2) Development for which consent is required by subsection (1), other than development for the purpose of environmental protection works, is declared to be designated development for the purposes of the Act.	As above, the Project does not trigger a requirement for development consent subject to subsection 1. Therefore, it is not designated development for the purposes of the Act.

Section	Control	Assessment
	(3) Despite subsection (1), development for the purpose of environmental protection works on land identified as “coastal wetlands” or “littoral rainforest” on the <i>Coastal Wetlands and Littoral Rainforests Area Map</i> may be carried out by or on behalf of a public authority without development consent if the development is identified in— (a) the relevant certified coastal management program, or (b) a plan of management prepared and adopted under Division 2 of Part 2 of Chapter 6 of the <i>Local Government Act 1993</i>, or (c) a plan of management under Division 3.6 of the <i>Crown Land Management Act 20</i>	Not applicable, the Project is not for the purposes of environmental protection works.
	(4) A consent authority must not grant consent for development referred to in subsection (1) unless the consent authority is satisfied that sufficient measures have been, or will be, taken to protect, and where possible enhance, the biophysical, hydrological and ecological integrity of the coastal wetland or littoral rainforest.	The Project will not directly impact the mapped coastal wetland. A BDAR has been prepared and included at Appendix H which has determined that indirect impacts are readily manageable through a Construction Environmental Management Plan including stormwater management for the Project. These are sufficient to protect and mitigate against any potential impacts to the biophysical, hydrological and ecological integrity of coastal wetlands.
	(5) Nothing in this section requires consent for the damage or removal of a priority weed within the meaning of clause 32 of Schedule 7 to the <i>Biosecurity Act 2015</i>.	No priority weeds are being damaged or removed as part of the Project.
	(6) This section does not apply to the carrying out of development on land reserved under the <i>National Parks and Wildlife Act 1974</i> if the proposed development is consistent with a plan of management prepared under that Act for the land concerned.	Not applicable. The Project Area does not include land which is reserved under the <i>National Parks and Wildlife Act 1974</i> .
2.8 Development on land in proximity to coastal wetlands or littoral rainforest	(1) Development consent must not be granted to development on land identified as “proximity area for coastal wetlands” or “proximity area for littoral rainforest” on the <i>Coastal Wetlands and Littoral Rainforests Area Map</i> unless the consent authority is satisfied that the proposed development will not significantly impact on— (a) the biophysical, hydrological or ecological integrity of the adjacent coastal wetland or littoral rainforest, or	The site is identified as part of a “proximity area for coastal wetlands”. The BDAR in Appendix H confirms that the Project will not have an impact on the biophysical, hydrological or ecological integrity of the adjacent coastal wetland as the Project takes place at a site which is already used for electricity generating purposes, vegetation existing on the site is highly disturbed and the Project will not alter coastal wetlands or vegetation outside the site.
	(b) the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest.	The WIA at Appendix J confirms the Project does not alter the quantity of surface and ground water flows to and from the adjacent coastal wetland. The proposed use continues the use of the site for electricity generating purposes and does not alter hydrological flows. Subject to the implementation of the recommended mitigation measures, the Project is expected to have negligible impact on the water quality.
	(2) This section does not apply to land that is identified as “coastal wetlands” or “littoral rainforest” on the <i>Coastal Wetlands and Littoral Rainforests Area Map</i>.	Land which is identified as coastal wetlands is limited to a small portion along the site boundary which is outside the Project Area. Land within coastal wetlands is addressed above.

Section	Control	Assessment
2.10 Development on land within the coastal environment area	(1) Development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following— (a) the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,	The BDAR (Appendix H) and WIA Report (Appendix J) confirms that the Project is not likely to have an adverse impact on the integrity of the existing coastal environmental area as the Project continues the use of the site for electricity generating purposes. As such, there will be no adverse impacts to coastal environmental values and natural coastal processes either.
	(b) coastal environmental values and natural coastal processes,	
	(c) the water quality of the marine estate (within the meaning of the <i>Marine Estate Management Act 2014</i>), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1,	Not applicable – the site is not located within a marine estate.
	(d) marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,	The BDAR at Appendix H provides an assessment of the direct and indirect impacts of the Project on vegetation and fauna. No Plant Community Types (PCTs) have been identified as occurring within the site and the Project does not involve the removal of vegetation at or surrounding the site. No habitat features were identified on the site during the flora and fauna survey. A range of potential indirect impacts to the surrounding coastal and marine environment have been identified including stormwater, erosion, sedimentation, biosecurity, lighting, dust, noise and vibration and waste impacts, these impacts are expected to be minimal and suitably managed through the implementation of a Construction Environmental Management Plan, design and ongoing operational management.
	(e) existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,	Not applicable – the Project will not impact any existing public access along the foreshore.
	(f) Aboriginal cultural heritage, practices and places,	An Aboriginal Cultural Heritage Assessment Report has been prepared at Appendix K and provides an assessment of the Aboriginal archaeological potential at the site and the impact of the Project on Aboriginal archaeological items. The report concludes that there is low potential for Aboriginal items of archaeological significance due to the highly disturbed state of land at the site and no further assessment is required. An unexpected finds protocol is included as a mitigation measure.
	(2) Development consent must not be granted to development on land to which this section applies unless the consent authority is satisfied that— (a) the development is designed, sited and will be managed to avoid an adverse impact referred to in subsection (1), or	The Project is located on land which is already used for electricity generation purposes and has been designed to fit within the existing boundaries of the existing use. Any indirect impacts of the Project to the coastal wetlands surrounding the site will be appropriately managed through the proposed design and ongoing operational management measures proposed.
	(b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or	
	(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.	

Section	Control	Assessment
2.11 Development on land within the coastal use area	(1) Development consent must not be granted to development on land that is within the coastal use area unless the consent authority—	The Project does not impact any existing access to the foreshore.
	(a) has considered whether the proposed development is likely to cause an adverse impact on the following—	
	(i) existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,	
	(ii) overshadowing, wind funnelling and the loss of views from public places to foreshores,	A Landscape and Visual Impact Assessment has been prepared for the Project at Appendix P . This included an assessment of the Project from a number of key viewpoints surrounding the site. A summary of this assessment is included at Section 17.2 which illustrates that the Project has minimal impact on existing views and does not impact any views from public places to foreshores.
	(iii) the visual amenity and scenic qualities of the coast, including coastal headlands,	The Landscape and Visual Impact Assessment at Appendix P demonstrates that the Project does not result in impacts to the visual amenity or scenic qualities of the coast. Due to the dense vegetation surrounding the site, the Project is assessed to have a negligible impact to the existing views surrounding the site.
	(iv) Aboriginal cultural heritage, practices and places,	An Aboriginal Cultural Heritage Assessment Report has been prepared at Appendix K to assess the impact of the Project on Aboriginal objects of heritage significance. The assessment concludes that the site in its current state is highly disturbed and low potential of archaeological significance. The Project will therefore consider t have negligible archaeological potential and further assessment is required.
	(v) cultural and built environment heritage, and	A Statement of Heritage Impact has been prepared for the Project and included at Appendix Q . This provides an assessment of the impact of the Project on heritage items surrounding the site and concludes that the site has negligible heritage significance. While the site is surrounded by areas of cultural and environmental heritage significance, due to the historic disturbance of land at the site, the values associated with these items are not present at the site and the Project is unlikely to impact the historic heritage values of items surrounding the site.
	(b) is satisfied that—	The Project has been appropriately designed and sited to avoid any adverse impacts . Any potential biodiversity or hydrological impacts to coastal areas will be appropriately managed through the implementation of mitigation measures included at Appendix E .
	(i) the development is designed, sited and will be managed to avoid an adverse impact referred to in paragraph (a), or	
	(ii) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or	
	(iii) if that impact cannot be minimised—the development will be managed to mitigate that impact, and	
	(c) has taken into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development.	The Project has been designed to be functional for the site with the scale to meet the demand for energy storage and manage amenity impacts such as noise.

Section	Control	Assessment
2.12 Development in coastal zone generally—development not to increase risk of coastal hazards	Development consent must not be granted to development on land within the coastal zone unless the consent authority is satisfied that the proposed development is not likely to cause increased risk of coastal hazards on that land or other land.	A WIA Report has been prepared for the Project at Appendix J which confirms the impact to water quality can be managed through the mitigation measures provided in the report and are considered acceptable.
2.13 Development in coastal zone generally—coastal management programs to be considered	Development consent must not be granted to development on land within the coastal zone unless the consent authority has taken into consideration the relevant provisions of any certified coastal management program that applies to the land.	No certified coastal management program applies to the land.
Chapter 3 Hazardous and Offensive Development		
3.11 Preparation of preliminary hazard analysis	A person who proposes to make a development application to carry out development for the purposes of a potentially hazardous industry must prepare (or cause to be prepared) a preliminary hazard analysis in accordance with the current circulars or guidelines published by the Department of Planning and submit the analysis with the development application.	A Preliminary Hazard Analysis is provided at Appendix N . This report considers the current policies and circulars relating hazardous materials at the site, consultation with public authorities including the NSW EPA and provides an assessment of the Project in the context of surrounding land uses and potential alternatives. It identified 36 potential risks associated with the Project and concluded that subject to the implementation of the recommended mitigation measures, the residual risk is deemed acceptable. Refer to Section 13.0 for a detailed assessment.
3.12 Matters for consideration by consent authorities	In determining an application to carry out development to which this Part applies, the consent authority must consider (in addition to any other matters specified in the Act or in an environmental planning instrument applying to the development)— (a) current circulars or guidelines published by the Department of Planning relating to hazardous or offensive development, and (b) whether any public authority should be consulted concerning any environmental and land use safety requirements with which the development should comply, and (c) in the case of development for the purpose of a potentially hazardous industry—a preliminary hazard analysis prepared by or on behalf of the applicant, and (d) any feasible alternatives to the carrying out of the development and the reasons for choosing the development the subject of the application (including any feasible alternatives for the location of the development and the reasons for choosing the location the subject of the application), and (e) any likely future use of the land surrounding the development.	

5.0 Stakeholder Engagement

This section describes consultation undertaken and feedback received prior to the lodgement of the EIS for the Project and engagement to be carried out following lodgement of the EIS. It is supported by an Engagement Outcomes Report which has been prepared by Ausgrid and is included at **Appendix G**. Further, it is supported by a Community Engagement Table included at **Appendix D**.

5.1 Engagement Carried Out

5.1.1 Identified Stakeholders

A comprehensive list of stakeholders, including community members, council, elected officials, government and representative groups was developed through:

- The identification of neighbours who would be impacted by the Project unless mitigation measures were implemented
- The identification of stakeholders who would have a particular interest in the Project
- The identification of stakeholders who would have information of value to the Project, for example, Aboriginal groups with cultural knowledge relating to the site
- Consultation with the DPHI. This included the community members and stakeholders listed in the Project SEARs that the Applicant was required to consult with

As a result of the above process, a number of stakeholders were identified for consultation, including:

- DPHI (Planning Assessment team)
- Sutherland Shire Council
- Office of Mark Raymond Speakman (State Member for Cronulla)
- Office of Simon Kennedy (Federal Member for Cook)
- Transport for NSW (TfNSW)
- NSW Environment Protection Authority (NSW EPA)
- Department of Climate Change, Energy, the Environment and Water (DCCEW)
- Ausgrid
- Civil Aviation Safety Authority
- DPIRD Fisheries
- Emergency Services (via Local Emergency Management Committees):
 - NSW Fire and Rescue
 - Rural Fire Service (RFS)
 - Ambulance NSW
- Community and surrounding residents and landowners, including:
 - Ampol
 - Kurnell Precinct Progress Association (KPPRA)
 - Gamay Rangers - Botany Bay
 - Kurnell Recreation Club
 - Kurnell Recreational Fishing Club
 - Kamay Botany Bay Environmental Education Centre
 - Sutherland Shire Environmental Centre
 - NSW National Parks and Wildlife Service
- Surrounding businesses and residents within Kurnell
- First Nations stakeholders including:
 - La Perouse Local Aboriginal Land Council (LALC)

- Gajaga Foundation
- First Nations community members
- First Nations Ausgrid employees – local to La Perouse

5.1.2 Consultation Methods

As detailed in the Engagement Outcomes Report (**Appendix G**), a range of consultation methods were used to engage with stakeholders. This includes activities completed prior to lodgement, through the preparation of the Scoping Report, EIS and associated technical studies. The consultation methods are detailed in **Table 12** below.

Table 11 Consultation Methods

Activity	Targeted Stakeholder	Purpose / Description
Stakeholder letters, emails and meetings	Key government stakeholders	In June 2025, Ausgrid issued letters via email to government stakeholders, including Sutherland Shire Council, State MP and Federal MP. Letters invited stakeholders to a Project briefing (meeting). Meetings were held with stakeholders throughout June and July 2025.
Direct neighbour phone calls and emails	Surrounding residents on southern side of Tasman Street	On Wednesday, 18 June 2025, two members of the Project team conducted a neighbour door knock – targeting engagement with residents on the southern side of Tasman Street (directly north of the site). Ausgrid door knocked 13 homes. Of the 13 door knocked, six conversations were held and seven ‘sorry we missed you’ letters were left. Letters included information about the Project, including an 1800 number and email address to contact the Project team.
Community newsletter #1	Surrounding residents	On Wednesday 18 June 2025, a community newsletter was distributed to 1,069 businesses and residents surrounding the site to share information to surrounding residents regarding the Project and engagement opportunities. The distribution area was identified during the development of the CSEP to ensure all near neighbours and the surrounding community were included within the distribution zone. The newsletter shared Project details, including a location map, planning and approvals process, contact information (phone, email, webpage), and details of the community information session held at Marton Community Hall (92 Captain Cook Drive, Kurnell) on Thursday 3 July, 3pm – 6pm.
Project webpage	Wider community	A dedicated webpage was established for the Project, outlining the purpose and location of the proposed Kamay Energy Storage. The webpage also included a copies of each community newsletters, Project FAQs, a ‘What is a BESS?’ fact sheet and contact details (dedicated phone number and email). The webpage has been regularly updated, including with details of community information drop-in sessions.
The Leader – advertisement	Wider community (beyond Kurnell)	On Wednesday, 2 July 2025, an ad ran in The Leader to: • Promote the community information session • Share the engagement 1800 number and email address • Ensure the broader community (beyond Kurnell) had the opportunity to engage.
Online community survey	Surrounding residents and wider community	An online survey was opened to capture feedback about community concerns and values related to the Project. The survey was promoted at the community information session.
Community information drop-in session #1	Local community	On Thursday, 3 July 2025, a community information session was held at Marton Community Hall to introduce the Project to the local community and capture feedback. There were seven members of the Project team in attendance. Close to 50 members of the community attended and spoke with the team about the Project.

Activity	Targeted Stakeholder	Purpose / Description
1800 number and email address	All stakeholders	A dedicated 1800 number and engagement email address were established at project inception.
Presentation to Kurnell Precinct Progress Residents Association (KPPRA) #1	KPPRA	On Wednesday 16 July 2025, representatives of Ausgrid presented to KPPRA to provide an overview of Project, outline the planning pathway and answer questions. Around 50 residents were in attendance. Ausgrid will continue to keep this group informed throughout the process.
Community newsletter #2	Surrounding residents and wider community	On 12 August 2025, a second community newsletter was distributed via email and letterbox drop to the community catchment and email database. The newsletter was delivered to summarise feedback received during the early consultation (particularly the community information drop-in session) and outline next steps as part of the planning process.
Community and stakeholder emails	All stakeholders	Following issue of SEARs on 26 September 2025, a total of 6 email updates were sent to the community database to provide an update on the Project, outline next steps and/or promote upcoming engagement.
Stakeholder letters, emails and meetings	All stakeholders	On 6 November 2025, an email was issued to all stakeholders to provide a project update and inform them of the upcoming information drop-in session to inform the EIS. Email updates were also issued to Sutherland Shire Council, State MP, Federal MP, First Nations community groups and the community database.
Community newsletter #3	Surrounding residents and wider community	On 11 November 2025, a community newsletter (newsletter drop) was distributed to 1,069 businesses and residents surrounding the site. This third newsletter shared a project update, planning status, and promoted details of the community information drop-in session held at Marton Community Hall on Thursday, 27 November 2025.
SIA survey	Surrounding residents and wider community	On 1 November 2025, a Social Impact Survey was release to field feedback from the community about the impact of Kamay Energy Storage. The survey closed on 1 December, and received a total of 49 responses. Refer to the Social and Economic Impact Assessment (Appendix R) for a detailed analysis of feedback received.
The Leader – advertisement	Surrounding residents and wider community	On Wednesday, 19 November 2025, a second ad ran in The Leader to: • Promote the second community information session • Share the engagement 1800 number and email address • Ensure the broader community (beyond Kurnell) had the opportunity to engage
Community information drop-in session #2	Local community	A second community information session was held at Marton Community Hall on Thursday 27 November 2025. The session was to provide preliminary findings of the EIS studies, provide a project update and capture feedback. There were around seven members of the Project team in attendance. 30 members of the community attended and spoke with the team about the Project.
Community stakeholder meeting (KPPRA members)	KPPRA	On Tuesday 11 November 2025, representatives of Ausgrid met with select KPPRA members to discuss the Project, recent community consultation and answer arising community questions. Feedback raised in this meeting informed Ausgrid's presentation at the KPPRA meeting on Wednesday, 12 November 2025. This was to ensure all community questions were answered where possible, and Ausgrid was able to have relevant information available.
Presentation to Kurnell Precinct Progress Residents Association (KPPRA) #2	KPPRA	On Wednesday 12 November 2025, representatives of Ausgrid presented to KPPRA to provide an update on the Project, early EIS finding, summarise next steps in the planning pathway and answer questions. Around 20 residents were in attendance. Ausgrid will continue to keep this group informed throughout the process.

This approach follows the *Undertaking Engagement Guidelines for State Significant Projects (2024)* by:

- Engaging with relevant NSW Government agencies, service providers, Council, close neighbours and targeted members of the community who are most likely impacted or interested in the Project
- Informing the surrounding community to the site about the Project and providing opportunities to engage directly with the Project team
- Explaining how community feedback will be considered and documented
- Providing relevant information in plain English so that potential impacts and implications can be readily understood; and
- Providing channels of communication to gather feedback.

5.1.3 Aboriginal Community Consultation

Consultation was undertaken with Aboriginal groups during the preparation of the Engagement Outcomes Report and the Aboriginal Cultural Heritage Assessment as discussed in **Appendix G**. The aim of the consultation process was to form meaningful relationships with the Indigenous communities.

Consultation was undertaken in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* and the *DECCW September 2010 Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*. The Aboriginal consultation process as part of the ACHAR involved the following stages:

- Identification of those people who should be consulted for the Project
- Inviting Aboriginal people to register their interest in being consulted for the Project
- Providing information regarding the nature and scope of the Project
- Providing information regarding the nature and scope of the Project to the Aboriginal people who have registered an interest in being consulted – the Registered Aboriginal Parties (RAPs)
- Providing opportunities for RAPs to comment on the proposed methodology for cultural heritage consultation
- Presenting information about the potential impacts of the Project for the RAPs to comment on

A summary of the Aboriginal consultation process and outcomes is provided in the ACHA at **Appendix K**.

5.2 Stakeholder Views

The key issues and matters raised by Government and Agency stakeholders during the preparation of the Scoping Report, SEARs and EIS and associated Project responses are outlined in **Table 12**, while matters raised by the Community are summarised and addressed in **Table 14**.

Table 12 Government and Agency Stakeholder Views

Key issues	Project Response
Sutherland Shire Council	
• Questions raised by Council about community consultation, and how Ausgrid has ensured the community is adequately consulted. • Also, how community feedback will be managed through the planning process.	• Ausgrid undertook community engagement between June and December 2025. • Engagement activities encouraged feedback through a range of channels, including face-to-face sessions, digital surveys, email, phone, and letterbox drops. • Ausgrid letterbox dropped 1,069 homes and businesses, received 49 survey responses, and held more than 90 conversations in person, via phone and/or email. • Ausgrid will continue to provide community updates at each phase of the Project – planning, construction, and operation. • Ausgrid is incorporating community feedback to include its Project design, and ensuring all concerns (i.e. noise, visual, fire, hazards) are thoroughly assessed in the EIS.
• Questions from Council regarding VPAs and how they will be governed throughout this planning process.	• Ausgrid will engage further with Council to ensure its views on VPAs and benefit sharing are fully considered in the decision-making process.

Key issues	Project Response
Interest in environmental impact and benefits, and how the Project will contribute to the community.	- Ausgrid is committed to delivering outcomes that support both sustainability initiatives and local communities: - The Project is designed to align with broader environmental goals, including supporting the transition to renewable energy and improving grid stability. - Detailed assessments have been undertaken as part of this EIS, covering biodiversity (Appendix H), noise (Appendix L), air quality, Aboriginal heritage (Appendix K) and non-Aboriginal heritage (Appendix Q) considerations. Mitigation measures will be implemented to minimise any potential impacts. - The Project is designed to build stability and resilience within the distribution network and contribute to a cleaner energy future. It is expected to create local jobs during construction and operation, stimulate investment, and support economic growth in the region.
Elected Councillors – Ward A	
Community consultation	- Ausgrid undertook community engagement between June and December 2025. - Engagement activities encouraged feedback through a range of channels, including face-to-face sessions, digital surveys, email, phone, and letterbox drops. - Ausgrid letterbox dropped 1,069 homes and businesses, received 49 survey responses, and held more than 90 conversations in person, via phone and/or email. - Ausgrid will continue to provide community updates at each phase of the Project – planning, construction, and operation.
Noise and mitigation measures for residents	- This EIS includes detailed acoustic modelling, considering nearby residences, sound propagation, and atmospheric conditions based on the noise and vibration assessment at Appendix L. - Proposed noise mitigation measures include noise walls and reduced fan speeds to ensure noise levels comply with the relevant noise criteria. - Additional noise modelling will be undertaken once the Original Equipment Manufacturer (OEM) is selected. - Ongoing testing during construction and operation will ensure compliance. - For more information on acoustic modelling, refer to the Noise and Vibration Impact Assessment at Appendix L submitted with the EIS.
Office of Mark Raymond Speakman (Member for Cronulla) and Simon Kennedy (Member for Cook)	
Community Engagement	- Ausgrid undertook community engagement between June and December 2025. - Engagement activities encouraged feedback through a range of channels, including face-to-face sessions, digital surveys, email, phone, and letterbox drops. - Ausgrid letterbox dropped 1,069 homes and businesses, received 49 survey responses, and held more than 90 conversations in person, via phone and/or email. - Ausgrid will continue to provide community updates at each phase of the Project – planning, construction, and operation. - Ausgrid is incorporating community feedback to include its Project design, and ensuring all concerns (i.e. noise, visual, fire, hazards) are assessed in the EIS.

Table 13 Consultation Carried out with the community

Key issues	Project Response
Noise Impacts and how they will be managed for residents close by.	• Ausgrid undertook community engagement between June and December 2025. • Engagement activities encouraged feedback through a range of channels, including face-to-face sessions, digital surveys, email, phone, and letterbox drops. • Ausgrid letterbox dropped 1,069 homes and businesses, received 49 survey responses, and held more than 90 conversations in person, via phone and/or email. • Ausgrid will continue to provide community updates at each phase of the Project – planning, construction, and operation. • Ausgrid is incorporating community feedback to include its Project design, and ensuring all concerns (i.e. noise, visual, fire, hazards) are assessed in the EIS.
Proposed location of noise walls.	• The EIS outlines proposed noise wall locations based on acoustic modelling (refer to Appendix L). • Based on the initial modelling available in the EIS, the proposed noise wall will likely wrap around the edges of the battery units. • The proposed location and design of the battery units consider land slope, existing structures, surrounding noise sources, and topography.
Questions raised regarding the proposed battery size increase to 150MW	• Up to 150MW (stated within planning documentation) allows for an anticipated improvement in technology by the time this Project is being built. • It's a slight change and considers the amount of power that can be absorbed. • The storage capacity (2hrs) has not changed. • Ausgrid will not be expanding the site footprint. • There are no additional risks (safety, environment, community) associated with this change.
Lighting	• If some lighting is required for security purposes, it will be directed away from residents. • Refer to Lighting Report at Appendix S for more information.
Flooding	• The WIA Report (Appendix J) includes modelling results with how the site performs under different flood scenarios. • The site will include stormwater drainage systems - to manage water flow and reduce pooling. • These systems will be designed so the site can handle heavy rain and protect both the surrounding environment, and electricity infrastructure. • Refer to the WIA Report (Appendix J) for more information.
Purpose of Diesel generator including its need and impact	• The proposed diesel generator is intended for emergency backup and commissioning support - not as a primary or regular power source. • Noise assessments have considered the generator as part of operational impacts, and outcomes are outlined in the Noise and Vibration Impact Assessment.
Battery technology and selection criteria	• Ausgrid has not elected a battery provider yet. • All assessments within the EIS consider the worst-case scenario to allow for contingency. • Once a provider is chosen, there is additional modelling that will need to be done to consider the chosen technology. • While there are many elements that contribute to the decision, noise is a key criterion.
Lithium Iron Phosphate and why it is the preferred option	• Lithium Iron Phosphate is less flammable than Lithium NMC (Nickel Manganese Cobalt Oxide). • Older BESS technology used NMC chemistry as it has a higher energy density.

Key issues	Project Response
Fire Risk	• Ausgrid is required to meet new standards for fire safety. • This includes cooling systems to prevent overheating and isolation systems to shut down and separate any affected unit, stopping fire from spreading. • The design includes safe spacing between units and on-site water. • It means that in the unlikely event a fire were to start within one unit, it will not spread to other units. • The testing that was completed to achieve these requirements, considered all types of extreme weather conditions (including high winds).
Potential health impacts	• Potential hazards and risks have been assessed within the Preliminary Hazard Analysis (PHA), including electromagnetic fields (EMF) and toxic plumes. • EMF levels from the Project are very low - similar to everyday appliances - and well below international health guidelines. • Firewater containment systems will prevent contaminated water from entering nearby waterways.
Biodiversity and impacts to Towra Point Reserve and surrounding wetlands	• Biodiversity impacts have been assessed as part of the EIS. The site (within the fenced boundary) has low ecological value - mostly harstand and introduced grasses and weeds - and forms part of the existing Kurnell Zone Substation. • Towra Point Nature Reserve nearby is internationally significant and has been considered in all assessments. • Indirect impacts like stormwater runoff will be managed through detailed construction and operational management plans if the Project is approved.

5.3 Engagement to be Carried Out

The Project team are committed to ongoing community consultation following the submission of the EIS. This includes during the exhibition and assessment of the Project and following a determination.

Following its submission, DPHI will exhibit the EIS on the Major Projects NSW Website and invite submissions from government agencies and the public. Once the exhibition period is complete, DPHI may require the Applicant to prepare a Submissions Report in response to issues raised. The Project team will continue to liaise with DPHI and stakeholders during Project assessment to address queries.

6.0 Assessment of Impacts

The following chapters address the potential impacts of the Project on the environment in accordance with the matters for consideration set out in the SEARs dated 24 September 2025 (see **Appendix A**), to the extent that they require further assessment following the risk assessment completed in **Section 6.1**. The Mitigation Measures proposed to mitigate any environmental impacts are provided at **Appendix E** and complement the findings of this section and the following chapters.

6.1 Preliminary Risk Assessment

This section responds to the following SEAR to undertake: 'a risk assessment of the potential impacts of the Project, identifying the key issues for further assessment'.

The below preliminary risk assessment reflects the findings of the Scoping Report and has been undertaken using an adapted methodology from Australian Standard AS4369.1999 Risk Management and Environmental Risk Tools. It has been carried out to determine which potential environmental impacts require further detailed assessment.

Figure 23 indicates the significance of environmental impacts and assigns a value between 1 and 5 based on:

- the receiving environment
- the level of understanding of the type and extent of impacts; and
- the likely community response to the environmental consequence of the Project.

The manageability of environmental impact is assigned a value between 1 and 5 based on:

- the complexity of potential mitigation measures
- the known level of performance of the safeguards proposed; and
- the opportunity for adaptive management.

The sum of the values assigned provides an indicative ranking of potential risk of impacts during construction and operation prior to and excluding mitigation measures proposed in this EIS. A detailed assessment of environmental impacts is provided in the following Chapters if the impacts are low/medium. Where potential impacts are considered low prior to proposed mitigation, a targeted assessment is provided in **Chapter 17**. At the end of each environmental assessment chapter, a residual risk rating is provided that accounts for the assessment findings and implementation of proposed mitigation measures.

In **Table 14**, "C" represents the construction phase, while "O" represents the operational phase.

Significance of impact	Manageability of impact				
	5 Complex	4 Substantial	3 Elementary	2 Standard	1 Simple
1 – Low	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)	2 (Low)
2 – Minor	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)
3 – Moderate	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)
4 – High	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)
5 – Extreme	10 (High)	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)

Figure 23 Risk Assessment Matrix

Source: Colliers Urban Planning

Table 14 *Environmental Risk Assessment*

Item	Phase	Potential Environmental Impact	Comment	Risk Assessment			Detailed Assessment required?
				Significance of Impact	Manageability of Impact	Potential Risk prior to Mitigation	
Biodiversity	C / O	- Disturbance to fauna in the nearby wetland area from noise and/or light spill - Injury or mortality of fauna species, travelling through the site due to construction activities and use of vehicles on site - Spread of invasive species (e.g. weeds) - Erosion and loss of topsoil - Impacts on aquatic vertebrate species from indirect stormwater quality impacts - Indirect impacts to biodiversity values off-site - Off-site impacts to migratory bird species in Towra Point wetlands (e.g. operational noise, lighting, stormwater and firewater management).	- The site is adjacent to significant wetlands and biodiversity, and is therefore a sensitive receiving environment. - However, the Project has been designed to avoid any direct impacts to the adjacent wetlands and biodiversity. - Moreover, based on the disturbed nature of the site, which is hardstand and unpaved areas inside the existing Kurnell Zone Substation land, it is likely the Project would not result in significant impacts on biodiversity. - Notwithstanding, a BDAR has been prepared as part of the EIS, and further mitigation measures for construction and the detailed design are proposed. - Subject to implementation of those mitigation measures, the Project is considered unlikely to have a significant impact on threatened species, ecological communities or their habitats.	C = 3 O = 3	C = 3 O = 2	C = 6 (medium) O = 5 (low/medium)	Yes, refer to Chapter 7.0
Soils, groundwater and contamination	C / O	- Excavations and earth movement may cause soil erosion and sedimentation (including the potential for sediment laden run-off) - Potential impacts to the hydrological functioning of the nearby Towra Point wetland area due to sedimentation and surface water run-off - Vehicle movement may cause soil compaction, or disturbance and dispersion of soil including dust generation - Potential for chemical and fuel spills during construction and/or operation, which may result in localised contamination of soils and groundwater.	- There is a likelihood of potentially contaminated soil on the site, but the PSI has determined that risk is limited to a low and moderate level ,as exposure is expected to be limited given the minimal proposed disturbance to soils. - Groundwater impacts are expected to be limited as the Project is unlikely to disturb groundwater. - Mitigation measures related to soil, erosion and groundwater are expected to be standard and in accordance with the Blue Book.	C = 3 O = 2	C = 2 O = 1	C = 5 (low/medium) O = 3 (low/medium)	Yes, refer to Chapter 8.0

Item	Phase	Potential Environmental Impact	Comment	Risk Assessment			Detailed Assessment required?
				Significance of Impact	Manageability of Impact	Potential Risk prior to Mitigation	
Surface water and flooding	C / O	- Accidental spill or discharge of chemicals or hydrocarbons, such as fuels and oils in vehicles or equipment with the potential to contaminate surface water and groundwater - Erosion of soil and sedimentation through run off and transport of eroded sediments to Towra Point wetland and other waterways particularly during high rainfall events - Flooding during construction of the BESS resulting in the inundation of the construction site and increased flood hazard for construction workers. Flooding during the operational phase has the potential impact the BESS and associated infrastructure	- The surrounding wetlands are a sensitive receiving environment, though the Project will be designed to mitigate offsite flooding impacts. - Management of potential spills, erosion and runoff will be managed in accordance with a CEMP prepared prior to construction commencing which is standard practice and will incorporate standard mitigation measures such as those in accordance with the Blue Book.	C = 3 O = 2	O = 2 O = 2	C = 5 (low/medium) O = 4 (low/medium)	Yes, refer to Chapter 9.0
Aboriginal heritage	C	Potential construction impacts to Site ID 52-3-0212 is located within the site boundary (north-west corner).	- The exact location of the site is unknown and cannot be ascertained. Notwithstanding, there are no areas of potential archaeological deposit identified on the site. - An ACHAR has been prepared as part of this EIS.	C = 2	C = 2	C = 4 (low/medium)	Yes, refer to Chapter 10.0
Noise and Vibration	C / O	- Construction noise and vibration associated with earthworks - Operational noise from the Project (cooling fans for the battery units).	- The existing environment has ambient noise sources including the existing Kurnell Zone Substation, vehicle traffic on Captain Cook Drive and overhead flight path air traffic (Sydney Airport is approximately 4km north of the site). - There are sensitive residential, recreation and wetland receivers within 500m of the site. - Mitigation measures are expected to be standard, such as installation of noise walls.	C = 3 O = 3	O = 2 O = 2	C = 5 (low/medium) O = 5 (low/medium)	Yes, refer to Chapter 11.0

Item	Phase	Potential Environmental Impact	Comment	Risk Assessment			Detailed Assessment required?
				Significance of Impact	Manageability of Impact	Potential Risk prior to Mitigation	
Traffic and Transport	C / O	- Construction of the Project would generate temporary increased traffic volumes on nearby roads. This would include both light vehicles used to transport workers and materials, as well as heavy vehicles to transport equipment. - During operation, the Project would generate low levels of traffic and mainly involve light vehicle movements for maintenance personnel - Potential cumulative impacts with other construction projects, where the projects construction periods overlap.	- The surrounding locality is of an industrial nature within which construction and heavy vehicles are already present. - The Project is expected to generate a low level of operational traffic. - There is no change to vehicular access arrangements to the site. - Mitigation of potential construction traffic impacts will be managed through measures incorporated into a Construction Traffic Management Plan which is standard practice.	C = 2 O = 1	O = 2 O = 1	C = 3 (low/medium) O = 3 (low/medium)	Yes, refer to Chapter 12.0
Hazards and Risk	O	- Risk of fire associated with thermal runaway of the battery containers and associated release of emissions. This has associated potential operational impacts with any fire water management. - The Project would generate lower levels of Electromagnetic Fields (EMF) than the existing Kurnell Zone Substation and is unlikely to produce EMF at levels of concern. - Cumulative environmental hazards from the Ampol Kurnell Terminal.	- The design and installation of the Project will be undertaken in accordance with relevant Australian Standards and manufacturer guidelines and will be operated in accordance with the manufacturer's requirements. Appropriate fire controls would be incorporated into the detailed design and considered as part of a Fire Safety - The PHA prepared as part of the EIS identifies the potential hazardous risks, recommends measures to minimise risk, and recommends site specific mitigation measures to ensure no unacceptable impact.	O = 3	O = 3	O = 6 (medium)	Yes, refer to Chapter 13.0
Bushfire	O	Bushfire risk associated with adjacent vegetation in the event of a fire.	- There is no vegetation on the site, and the surrounding wetlands are not identified as a high risk in terms of bushfire risk. - Standard mitigations are proposed in the Bushfire Assessment	O = 2	O = 2	O = 4 (low/medium)	Yes, refer to Chapter 14.0
Land Use Conflict	C / O	Amenity impacts to neighbouring land uses during construction and operation including residential	- The Project is suitable for the site as it currently contains electricity generating infrastructure. - The site is within an existing industrial area.	C = 1 O = 3	C = 1 O = 2	C = 2 (low) O = 5 (low)	Yes, refer to Chapter 15.0

Item	Phase	Potential Environmental Impact	Comment	Risk Assessment			Detailed Assessment required?
				Significance of Impact	Manageability of Impact	Potential Risk prior to Mitigation	
		properties 130m to the north, and adjacent wetlands.	- The Project will not result in any direct impacts to the surrounding vegetation. - Risks associated with noise, stormwater, flooding and hazards can be readily managed through mitigation measures. - The Project will therefore be compatible with the surrounding land uses.				
Social and Economic	C / O	- Positive impacts including employment of construction workforce, job creation during operation, benefits to nearby businesses from passing trade and during construction/operation - Negative impacts including temporary disruptions to road users, noise from operation and construction impacts including noise, vibration, dust and traffic	- A Social and Economic Impact Assessment has been prepared as part of the EIS. - The potential positive and negative impacts are relatively standard and characteristic of a BESS.	C = 2 O = 2	O = 2 O = 2	C = 4 (low/medium) O = 4 (low/medium)	Yes, refer to Chapter 16.0
Non-Aboriginal Heritage	C / O	Indirect impacts to the heritage significance of Towra Point Nature Reserve which is a heritage item	- The Project will not result in any direct impacts to the Towra Point Nature Reserve. - There is no change to the use of the site for electrical infrastructure, and therefore there would not be any additional heritage impact.	O = 2	O = 1	O = 3 (low)	No, refer to Chapter 17.1
Visual	O	Visual impact of the Project when viewed from sensitive visual receivers	- The visual character of the site and surrounds is a mix of industrial and environmental conservation areas, there are no sensitive receivers in the Project's immediate vicinity. - Due to the relatively flat surrounding topography and extensive vegetation, the LVIA shows that the Project will not be able to be seen from sensitive receivers.	O = 1	O = 2	O = 3 (low)	No, refer to Chapter 17.2
Waste	C / O	- Construction and operational waste management, including management of hazardous waste. - Management of waste generated during battery decommissioning.	- Construction waste will be managed through a Construction Environmental Management Plan - Minimal waste will be generated during operation.	C = 2 O = 1	C = 1 O = 1	C = 3 (low) O = 2 (low)	No, refer to Chapter 17.3

Item	Phase	Potential Environmental Impact	Comment	Risk Assessment			Detailed Assessment required?
				Significance of Impact	Manageability of Impact	Potential Risk prior to Mitigation	
			Management of battery waste during decommissioning will follow standard procedures which are not expected to result in direct environmental impacts.				
Lighting	O	Light spill to surrounding wetlands and fauna	- Proposed lighting for the Project will be designed to minimise spill light and align with AS/NZS 4282:2023. - Proposed noise walls will contribute to light spill mitigation	O = 1	O = 2	O = 3 (low)	No, refer to Chapter 17.4
Air Quality	C / O	- Air emissions would be generated during construction by vehicles that transport to and from the site as well as plant and machinery. - Impacts to local air quality from the intermittently use of backup diesel generators within the BESS site during operations.	- Construction related emissions would only be temporary and not expected to have a significant impact on local air quality. - The backup diesel generator will only activate during emergency shut-down periods, e.g. when there is no power and the battery units would be disabled. These events are irregular and would only occur for short periods of time. - The backup diesel generator would otherwise only be run for one hour a month for monthly maintenance testing. - Ausgrid also estimates emergency unplanned works to occur approximately less than one hour per year during which the backup diesel generator would be in use. - The frequency of use of the back-up generator will therefore be so infrequent that it will have a negligible impact on local or regional air quality.	O = 1	O = 1	O = 2 (low)	No
Aviation	C	Potential risk to aircraft due to height of cranes or other structures.	- The proposed height of the Project is well-below the Obstacle Limitation Surface Level (approximately 100m AHD) and the Procedures for Air Navigation services – Aircraft Operations Surfaces (88.5m AHD) for Sydney Airport, and therefore does not pose any risk to aviation. - If temporary structures are required that penetrate protected airspace then	O = 1	O = 1	O = 2 (low)	No

Item	Phase	Potential Environmental Impact	Comment	Risk Assessment			Detailed Assessment required?
				Significance of Impact	Manageability of Impact	Potential Risk prior to Mitigation	
			appropriate approvals would be obtained under the Airports (Protection of Airspace) Regulations 1996.				

7.0 Biodiversity

A BDAR has been prepared by AEP at **Appendix H** It assesses the potential direct and indirect biodiversity impacts associated with the construction and operation of the Project in accordance with the Biodiversity Assessment Method 2020 (BAM) established under Section 6.7 of the *Biodiversity Conservation Act 2016* (BC Act).

The assessment of the potential impacts to biodiversity have been informed by on-site field surveys and desktop studies including a database search within 1500m of the site on the atlas of wildlife and 5km of the site on the protected matters search tool. The assessment approach was informed by the following key principles:

- Assessing relevant datasets including State Vegetation Type Map 2024
- Identifying vascular plant species occurring within the site, including any threatened species listed under the BC Act or EPBC Act
- Identifying and mapping the extent of vegetation communities within the site, including any TECs listed under the BC Act or EPBC Act
- Identifying fauna use within the site, including habitat features
- Assessing the likely use of the site by local flora and fauna
- Consideration of whether entry into the NSW Biodiversity Offsets Scheme will be required based on biodiversity values, area clearing thresholds, direct and indirect impacts.

7.1 Existing Environment

7.1.1 Vegetation

Vegetation on the site

No vegetation communities are mapped as occurring on the site on the State Vegetation Map 2024. The site currently consists of bare earth and hardstand areas with some exotic grasses.

Vegetation surrounding the Project Area

Vegetation surrounding the site consists of the following species and plant communities:

- The site is bordered by tidal flats which are identified as coastal wetlands under the RH SEPP and are dominated by grey mangrove (*Avicennia marina* subsp. *Australasica*). The surrounding mangrove areas have been identified as commensurate with Plant Community Type (PCT) 4091 Grey Mangrove-River Mangrove Forest
- Vegetation dominated by *Casuarina glauca* is commensurate to PCT 4028 Estuarine Swamp Oak Twig-rush Forest. This is associated with the following state and federally listed threatened ecological communities:
 - BC Act (Endangered): Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin, and South East Corner Bioregions; and
 - EPBC Act (Endangered): Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community.

While the above PCTs do not occur within the Project Area, minor canopy overhang of PCT 4028 over the fence line occurs at the northern and eastern boundaries of the Project Area.

Of lesser importance, a managed APZ is located close to the border of the site and contains predominately exotic grasses. Between the APZ and wetland areas consist of primarily *Lantana camara* and *Chrysanthemoides monilifera*.

The location of vegetation surveyed surrounding the Project Area, that is beyond the fence line, is shown in **Figure 24**.



Figure 24 *Surveyed vegetation on the site*

Source: Anderson EP

7.1.2 Habitat

The site comprises of predominately hardstand areas, infrastructure and exotic grasses which offer limited habitat for fauna species. AEP have determined that the site in its current state is unlikely to support habitat, as it contains no hollow-bearing trees, stick nest dams, natural waterbodies or other habitat features.

7.1.3 Fauna

Ten species were recorded by AEP during the on-site inspection including one Common Eastern Froglet and nine bird species, which were observed flying overhead or in adjacent vegetation. AEP have determined that the site is unlikely to support significant fauna activity due the site's current use and condition. In addition to this, the site is unlikely to serve as critical habitat by threatened species as the adjacent wetlands provide more suitable habitat which is more likely to be used by threatened fauna.

7.2 Assessment of Impacts

7.2.1 Direct Impacts

The design of the Project has avoided direct impacts to native vegetation and threatened ecological communities by being located entirely within the existing Kurnell Zone Substation property boundary.

No direct impacts to vegetation are expected to occur, however for the purposes of the BAM-C in order to generate a candidate species list, an impact of 0.01Ha to PCT 4028 has been included. A summary of the vegetation integrity scores for PCT 4028 before and after the Project including the implementation of the avoidance and minimisation measures is included below. A net change in the PCT's integrity score of -33.4 is expected.

Table 15 Impacts to vegetation integrity

Vegetation zone	PCT ID	Area (ha)	Before Project				After Project				Change
			Composition	Structure	Function	VI score	Composition	Structure	Function	VI score	Change in VI score
PCT 4028 - Degraded	4028	0.01	15.8	36.2	65	33.4	0	0	0	-	-33.4

7.2.2 Indirect Impacts

Given the proximity of sensitive coastal wetlands and estuarine habitats associated with Botany Bay and the Towra Point wetland complex, potential indirect impacts include noise, dust, lighting and changes to stormwater quality. The Project incorporates several measures to avoid and minimise potential indirect impacts to adjacent biodiversity values. These include:

- Locating the Project within an existing disturbed footprint and avoiding impacts to adjacent native vegetation and wetlands
- Implementation during construction of erosion and sediment control measures consistent with *Managing Urban Stormwater: Soils and Construction* (Landcom 2004)
- Preparation and implementation of a CEMP addressing erosion and sediment control, dust suppression, noise management, biosecurity and waste management
- Installation of directional, shielded lighting with full cut-off luminaires and a maximum correlated colour temperature of 3000K to minimise light spill and disturbance to migratory shorebirds and nocturnal fauna.

A summary of the residual indirect impacts following proposed mitigation measures is included below at **Table 16**.

Table 16 Summary of residual indirect impacts

Indirect impact	Impacted entities	Likelihood and consequences
Inadvertent impacts on adjacent habitat or vegetation	Estuarine Swamp Oak Twig-rush Forest (PCT 4028) Grey Mangrove-River Mangrove Forest (PCT 4091)	The Project is unlikely to result in inadvertent impacts on adjacent vegetation due to the works taking place within the existing fenced facility.
Reduced viability of adjacent habitat due to edge effects	Estuarine Swamp Oak Twig-rush Forest (PCT 4028) Grey Mangrove-River Mangrove Forest (PCT 4091)	The Project will not result in a significant increase in edge effects impacting upon adjacent vegetation. The adjacent vegetation currently experiences edge effects with a high presence of exotic species and high threat weeds. An APZ currently surrounds the site and APZ management will continue without change as part of existing network standards for substations. While additional edge effects from the Project are not expected, edge effects such as changes in vegetation structure, increased exotic plant growth, and altered fauna behaviour can result from construction activities. The potential for edge effects will be mitigated through implementation of hygiene protocols to prevent the spread of weeds or pathogens.

Indirect impact	Impacted entities	Likelihood and consequences
Reduced viability of adjacent habitat due to noise, dust or light spill	Native fauna	Construction of the Project will introduce additional vehicles and machinery to the site, leading to temporary increases in noise, dust, light, and vibration. However, mitigation measures outlined above and standard construction environmental controls will ensure potential impacts are minimised, including dust suppression measures. Lighting used during construction and operation will be designed to minimise light spill into adjacent habitat.
Transport of weeds and pathogens from the site to adjacent vegetation	Estuarine Swamp Oak Twig-rush Forest (PCT 4028) Grey Mangrove-River Mangrove Forest (PCT 4091)	Given the Project is contained within the existing fenced Kurnell Zone Substation which lacks native vegetation and problematic weeds, it is unlikely for the Project to result in the transport of weeds and pathogens into adjacent vegetation. However, increased movement of vehicles and personnel in and out of the site could cause the spread of weeds and pathogens. The potential introduction and spread of weeds and pathogens will be mitigated through implementation of hygiene protocols.
Increased risk of starvation or exposure, and loss of shade or shelter	Arboreal species	Vegetation removal is limited to managed exotic lawns and the Project location has been positioned away from vegetation. Therefore, an increase to risk of starvation or exposure, and loss of shade or shelter is highly unlikely.
Trampling of threatened flora species	Threatened flora	Indirect impacts to threatened flora are unlikely to occur. No threatened flora species were recorded within the site.
Inhibition of nitrogen fixation and increased soil salinity	N/A	The Project will not result in the removal of native vegetation or large areas of non-native vegetation. The CEMP and Erosion and Sediment Control Plan and Soil and Water Management Plan will guide stormwater management during the construction phase. As such it is not considered likely that nitrogen fixation or soil salinity will be impacted such that adjacent habitat will be negatively affected.
Fertiliser and herbicide drift	Adjacent vegetation	With the implementation of mitigation measures, indirect impacts caused by drift are unlikely. Measures include limiting weed removal to mechanical methods during clearing stages and APZ management.
Removal and disturbance of wood and rocks, including bush rocks	N/A	Given that the Project comprises a BESS with minimal human activity, it is unlikely for wood or rock disturbance to occur as a result of the Project.
Increase in predators or pest animal populations	N/A	There will be no notable change in vegetation due to the Project and no notable difference between the existing use and the operation of the Project. Thus, the Project is unlikely to result in an increase in predator or pest animal populations.
Sedimentation and erosion	N/A	The Project has the potential to cause sedimentation and erosion in the construction site and adjacent habitats due to soil disturbance from earthworks. Appropriate control measures to mitigate impacts include sedimentation barriers and relevant industry guidelines such as <i>'the Blue Book'</i> (Landcom 2004).
Increased human activity and disturbance	Local fauna & vegetation	High likelihood during construction phase. Adherence to a CEMP and mitigation measures such as restricted construction hours will minimise impacts. During the operation phase human activity will return to pre-Project levels.

7.2.3 Cumulative Impacts

Potential cumulative impacts during construction will be temporary and managed through a CEMP. In addition, the disturbance associated with the Project is relatively small in scale and occurs within an already highly modified industrial environment that is subject to ongoing infrastructure development and operational disturbance. The Project therefore represents a minor incremental contribution to existing disturbance within the locality from a biodiversity perspective.

Operational impacts are expected to be limited to minor increases in maintenance activities within the existing Kurnell Zone Substation footprint. Given the extensive existing infrastructure and lighting within the locality, the incremental contribution of the Project to cumulative operational impacts is expected to be negligible. Accordingly, the Project is not expected to result in significant cumulative impacts on biodiversity values.

7.2.4 Ecosystem Credit

The BDAR has determined that one ecosystem credit is required to offset 0.01 hectare of (indirectly) impacted Swamp Oak Floodplain Forest (PCT 4028).

7.3 Mitigation Measures

The Project is not expected to result in significant direct or indirect impacts to biodiversity values subject to implementation of the following mitigation measures in **Table 17** to mitigate potential indirect impacts to surrounding vegetation and habitat. Application of the following mitigation measure will result in a residual environmental risk of 2 (low).

Table 17 Mitigation Measures – Biodiversity

Mitigation Measure ID	Mitigation Measure	Timing
BD-1	Environmental induction will be provided for all workers covering ecological values and protection measures.	Prior to construction
BD-2	Regular inspection and maintenance of erosion and sediment control measures will be carried out.	Prior to construction
BD-3	Delineation and signage of surrounding retained native vegetation will be implemented.	Prior to construction
BD-4	Stockpiles to existing cleared areas will be restricted.	Construction
BD-5	Water will be applied to stockpile areas during windy conditions.	Construction
BD-6	Dust suppression measures will be implemented during earthworks.	Construction
BD-7	Hygiene protocols will be used to prevent the spread of weeds or pathogens.	Construction
BD-8	Waste bins and waste covers will be used. There will be appropriate removal and disposal of waste.	Construction
BD-9	An Erosion and Sediment Control Plan (ESCP) will be implemented consistent with <i>Managing Urban Stormwater: Soils and Construction (Landcom 2004)</i>	Prior to construction
BD-10	Stormwater runoff will be managed during operation to maintain pre-Project runoff quality and volume	Operation
BD-11	Directional, shielded luminaires will be used to minimise light spill and skyglow	Operation
BD-12	Impacts associated with the Project will be offset by one ecosystem credit.	Prior to construction

8.0 Soils, Groundwater and Contamination

8.1 Introduction and Methodology

In response to the SEARs, a Preliminary Site Investigation (PSI) (**Appendix I**) has been prepared by NEO Consulting to provide a preliminary assessment of potentially contaminating activities which may impact at the site. The assessment was carried out through a desktop study and an on-site investigation. The key objectives of the PSI include:

- A site inspection to identify potential sources of contamination on site
- Historical investigations relating to the site (if any)
- Review of current and historical Certificates of Title
- Local Council records and planning certificates
- NSW EPA Contaminated Land Records
- NSW POEO Register
- Review of local geological and hydrogeological information, including an evaluation of the NSW Groundwater registered groundwater bore database
- Review of Acid Sulfate Soil data maps
- Development of a Conceptual Site Model (CSM) to identify the connections between potential sources of contamination and exposure pathways, human and/or ecological receptors
- Recommendations for additional investigations (if any), based on the identified data gaps and findings of this report

In addition, a Water Impact Assessment (WIA) has been prepared by GHD for the Project and is included at **Appendix J**, which assesses impacts relating to groundwater.

8.2 Existing Environment

8.2.1 Site History

A review of historical aerial imagery indicates that the site was part of riparian land east of Quibary Bay in the 1950s. By 1972 the area had been filled to create the current site for use for Kurnell Zone Substation operations and has remained largely unchanged.

Surrounding the site, land to the east has been historically used as an oil refinery and storage and distribution terminal. The terminal site ceased refining operations in 2012 but continued to import finished and processed fuels for storage and distribution. Groundwater contamination is present at the refinery.

The site currently exists within a disturbed terrain soil landscape and contains extensive imported fill comprising of dredged sand, mud, rocks, local soils, demolition rubble and industrial and household waste.

A SafeWork NSW search was undertaken on 3 December 2025 and found there is no history of dangerous goods being stored on the site.

8.2.2 Existing Groundwater Conditions

Groundwater surrounding the site flows towards Quibray Bay and due to the site's proximity to intertidal wetlands, groundwater levels are likely to be variable with the tide. Groundwater levels in the boreholes tested were generally between 1.45 and 1.6 metres below ground level (mbgl) at the time of sampling, with the exception of one groundwater monitoring well which indicated groundwater was present at 1.21 mbgl.

Groundwater receptors surrounding the site include several bores drilled by Caltex Refineries (now Ampol) for the purpose of groundwater remediation and some residents of Kurnell access groundwater for outdoor use and garden purposes.

8.2.3 Existing Geological Conditions

Data obtained from the Geological Survey of NSW and the Geoscience Australia Stratigraphic Units Database (MinView) indicate that the site is underlain by Anthropogenic deposits. These comprise Anthropocene materials ranging from large man-made clasts (e.g. sandy soils and building demolition rubble) to quarried natural boulders, within a sand- to clay-sized matrix.

8.2.4 Acid Sulfate Soils

Acid Sulfate Soil risk maps indicate that the site is within a H2 risk area with a high probability of Acid Sulfate Soils occurring at depths of 1-3 metres below ground surface (see **Figure 22**).

8.2.5 Potential Site Contamination

Based on the historical land uses at and surrounding the site, the following areas of environmental concern have been identified with a high likelihood of contamination:

- **Entire site:** Contamination from importation of fill material from unknown origin, including the following Contaminants of Potential Concern (CoPC), Total Recoverable Hydrocarbons, Benzene Toluene Ethylbenzene and Xylene, Polycyclic Aromatic Hydrocarbon, Organochlorine Pesticides, Organophosphorus Pesticides, Metals, and Asbestos
- **Groundwater:** Contamination due to activities on surrounding industrial sites, specifically the Kurnell Ampol Terminal. CoPC include Total Recoverable Hydrocarbons, Benzene Toluene Ethylbenzene and Xylene, Polycyclic Aromatic Hydrocarbon, Metals, Per- and Polyfluoroalkyl Substances, Ammonia, phosphorus, phosphate and nitrate.

8.3 Assessment of Impacts

8.3.1 Contamination

Subsequently, a Conceptual Site Model (CSM) was developed to assess the potential risks associated with contamination source and migration pathways, receptors and exposure mechanisms. The CSM is summarised below at **Table 19**.

Table 18 Conceptual Site Model

Potential Sources and Mechanism of Contamination	Potential Receptor	Potential Exposure Pathway	Complete connection	Risk	Comments
Contaminated soil from historical importation of uncontrolled fill across the site. (Entrained in Fill)	Future site occupant, construction workers, general public, surrounding sensitive receptors	Dermal contact, inhalation/ ingestion of particulates.	Complete (current)	Low	Exposure to potentially contaminated soils is likely to be limited due to limited access to the site.
			Complete (current)	Low	Any soil requiring excavation and offsite removal must be classified.
Contamination from the surrounding industrial site specially the former Caltex Refinery, Kurnell (Sub surface migration)	Natural soils	Migration of contamination from fill layer.	Complete (current)	Low	Natural soils are unlikely to be disturbed.
			Complete (current)	Low	Any soil requiring excavation and offsite removal will be classified.
		Migration of impacted	Complete (current)	Low	It is possible that surface waters from the site reach this

Potential Sources and Mechanism of Contamination	Potential Receptor	Potential Exposure Pathway	Complete connection	Risk	Comments
	Marine land direct north, south and west of the site	groundwater and surface water run-off.	Complete (future)	Low	waterbody during construction. This will be mitigated through implementation of a CEMP.
	Underlying aquifer	Leaching and migration of contaminants through groundwater infiltration.	Incomplete (future)	Low	Impacts associated with groundwater and water supply are not anticipated during construction and operation.
			Incomplete (future)	Low	If present, contaminated soil and/or groundwater will typically be remediated or managed according to management plans.

Overall, the site is situated within a disturbed terrain soil landscape and may contain imported fill materials such as dredged sand or mud, rock fragments, local soils, demolition rubble, and industrial or household waste of unknown origin. However, the current risk is considered low, as the existing substation use, surface cover, and restricted site access collectively limit exposure to underlying soils. Any soil to be excavated will be classified in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste* prior to offsite disposal.

The PSI confirms that the site can be made suitable for the Project, subject to the implementation of the proposed mitigation measures in **Section 8.4** and does not require remediation, taking into account the following:

- There are limited areas of potential assessment due to the critical infrastructure onsite
- The site is currently an operating substation and the Project will not involve bulk earthworks.
- Minor excavation may be required for installation of utilities such as laying down of cables which will be managed in accordance with the proposed mitigation measures
- The Project will not change the current land use
- The site is located within an industrial area

8.3.2 Groundwater

The design of the Project has considered the relatively shallow groundwater levels in the order of 1-2mbgl. As earthworks anticipated to be limited potential for interaction with groundwater is unlikely. During construction, cabling works would be required to allow for connection to the existing Kurnell Zone Substation, however considering the short length and duration of the works, impacts are not anticipated. In addition, as surface water quality affects groundwater, surface water mitigation measures (see **Section 9.4**) will also provide indirect mitigation of groundwater quality risks.

No impacts to groundwater are anticipated during the operational phase as no interaction with the subsurface is proposed once the Project is constructed.

8.3.3 Acid Sulfate Soils

According to the Sutherland Shire LEP 2015, the majority of the site is located within a Class 3 Acid Sulfate Soil (ASS) zone, with the exception of a small area along the southwestern boundary which is located within the Class 2 ASS zone. Class 3 ASS soils require an ASS assessment if the proposed excavation will extend deeper than 1.0 metre below ground level (mbgl). Class 2 ASS require an assessment for any proposed excavation, regardless of depth. The Project is unlikely to affect the Class 2 ASS area and is expected to involve minimal excavation, limited primarily to subsoil drainage works and the installation of cable trenches which are not expected to exceed 1.0 mbgl. Notwithstanding, an Acid Sulfate Soils Management Plan (ASSMP) will be prepared prior to the commencement of construction and implemented as required to

appropriately manage any potential ASS disturbance should excavation exceed 1.0 m in depth. A mitigation measure to this effect has been included.

8.4 Mitigation Measures

The PSI has recommended the following mitigations measures in **Table 19**.

Table 19 *Mitigation Measures – Contamination*

Mitigation Measure ID	Mitigation Measure	Timing
PSI-1	An Acid Sulfate Soils Management Plan (ASSMP) will be prepared for the Project.	Prior to Construction
PSI-2	Any soil requiring excavation and offsite disposal will be classified in accordance with <i>NSW EPA Waste Classification Guidelines Part 1: Classifying waste (2014)</i> .	Construction
PSI-3	A site specific 'Unexpected Finds Protocol' will be made available for reference for all occupants and/or site workers in the event unanticipated contamination is discovered, including asbestos.	Prior to Construction Construction
PSI-4	The demolition of structures and excavation activity on site will be undertaken in accordance with relevant Australian Standards, SafeWork NSW codes of practice and any other applicable requirements.	Construction

9.0 Surface Water and Flooding

9.1 Introduction and Methodology

A Water Impact Assessment (WIA) has been prepared by GHD for the Project and is included at **Appendix J**. The WIA provides an assessment of the potential water impacts associated with the Project.

The WIA has been assessed in accordance with the existing regulatory and policy context, including the EP&A Act, POEO Act, *Water Management Act 2000*, Managing Urban Stormwater: Soils and Construction (Landcom, 2004 and NSW Flood Risk Management Manual (2023).

The methodology for the WIA comprises of the following key components:

- A review of relevant legislation, policy, and guidelines
- Identification of the existing environmental baseline
- Impact assessment based on the Project
- Specification of mitigation measures for identified impacts (if any), with residual risks assessed.

9.2 Existing Environment

9.2.1 Hydrology

The site is situated in the Botany Bay Catchment which is bounded by the Hacking River and Illawarra catchment to the south, the Hawkesbury Nepean to the west and the Parramatta River Catchment to the north.

Towra Point Aquatic Reserve and Towra Point Nature Reserve (located north and west of the site) are located to the southern side of Botany Bay. The aquatic and nature reserve consist of estuarine waters, intertidal marshes, coastal lagoons, subtidal aquatic beds, sand bars and spits.

Towra Point Nature Reserve is a Wetland of International Importance recognised under the Ramsar Convention, consisting of a 603.7 hectare area recognised for its importance for international migratory bird conservation. Seagrass beds, mangroves and saltmarsh in the reserve provide important habitat for juvenile fish and crustaceans.

The site drains to Quibray Bay which ultimately joins Botany Bay and flows towards the Tasman Sea. There are no waterways within the site (according to the NSW Hydroline Spatial Dataset), and in existing conditions, discharge from the site directly enters the estuary which is tidally connected to Botany Bay.

9.2.2 Surface Water Quality

The existing site drainage configuration includes a series of oily water systems (one located in the northern transformer bund area, and the other receiving flows from the southern transformer bunds and part of the former 33kV switchyard). These systems contain oil separators to manage water quality onsite. Otherwise, “clean” stormwater is currently discharged to the receiving environment without additional treatment under existing conditions.

Recent water quality data for Towra Point is provided below at **Table 21**. Nutrient loads in Botany Bay are elevated due to runoff from nearby urbanised and industrialised areas, sewage treatment outflows and agricultural land in the upper reaches of the Georges River catchment. Generally, spikes in nutrient levels in the waters of Towra Point Wetlands follow rain events, with concentrations lowering after a few days of tidal flushing.

Table 20 Current Surface Water Quality Data Analyte	Concentration circa 1984	Concentration circa 2007	Limits of acceptable change (water quality guidelines for marine water)
Salinity (‰)	31-35	Not available	Not available
Total nitrogen (TN) (µg/L)	200-500	98-288	120
NOx (µg/L)	Not available	2-27	Dry conditions: 5 Wet conditions: 25
Ammonium (NH ₄ ⁺) (µg/L)	Not available	2-15	Dry conditions: 15 Wet conditions: 20
Total phosphorus (TP) (µg/L)	20-50	12-21	25
Copper (µg/L)	1.4	1-4	0.3
Lead (µg/L)	3.2	1-2	2.2
Zinc (µg/L)	8.8	8-28	7
Chlorophyll-a	Not available	0.43-25	2.2
Turbidity at 0.5m (Woollooware Bay) (NTU)	2.8-7.6	7.5-42	8.0

9.2.3 Flood Conditions

The site is currently subject to flooding associated with runoff flowing towards Quibray Bay and oceanic flooding. Existing flood conditions for the site are mapped in the Kurnell Township Flood Study based on the 20%, 5% and 1% AEP events as well as the PMF event. Modelling indicates that while flood depths are relatively shallow during storm events (up to 1% AEP), oceanic flooding effects site drainage during 5% AEP events. This typically involves inundation of the site up to 150 mm with the engineered channel next to Captain Cook Drive conveying large quantities of water of up to 1.3 m deep. During the PMF event this increases to 300 mm to 500 mm of flooding experienced at the site, while the flow in the engineered channel overflows on to Captain Cook Drive, which experiences 300 mm of flood depth.

Flood events up to and including the 1% AEP event are considered to have a current flood hazard rating of H1 (generally safe for vehicles, people and buildings) except within drainage channels where they are considered H5. During the PMF the majority of the site and Captain Cook Drive is considered H1 with some areas considered H2 (unsafe for vehicles). Generally, flow velocity and flood hazard at the site during flood events is low under existing conditions.

9.3 Assessment of Impacts

9.3.1.1 Construction

Hydrology and Flooding

Flooding as a result of the construction of the Project is expected to result in minor impacts to local runoff patterns. Given the duration of the construction period is relatively short, a quantitative assessment of flooding during construction has not been undertaken. Without the implementation of mitigation measures, flood water can:

- Impact downstream waterways via the transportation of sediments and construction materials through floodwaters
- Obstruct the passage of floodwater and overland flow due to the location of construction compounds and stockpiles
- Limit accessibility to work areas due to ponded water or soft ground conditions.

Construction phase impacts are anticipated to be negligible, though they may pose indirect impacts to water quality, which can be mitigated as set out below.

Surface Water Quality

Certain activities can potentially impact surface water quality during construction including earthworks, excavation, soil disturbance and the handling and operation of equipment containing hazardous materials. The following activities may impact surface water quality:

- Acid Sulfate Soils
- Maintenance and refuelling of plant (hydrocarbons)
- Installation of concrete slabs (alkalinity)
- Handling of battery components (metals)
- Accidental spills of storey materials and in the installation of stored materials
- Unexpected contamination

Without mitigation the outlined materials can migrate into surrounding waterbodies.

Based on the site and minimal excavation proposed, the scale of disturbance expected is relatively minor. However, due to the sensitive nature of the surrounding environment additional measures are required to ensure the protection of the surrounding wetlands. Further, whilst hazardous material handling associated with the continued operation of the Kurnell Zone Substation already occurs at the site, risks to water quality associated with hazardous materials within battery units will require additional controls.

Overall, construction impacts to surface water quality can be managed through a detailed CEMP that would contain environmental control measures and a detailed Soil and Water Management Plan (SWMP) prepared by a suitable qualified person in accordance with Blue Book (Landcom 2004). Controls will be implemented considering a 'sensitive' receiving environment, and would be implemented prior to any soil disturbance or activities that pose a water quality risk during construction.

Water Supply

Water supply would be required for dust suppression, earthworks and landscaping during the construction phase of the Project. The demand for water supply during construction is expected to be 2.2 mega litres (ML) for dust suppression and landscaping and 0.2 ML of drinking water would be required over the 22-month construction period. A sufficient supply of water will be available to the site sourced via existing water mains or a commercial supplier, with extraction under a WAL entitlement not required.

No impacts to surface or groundwater resources relating to supply are expected due to the small amount of water that is required for the Project.

9.3.2 Operation

Hydrology, Flooding and Project Design

Flood modelling was undertaken during the Project's operation to assess the impact of the Project on hydrology and flooding. Modelling included the implementation of indicative design measures including the following:

- Battery units are proposed to be installed on individual plinth bases set above the 1% AEP flood level at the site for a conservative future climate scenario based upon the existing local flooding assessment.
- Bunding to contain contaminated firewater

The flood modelling indicates that the change in flood waters are contained within the site footprint and extends to the shoulder of Captain Cook Drive, for flood events up to and including the future conservative climate change 1% AEP flood.

During the PMF event for the future conservative climate change scenario there are no off-site increases to flood depths compared to the existing conditions. There is a small increase to flood depths up to the shoulder of Captain Cook Drive, but this does not extend onto the roadway itself.

It is concluded that there are no significant changes in flood risk anticipated as a result of the Project, as flood impacts are suitably managed through the Project's design.

Surface Water Quality

There is an existing stormwater network currently on the site. The existing outlet pits are proposed to be retrofitted to include at source gross pollutant traps. This will assist in reducing the anticipated pollutant load for waters discharging to Quibray Bay. This was considered the best outcome for the site due to the shallow groundwater on the site.

Project specific risks include the release of potential hazardous materials into downstream waterways during an event involving a spill of hazardous materials/chemicals or discharge of contaminated firewater, which are summarised below:

- The battery units are fully enclosed without the generation of leachate or other process wastewaters and will cause negligible risk to water quality
- Existing outlets of the stormwater system from the bunded area will be fitted with shut-off valves, pumps and an above ground fire water containment tank which can be closed during a fire to contain contaminated fire water (this approach will be confirmed as part of the Fire Safety Study during detailed design)
- If the pump fails or the tank is at capacity, the applied water will be contained within the perimeter bund around the site. The height of the bunding will be based upon ability to contain the maximum quantity of fire water to be supplied.
- A gap will be provided at the base of each noise wall to allow for runoff to pass beneath each noise wall.

Water Supply

A small amount of water supply will be required during the Project's operation and will be sourced from the existing mains connection to the site. No WALS will be required and the operational demand is not expected to significantly impact the surface and groundwater resources.

9.4 Mitigation Measures

Based on the assessment above, the Project is expected to have acceptable hydrology outcomes, subject to the following mitigation measures in **Table 21** relating to standard construction mitigation measures, and operational parameters that reflect the assumptions of the flood modelling.

Table 21 Mitigation Measures – Surface Water and Flooding

Mitigation Measure ID	Mitigation Measure	Timing
FL-1	A detailed Construction Environmental Management Plan (CEMP) and SWMP will be prepared and implemented for the Project and specifically address the following: • Minimising the risk of erosion and sedimentation • Handling of soils, including the management of unexpected finds of contaminated materials • Handling of hazardous materials and procedures to manage spills to reduce and address soil and water contamination, including fuel storage and management of transformer oils • Handling and interactions with potential ASS (via an ASSMP) • Emergency response procedures during flood conditions • While groundwater monitoring is not anticipated to be required, contingency measures should be put in place in the unexpected event that groundwater is intercepted. • Consideration of nearby projects and monitoring of conditions upstream during any overlapping construction periods.	Prior to Construction

Mitigation Measure ID	Mitigation Measure	Timing
FL-2	The detailed design of the stormwater management system, including maintenance, would be undertaken following Project approval and should include the following: • Confirming the sizing and appropriate number of at-source gross pollutant traps (pit baskets). • Detailed design of drainage infrastructure, perimeter bund and any water transfer infrastructure associated with fire management as outlined in the WIA to be provided around the Project Area to manage potentially contaminated fire water. The height of the bunding should be based upon ability to contain the maximum quantity of fire water able to be supplied, with a freeboard if a storm event coincides or follows a fire-water event. This approach would be finalised as part of the Fire Safety Study. • Confirmation that the outcomes of the flood assessment can be met based upon the final site layout. This should include quantitative re-simulation of flood models (if needed).	Detailed Design
FL-3	A site-specific Operational Environment Management Plan (OEMP) will be prepared for the site including the following measures: • Procedures to maintain drainage features at the site, including existing open channels, any onsite culverts, proposed water quality controls (including maintenance of stormwater controls) and all outlets. These should be maintained in accordance with the manufacturer's specifications and kept free-draining • Procedures to manage fire water contained within the bunds and on-site, in the event of a fire where fire water must be applied to the ancillary buildings. Fire water should be tested for potential contaminants that may be mobilised from surfaces when water is applied in consultation with statutory authorities (including the NSW EPA). Water should either be discharged to the site stormwater system if it is of suitable quality, or tankered offsite to an appropriately licensed disposal facility • Identifying procedures to appropriately handle hazardous materials such that they can be contained within the site. Specified responses to a pollution incident should be documented for the unlikely event that hazardous materials are conveyed outside of the site boundary • Outlining responses for personnel that may be onsite during flood events. This should consider the Australian Government Business emergency management plan template (business.gov.au) to help protect operations before, during and after an emergency.	Prior to Operation

10.0 Aboriginal Heritage

10.1 Introduction and Methodology

An Aboriginal Cultural Heritage Assessment Report (ACHAR) has been prepared by Apex Archaeology and is included at Appendix K. The ACHAR has been prepared in accordance with the Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW (April 2011), the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW, April 2010), and the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales.

10.1.1 Methodology

To assess the Aboriginal cultural significance of the site consultation was undertaken with the local Aboriginal community. The ACHAR consultation process including the following:

- Identification of stakeholders and registration of interest for potential Aboriginal community members which should be consulted for the Project
- Provision of information regarding the natural scope of the Project to Registered Aboriginal Parties (RAPs)
- Providing opportunities for RAPs to comment on the Project, the ACHAR methodology and draft reports for archaeological and cultural assessments for the Project.

A total of 13 Aboriginal people and organisations registered an interest in being consulted for the Project.

In addition to the consultation undertaken, reviews of historical archaeological assessments for the site. Apex Archaeology conducted a search of the Aboriginal Heritage Information Management System (AHIMS) on 28 August 2025 over a 4km by 4km area over the site.

Field work undertaken at the site included a site survey undertaken on the 22nd October 2025 for the purposes of discovering Aboriginal objects particularly in areas considered to have archaeological potential.

10.2 Existing Environment

A basic search of the AHIMS was undertaken for the site, which identified 40 previously registered Aboriginal sites within the 4 km x 4 km search area surrounding the site (see **Figure 25**). Two of these sites were identified within the search area including item 52-3-0212 and item 52-3-2061 and two restricted sites (item #52-3-0220 and item #52-3-2165) are not impacted by any works within the site.

Item #52-3-2061 is identified as a Potential Archaeological Deposit (PAD) which has not been previously heavily impacted by development. Item #52-3-0212 is identified as an open midden site and is identified as being located within the site boundary.

The ACHAR identifies that Aboriginal archaeological materials which most likely remain at the site, are subsurface shell middens which are often associated with stone artefacts and faunal remains. Any surviving material is expected to be patchy and deeply buried given the extensive disturbance experienced across the Kurnell industrial zone.

The survey did not identify any archaeological sites at the site. The survey identified the site has experienced a high level ground disturbance for its use as the Kurnell Zone Substation.

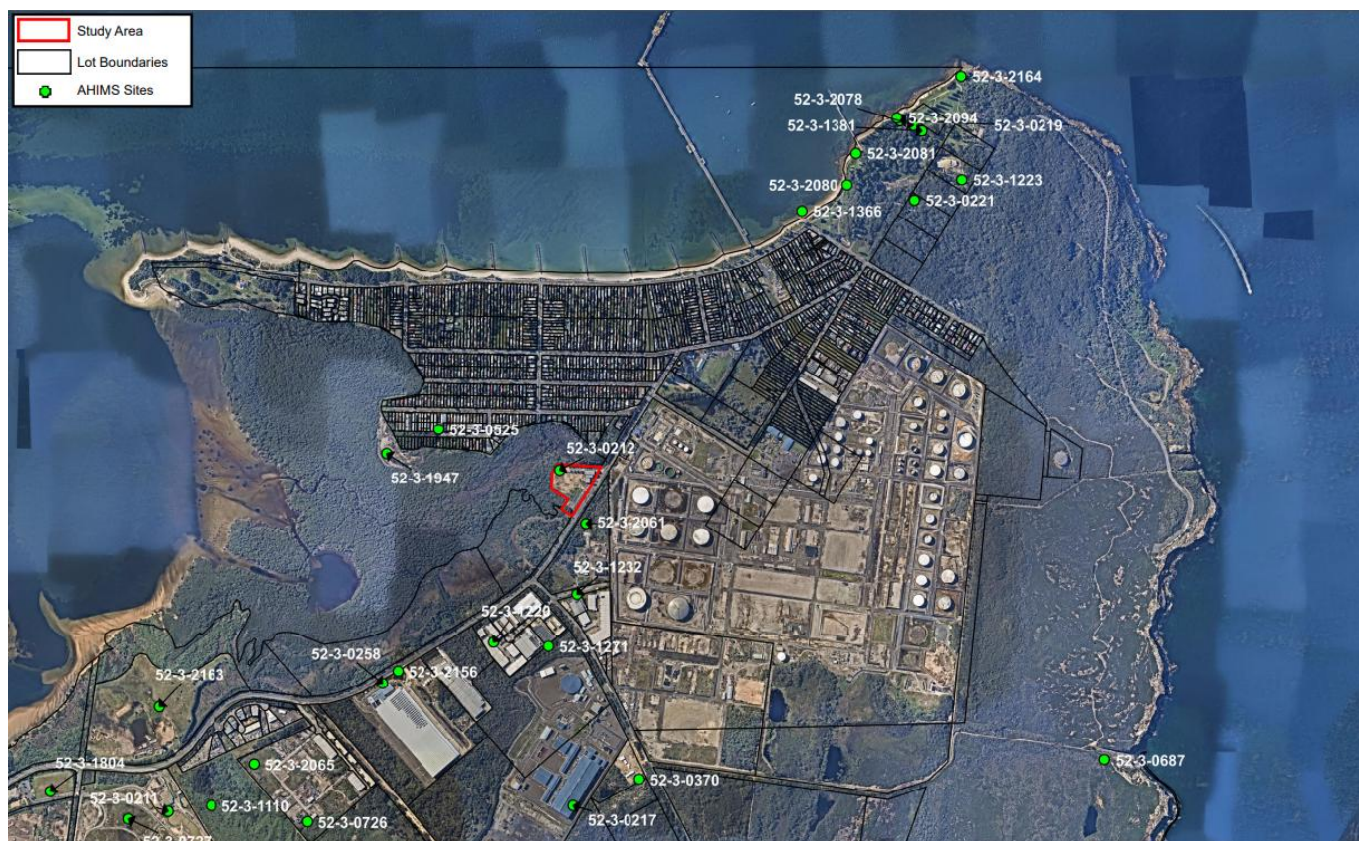


Figure 25 AHIMS Search Results

Source: Apex Archaeology

10.3 Assessment of Impacts

10.3.1 Aboriginal Heritage Significance of the site

The ACHAR has assessed the significance of the Aboriginal heritage of the site. Given the absence of remaining physical evidence on the site, it is assessed as having limited historic and social value. Additionally, the site is assessed as having no remaining scientific, aesthetic or archaeological significant. Based on archaeological evidence and previous studies the midden site is unlikely to be located within the current Project Area.

The Project Area is considered to have low archaeological significance based on its limited research potential, representativeness, rarity and integrity. While the AHIMS study identified item #52-3-0212 as historically recorded within the Project Area, recent site surveys did not identify any remaining Aboriginal cultural material due to a significant level of historical disturbance of the site.

Overall, while the broader region holds archaeological value, it is concluded that the Project Area is unlikely to contribute to understanding past Aboriginal occupation.

10.3.2 Impact Assessment

As a result of the highly disturbed nature of the site due to previous industrial activities and use of the site as the Kurnell Zone Substation, as well as no remaining physical evidence, Aboriginal objects, deposits or PADs identified with the Project Area, no impact to Aboriginal cultural heritage values is expected as a result of the Project.

It is concluded that no further archaeological assessment is required for the site prior to the commencement of the Project.

10.4 Mitigation Measures

Based on the assessment above, the Project is considered to have limited impact of Aboriginal Cultural heritage values, subject to the following mitigation measures in **Table 22**.

Table 22 *Mitigation Measures – Aboriginal Cultural Heritage*

Mitigation Measure ID	Mitigation Measure	Timing
ACHAR-1	The Project must be contained within the assessed study area for this Project. If there is any alteration to the boundaries of the Project to include areas not assessed as part of this archaeological investigation, further investigation of those areas will be completed to assist in managing Aboriginal objects and places which may be present in an appropriate manner.	During Construction
ACHAR-2	Should unanticipated Aboriginal archaeological material be encountered during site works, all work must cease in the vicinity of the find and an archaeologist contacted to make an assessment of the find and to advise on the course of action to be taken. Further archaeological assessment and Aboriginal community consultation may be required prior to the recommencement of works. Any objects confirmed to be Aboriginal in origin must be reported to Heritage NSW. In the unlikely event that suspected human remains are identified during construction works, all activity in the vicinity of the find must cease immediately and the find protected from harm or damage. The NSW Police and the Coroner's Office must be notified immediately. If the finds are confirmed to be human and of Aboriginal origin, further assessment by an archaeologist experienced in the assessment of human remains and consultation with both Heritage NSW and the RAPs for the Project would be required. This recommendation will be included in any Construction Environmental Management Plan (CEMP) developed for the site.	During Construction
ACHAR - 3	One digital copy of this report will be forwarded by Apex Archaeology to Heritage NSW for inclusion on the Aboriginal Heritage Information Management System (AHIMS). One copy of this report will be forwarded by Apex Archaeology to each of the registered Aboriginal stakeholders for the Project.	Prior to Construction

11.0 Noise and Vibration

11.1 Introduction and Methodology

A Noise and Vibration Impact Assessment (NVIA) has been prepared by AECOM at **Appendix L** to assess the impact of construction and operational noise and vibration as a result of the Project.

The objectives of the NVIA are as follows:

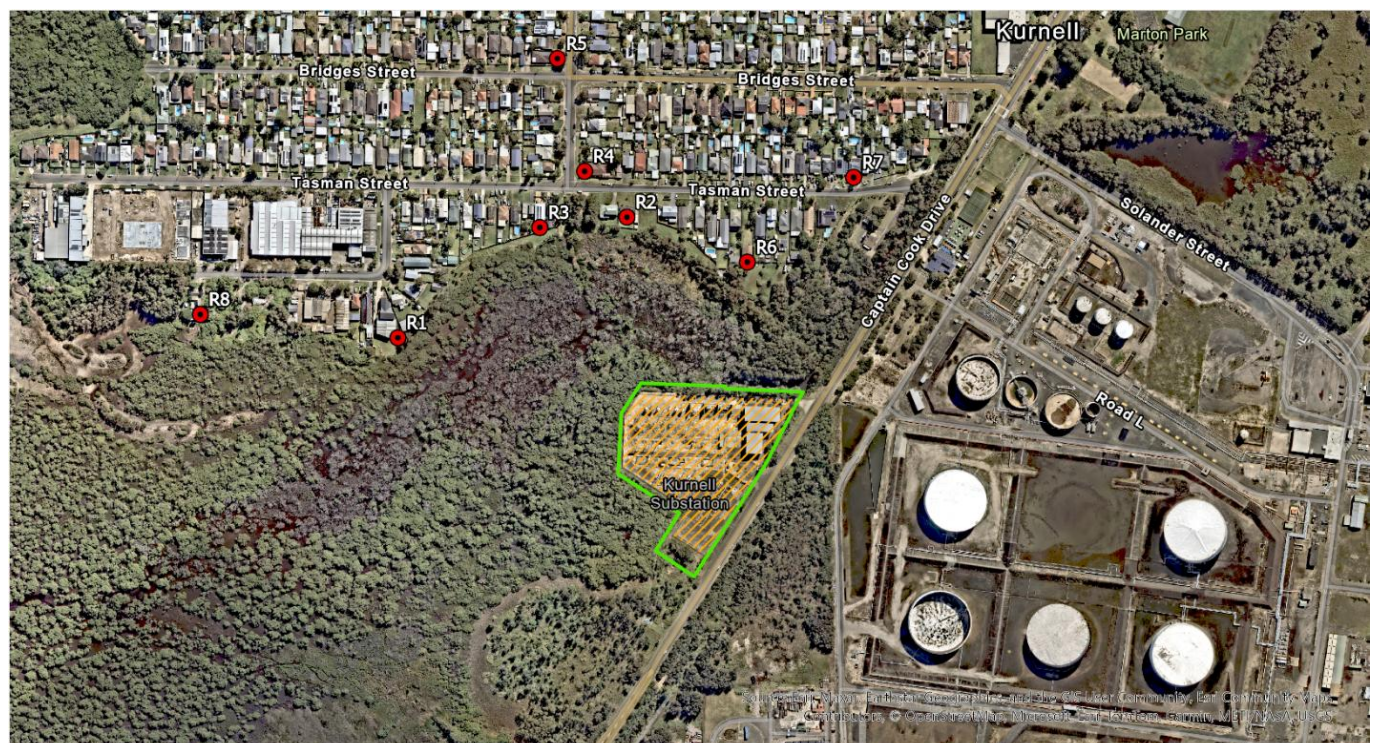
- Identify nearby noise-sensitive receivers potentially impacted by the construction and operation of the Project
- Conduct ambient noise monitoring to determine the relevant construction noise management levels and operational noise criteria for identified sensitive receivers
- Identify potential noise impacts from the construction and operation of the Project
- Outline mitigation measures, if required, relating to noise and vibration during construction and operational phases of the Project.

11.1.1 Identification of Nearest Residential Receivers

Eight residential receivers were identified for the assessment of the existing noise environment, refer to **Figure 26** below which illustrates the location of residential noise receivers surrounding the site:

- R1 – 14 Horning Street, Kurnell
- R2 – 44 Tasman Street, Kurnell
- R3 – 52 Tasman Street, Kurnell
- R4 – 54 Dampier Street, Kurnell
- R5 – 43 Dampier Street, Kurnell
- R6 – 28 Tasman Street, Kurnell
- R7 – 11 Tasman Street, Kurnell
- R8 – 44 Horning Street, Kurnell

R6 is the closest residential property to the site.



Assessment receivers

- Site Boundary
- BESS Project Area
- Assessment Receivers

Figure 26 Location of Noise Receivers

Source: AECOM

Noise at the various residential receivers were measured using long term unattended and short term attended measurements to establish the existing ambient and background noise.

The following Noise Catchment Areas (NCAs) at **Figure 27** were established based on residential receivers with a similar noise environment. This includes NCA 1 which includes residential receivers with a line of sight to the Kurnell Zone Substation and/or Captain Cook Drive and NCA 2 which includes all other nearby residential receivers.

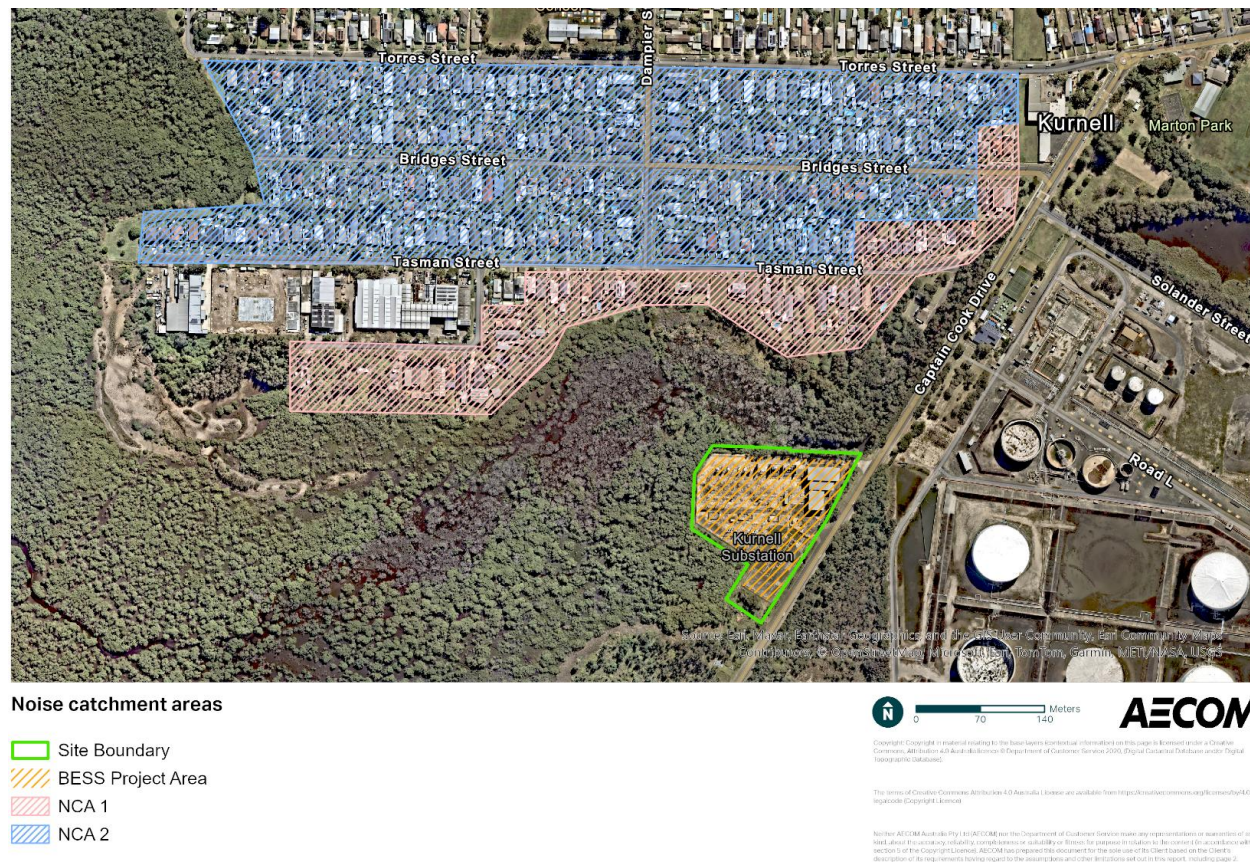


Figure 27 Noise Catchment Areas

Source: AECOM

11.1.2 Noise Measurements

The setting of relevant noise criteria for both construction and operation noise is based on unattended and attended noise measurements.

Unattended noise levels were measured in accordance with the EPA's NSW Noise Policy for Industry at one location along the north-western boundary of the Kurnell Zone Substation from 4 June 2024 to 19 June 2024. The logger measured the noise levels over the sample period and determined LA_{10} , LA_{90} , and LA_{eq} levels of the noise environment. LA_{90} noise levels are the levels exceeded for 90% of the measurement period and are taken to be the background noise level. The LA_{eq} level is the equivalent continuous sound level and has the same sound energy over the sample period as the actual noise environment with fluctuating sound levels. This is taken to be the ambient noise level.

Attended noise measurements were conducted at the same location as the unattended monitoring location on 4 June 2024. The measurements were conducted over a 15-minute period.

The location of noise logging for unattended noise and attended noise measurements is shown in **Figure 28**.



Noise monitoring location

- Site Boundary
- BESS Project Area
- Attended Measurement and Logger Location



Figure 28 Noise logging location

Source: AECOM

11.2 Existing Environment

11.2.1 Noise Measurements

Table 23 below summarises the unattended noise levels measured at the site.

Table 23 Existing background (L_{A90}) and ambient (L_{Aeq}) noise levels

Noise logger ID	Location	L_{A90} background rating noise level, dB(A)			Log average noise L_{Aeq} levels dB(A)		
		Day	Evening	Night	Day	Evening	Night
NL1	171-189 Captain Cook Drive, Kurnell, north-western boundary of Kurnell Zone Substation	43	40	37	58	56	51

Table 24 below summarises the attended noise levels measured at the site.

Table 24 Attended noise measurements

Location	Date and time	L_{Aeq} dB(A)	L_{A90} dB(A)
171-189 Captain Cook Drive, Kurnell, north-western boundary of Kurnell Zone Substation	4/06/2024 10:16 am	63	41

The daytime measurements indicate that residential noise receivers are typically affected by distant road traffic noise (up to 42 dB(A)). For both the unattended and attended noise measurements, the ambient noise was substantially higher than the background noise. This suggests that there are multiple short instances of loud noises within the surrounding environment. This includes both turboprop aircraft (up to 80 dB(A)) and jet aircraft (up to 74 dB(A)) passing over the site, as the site is beneath a flight path, and other short-term loud activities characteristic of industrial areas.

The L_{A90} dB(A) of 41 was taken as the background noise level at NCA 1. However, the background noise level for the residential receivers to the north in NCA 2 is taken to be 5 dB(A) less than the background noise level for NCA 1, because the residential receivers in NCA 2 are shielded from the site by the properties in NCA 1.

11.2.2 Noise Criteria

Construction Noise Criteria

The noise measurements were used to determine the construction noise management levels (NML) in accordance with the *Interim Construction Noise Guideline* and standard construction hours, which are 7am-6pm Mondays-Fridays, and 8am-1pm Saturdays. **Table 25** includes the criteria for NMLs have been established for the Project. Residential receivers which would experience construction noise exceeding 75 dB(A) are considered to be 'highly noise affected'.

Table 25 Attended noise measurements

Noise catchment area	Construction NML $L_{Aeq,15min}$, dB(A)			
	Standard hours (RBL + 10)	Outside standard hours (RBL + 5)		Highly noise affected level
		Day	Evening	
NCA 1	53	45	42	75
NCA 2	48	40	37	

Operational Noise Criteria

Project specific noise criteria for the assessment of operational noise impacts were established based on the recommended intrusive and amenity noise criteria levels established in the *Noise Policy for Industry* and are summarised at **Table 26**. The Project specific noise criteria is determined as the lowest of the intrusive and amenity criteria.

The daytime Project specific noise criteria uses the intrusive criteria which protects the community from intrusive noise by limiting the extent to which a noise source can exceed the background level (that is, background plus 5 decibels [dB]) above a minimum threshold.

The nighttime Project specific noise criteria uses the amenity criteria which seeks to preserve community amenity by providing an overall noise-level cap for different land uses.

Table 26 Project specific noise criteria

Receiver	Period ¹	Project specific noise criteria, $(L_{Aeq,15min})^2$
Residential	Day	48
	Evening	43
	Night	38

Existing Operational Noise Levels

The existing operational noise levels measured at the site are predicted to comply with the Project amenity noise levels, being less than 35 dB(a) for all receivers, except for a minor exceedance at Receiver R6. Existing operation noise levels are an important consideration as the existing Kurnell Zone Substation will continue to be functional during the operation of the Project. Specifically, the existing operational noise levels have accounted for an additional HV transformer which will be installed under a separate planning approval at least 6 months prior to commencement of works for the Project, and be operational before construction and operation of the Project.

11.3 Assessment of Impacts

11.3.1 Construction Noise Impacts

Construction Noise Levels

Construction noise is expected to be generated by equipment such as excavators, loaders, dump trucks and graders. Construction noise levels will vary between each construction phase.

Table 27 below summarises the predicted construction noise levels expected as a result of the Project. The modelling predicts that construction noise levels are expected to exceed the NMLs during standard hours at all residential receivers except R8 during all construction phases. The most impacted receiver is R6 during the structural, civil, mechanical and electrical works phase, which exceeds NMLs by up to 13 dB(A). However, there are no receivers predicted to be 'highly affected' for the construction scenarios assessed, and therefore respite periods are not required. Standard construction noise management measures will be adequate. It should be noted that the construction noise impact assessment has modelled a worst case scenario with plant/equipment assumed to be operating at the site boundary at the closest point to each receiver and neutral atmospheric conditions. In reality, plant/equipment would only be at the closest point to each receiver for a limited period.

Table 27 Predicted construction noise levels with highlighted exceedances – standard hours

Receiver	Standard hours NML	Highly affected level	Construction phase		
			Enabling works	Structural, civil, mechanical and electrical works	Finishes and demobilisation
R1	53	75	56	60	55
R2	53	75	59	63	58
R3	53	75	58	62	57
R4	48	75	52	56	51
R5	48	75	52	56	51
R6	53	75	62	66	61
R7	53	75	56	60	55
R8	53	75	49	53	48

Construction Traffic Noise Impacts

The traffic volumes required during the peak construction period would consist of an average of 35 heavy vehicles and 10 oversized vehicles per day. When existing noise levels exceed the Noise Management Levels, a 2 dBA increase threshold is applied. Considering the existing traffic noise levels, the additional construction traffic expected does not result in an increase of more than 2 dB(A). Where the predicted noise increase is 2 dB(A) or less, then no further assessment is required.

Construction Vibration Impacts

Minor vibrating equipment may be used during construction. Minimum standard working distances include 25 metres to manage risk of cosmetic damage and up to 100 metres for human comfort. As the nearest residential receiver is located over 130 m from the Project Area, any vibration impacts at the nearest sensitive receivers would be unlikely.

Cumulative Construction Noise Impacts

The Kurnell Terminal SSD-554 project and Mod-7 and Kurnell Battery Energy Storage System (Ampol) SSD-86799993 projects are identified as potentially generating cumulative construction noise impacts as their construction timeframes may overlap with this Project. However, the NVIA has determined that significant cumulative noise impacts are unlikely as those projects are located over 400-500m from the site and a fair distance from the nearest receivers.

11.3.2 Operational Noise Impacts

Operational Noise Levels

The NVIA modelled two future operational scenarios. The first scenario was an unmitigated scenario assuming the Project operating at 100% duty cycle during all hours of the day without any noise barriers. For this scenario, predicted operational noise levels exceeded the Project specific noise criteria at the majority of assessment receivers, with the highest exceedances occurring during the night-time period.

Consequently, the NVIA modelled a mitigated scenario that reflects the following mitigation measures which are proposed in the design and operation of the Project:

- Installation of 8m high noise walls lined with absorptive material on the internal facing to the equipment along the eastern, northern and western boundaries of the battery units.
- Limiting fan duty cycles of the battery units during the night-time (night is defined as 10:00 pm to 7:00 am, Monday to Saturday and 10:00 pm to 8:00 am Sundays and Public Holidays). A 50% duty cycle means that each battery unit in the array is drawing (or dispensing) power for 50% of the time during the relevant period. That means that it is essentially switched off for the other 50% of the time (i.e. it is not drawing or dispensing power).

Under the mitigated scenario, the predicted operational noise levels comply with the Project specific noise criteria at all receivers and during all time periods, except for a minor exceedance of 1 dB(A) and 2 dB(A) at receiver R6 during the evening and night-time periods respectively, as summarised in **Table 29**.

The NVIA considers this exceedance negligible as all feasible and reasonable noise mitigation measures have been considered and an exceedance of 2 dB(A) is considered barely perceptible to the average adult listener, particularly in the context of fluctuating ambient noise levels in the area, which include road and air traffic. It is also noted that the predicted operational noise levels haven been modelled accounting for meteorological conditions that enhance noise.

Table 28 Predicted operational noise levels - Barrier mitigation

Receiver	Project specific noise criteria, $L_{Aeq,15min}$, dB(A)			Predicted L_{Aeq} noise levels, dB(A)				Exceedance, dB(A)			
	Day (with generator)	Evening	Night	Day (with generator)	Day	Evening	Night	Day (with generator)	Day	Evening	Night
R1	48/53 ¹	43	38	43	39	39	32	-	-	-	-
R2				41	41	41	37	-	-	-	-
R3				41	40	40	35	-	-	-	-
R4				34	34	34	(28) 33 ²	-	-	-	-
R5				38	37	37	32	-	-	-	-
R6				44	44	44	40	-	-	1 ³	2 ³
R7				40	40	40	34	-	-	-	-
R8				39	36	36	(28) 33 ²	-	-	-	-

¹+5 dB(A) is applied to the daytime project specific noise criteria due to the diesel generator being a single-event noise source of 15 minute - 1 hour duration, in accordance with the Noise Policy for Industry.

²A +5 dB(A) tonality correction was applied to the predicted noise level (in brackets) at two receivers (R4 and R8) because the one third octave noise levels at these receivers were found to contain tonal characteristics at these two receivers.

³In accordance with the Noise Policy for Industry, exceedances of up to 2 dB(A) are considered negligible if all feasible and reasonable noise mitigation measures have been considered. They would not be discernible to the average listener and therefore would not warrant receiver-based treatments or controls.

Operational Road Traffic Noise

Minimal traffic movement generation is expected during operation. Noise impacts arising from operational traffic is not considered to increase any more than 2 dB(A). An increase of up to 2 dB(A) represents a minor impact that is considered barely perceptible and does not require any further assessment.

11.4 Mitigation Measures

Based on the assessment, the Project is expected to have acceptable noise outcomes, subject to the following mitigation measures in **Table 29** relating to standard construction noise mitigation measures, and operational parameters that reflect the assumptions of the operational noise modelling.

Table 29 Mitigation Measures – Noise

Mitigation Measure ID	Mitigation Measure	Timing
NV-1	A Construction Noise Management Plan (CNMP) will be prepared and implemented for the Project, including feasible and reasonable safeguards to manage noise emissions from the Project. The CNMP should include: • identification of nearby residences and other sensitive land uses • description of approved hours of work • description and identification of all construction activities, including work areas, equipment, and duration • description of what work practices (generic and specific) would be applied to minimise noise • a notification and complaints handling process • a monitoring program to assess performance against relevant noise criteria	Prior to Construction
NV-2	Construction work will be planned and carried out during standard construction hours where possible. Work generating high noise levels would be scheduled during less sensitive time periods as far as practicable. This would include the use of demolition saws, coring machines, grinders, impact drills and jackhammers.	Construction
NV-3	Periodic notification via a letterbox drop and website notification, detailing any night-time works, with the exception of electrical fitout works, will be provided at least seven days prior to the commencement of works.	Prior to Construction and Construction
NV-4	All employees, contractors and subject would receive an environmental induction.	Construction
NV-5	Quieter construction methods will be used where feasible and reasonable (e.g. rubber wheeled instead of steel tracked plant). Equipment would be regularly inspected and maintained to ensure it is in good working order.	Construction
NV-6	The noise levels of plant and equipment would have operating sound power or sound pressure levels that would meet the predicted noise levels.	Construction
NV-7	The offset distance between noisy plant and adjacent sensitive receivers would be maximised. Plant used intermittently would be throttled down or shut down. Plant and vehicles would be turned off when not in use. Noise-emitting plant would be directed away from sensitive receivers where reasonable and feasible.	Construction

Mitigation Measure ID	Mitigation Measure	Timing
NV-8	Traffic flow, parking and loading/unloading areas would be planned to minimise reversing movements within the site. Truck drivers would be advised of designated vehicle routes, parking locations, acceptable delivery hours or other relevant practices (i.e. minimising the use of engine brakes and no extended periods of engine idling).	Construction
NV-9	Non-tonal reversing beepers (or an equivalent mechanism) would be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out-of-hours work.	Construction
NV-10	Loading and unloading of materials/deliveries would occur as far as possible from sensitive receivers. Dedicated loading/unloading areas would be shielded if close to sensitive receivers. Delivery vehicles would be fitted with straps rather than chains for unloading, wherever possible.	Construction
NV-11	Where possible, noise from mobile plant would be reduced through additional fittings including: • residential grade mufflers • silencing air parking brake engagement.	Construction
NV-12	Vehicle movements would be routed away from sensitive receivers and scheduled during less sensitive times where possible. The speed of vehicles would be limited and the use of engine compression brakes would be minimised. On-site storage capacity would be maximised to reduce the need for truck movements during sensitive times.	Construction
NV-13	Stationary noise sources would be enclosed or shielded to the greatest extent possible whilst ensuring that the occupational health and safety of workers is maintained.	Construction
NV-14	Structures to shield residential receivers from noise such as site shed placement; earth bunds; fencing.	Construction
NV-15	Fan duty cycles of battery units to be restricted during night time periods to comply with Project specific night-time noise criteria.	Operation
NV-16	The Project is to include the installation of 8m high noise walls lined with absorptive material on the internal facing to the equipment along the eastern, northern and western boundaries of the Project.	Construction

12.0 Traffic and Transport

12.1 Introduction and Methodology

A Traffic Impact Assessment (TIA) has been prepared by Amber to determine the traffic impacts of the Project during construction and operation. Traffic modelling was completed for the site access to Captain Cook Drive and included a review of the cumulative traffic impact on the road network including future projects in the surrounding area.

Traffic surveys including a turning movement count at the intersection of Captain Cook Drive and Gannons Road and a 7-day tube count of Captain Cook Drive adjacent to the site were used to determine the existing traffic conditions at the site.

12.2 Existing Environment

12.2.1 Existing Road Network

The existing road network surrounding the site consists of the following key roads:

- Captain Cook Drive – 11 m wide road reserve providing a single lane of traffic and bicycle lane in each direction
- Gannons Road – 12.5 m wide road reserve with a single land of traffic and kerbside parking in each direction
- Sir Joseph Banks Drive – 8.5 m wide road reserve with one lane of traffic in each direction

The TfNSW Restricted Access Vehicle Map indicates that the site can be accessed directly via Captain Cook Drive which forms part of the approved 26 m B-Double network. Roads accessing the site are not approved for Special Purpose Vehicles Level 6 and will therefore require approval from Council.

Captain Cook Drive is a State Road west of the Gannons Road intersection. Gannons Road is also a State Road. East of the Captain Cook Drive / Gannons Road intersection, Captain Cook Drive is a Regional Road managed by Sutherland Shire Council. Sir Joseph Banks Drive is a local road.

12.2.2 Traffic Volumes

Results of the traffic surveys indicate that near the site entry, Captain Cook Drive currently carries a moderate level of traffic, at 3,800 vehicles in each peak hour periods between 8:15 am-9:15 am and 3:00 pm-4:00 pm. Vehicles trips recorded during the peak periods were primarily through traffic movements along Captain Cook Drive, particularly to the west during the morning and to the east during the evening peak.

A tube count was completed between Thursday 16 October and Thursday 23 October 2025 and is summarised at **Table 30** below.

Table 30 Captain Cook Drive Traffic Volumes – Adjacent to Site

	Weekday Traffic (vpd)	Weekday AM Peak - 11:00 (vph)	Weekday PM Peak - 15:00 (vph)	85 th Percentile Speed	Heavy Vehicle Percentage
Northbound	4,211	276	330	63.8 km/hr	4.7%
Southbound	4,326	287	369	64.3 km/hr	4.7%
Both Directions	8,537	563	699	64.1 km/hr	4.7%

The tube count recorded 8,500 vehicles along Captain Cook Drive, indicating a moderate level of traffic. The traffic flow is split evenly between northbound and southbound vehicles. The highest volume of movements along the road occurs between 5 am and 6 pm, with the peak hour between 3 pm and 4 pm.

12.2.3 Public and Active Transport

The transport network surrounding the site includes a number of existing public and active transport routes and opportunities. This includes the bus stop for route 987 which operates along Captain Cook Drive, approximately 250 metres north east of the site. This route provides a Cronulla to Kurnell loop service.

On road bicycle lanes are provided at either side of Captain Cook Drive which connect to the broader cycle network.

12.3 Assessment of Impacts

12.3.1 Construction Phase

Trip Generation and Distribution

Traffic generated during the construction phase of the Project is expected to consist of light vehicles, ridged trucks, truck and dog, semi-trailers, B-doubles, special purpose and non-high risk Oversize Overmass (OSOM) load carrying vehicles. A summary of the construction traffic volumes predicted for the Project is summarised below at **Table 31**. The TIA anticipates the Project will generate up to 134 light vehicle trips and 70 heavy vehicle trips per day during the peak construction period. The Project is expected to generate up to 73 vehicles per hour in the morning and evening peaks during construction peak periods. However, this would reduce to 37 vehicles per hour outside of the peak construction period. It is noted that construction staff will generally have staggered finish times, and therefore, the TIA has assumed that 80% of construction staff will depart the site (all travelling towards the west) during the evening peak from 5-6pm.

Table 31 Traffic Generation During Construction Period

Vehicle Type		Average Construction Period		Peak Construction Period	
		Vehicle Trips per Day (vpd)	Peak Hour Trips (vph)	Vehicle Trips per Day (vpd)	Peak Hour Trips (vph)
Light Vehicles (LV)		68	34	134	67
Heavy Vehicles (HV)	Rigid Trucks	10	1	20	2
	Truck and Dog	10	1	20	2
	Semi-trailers	8	1	16	2
	B-Doubles	2	0	4	0
	Non High Risk OSOM	5	0	10	0
	<i>HV Subtotal</i>	35	3	70	6
Total		103	37	304	73

Traffic is expected to be distributed evenly toward the site in the morning peak and away from the site during the afternoon peak. Heavy vehicles would be distributed throughout the day and split evenly between inbound and outbound trips. All vehicles are expected to be distributed to/from the site via the southwest on Captain Cook Drive.

Construction Traffic Impacts

The TIA has modelled the impact of the anticipated construction trip generation on the intersection performance of the site access and Captain Cook Drive. It has accounted for existing surveyed traffic volumes adjusted by a 1.5% compounded annual growth rate over two years to reflect the peak construction period, peak construction traffic volumes and cumulative traffic volumes that may overlap with peak construction of the Project, namely the Kurnell Terminal SSD-554 project and Mod-7 and Kurnell Battery Energy Storage System (Ampol) SSD-86799993 project.

The TIA has determined the following:

- The intersection of the site access and Captain Cook Drive will continue to operate at a Level of Service A (free flow conditions) accounting for the expected construction traffic
- The site access is expected to operate with minimal queue lengths on all legs
- The overall average delay is less than one second during the peak hours
- The site access is expected to operate with a good Level of Service during the peak construction period during each of the peak hours

Overall, access to the site is expected to operate efficiently with little queuing or delays expected during the peak construction period.

12.3.2 Operational Phase

The Project is expected to generate a minimal level of traffic during the operational phase. It is expected to be operated by up to 1-2 maintenance workers (full time employees) as well as occasional deliveries to the site, resulting in traffic generation of up to four vehicle movements per week. which would result in a negligible change to the traffic environment. There would also be occasional heavy vehicles delivering to the site, as required for maintenance, and which would have less impacts than those modelled for the construction phase.

12.3.3 Decommissioning Phase

Traffic generation during the decommissioning phase is expected to be similar to that expected during the construction phase. A Decommissioning Traffic Management Plan would be prepared prior to the decommissioning phase in conjunction with the relevant road authorities to ensure road safety and road operations are maintained.

12.3.4 Site Access

Access for Heavy and OSOM Vehicles

All plant is expected to be delivered from either Port Botany or Port of Newcastle. The TIA has analysed the access routes from these ports and confirm that there are adequate access routes from those ports to the site. Specifically, heavy vehicles up to the size of B-doubles of 26m are approved for use on Captain Cook Drive. The TIA has noted that it is common for heavy vehicles and cyclists to share the roadway of Captain Cook Drive.

Non-High Risk OSOM vehicles, likely to be prime movers, are expected to be required to transport the battery units. These combinations would be kept under 3.5 metres width and less than 26 metres length and would not be classified as High Risk. As they will not be High Risk, they will not require specific Transport Management Plans to manage safe and responsible movement. However, as the section of Captain Cook Drive east of Gannons Road is not rated for use by OSOM vehicles, approval from Sutherland Shire Council will be required. This will form part of the requirements for the detailed Construction Traffic Management Plan to be prepared prior to construction.

Site Access Design and Safety

The TIA has reviewed the suitability of existing access arrangements on the site for the vehicles required in the construction phase. It is concluded that:

- No specific turn treatments are warranted at the site access to Captain Cook Drive
- For B-double vehicles, it is considered appropriate to manage their movements using traffic management measures rather than widening the site access crossover, particularly with simultaneous two-way passing of B-doubles into the site
- A desktop review of the sightlines available for exiting vehicles has shown that the sight distance available under existing conditions meets the requirements of the Austroads Guide and vehicles can safely enter and exit the site from the road network.

12.4 Mitigation Measures

Based on the assessment above, the Project is expected to have acceptable construction and operational traffic impacts, subject to the following mitigation measures in **Table 32** relating to the preparation of a construction traffic management plan (CTMP) prior to construction.

Table 32 *Mitigation Measures – Traffic*

Mitigation Measure ID	Mitigation Measure	Timing
TIA-1	Prior to construction, a pre-condition survey of Captain Cook Drive will be undertaken by the appointed contractor in consultation with Council as the road manager. During construction, Captain Cook Drive is to be monitored and maintained to ensure continued safe use by all road users, and any faults attributed to construction of the Project rectified. At the end of construction, a post-condition survey would be undertaken to ensure the road is left in a condition equivalent to that at the start of construction.	Prior to Construction
TIA-2	Neighbours of the Project will be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access.	Construction
TIA-3	Traffic management measures will be implemented to ensure the 26 m B-Double/battery container vehicle can safely access the site. These may include: • Scheduling of deliveries to minimise the likelihood of heavy vehicles arriving/departing the site at the same time. • Driver protocols to radio the site manager/other drivers prior to arriving/departing the site to manage vehicle movements at the southern crossover. • Traffic controllers to hold exiting vehicles internally within the site while a 26 m B-Double/battery container vehicle arrives. It is noted that the default arrangement would be to give priority to arriving vehicles to prevent any queuing on Captain Cook Drive.	Construction
TIA-4	OSOM vehicle trips will be timed so they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application.	Construction

13.0 Hazards and Risk

13.1 Introduction and Methodology

A Preliminary Hazard Analysis (PHA) has been prepared by Aurecon and is provided at **Appendix N**. The PHA was undertaken in accordance with the following methodology:

- **Step 1:** Conduct a risk assessment and document a preliminary risk screening in accordance with Chapter 3 of the *Resilience and Hazards SEPP* and the associated *SEPP 33 Guideline* to determine if the Project is potentially hazardous and/or potentially offensive.
- **Step 2:** If the Project is potentially hazardous and/or potentially offensive, conduct a PHA using risk prioritisation techniques in the Multi-Level Risk Assessment (MLRA) Guidelines and assess the risk in accordance with the requirements of *Hazardous Industry Planning Advisory Paper No. 6 (HIPAP 6) – Guideline for Hazard Analysis*. The PHA considers all recent standards and codes and verifies separation distances to on-site and off-site receptors to prevent fire propagation and compliance with *Hazardous Industry Planning Advisory Paper No. 4, Risk Criteria for Land Use Safety Planning (HIPAP 4)*.
- **Step 3:** Based on the findings of the PHA, provide technical recommendations as management commitments to be included in the Project's approvals conditions.

The PHA adopted the criteria established in the following guidelines and documentation:

- *The Hazardous and Offensive Development Application Guidelines: Applying SEPP 33* (State of NSW, Department of Planning, 2011).
- *The Hazardous Industry Planning Advisory Paper No. 6 – Guideline for Hazard Analysis* (State of NSW, Department of Planning, 2011).
- *The Multi-Level Risk Assessment* (NSW Department of Planning & Infrastructure, 2011).
- *The Hazardous Industry Planning Advisory Paper No. 4, 'Risk Criteria for Land Use Safety Planning* (NSW Department of Planning, January 2011).
- Position statement "Open yard storage of battery energy storage systems (BESS)" (Fire and Rescue New South Wales, 2024).
- *Fire Safety Guideline – Large-scale external lithium-ion battery energy storage systems – Fire safety study considerations* (D22/107002) (FRNSW, 2023).

13.2 Existing Environment

The Project Area is surrounded by several sensitive receptors and Project receivers. Sensitive receptors including residential areas are located 130m north of the site, and the Project is within proximity to a number of other Project receivers including:

- A registered major hazard facility, the Kurnell Ampol Terminal containing above ground petroleum products storage tanks on the eastern side of Captain Cook Drive.
- Sydney desalination plant which is located approximately 400m south of the site.
- Kurnell Recreation Club located 170m northeast of the site.

Refer to **Figure 29** which provides a map of the identified Project receivers.

The Project Area is not located on bushfire prone land.

Hazardous Material	Estimated Quantity	Risk Screening Threshold Exceeded?
Switchgear Insulator (Sulphur Hexafluoride)	Minor quantities for typical switchgears	N/A
Miscellaneous Cleaning Chemicals: Various minor maintenance activities (e.g. cleaning)	< 500 kg	No

While Lithium iron phosphate batteries do not have a screening quantity threshold, the initial screening assessment concluded that the Project is considered a potentially hazardous industry requiring a PHA. It is noted that under normal conditions of use, safeguards are designed into the battery unit to ensure it is safe and secure. Significant hazards would only arise if the battery units are damaged, resulting in potential thermal runaway, overheating, and hazards associated with battery fires.

The Project is also considered a “potentially offensive industry” due to the noise emitted from the battery modules. Noise impacts are assessed in the NVIA prepared by AECOM at **Appendix L**.

13.3.2 Potential hazards

The PHA identifies five key potential hazards of the Project including natural hazards, battery hazards, transformer hazards, switchgear hazards and electromagnetic field hazards. These are further assessed in the following sections below.

Natural hazards

Potential natural hazards which pose a risk to the Project include extreme ambient temperatures, bushfires, seismic activity, flooding, wind, subsidence and lighting.

Battery hazards

Battery hazards can arise when the BESS is damaged and battery integrity is compromised this includes the potential for thermal runaway and overheating. Full scale battery thermal radiation modelling has been completed for the Project which demonstrates no heat radiation impacts beyond the site boundary are predicted. With adequate safeguard measures proposed as part of the Project, it will not result in any adverse offsite risks.

Short circuiting is a potential risk caused by altered mechanical, thermal or electrical functioning of the battery units, which can potentially result in overheating and ignition.

Venting of gases from the batteries should not occurring under normal operating conditions of the Project. However, it can occur due to a fault or failure of the batteries, overcharging of the battery or incomplete combustion of gases generated during the initial battery unit thermal runaway phase resulting in the release of toxic materials or gases from the battery.

Transformer Hazards

Hazards associated with transformers include contact with live parts, arc flashing and transformer fires, which could consequently cause electrocution damage to the transformer and ignition of a battery fire.

Switchgear Hazards

Potential hazards associated with the switch gear include contact with live parts, arc flashing, explosion and the release of gases.

Electromagnetic Field Hazards

Electrical equipment generates both electric fields created by the voltage applies and a magnetic field created by the current flowing through the equipment. The Australian Radiation Protection and Nuclear Safety Agency have identified no conclusive scientific evidence that exposure to Electric Magnetic Fields (EMF) cause adverse health effects. EMFs also have the potential to interfere with active implanted medical devices (AIMD). Australian Standards stipulate an acceptable magnetic intensity of 150 Amps/metre (1,885 milligauss) to avoid risks to AIMDs associated with magnetic fields.

The International Commission on Non-Ionizing Radiation Protection (ICNRP) provides guidelines to limit exposure to time-varying Electric, Magnetic and Electromagnetic Fields. These provide guidance levels for acceptable levels of magnetic intensity. This establishes a reference level for magnetic fields of 2,000 milligauss for the general public and 10,000 milligauss for occupational uses. The Project is expected to operate at a similar level to a substation, ranging from an emission of 1 – 8 milligauss. The Project is predicted to produce magnetic fields at a lower level than a substation, and will therefore remain under reference levels stipulated in the ICNRP. The highest magnetic fields associated with the Project are associated with the 33kV underground cable, ranging from 10 – 100 milligauss. This is considered compliant with reference levels of the ICNRP, noting magnetic field levels reduce progressively with distance from the source and therefore is expected to be negligible at areas accessible to the public.

The ICNRP Guidelines establish reference levels for the intensity of electric magnetic fields of 5,000 Volts per metre (V/m) for the general public and 10,000 V/m for occupational land uses. The 33 kV cable is expected to produce a negligible electric magnetic field due to the sheath of cable and backfilled material dissipating the electric field.

Other

Additional hazards considered as part of the risk assessment included:

- Vehicle collision and congestion.
- Loss of contaminants including waste, diesel, contaminated water and refrigerant.
- Hazards relating to the existing Kurnell Zone Substation.

13.3.3 Risk Assessment Outcomes

A total of thirty-six (36) different hazards associated with the Project have been identified and included in the Risk Register as part of the PHA at **Appendix N**.

Each hazard was assessed in accordance with a risk rating matrix, which measured the level of consequence against the probability associated with the risk, as included at **Table 34** below. Of the thirty-six hazards assessed, including hazards related to battery unit fires, the risk was assessed to be unlikely or not assessed further as they were unlikely to pose risk affecting the public. The risk assessment accounted for the numerous safeguards that have been designed into the Project to ensure safe and secure operation, including adequate separation distances so that mechanical, electrical, structural damage and potential for hazards, particularly offsite effects, are unlikely.

Table 34 Risk Assessment Matrix

	Consequence					
		1 - Incidental	2 - Minor	3 - Moderate	4 - Major	5 - Catastrophic
Probability	A - Almost Certain	Medium	High	Critical	Critical	Critical
	B - Likely	Medium	Medium	High	Critical	Critical
	C - Possible	Low	Medium	Medium	High	Critical
	D - Unlikely	Low	Low	Medium	Medium	High
	E - Rare	Low	Low	Low	Medium	Medium

13.3.3.1 Cumulative Impacts

There is no cumulative hazard impact in relation to the proposed BESS at Ampol's Kurnell Terminal site, as it is planned to be developed 500 m east of the Project.

13.3.4 Key Findings

All identified hazards, including those with potentially significant off-site risks, can be effectively managed through appropriate technical and safety management safeguards, significantly reducing the residual risks and the likelihood of any potential significant off-site consequences.

In particular, results from dispersion modelling of toxic byproducts during a battery fire showed no impacts beyond the site boundary, such that there are no adverse offsite risks.

Subject to the implementation of recommended risk mitigations, and technical and operational measures, which are outlined in **Section 13.1.5** and discussed in detail in the PHA, all identified hazards and offenses can be effectively managed to reduce the residual risk, making significant offsite risks unlikely. As such, the Project does not constitute a hazardous or offensive industry under the SEPP Resilience and Hazards.

Key recommendations and further preparation of studies and plans to manage hazards and risk are discussed below.

General Project Recommendations

The Project will be designed in accordance with international standards which govern the best practice design and installation of BESS facilities and associated infrastructure including Australian Standards, modular design, cooling systems, fire extinguisher systems, and fire protection measures. These measures include sensors that monitor safe operating temperatures and pressures, fire and smoke. Battery units will also include emergency shutdown and alarm systems. These technical safeguards include inherently safe design through adequate separation and battery safety features including safety instrumented systems with redundancy. Mitigation measures to ensure that the above measures are implemented, are listed below and included in the Mitigation Measures at **Appendix E**.

Fire Safety Study

A Fire Safety Study (FSS) is proposed to be completed during detailed design to meet the requirements of the FRNSW Technical Information Sheet: Large-Scale external lithium-ion battery energy storage systems – Fire Safety Considerations apply. Initial consequence modelling related to off-gas associated with thermal runaway of the BESS units shows no toxic combustion byproducts impacts beyond the site boundary. Measures that are incorporated within the design include the construction of a 3m high fire wall along the site boundary to Captain Cook Drive, and appropriate separation distances between each battery unit in accordance with the requirements of the OEM to mitigate any propagation of a fire. In accordance with fire and safety codes and standards such as NFPA 855, the Project will provide a separate distance of at least 3m from the Project to public ways, buildings, stored combustible materials, hazardous areas and other exposure hazards not associated with electrical grid infrastructure. As such, any risk of a fire relating the Project will be contained on the site and will not pose offsite impacts.

In addition, as discussed in **Section 9.0**, all contaminated firefighting water in the event of a fire will be contained onsite, either being pumped into a fire water tank or if filled, contained within a bund on the site for the entire expected duration of a fire, to ensure that contaminated firefighting water is not able to enter local waterways and wetlands.

Emergency Response Plan and Emergency Services Information Package

An Emergency Response Plan (ERP), and Emergency Services Information Package (ESIP), are required to be developed and approved by FRNSW post detailed design prior to commencement of operations to comply with the Work Health and Safety Regulations 2025.

The ERP will address the identification of hazards which can reasonably be expected to initiate or contribute to an emergency, qualitative analysis and evaluation of these hazards, and assessment of the offsite impact or risk to people and property and detail of hazardous materials. The ERP will be coordinated with Ampol to address impacts of any major incidents should they occur concurrently on each site.

The ESIP is required to be prepared in accordance with the *FRNSW Fire Safety Guideline: Emergency Services Information Package and Tactical Fire Plans*. This ESIP will include emergency response planning for the fire and/or smoke scenarios resulting from a possible major incident occurring concurrently at the neighbouring Ampol Terminal and the Project.

13.3.4.1 Safety Management Plan

A comprehensive safety management system, including a Work Health and Safety Management Plan and Asset Management Plan, are also recommended to be in place for construction and prior to commissioning or operation.

13.4 Mitigation Measures

Subject to the following mitigation measures, residual risks can be reduced to acceptable levels.

Table 35 *Proposed Mitigation Measures*

Mitigation Measure ID	Mitigation Measure	Timing
RH-1	The Project will be surrounded by fencing, locked gates and other security measures as necessary and compliant with relevant standards	Design
RH-2	The Project will be designed to incorporate safety and fire protective systems, such that no single point of failure will result in a significant hazard event	Design
RH-3	Considering outdoor installations of battery units, appropriate Heating, Ventilation, and Air Conditioning (HVAC) will be designed and installed by the OEM to keep the equipment cool and clean and within a safe operating temperature range. The HVAC system will also prevent the confinement of gases	Design
RH-4	The Project will consider wind action and lightning protection. Lightning protection is included as part of the concept design.	Design
RH-5	The Project will be designed, manufactured and installed to Australian Standards and in particular: • IEC 62485-5: Safety requirements for secondary batteries and battery installations – Part 5: Safe operation of stationary lithium-ion batteries • IEC 62933 Parts 5.1 and 5.2 Electrical energy storage (EES) systems – Part 5-1: Safety considerations for grid-integrated EES systems – General specification, and Part 5-2 Electrical energy storage (EES) systems - Safety requirements for grid-integrated EES systems - Electrochemical-based systems • AS 5139: 2019 Electrical installations - Safety of battery systems for use with power conversion equipment • AS 4681 The Storage and Handling of Class 9 (miscellaneous) Dangerous Goods and Articles.	Design
RH-6	Electronic safety-related systems will be installed at both a hardware and software level, designed to applicable standards, to allow for safe isolation of electrical energy in the event of a failure. These systems will be monitored remotely for life of the operation and shall be subject to regular annual maintenance checks	Design
RH-7	Design of battery units will consist of detection and prevention system for over temperature/cell overpressure, coolant leak, etc.	Design
RH-8	Battery units will be equipped with fire, smoke and flammable gas leak monitoring system.	Design
RH-9	The Project shall be located to be directly accessible to emergency responders through site access points.	Design
RH-10	Coolant leak alarms will be installed.	Design
RH-11	All telemetry, fault monitoring, and electrical safety protection devices will remain active regardless of keylock switch position or system state.	Design and Operation
RH-12	The pyro disconnect's power supply circuit will be actively monitored.	Design

Mitigation Measure ID	Mitigation Measure	Timing
RH-13	The construction contractor will prepare an adequate safety management system and documentation for the Project construction phase (e.g., emergency plans, traffic management plans and a procedure for managing contaminated land.	Prior to Construction
RH-14	Operation and maintenance: - The battery units will be installed correctly and commissioned / tested to ensure safe function - The safety testing of the battery units will be conducted under the guidance of IEC 62619: Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for secondary lithium cells and batteries, for use in industrial applications - Operators and maintainers of the Project will be adequately trained - Transformers and the switchgear will be installed and maintained as their OEM recommended regime, including regular insulation and function testing - Diesel, design, storage, and handling will be in accordance with AS 1940.	Operation
RH-15	The following safety management plans will be implemented for the Project: - Work Health and Safety Management Plan, compliant with AS 5577: 2013 Electricity network safety management systems - An emergency plan (EP) shall be provided to Fire and Rescue NSW as per the requirements of Regulation 361 of the WHS Regulation - Asset Management Plans and assurance activities shall be developed for the Project. - Stormwater management plan is to be developed - Waste management plan for construction and operation of the Project are to be developed - Provisions are to be in place for the identification and removal of any contaminated land during construction - Housekeeping procedures are to be developed for construction and operation - Development and implementation of plant operating and maintenance procedures - Pest control / management is to be implemented - An audit system shall also be developed to ensure regular review and update of safety management plans.	Prior to Construction/Operation
RH-16	A Fire Safety Study (FSS) will be developed in accordance with the requirements of Hazardous Industry Planning Advisory Paper (HIPAP) No.2 and to meet the operational requirements of FRNSW	Prior to Construction
RH-17	A suitable fire protection system and contaminated firewater system will be designed and installed compliant with the relevant codes, in particular FRNSW guidelines	Prior to Operation
RH-18	A Fire Risk Evaluation will be conducted to provide fire safety recommendation and required firefighting equipment	Prior to Operation
RH-19	An Emergency Plan (EP) and Emergency Services Information Package (ESIP) will be developed and approved by FRNSW post detailed design prior to commencement of operations to comply with the Work Health and Safety Regulations 2025.	Prior to Operation

14.0 Bushfire

14.1 Introduction and Methodology

A Bushfire Risk Assessment has been undertaken by Blackash Bushfire Consulting (Blackash) at **Appendix O** to provide an assessment of bushfire risk management to support the construction, operation and maintenance of the Project. The Bushfire Risk Assessment has been guided by the following key aims:

- Assess the potential bushfire risks to the Project mitigation measures to improve the feasibility of the Project;
- Provide measures that meet the SEARs and Planning for Bushfire Protection requirements through bushfire hazard identification and assessment, including a bushfire hazard site and landscape assessment;
- Provide recommendations for the protection of human life and to minimise impacts on property from the threat of bushfire;
- Reduce the occurrence and consequences of bushfires through risk-based design; and
- Enable safe and effective emergency response through the provision of:
 - safe access in and around the Project including firefighting infrastructure such as water supply,
 - management of vegetation,
 - implementation and maintenance of building construction standards,
 - prevention of fire ignition on site and prevention of fire spread between site infrastructure or offsite causing a bushfire.

Alongside this, key legislative framework including the EP&A Act and Planning for Bushfire Protection has informed Blackash's assessment of bushfire risk.

14.2 Existing Environment

The Project is not located on 'bushfire prone land' under Section 10.3 of the EP&A Act. In addition, the site is within an area of lowest economic risk within the Sutherland Bush Fire Risk Management Plan 2025 (refer to **Figure 30**) and there is little mapped history of bushfires in the local area, with no bushfire impact recorded at the site and limited history recorded within a 10km radius of the site. A review of the site's bushfire history, alongside the Blackash landscape scale assessment tool indicates the existing site is of low bushfire risk as it is surrounded by wetlands or industrial development.

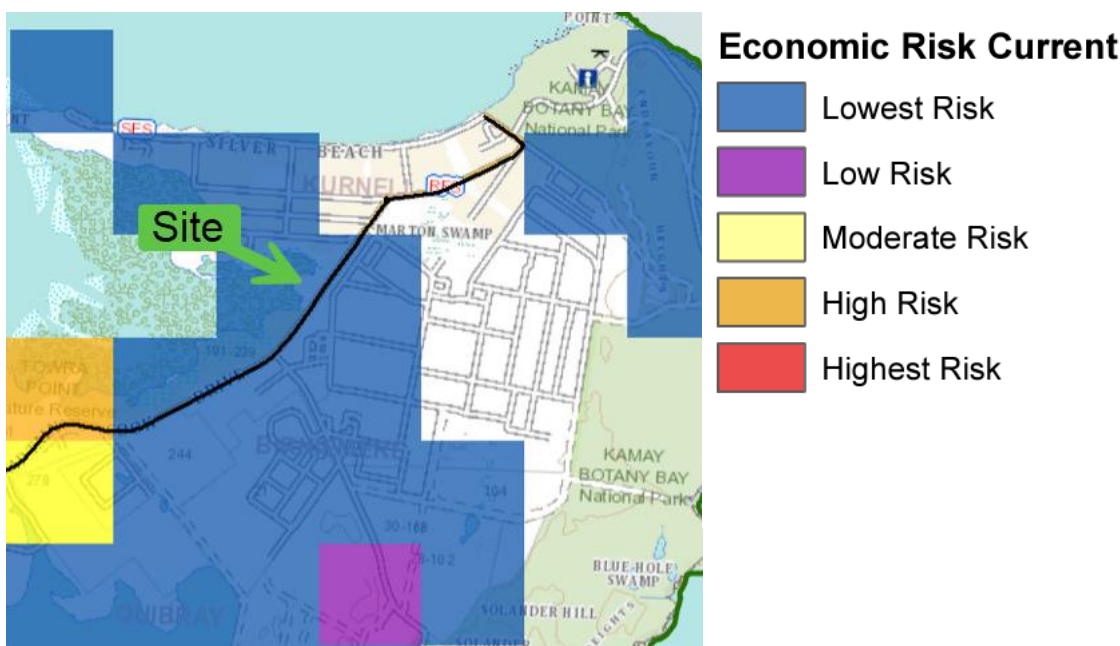


Figure 30 Extract from Sutherland Bush Fire Risk Management Plan 2025 - site shown as within Lowest Risk area

Source: Sutherland Shire Council

14.3 Assessment of Impacts

14.3.1 Compliance with the Planning for Bushfire Protection

The Bushfire Risk Assessment assesses the Project against the Planning for Bushfire Protection (PBP) and concludes that the Project is fully compliant with the requirements of the PBP. This included a Bushfire Hazard Assessment provided in accordance with the PBP, which included assessing the potential hazardous landscape, vegetation, effective slope to provide an assessment of the bushfire hazard and APZ required. The Bushfire Risk Assessment concluded that no formal APZs are required for this Project due to the low risk nature of vegetation being saline wetlands and the vegetation setbacks provided by the proposed layout of the Project which would meet and exceed any formal 10m APZ requirement. As there are no formal APZs, the entire site is to continue to be managed in accordance with standard Ausgrid substation procedures. A Fire Safety Study will need to be prepared to determine the quantum and location/s of bushfire fighting water supply.

14.3.2 Bushfire Risk during Construction and Decommissioning

This section discusses the potential risks of construction and decommissioning of the Project causing a bushfire. Potential sources of ignition for bushfires as a result of the construction and decommissioning of the Project include:

- Construction equipment including bulldozers, excavators and vegetation removal machinery using slashers and mulching machines. These activities can produce sparks when steel blades encounter rock, with the potential to ignite surrounding vegetation.
- Motor vehicle exhaust systems and diesel-powered trucks with pollution control devices have the potential to emit burning diesel particles and ignite grassland and woodland ground fuels.
- Hot works such as welding and grinding can produce sparks resulting in an extreme level of risk of ignition for cured vegetation.
- Electrical equipment faults create a high level of risk of ignition of vegetation.
- Inappropriate storage of chemicals has the potential to cause a chemical fire or explosion. Failure to clean up a spill can also lead to fire.
- Arson.

These risk factors are dependent on fuel loads, weather and the scale of fires occurring. There is a limited threat to construction workers or firefighters.

14.3.3 Bushfire Risk During Operation

The site is of low risk of impact from bushfire. The risk of starting a bushfire during the operational phase of the Project will be significantly mitigated and result in little risk of a battery unit fire igniting a bushfire given the physical separation of the Project from native vegetation, classification of surrounding vegetation and management in accordance with the Fire Safety Study. The Fire Safety Study will put in place measures to limit the potential for uncontrolled fire starting on the site and ensure that any potential fire would be contained on the site.

14.3.4 Mitigation Measures

The following mitigation measures in **Table 36** will be implemented.

Table 36 *Proposed Mitigation Measures*

Mitigation Measure ID	Mitigation Measure	Timing
BF-1	A Fire Safety Study will be prepared prior to construction to determine the quantum and location of bushfire fighting water supply.	Prior to Construction

15.0 Land Use Conflict

A Land Use Conflict Risk Assessment (LUCRA) is required as part of the SEARs. This LUCRA has been prepared in accordance with the Department of Industries' Land Use Conflict Risk Assessment Guide to assess the potential impacts that the Project will have on surrounding land uses and measures proposed to mitigate these impacts.

15.1 Methodology

The aim of the LUCRA is to identify and address potential land use conflict issues associated with the Project, provide an assessment of the effect of the land use on neighbouring land uses and recommend strategies to help minimise the potential for land use conflicts. In accordance with the Department of Industries' Land Use Conflict Risk the assessment the LUCRA has been prepared based on the following key steps:

- Gather information about proposed land use change and associated activities.
- Evaluate the risk level of each activity
- Identify risk reduction management strategies
- Record LUCRA results

15.2 Assessment

Key aspects of the Project and the context of the site are provided below:

- The Project involves minimal change of use with the existing Kurnell Zone Substation in operation.
- The surrounding locality is dominated by a mix of industrial, residential and environmental land uses. In particular, the following land uses relevant to the LUCRA surround the site:
 - Immediately north and west of the site is Towra Point Nature Reserve and bushland zoned C2 Environmental Conservation, which is a wetland of international importance under the Ramsar Convention on Wetlands
 - 130m further north of the site is residential development comprising of Kurnell Village which is zoned C4 Environmental Living
 - To the east of the site is the Kurnell Ampol Terminal

The activities that occur on properties surrounding the site are:

- Occupation of residential dwellings associated with suburban residential properties
- Uses associated with the conservation of wetlands and bushland zoned environmental conservation
- Access (road movement) to residential dwellings
- Fuel importation activities associated with the Ampol Terminal

A risk assessment of the land uses and associated activities has been provided below at **Table 38**, in accordance with the Land Use Conflict Risk Assessment Guide, which establishes a risk ranking matrix as follows:

Table 37 Risk Ranking Matrix

Probability / Consequence	Description	A (Almost Certain)	B (Likely)	C (Possible)	D (Unlikely)	E (Rare)
Description	-	Common or repeating occurrence	Known to occur, or 'it has happened	Could occur, or 'I've heard of it happening'	Could occur in some circumstances, but not likely to occur	Practically impossible
1 (Severe)	Severe and/or permanent damage to the environment.	25	24	22	19	15
2 (Major)	Serious and/or long-term impact to the environment.	23	21	18	14	10
3 (Moderate)	Moderate and/or medium-term impact to the environment and community.	20	17	13	9	6
4 (Minor)	Minor and/or short-term impact to the environment and community.	16	12	8	5	3
5 (Negligible)	Very minor impact to the environment and community.	11	7	4	2	1

Table 38 Land Use Conflict Risk Evaluation

Activity	Potential Conflict Identified	Initial Risk Ranking	Management Strategy	Residual Risk Raking
Occupation of residential dwellings associated with suburban residential properties.	Potential noise impacts on the amenity of residents	13	Noise barriers 8m high located on the western, southern and eastern boundaries.	2
	Fire	14	Built-in design of the Project shall consist of modular, insulated battery units to mitigate against unit failure. Fire Safety Study to be conducted as part of design to ensure fire radiation effects do not impact on adjacent infrastructure. The Project will be designed to ensure that any risk of a fire relating the Project will be contained on the site, and will not pose offsite impacts. Preparation and implementation of Emergency Response Plan. Built-in design of the Project shall consist of modular, insulated battery units to mitigate against unit failure, with electronic safety-related systems, thermal overtemperature detection and prevention, cell overpressure detection and protection, and implementation of Safety Management Plan and ongoing maintenance/inspections.	5
	Explosion / Thermal Hazard	14		5
	Hazardous Materials - Release and dispersion of flammable and toxic combustion products	14		5
Wetlands and Environmental Conservation Areas	Flooding	9	There are generally no off-site increases to flood depths. Each battery unit will be installed above the 1% AEP flood level.	5

Activity	Potential Conflict Identified	Initial Risk Ranking	Management Strategy	Residual Risk Raking
	Bushfire / Fire	5	The Project will be designed to ensure that any risk of a fire relating the Project will be contained on the site, and will not pose offsite impacts. A fire water tank and bunds are to be included in the design of the Project to ensure no contaminated fire water is discharged from site.	1
	Hazardous Materials - Release and dispersion of flammable and toxic combustion products	13	The Project will be designed to ensure that any risk of a fire relating the Project will be contained on the site, and will not pose offsite impacts. A fire water tank and bunds are to be included in the design of the Project to ensure no contaminated fire water is discharged from site.	1
Access	Flooding which could impact access to surrounding properties	3	No further management required as there a generally no off-site existing conditions outside the site.	3
	Traffic generation	9	Construction Traffic Management Plan to manage construction vehicles to and from the site.	3
	Vehicle access – one way in and out access to residential area, and surrounding sites.	9	Construction Traffic Management Plan to manage vehicles to and from the site along Captain Cook Drive.	3

15.3 Mitigation Measures

Land use conflicts are to be suitably managed through mitigation measures established throughout this EIS for the management of noise, hazards, flooding risks, as summarised in **Table 39** below:

Table 39 Summary of mitigations – land use conflict

Mitigation Measure ID	Summary of measure	Timing
LUC-1	Noise barriers of 8m in high will be installed around the western, southern and eastern extents of the battery units.	Design and Construction
LUC-2	Built-in design of the Project will consist of modular, insulated battery units to mitigate against unit failure.	Design
LUC-3	Procedures will be implemented to maintain drainage features at the site and manage fire water	Design
LUC-4	The Project will be designed to incorporate safety and fire protective systems	Design
LUC-5	A fire protection system will be designed and installed to mitigate the consequences of a fire or thermal runaway hazard event.	Design
LUC-6	A Construction Traffic Management Plan will be implemented to manage construction vehicles to and from the site.	Construction

16.0 Social and Economic Impact

16.1.1 Introduction and Methodology

A Social and Economic Impact Assessment (SEIA) has been prepared by Colliers Urban Planning at **Appendix R**. The report provides an assessment of the Project's expected social and economic impact.

16.1.1.1 Methodology

The SEIA has been prepared in accordance with the *Social Impact Assessment Guideline for State Significant Projects* (NSW DPHI, 2025), the *Technical Supplement* (NSW DPHI, 2025) and SEIA based on demographic data sourced from Australian Bureau of Statistics (ABS) 2021 Census data. An assessment of the potential social impacts of the Project has been undertaken based on direct and indirect impacts. The potential social impacts of the Project was gauged via stakeholder engagement undertaken for the Project including an online social impact survey and stakeholder interviews.

The SEIA includes an assessment of the social significance of each impact across a suite of factors, including the likelihood of each identified impact, along with the envisaged duration, extent, and potential to mitigate/ enhance. Each impact has been assessed and assigned an overall significance rating, which considers both the likelihood of the impact occurring and the consequence should the impact occur. The assessment also sets out recommended mitigation, management and monitoring measures for the identified impacts.

The economic component of the SEIA has been prepared based on the establishment of an economic baseline, including a baseline analysis of population, labour markets, occupational structure and business structure. This has been assessed based on the Estimated Development Cost (EDC) and Project employment rates for construction and operational phases.

16.1.2 Existing Environment

For the purposes of the social and economic assessment, three study areas have been defined this includes:

- Primary Social Locality (PSL): Defined based on a 500m buffer from the Project boundary. To understand the demographic profile of the PSL, a section of SA1s (Statistical Area Level 1) have been included.
- Secondary Social Locality (SSL): The SSL has been defined as the suburb of Kurnell and will analyse the social impacts that will occur at a local suburb level.
- Economic Study Area (ESA). The ESA has been defined as the Sutherland Shire Local Government Area (LGA) and analyses economic impacts that will occur at a regional scale.

Refer to **Figure 31** and **Figure 32** below for the social and economic localities.



Figure 31 Kamay Energy Storage – Social Localities

Source: Colliers, Bing, QGIS

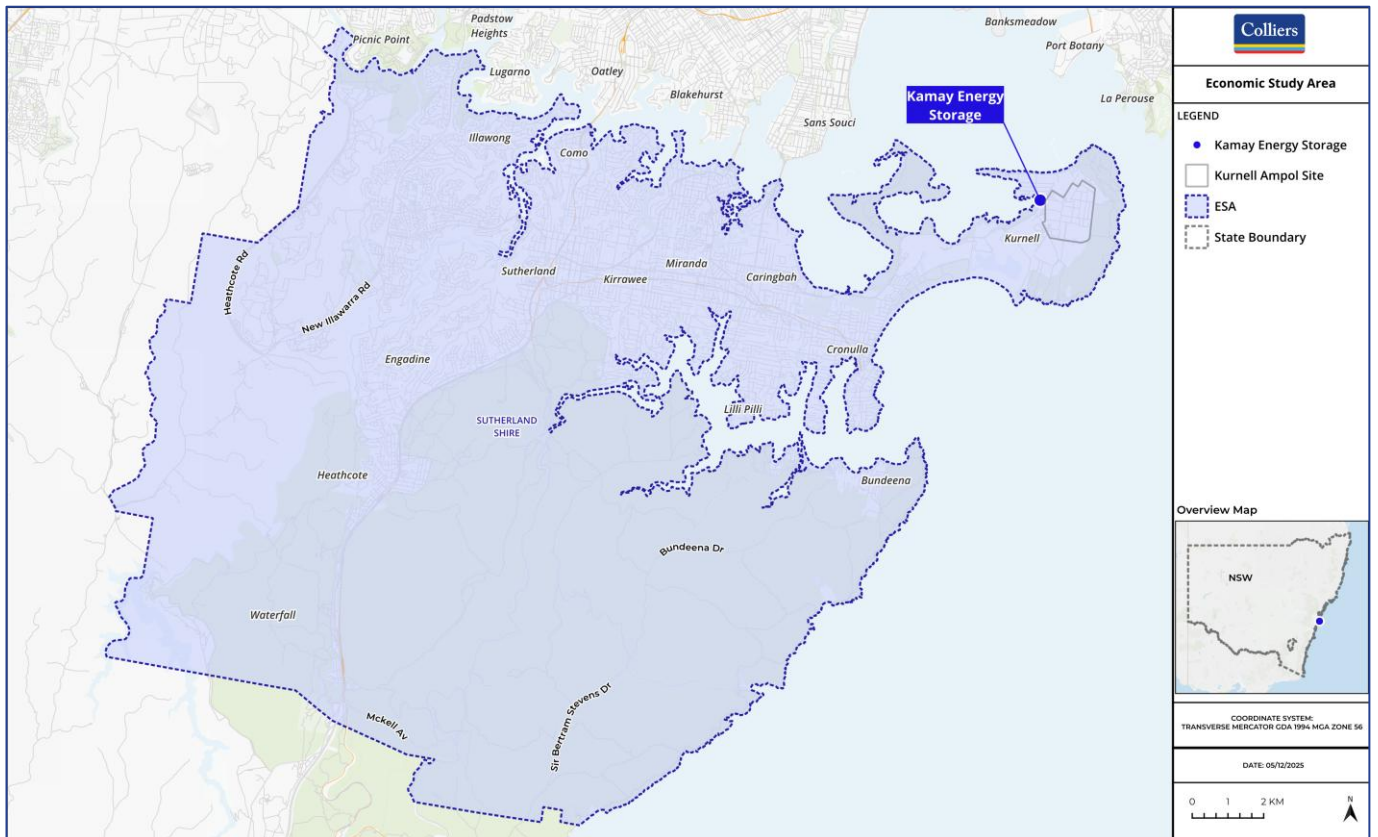


Figure 32 Kamay Energy Storage Economic Study Area

Source: Colliers, QGIS

The current socio-economic characteristics of the study areas relating to the site are summaries as follows:

- The PSL and the SSL has a younger population compared to Greater Sydney, with the ESA anticipated to experience steady growth in population of 0.5% p.a. between 2021 and 2041.
- Households in the PSL and SSL are more affluent, largely comprise of couple family with children households and have less cultural and linguistic diversity when compared to Greater Sydney.
- As at the 2021 Census, 11.8% of total employed people worked in the construction industry and 21.5% of employed residents in the ESA were broadly aligned with the types of skills required for the construction of major utility-scale renewable energy projects.
- The ESA is located within the Sydney Tourism Region of New South Wales which is one of the state's most significant visitor destinations, encompassing Sydney's Central Business District and surrounding metropolitan areas, with a significant provision of short-term accommodation totalling approximately 50,050 rooms across 500 establishments. Short-term rentals (e.g. Airbnb) are also potentially available at any time, though occupancy varies seasonally.

16.1.3 Assessment of Impacts

16.1.3.1 Social Impact Assessment

Forty-nine (49) responses were received from the social impact survey undertaken, this included 94% which were in opposition to the Project and two responses which were supportive of the Project. These identified the following key concerns and impacts:

- Noise and amenity
- Safety and evacuation
- Environmental risks
- Health and emissions
- Industrial character and access
- Trust and risk management

The Social impact assessment identified the following impacted stakeholders of the Project:

- Local residents, particularly adjacent neighbours and businesses on Tasman Street, Damper Street Bridges Street
- Businesses in and near the PSL, including those on Horning Street and Tasman Street
- Kurnell Recreation Club
- Sutherland Shire Council
- Guiaga Foundation
- Kurnell Progress and Precinct Residents Association
- Tourists

The potential social impacts and benefits of the Project are identified below at **Table 40** below. It concludes that while negative impacts of the Project range from low to high significance, following the implementation of mitigation measures, these impacts range from low to medium. The Project also offers significant positive benefits including employment and its contribution to clean energy and grid reliability in NSW.

Table 40 Summary of social impacts

Description of impact	Stakeholders affected	Phase	Social impact category	Pre-mitigated social significance rating	Mitigated residual social significance rating
Changing local character due to visual, community and land use changes not in line with the original suburban and heritage-influenced character that people move to the area for	Nearby residents (PSL); local community groups	Construction and operation	Surroundings , Way of Life	High (Negative)	Medium (Negative)

Description of impact	Stakeholders affected	Phase	Social impact category	Pre-mitigated social significance rating	Mitigated residual social significance rating
Reduced community cohesion due to potential disagreements between people who support or oppose the project	Nearby residents (PSL); local advocacy groups	Construction and operation	Community, Way of Life	Medium (Negative)	Low (Negative)
Fear of health and safety impacts due to the BESS associated with fire risk and materials present in and released by the BESS	Nearby residents (PSL); local community groups	Operation	Health & Wellbeing	Low (Negative)	Low (Negative)
Negative impacts to local amenity as a result of temporary construction traffic, noise, dust and vibration. Inconvenience and disruption from construction traffic, meaning changes to daily living	Nearby residents (PSL); local businesses	Construction	Way of Life, Health & Wellbeing, Accessibility	High (Negative)	Medium (Negative)
Perceived heritage risk and impact on cultural identity	Residents with strong heritage attachment; heritage groups	Construction and operation	Culture, Community	Medium (Negative)	Low (Negative)
Inconvenience to daily living routines due to fenced off area, and occasional visits by staff for maintenance. This may decrease ease of travel due to presence of vehicles accessing site for maintenance/operations	Nearby residents (PSL); local service providers	Operation	Way of Life, Accessibility	Low (Negative)	Low (Negative)
Livelihood benefits associated with increased local employment opportunities, patronage for local businesses, additional revenue for Council and community from the project's community benefit sharing	Local businesses; local workers; council	Construction	Livelihoods	Medium (Positive)	High (Positive)
Contribution to NSW Clean Energy Transition and Grid Reliability	Broader NSW community; local residents	Operation	Health & Wellbeing, Surroundings	High (Positive)	High (Positive)
Decommissioning of the BESS will likely have similar impacts and benefits on the locality as construction	Nearby residents; local workers	Decommissioning	Way of Life, Health & Wellbeing, Livelihoods	Unknown	Unknown

16.1.3.2 Economic Impact Assessment

Employment Generation

The key positive economic impact as a result of the Project is employment generation. Additional jobs supported by the Project will accrue through direct and indirect employment generated during the construction and ongoing operational phase of the Project.

It is estimated that the Project will support an average of 50 Full Time Equivalent (FTE) workers over the 22-month construction period. Up to 100 FTE jobs per day are anticipated at the Project's peak. The Project is estimated to generate an additional 80 indirect FTE jobs over the construction period.

During operation, it is expected that the Project will result in 2 FTE jobs directly and 5 FTE jobs indirectly.

Economic Output

It is estimated that approximately \$165 million in capital costs will be required for the construction of the Project. Approximately 5% of the construction investment equating to \$10 million is expected to be retained within the ESA. An estimated \$0.25 million in economic stimulus (2025 dollars) is expected to be directed to local businesses and service providers due to the temporary relocation of 5 FTE non-local workers during the 22-month construction period. The Project will support almost 3 FTE direct operational jobs in the ESA. These jobs will provide an estimated stimulus within the ESA of approximately \$5.7 million annually over the 30 year operational period.

Additional Economic Benefits

The following additional economic benefits have been identified as a result of the Project:

- Capital investment of up to \$165 million, of which 5% will flow to the local economy.
- 130 FTE construction-related jobs supported, of which 13 FTE jobs will be sourced locally (includes direct and indirect employment).
- Increased opportunities for local businesses providing support services to workers such as accommodation, retail, food and beverage, fuel, medical etc.
- 2 FTE direct operational jobs and 5 FTE indirect jobs generated by the Project with 3 FTE local jobs.

Potential Adverse Economic Impacts

The Project will result in nil to low adverse economic impacts. No adverse impacts on the accommodation sector are expected, with just 5 FTE workers requiring accommodation across the construction phase (on average), rising to 10 FTE workers for a short time during peak construction. With several visitor accommodation facilities across the ESA, and more broadly across Greater Sydney, there is sufficient capacity to support both the Project and any concurrent infrastructure projects.

Low to no cumulative impacts are expected during the construction and operation of the Project, with the construction of only two projects potentially overlapping and sufficient construction-related labour, accommodation and support services available to cater for these projects.

16.1.4 Mitigation Measures

Table 41 provides a summary of recommended mitigations and enhancement measures identified within this Social Impact Assessment. Mitigations and enhancements identified within the assessment that have been implemented through the design process, or are not within the proponent's remit, are not included in the below.

Table 41 Summary of mitigation measures – social and economic impact

Mitigation Measure ID	Summary of measure	Timing
SEIA-1	Engagement and communication: The Project will provide clear, coordinated and cumulative impact-aware communication and engagement during construction, including distinguishing between proponents, providing accessible grievance pathways and offering targeted updates to near neighbours.	Construction
SEIA-2	Socially responsive design: The Project will apply landscape and design treatments that support local identity and reduce perceptions of industrialisation, including feasible cultural or environmental interpretation through artwork or planting.	Design
SEIA-3	Community cohesion and wellbeing: The Project will deliver transparent engagement that addresses concerns about cumulative change, safety and character, including opportunities for joint or aligned engagement with other proponents where appropriate	Prior to construction
SEIA-4	Perceptions of safety and emergency response: The Project will provide plain-English information on BESS safety, emergency procedures and multi-agency emergency arrangements to reduce concerns about cumulative safety risks.	All stages

Mitigation Measure ID	Summary of measure	Timing
SEIA-5	Workforce and local business participation: The Project will maintain a local procurement focus and monitor workforce accommodation and labour needs to avoid unnecessary cumulative pressure on local businesses or accommodation.	Operation
SEIA-6	Community benefit initiatives: Benefit sharing scheme to local initiatives that respond to cumulative concerns such as landscape greening, environmental improvements and cultural or heritage projects.	All stages
SEIA-7	Cumulative construction impacts: The Project will coordinate construction timing, notifications and communication with other proponents to minimise compounded disruption and ensure residents understand who is responsible for each activity.	Construction

Despite the association of the general Kurnell area as the landing place of Captain Cook, and the site of first contact in Australia between Indigenous people and the British colonisers (therefore recognised as having national heritage significance), the site itself does not contain any items of heritage significance, and has been historically disturbed by vegetation clearance and the subsequent construction of the Kurnell Zone Substation. The site does not contain any specific items which are considered important in the natural or cultural history of the area.

Overall, the SoHI has determined that the site has negligible heritage significance as it was included in the first land grant in the area, provided to James Birnie in 1815. While the site is surrounded by areas of cultural and environmental significance, due to high levels of historic and current disturbance present across the site, these same values are not present on the site.

17.1.3 Assessment of Impacts

As the site does not contain any items of heritage significance, the Project will not result in any impact to heritage fabric or any historical heritage values of the site.

In relation to heritage items near the site, the SoHI has determined the following:

- The Project will be contained within the existing disturbed fenced property boundary of the Kurnell Zone Substation and will not encroach into the Towra Point Nature Reserve curtilage. Moreover, the site has an existing industrial character which will not be altered by the Project, and as such is considered unlikely to impact further on the heritage values of the Towra Point Nature Reserve.
- The heritage significance of the former Caltex Refinery to the east of the site is due to it being one of only two refineries in NSW. The addition of the Project to the Kurnell Zone Substation would not be out of place within this wider industrial landscape, and will not affect the ongoing operation of the Caltex Refinery fuel depot and as such, it represents an evolving industrial precinct that the Project fits well within.
- The Project is located approximately 1.4km from the Kurnell Peninsula Headland, from which it cannot be seen. The Project will not impact on the national heritage values of that area generally.

As such the Project is considered unlikely to impact on historic heritage values of items surrounding the site.

17.1.4 Mitigation Measures

As the Project is considered as unlikely to have any impact of the heritage values of items surrounding the site, no mitigation measures are required in relation to heritage items near the site.

While the site has been assessed as not possessing any heritage significance, a standard mitigation measure relating to unexpected finds is proposed.

Table 42 *Summary of mitigation measures – non-Aboriginal heritage*

Mitigation Measure ID	Mitigation Measure	Timing
NAH-1	Should unanticipated archaeological material be encountered during site works, all work must cease and an archaeologist contacted to make an assessment of the find. Further archaeological assessment and approvals may be required prior to the recommencement of works. Any historical objects must be reported to Heritage NSW.	Construction

17.2 Visual Impact

17.2.1 Introduction and Methodology

A Landscape and Visual Impact Assessment (LVIA) (**Appendix P**) has been prepared by Colliers Urban Planning in collaboration with Virtual Ideas and CMS Surveyors to determine the visual impact of the Project. With reference to its purpose, the method used by this LVIA has the following key steps:

1. Identifying the Projects likely visual impacts:
 - Visual analysis: undertaking visual analysis
 - Survey aligned photomontages: preparing an evidence base of survey aligned photomontages
 - Significance of visual impact: assessing the significance of the Project's likely visual impact
2. Determining the acceptability of the Project's likely visual impacts
 - Consistency with the planning framework: assessing the consistency of the Project's likely visual impact against relevant parts of the planning framework.

The viewpoints used to assess the visual impact of the Project have been chosen based on guidance from the '*Guidelines for Landscape and Visual Impact Assessment – third edition*' (GLVIA3) (Landscape Institute and Institute of Environmental Management & Assessment, 2013). The GLVIA3 is widely referenced in LVIA in Australia (AILA, 2019) including in Secretary's environmental assessment requirements (SEARs) for state significant development (SSD). It states that:

'The viewpoints used need to cover as wide a range of situations as is possible, reasonable and necessary to cover the likely significant effects. It is not possible to give specific guidance on the appropriate number of viewpoints since this depends on the context, the nature of the Project and the range and location of visual receptors. The emphasis must always be on proportionality in relation to the scale and nature of the Project and its likely significant effects.'

The choice of viewpoints is also influenced by an analysis of the primary visual catchment and pattern of viewing.

The primary visual catchment from which the Project is likely to be most visible, and by association likely have the greatest visual impact, generally consists of:

- The Captain Cook Drive transport route.
- Kurnell township which is an area characterised by low scale residential development within moderately sized lots, including flat to gently sloping areas and intermittent vegetation and trees.

The pattern of viewing for the Project is generally as follows:

- residents at home located in the residential area to the north
- motorists in vehicles along Captain Cook Drive, generally within close proximity to the site between Sir Joseph Banks Drive to the south and Kurnell Recreation Club to the north
- users/visitors of Kurnell Recreation Club to the north
- users of Marton Park to the north

Based on the above, the following views in **Table 43** were chosen.

Table 43 Viewpoints

Ref	Location	Reason
1	Marton Park	Assess impact on visual amenity of key open space and recreation located within close proximity to the site.
2	Dampier Street	A key north-south view corridor that affords medium range views from the local residential streetscape towards the site. This view location is a representative view to assess impact on surrounding residential area to the north.
3	Captain Cook Drive - southern approach (cnr Sir Joseph Banks Dr)	Assess impact on the visual character of key transport routes that are highly frequented and located within close proximity to the site. Key intersection with increased traffic located close to the site.

Ref	Location	Reason
4	Kurnell Recreation Club - Captain Cook Drive - northern approach	Assess impact on the visual character of key transport routes that are highly frequented and located within close proximity to the site. Key location for increased traffic to assess impact on visual amenity of a key community facility within close proximity to the site.

17.2.2 Existing Environment and Assessment of Impacts

The predominant visual character of the site is influenced by the existing Kurnell Zone Substation land use that sits within a predominantly visually enclosed area, naturally screened by existing vegetation. The Project will not impact the existing visual character of the area as it is generally visually synonymous with the existing land use of the site.

Immediately beyond the site, the visual character is characterised by the wetlands and nature reserve, which have a predominantly flat topography and contain a high level of native vegetation. The existing abutting vegetation and roadside vegetation along Captain Cook Drive are associated with the Towra Point Nature Reserve and predominantly screen the site from the roadway and surrounding receptors. In accordance with the planning framework, the Project does not impact on the existing highly modified land of the site or the interfacing Wetlands and Nature Reserve landscape.

Photomontages which demonstrate the visual impact of the Project at the assessed viewpoints are shown below at **Figures 35-38**. Viewpoints 1-3 have a medium sensitivity, while viewpoint 4 has a low sensitivity.



Figure 34 Viewpoint 1: Marton Park- Proposed View



Figure 35 Viewpoint 2: Dampier Street – Proposed View



Figure 36 Viewpoint 3: Captain Cook Drive southern approach – Proposed View



Figure 37 Viewpoint 4: Kurnell Recreation Club – Captain Cook Drive northern approach – Proposed View

Source: Virtual Ideas

Overall, the Project will have minimal impact on the visual amenity of the site and surrounds, given the Project will be visually integrated with the existing Kurnell Zone Substation and will not involve the removal of any vegetation. The surrounding dense vegetation obstructs views towards the site. In addition, the distance to some key viewpoints from the site also results in the visibility of the Project being imperceptible, reducing the overall impact on visual amenity. This is demonstrated in the assessment of the four viewpoints selected surrounding the site found that the Project is imperceptible from each viewpoint.

Specifically, Viewpoint 2 is a representative view from the residential area to the north as it is taken from a key north-south view corridor that affords medium range views from the local residential streetscape towards the site. The Project will be imperceptible from Viewpoint 2, as views to it are obstructed by low scale residential dwellings, large trees and utility poles. It is noted that these large trees are not only located at the terminus of Dampier Street thus obstructing all views to the site from Dampier Street, but large trees also abut the properties to the south of Tasman Street, which would similarly obstruct views to the site, given these properties are at least 130m from the site. Views from Tasman Street to the site would also be obstructed by existing dwellings. Thus, the Project will result in a negligible visual impact from the residential area to the north of the site.

It is noted that the visual environment adjacent to the site will change due to the proposed safety and noise walls. However, as this location is usually perceived only by drivers passing by, it is not considered a visual environment that is sensitive to visual impacts. A photomontage of the Project viewed along Captain Cook Drive is provided at **Figure 39**.



Figure 38 *Photomontage of the Project viewed along Captain Cook Drive*

Source: Virtual Ideas

Therefore, the Project will have a negligible impact to the existing views surrounding the site. Notwithstanding this, implementation of the following mitigation measures during detailed design development in **Table 44** will improve the visual outcome of the Project's interface to Captain Cook Drive that currently features minimal vegetation.

17.2.3 Mitigation Measures

Based on the assessment carried out it is not considered necessary to make further fundamental or otherwise large-scale amendments to the Project in its current form to satisfactorily manage visual impact. Application of the following mitigation measures included at **Table 43** will result in a residual environmental risk of 2 (low).

Table 44 Mitigation measures – visual impact

Mitigation Measure ID	Mitigation Measure	Timing
VIA-1	The Project will specify colours consistent with the surrounding landscape and vegetation for the proposed noise and safety walls (specifically the proposed safety wall along Captain Cook Drive).	Design
VIA-2	The Project will provide low level boundary planting along the southern section of the sites Captain Cook Drive interface, using plant species in keeping with the existing roadside vegetation	Design

17.3 Waste Management

17.3.1 Introduction and Methodology

This EIS includes a qualitative assessment of construction and operational waste impacts, including the following:

- Identifying, classifying and estimating the quantity of the likely waste stream to be generated during construction, operation, and decommissioning,
- Describing the general measures to be implemented to manage, reuse, recycle and safely dispose of this waste (in consultation with waste facilities, including Council) including consideration of NSW EPA *Waste Classification Guidelines*.

17.3.2 Existing Environment

The closest waste facility to the Project is the Breen Resource Recovery Facility approximately 3km west of the site along Captain Cook Drive. It accepts both construction and operational waste, including soils, selected Virgin Excavated Natural Materials (VENM) and Excavated Natural Materials (ENM), building and demolition waste, metal, concrete and brick.

17.3.3 Assessment of Impacts

Construction

Construction of the Project has the potential to produce waste, but is limited to, the following key waste streams which fall within the general solid waste – non-putrescible waste classification:

- Construction waste: including packaging materials associated with items, such as pallets, crates, cartons, plastics and wrapping materials and waste produced from construction works including metal offcuts, excess concrete, excess cabling, broken panels and other material. Reuse of materials would be prioritised where possible. Otherwise, waste will be transported to an offsite recycling or disposal facility.
- Demolition waste: Limited demolition is required, as the Project is proposed on currently vacant areas of the site. Reuse of materials would be prioritised where possible. Otherwise, waste would be transported to an offsite recycling or disposal facility.
- Construction and office personnel waste: Waste would be recycled or separated where possible. Other general waste would be distributed to landfill.

All three waste streams identified above would have a minimal estimated volume. A summary of the likely quantities of waste streams to be generated during construction are outlined in **Table 45**.

Table 45 Summary of key construction waste streams

Waste type/ stream	Waste classification	Proposed handling, treatment, and/or disposal method	Estimated volume
Green waste (vegetation)	General solid waste – non-putrescible	Green waste not expected, however, if encountered would be sent to landscape suppliers or off-site recycling.	Minimal – 0.01ha
Wastewater	Liquid waste	Collection, transport and pump-out for offsite disposal into existing sewer system.	Up to 500 litres per week at peak construction (10 litres per person per day)

Waste type/ stream	Waste classification	Proposed handling, treatment, and/or disposal method	Estimated volume
Construction waste	General solid waste – non-putrescible	Reuse of materials would be prioritised where possible. Otherwise, waste will be transported to an off-site recycling or disposal facility.	Minor
Demolition waste	General solid waste – non-putrescible	Reuse of materials would be prioritised where possible. Otherwise, waste will be transported to an off-site recycling or disposal facility.	Minor
Construction and office personnel waste	General solid waste – non-putrescible	Waste would be recycled or separated where possible. Other general waste would be distributed to landfill.	Minor

Potential adverse impacts related to construction waste include waste being unnecessarily directed to landfill due to inadequate handling classification, odour generation, and increased presence of pests due to incorrect storage, handling and transport of wastes. These impacts are typical of any construction project and can be readily managed through the mitigation measures outlined in **Section 17.3.4**.

Operation

Operational waste in the form of general waste and recycling is expected to be minimal as the Project has low staffing requirements. This waste can be managed using conventional waste collection, handling and disposal procedures in compliance with regulatory requirements. It is proposed that waste will be collected once a week by an independent waste contractor.

Decommissioning

All waste and operating chemicals generated during decommissioning of the Project would be disposed of at a licenced facility in accordance with the *Protection of the Environment Operations (Waste) Regulation 2014* (POEO Waste Regulation) and the NSW EPA *Waste Classification Guidelines*.

The decommissioned batteries will likely be sent back to their manufacturer to be recycled at their end of life. Batteries are collected, sorted and transported to a recycling facility where they are broken down into the constituent materials using water and heat based separation methods. During these processes critical metals including nickel, cobalt and lithium are recovered to be further refined for use in new batteries. The recycling and extraction of these refined materials which can be reintegrated into the battery material supply chain, reduces the demand mining these materials and the environmental impact of processing these materials.

17.3.4 Mitigation Measures

Standard waste management mitigation measures proposed are listed in **Table 46**. Application of the following mitigation measures will result in a residual environmental risk of 2 (low) for both the construction and operational phases.

Table 46 Summary of mitigation measures – waste management

Mitigation Measure ID	Mitigation Measure	Timing
WM-1	A detailed Waste Management Plan will be developed and implemented as part of the CEMP.	Prior to Construction Construction
WM-2	Onsite waste management will include the appropriate separation and storage of waste streams to enable recycling and reuse wherever possible to reduce associated environmental impacts and impact to the capacity of local waste management facilities.	Construction
WM-3	All waste will be assessed, classified, managed, and disposed of in accordance with the <i>Waste Classification Guidelines</i> (NSW EPA, 2014) and other relevant legislation.	Construction Operation
WM-4	All generated and regulated waste records will be retained for waste tracking purposes	Construction

17.4 Lighting Impact

17.4.1 Introduction and Methodology

A Lighting Report prepared by Lighting, Art + Science is provided at **Appendix S** which assesses the obtrusive lighting impacts of the Project in accordance with AS/NZS 4282:2023 – *Control of the Obtrusive Effects of Outdoor Lighting*. It is noted that the main purpose for completing this assessment was to inform indirect impacts to fauna in the surrounding wetlands.

17.4.2 Existing Environment

The Kurnell Zone Substation contains various lighting installations that are designed and installed in accordance with the applicable Ausgrid network standards and operational requirements at the time of installation. The existing lighting system predates AS/NZS 4282:2023. Earlier versions of the Standard primarily addressed potential impacts on residential receivers; however, as the nearest residential properties are some 130m away, such sensitive receptors are not applicable to the site.

17.4.3 Assessment of Impacts

To achieve compliance with the obtrusive lighting criteria set out in AS/NZS 4282:2023, and to limit spill light from the Project to adjoining areas, the Lighting Report recommends luminaires that have appropriate optical control aligned with the specific lighting requirements of the OEM for the Project, while also minimising obtrusive light, particularly in the context of the site's environmentally sensitive surroundings. In addition, luminaires are recommended to have a maximum correlated colour temperature of 3000 K to further minimise ecological impacts.

The Lighting Report concludes that the lighting design of the Project is capable of achieving compliance with the relevant obtrusive lighting criteria while meeting the operational lighting requirements of the Project. The detailed lighting design will be developed in accordance with the relevant provisions of AS/NZS standards, the OEM lighting requirements, and applicable Ausgrid lighting guidelines.

It is acknowledged that compliance with AS/NZS 4282:2023 does not preclude all light spill beyond the site boundary; rather, it establishes acceptable limits for such effects. The design objective is therefore to ensure that all spill light remains within the prescribed thresholds for the applicable environmental zone.

17.4.4 Cumulative Impacts

Accounting for the existing lighting of the Kurnell Zone Substation which will not change, the Lighting Report has found that the cumulative light spill levels beyond the site boundary will be limited to a marginal increase relative to the existing condition. The proposed lighting introduces significantly improved optical control, reduced upward light emissions, and lower ecological impact compared to the existing installation. The Project also proposes the construction of 8m high noise walls. In addition to their acoustic function, the height of these walls will assist in mitigating light spill toward the adjacent wetland area. In the context of the site's proximity to the Towra Point Nature Reserve, the overall outcome is considered acceptable, as the design minimises spill light and aligns with the intent of AS/NZS 4282:2023.

17.4.5 Mitigation Measures

Lighting-related mitigation measures proposed are listed in **Table 47**.

Table 47 Mitigation measures – waste management

Mitigation Measure ID	Mitigation Measure	Timing
LI-1	All luminaires will have a correlated colour temperature (CCT) $\leq$ 3000K	Design / Operation
LI-2	Luminaires will be installed with zero tilt and no upward light emission	Design / Operation
LI-3	Floodlights and wall-mounted luminaires will incorporate forward-throw optical control.	Design / Operation
LI-4	Where tilt is unavoidable, luminaires will be fitted with glare shields or equivalent accessories	Design / Operation

18.0 Cumulative Impacts

The nearby relevant future development proposals that have the potential to result in cumulative impacts are identified in **Table 48** below. Screening of identified projects was undertaken to assess their potential to impact the same receptors as the Project. If a project was not deemed to impact the same receptors as the Project, they were not included in the cumulative impact assessment. The screening process considered the following:

- Location: projects where there is the potential for spatial overlap (e.g. use the same roads for construction access). A radius of 10 km was implemented when a search of the DPHI Major Projects database was undertaken, and a 1 km radius was applied to a search of the City of Newcastle Development Tracker database for Development Applications
- Timeframe: with construction proposed to commence in 2027 and be completed by 2029 (approximately 22 months). projects that are being developed simultaneously or immediately after the Project have been considered

Table 48 *Surrounding Future Development*

Development	Description	Location	Status	Comment	Potential Cumulative Impacts
Kurnell Battery Energy Storage System (Ampol) SSD-86799993	Subdivision of land within the existing Kurnell Terminal for industry and energy uses and development of a 800MW / 3,800MWh Battery Energy Storage System	2 Solander Street, Kurnell	Preparing EIS. Assuming EIS preparation and assessment is not delayed, it is anticipated that construction may commence in November 2026 and conclude in April 2028.	The BESS proposed at Ampol is over 5 times the capacity of this Project. This EIS has assessed the potential cumulative impacts including cumulative traffic impact, cumulative impacts relating to hazards and risk.	• Construction traffic • Construction noise • Biodiversity • Hazards and risk
Kurnell Terminal SSD-5544	Ampol intends to consolidate operational infrastructure, remove redundant assets, and undertake remediation and grading at the Kurnell Terminal. This would facilitate continual safe, viable and reliable operation of the Kurnell Terminal	2 Solander Street, Kurnell	Development is approved. Modification 7 is currently under assessment. Construction is currently underway and anticipated to be complete by 2026 (not including remediation works).	Potential cumulative impacts are limited to construction traffic impacts.	• Construction traffic • Construction noise • Biodiversity
Tempe Tyres Warehouse	Development of a warehouse and distribution centre with ancillary office.	186 – 206 Captain Cook Drive, Kurnell	Development is approved and under construction.	Potential cumulative impacts are limited as construction of the warehouse is expected to overlap for a short period of time.	• Construction traffic • Construction noise

An assessment of the potential cumulative impacts identified associated with these proposals are considered below, demonstrating that overall cumulative impacts are low and acceptable.

18.1 Cumulative Construction Noise Impacts

The Kurnell Terminal SSD-554 project and Mod-7 and Kurnell Battery Energy Storage System (Ampol) SSD-86799993 projects are identified as potentially generating cumulative construction noise impacts as their construction timeframes may overlap with this Project. However, the NVIA has determined that significant cumulative noise impacts are unlikely as both those projects are located over 400-500m from the site and a fair distance from the nearest receivers.

18.2 Cumulative Biodiversity Impacts

Potential cumulative biodiversity impacts during construction will be temporary and managed through a CEMP. In addition, the disturbance associated with the Project is relatively small in scale and occurs within an already highly modified industrial environment that is subject to ongoing infrastructure development and operational disturbance. The Project therefore represents a minor incremental contribution to existing disturbance within the locality from a biodiversity perspective.

18.3 Cumulative Construction Traffic Impacts

The TIA has modelled the impact of the anticipated construction trip generation on the intersection performance of the site access and Captain Cook Drive. It has accounted for existing surveyed traffic volumes adjusted by a 1.5% compounded annual growth rate over two years to reflect the peak construction period, peak construction traffic volumes and cumulative traffic volumes that may overlap with peak construction of the Project, namely the Kurnell Terminal SSD-554 project and Mod-7 and Kurnell Battery Energy Storage System (Ampol) SSD-86799993 project.

The TIA has determined the following:

- The intersection of the site access and Captain Cook Drive will continue to operate at a Level of Service A (free flow conditions) accounting for the expected construction traffic
- The site access is expected to operate with minimal queue lengths on all legs
- The overall average delay is less than one second during the peak hours
- The site access is expected to operate with a good Level of Service during the peak construction period during each of the peak hours

It is also noted that traffic associated with construction and operation of the warehouse at 186-206 Captain Cook Drive turns at Sir Joseph Banks Drive and so would not impact traffic volumes along Captain Cook Drive at the Project's site access location.

Overall, access to the site is expected to operate efficiently with little queuing or delays expected during the peak construction period accounting for cumulative construction traffic volumes.

18.4 Cumulative Hazard and Risk Impacts

The PHA has determined that there is no cumulative hazard impact in relation to the proposed BESS at Ampol's Kurnell Terminal site, as it is planned to be developed 500 m east of the Project.

Further, the Project is well outside of the risk contours associated with bulk storage of fuel at the existing Kurnell Depot, which have been published in DPHI's Kurnell Peninsula Land Use Safety Study, meaning there is very low risk of propagation between the Project and Kurnell Terminal.

19.0 Project Justification

In general, investment in major projects can only be justified if the benefits of doing so exceed the costs. Such an assessment must consider all costs and benefits, and not simply those that can be easily quantified. This means that the decision on whether a project can proceed or not needs to be made in the full knowledge of its effects, both positive and negative, whether those impacts can be quantified or not.

The Project involves the construction of the BESS at the site, as outlined in **Section 3.0**. The assessment must, therefore, focus on the identification and appraisal of the effects of the proposed change over the site's existing condition.

In considering the justification of the Project and in reference to Section 4.15 of the EP&A Act which specifies matters for consideration a consent authority must consider in determining a development application, the following matters have considered:

- Design of the Project, including actions taken to avoid or minimise the impact of the Project while still achieving the objectives of the project;
- Consistency with the strategic context;
- Consistency with the statutory requirements;
- The likely impacts of the Project, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality;
- The suitability of the site for the development; and
- The public interest.

19.1 Design of the Project

The Project has been designed to incorporate a range of design features to minimise environmental impacts. These include but are not limited to:

- 8m high noise walls to minimise acoustic impact.
- 3m high safety wall to the Captain Cook Drive frontage.
- Inclusion of shut-off valves, a pump system, fire water tank and bunding to contain any potential contaminated firefighting water on the site.

19.2 Consistency with Strategic Context

The Project demonstrates consistency with the strategic context of the site in that it aligns with a range of federal, state and local strategic plans and policies, as summarised at **Section 2.3** of the EIS. This includes developing a BESS which will support the storage of electricity from the grid, and increase the reliability of the NSW electricity network. This will better support the transition away from non-renewable energy storage and increase the reliability of renewable energy sources in line with *Australia's Long Term Emissions Reduction Plan* and *NSW Electricity Strategy*.

19.3 Consistency with the Statutory Requirements

The relevant statutory requirements have been discussed in **Section 4.0** and assessed in **Appendix C**.

Specifically, this EIS has addressed all of the matters specified in the issued SEARs dated 26 September 2025 (refer to **Appendix A**) and Section 190 and 192 of the EP&A Regulation (refer to **Appendix C**).

19.3.1 Consistency with the Objects of the Act

The Project is consistent with the relevant Objects of the Act as listed under Section 1.3 of the EP&A Act and will not result in any unjust or significant environmental impact. Specifically, the Project is consistent with the Objects of the Act as it will:

- Promotes the conservation of the State's natural resources through developing infrastructure that will facilitate greater energy storage capacity to support the transition towards renewable energy.
- Promotes the economic and orderly use of land through establishing infrastructure for energy storage and increase the capacity of the existing electricity network.
- Promotes participation in environmental planning and assessment through the engagement process which has been undertaken as part of the EIS.
- Promotes resilience to climate change through the development of infrastructure which can provide greater capacity for the storage of renewable energy.
- Protect the environment through assessing and providing mitigation measures to reduce the impacts of the development to the surrounding natural environment
- Promotes Ecologically Sustainable Development through the development of infrastructure which can support increased electricity storage, providing greater capacity for the storage of renewable energy and other energy sources.

19.3.2 Principles of Ecologically Sustainable Development

Section 193 of the EP&A Regulation outlines four (4) principles of ecologically sustainable development to be considered in assessing a project. They are:

- The precautionary principle;
- Intergenerational equity;
- Conservation of biological diversity and ecological integrity; and
- Improved valuation, pricing and incentive mechanisms.

An analysis of these principles is provided in the following sections.

19.3.2.1 Precautionary Principle

The precautionary principle is utilised when uncertainty exists about potential environmental impacts. It provides that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The precautionary principle requires careful evaluation of potential impacts in order to avoid, wherever practicable, serious or irreversible damage to the environment.

This EIS and its supporting reports and studies have considered the worst-case scenarios, and has not identified any serious threat of irreversible damage to the environment and therefore, the precautionary principle has been appropriately applied.

19.3.2.2 Intergenerational Equity

Intergenerational equity is concerned with ensuring that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. The Project has been designed to benefit both the existing and future generations by constructing infrastructure which will support a more reliable energy network, and the transition away from non-renewable energy sources.

The Project would support greater investment, delivery and integration of renewable energy into the electricity grid and enable reduction in the reliance on fossil fuel sourced energy. This will ultimately help decarbonise the electricity grid and reduce greenhouse gas emissions.

The Project has integrated short and long-term social, financial and environmental considerations so that any foreseeable impacts are not left to be addressed by future generations. Any long-term impacts are avoided and/or minimised through construction planning and the application of safeguards and management measures described in this EIS and the appended technical reports.

19.3.2.3 Conservation of biological diversity and ecological integrity

The principle of biological diversity upholds that the conservation of biological diversity and ecological integrity should be a fundamental consideration. A BDAR has been prepared which concludes that the Project is not expected to result in significant direct or indirect impacts to biodiversity values. Notwithstanding, the BDAR has determined that one ecosystem credit is required. Refer to **Section 7.0** for further detail.

Given this and noting the siting and design of the Project, its impact upon biological diversity and ecological integrity is acceptable.

19.3.2.4 Improved valuation, pricing and incentive mechanisms

The principles of improved valuation and pricing of environmental resources requires consideration of all environmental resources which may be affected by a Project, including air, water, land and living things. Mitigation measures for avoiding, reusing, recycling and managing waste during construction and operation would be implemented to ensure resources are used responsibly in the first instance. The Project will also improve reliability in the NEM which is expected to place downward pressure on electricity prices.

19.4 Community Views

Consultation and community engagement was undertaken for the Project and is detailed in **Section 5.0** of this EIS. Where key stakeholders and the community have raised concerns over key matters such as noise, traffic, hazards and risk and general environmental impacts, the Project has been amended or included additional mitigation measures to address these concerns.

Stakeholder and community engagement will continue during the formal EIS exhibition stage. A response to submissions received during exhibition will be prepared and submitted summarising the Project's response to concerns raised by the community and amendments to the design and mitigation measures. This will be submitted prior to DPHI's assessment of the Project.

19.5 Likely Impacts of Development

Having regard to the natural environment, built environment and economic and social impacts of the Project, the likely impacts of Project are considered acceptable as outlined in the following sections.

Additionally, the proposed mitigation measures detailed within **Section 6.0** and **Appendix E** outlined mitigation and management measures that will minimise the impact of the Project.

19.5.1 Natural Environment

Sections 6.0 to **17.0** of this EIS provides a thorough assessment of the key environmental impacts of the Project. This assessment demonstrates that the Project will not result in any significant environmental impacts which cannot be appropriately addressed through standard conditions of consent or the mitigation measures identified at **Appendix E**.

The environmental impact assessment of the Project has demonstrated that:

- All environmental impacts associated with the construction and operation of the Project can be appropriately managed and mitigated including any potential traffic, noise, hazards and risks, bushfire and visual impacts.
- The site is appropriate for the Project given its current zoning and land use activities that immediately surround the site.

19.5.2 Social and Economic

The Project will provide social benefit to the community through the create of jobs and supporting a more secure energy network. The proposed mitigation measures contained in the Social and Economic Assessment at **Appendix R** and summarised at **Section 16.0** of the EIS are considered to adequately mitigate the potential for any adverse social or amenity impacts to the community.

The Project will not result in any significant economic impacts and will instead provide several positive economic benefits. This includes the provision of additional employment during the construction and operation of the Project. Additionally,

the Project will help support both local and regional economies, with a total capital investment value of up to \$165 million, of which 5% will flow into the local economy.

19.6 Suitability of the Site

In accordance with Section 4.15(1)(c) of the EP&A Act, the site is considered to be suitable for the Project for the following reasons:

- The site historically and continues to be used as an Ausgrid electrical substation and therefore has the capacity to support the BESS, with minimal upgrades required. As a result, the site is located in proximity to the electricity transmission network which ensures efficient energy distribution and minimises transmission losses.
- The existing road network surrounding the site is suitable to support the Project without needing significant upgrades to infrastructure.
- The site itself has limited environmental constraints. Environmental constraints surrounding the site have been identified and assessed, and can be suitably managed through the implementation of mitigation measures.

19.7 Public Interest

In accordance with Section 4.15(1)(e) of the EP&A Act, the Project is considered to be in the public interest for the following reasons:

- The Project provides supports the long term reliability of NSW's energy network as NSW, as well as supporting the transition away from non-renewable energy sources to more sustainable sources of energy.
- The Project will involve a capital investment of approximately \$165 million, 5% of which will flow into the local economy. Additionally, the Project will support 130 FTE equivalent jobs during construction and 2 FTE direct operational jobs and 5 FTE indirect jobs during operation.

20.0 Conclusion

The Environmental Impact Statement (EIS) has been prepared to consider the natural environment, built environment and social and economic impacts of the Project. The EIS has addressed the issues outlined in the SEARs (**Appendix A**) and accords with section 190 and 192 of the EP&A Regulation.

Having regard to environmental and economic and social considerations, including the principles of ecologically sustainable development, the carrying out of the Project is justified for the following reasons:

- The Project is permissible with consent and meets the relevant statutory requirements of the relevant environmental planning instruments, including the Sutherland LEP 2015;
- The Project will not result in adverse environmental impacts, with appropriate mitigation measures that will minimise any potential impact;
- The Project will support a more reliable electricity network and the future transition from non-renewable to renewable energy sources through the development of a BESS which will store electricity off-grid;
- The Project utilises a currently underutilised site;
- The Project is suitable for the site and in the public interest.

Given the merits described above, and the significant benefits associated with the Project, the application is considered suitable for approval to ensure the delivery of the Project.



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